PART I

PROXIMITY: MAJOR THEORETICAL DEBATES AND THE CONSTRUCTION OF AN ANALYTICAL POSITION IN REGIONAL SCIENCE

1. The French School of Proximity: genesis and evolution of a school of thought
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1. INTRODUCTION

In 1992 a group of researchers published a small literature review in the *Revue d'Économie Industrielle*, entitled "Et pourtant ça marche!" ("and yet it works!") (Bellet et al., 1992). In this article, the authors noted that geographical proximity relationships seemed to play an important role in the success of innovation processes or entrepreneurial strategies and advocated launching a program aimed at opening the black box of proximity relationships, whether geographical or otherwise. The phenomenon they referred to was neither new nor original but had long stirred interest among regionalists, who, since the 1920s had discussed concepts such as agglomeration economies or the role of transportation costs in the production or commercialization of commodities. In fact, the novelty of this article resided less in its content than in the medium in which it was published. By presenting their findings in a journal dedicated to industrial economics, these researchers addressed a community that had until then shown little interest in the role of space but was nevertheless beginning to examine this dimension, if only because of the rise, at the time, in the number of "technopoles" or scientific parks whose marketing departments emphasized the supposed benefits of geographical proximity for processes of innovation creation and dissemination.

Except for regional studies, little attention has been accorded in the economic literature to questions of space. Admittedly, Hotelling (1929) introduced a spatial dimension into competition theories, by highlighting factors of market imperfection; imperfection which can benefit producers operating in close proximity to consumers. And although economic geography has contributed to producing new development approaches since the publication of Krugman's seminal article (1991) – which provides a purely commercial explanation for processes of spatial agglomeration and uneven development – it derives from international economics, in that it applies international trade models to regional economics. There is no denying that the works of Alfred Marshall, founding father of the industrial economy, already raised empirical questions about the agglomeration of some dynamic London firms into districts. And some aspects of this work that had been unexplored for too long were eventually rediscovered in the early 1980s by a group of Italian economists, who took on the term district, or more specifically "industrial district," in light of the high performance levels achieved by (very) small firms that collaborated, in Central Italy, within small geographical zones.

But what Bellet et al.'s article actually revealed was the emergence of a process of reflection about the role of space among some industrial economists, who until then had shown very little interest in these dimensions. And it distinguished itself even more

by its programmatic nature, based on the coming together of two previously distant communities – regionalists and industrialists – sharing common questions and concerns. Indeed, this small nucleus was composed in equal parts of industrial economists and spatial or regional economists.

This emerging group soon expanded to include other researchers, from sociology or geography. Their work led to a collective publication in the form of a special issue of the *Revue d'Économie Régionale et Urbaine* (RERU) which, this time around, placed emphasis on the other (regional) aspect. This publication, which was empirical but resolutely programmatic, marked the birth of what was to become a new school of thought, named a few years later "the French School of Proximity." The group has, since then, gained currency, debated with and opened its doors to scholars from other social sciences and other countries, and has produced works ranging from theoretical and analytical contributions to empirical studies and support to public decision makers. Soon, more and more publications were produced, all addressing questions of "proximity dynamics." Doctoral theses were published on the subject, leading to the publication of a plethora of works, and above all to the generational renewal of this first group of pioneers, whose works have now reached a large audience.

Yet, this group, which is now well identified, has not in any way sought to institutionalize itself and has remained an informal structure, with informal but effective rules (conduct and operation of meetings regularly hosted in various academic venues, utilization of contract funds, etc.). This has created close (non-geographical) proximity between its members, including through regular seminars, congresses, "proximity workshops" and regular collective publications. The group has no formal representation but exists only through cooperation between its members, who in so doing have formed an epistemic community (see Chapter 3 by Filippi et al. in this volume). It has gained in strength, credibility, and visibility and its theories have been broadly accepted in the academic arena, never attacked head-on by the most orthodox economists, or by the advocates of pure holism.

In this chapter, we begin by briefly talking about the genesis of the group before presenting the founding hypothesis, according to which the concept of proximity, provided it is extended beyond its geographical aspects (without neglecting them), can be a highly valuable tool for understanding coordination phenomena. We then discuss some of the key ideas that form the intellectual basis for this school of thought, before examining its theoretical core and discussing how it has contributed to renewing approaches to questions related to space and territory.

2.   THE GENESIS: THINKING ABOUT LOCAL DEVELOPMENT

From the 1980s onwards, in Europe as well as in most old industrialized countries, local development became a shared concern at all levels, from the state to local authorities and consular organizations. Yet, this was not always the case.

In the aftermath of the Second World War, most European economies were in shambles. In some countries, reconstruction was structured around two main pillars: industrialization and intensive agriculture. Like the American Big Brother, these European countries centered their economic development strategy on the promotion of large

firms, which were expected to have spillover effects on the regions, not only through supply and subcontracting relationships but also through the resulting increase in employees' incomes and buying power. The concept of economic growth area, formalized by François Perroux (1950) following the publication of Hirschman's and Myrdal's works, steered the industrial policy of countries like France towards the creation of local systems organized around large firms as their driving forces. At the national level, the application of the growth pole theory required the promotion and development of a sufficient number of "national champions" capable of covering most sectors of the industrial spectrum. However, this development model produced strong spatial asymmetries and a concentration of economic activities around a limited number of large urban centers, which then became the driving forces behind the resumed economic growth.

2.1   A Growing Interest in Proximity-Related Questions

In the 1970s and 1980s, as the Fordist growth model was approaching its limits and an irreversible process of economic globalization began to take hold, local and regional authorities began to worry about the lack of opportunities, particularly in terms of employment, offered by large companies that were increasingly oriented towards international markets and competition and concerned themselves less and less with the economic health of regions in which entrepreneurs choose, only occasionally, to locate their operations. In the meantime, the decentralization laws gave local authorities and the European Commission authority in matters of development and started to implement actions that required developing reflection tools capable of guiding them.

At the same time, scholars worked to develop the concepts necessary to build new local development strategies. Industrial and spatial-regional economists focused their attention on what were first identified as "proximity phenomena." The former found that the location – and co-location – of enterprises had a bearing on their performance while the latter identified that production dimensions played a role in the location of operations. But an essential step forward was made with the works of Italian economists (Brusco, 1982; Becattini, 1991) who studied the unexpected economic success and the ability to withstand the economic crisis of some regions of Italy, which would later be called the "Third Italy"; the latter owed its success and resilience to the spatial concentration of small firms, which were not all characterized by high technology. By re-actualizing Alfred Marshall's works on industrial districts, they demonstrated the need for regional science to broaden its scope of knowledge and appropriate some concepts and rationales from the industrial economy. In the same period and along the same line, many references to Marshall were made by French sociologists interested in "local industrial systems" (Ganne, 1983; Raveyre and Saglio, 1984) or by scholars in California studying the Silicon Valley phenomenon (Saxenian, 1994).

More concepts were developed, and research groups and schools were formed, often on the basis of empirical case studies that came to serve as blueprints. The European GREMI network developed the concept of an "innovative milieu," giving it a broader sense than that of district. Focusing on processes, practices of and policies (local in particular) for the diffusion of technological innovation (Aydalot, 1986), GREMI has sought to extend the analysis beyond institutions or firms, to include research, training

and institutional actors involved in the development of local production and innovation systems, in which proximity dimensions are considered important.

For their part, industrial economists came to understand that they could no longer entirely rely on "non-local" or "footloose" reasoning. In the Marshallian tradition, they utilized the concept of externalities, in its spatial sense (Lucas, 1988). An idea of the same order is at the heart of the models of the "new economic geography" (Krugman, 1991), according to which growth differentials are the result of the confrontation between centripetal forces resulting from local agglomeration effects, and centrifugal forces stemming from congestion effects, transport costs and heterogeneous location preferences. Here, attention is focused more specifically on market exchanges and on the spatial polarization they create within proximity areas.

However, although the studies undertaken by industrial economists are often based on observations of successful experiences, they fail to explain what causes something to work somewhere and to fail elsewhere, why solutions do not always seem to be transferable, why geographically co-located actors may or may not choose to cooperate. The question of the generalization and transferability of solutions is difficult to solve because the resulting externalities, and therefore agglomeration effects, are not documented, measured and analyzed rigorously; thus, ultimately, it is also difficult to open the black box of local externalities and therefore of proximity effects, i.e. the question of their origin and formation (Bouba-Olga and Zimmermann, 2004).

2.2   The Formation of the "Dynamics of Proximity" Group

In this context, a group of French researchers from the fields of regional and industrial economics, first, and then from sociology and geography, was created with the aim to better understand why, in some cases but not in general, geographical proximity can be a factor driving local dynamics. Observing a renewed interest in proximity-related questions – which the founders of the regional-spatial analysis had already referred to but not always in these terms – they intended to position themselves in the lineage of Perroux who introduced the distinction between geonomic space and economic space, as a starting point to explore the relationship between the location of firms and their production activity (Bellet et al., 1992).

The true birth certificate of what would later be called the "French School of Proximity" was the publication of a special issue of the *Revue d'Économie Régionale et Urbaine*, entitled "Économie de proximités" (Bellet et al., 1993), the addition of the letter "s" at the end of the term proximité, indicating the authors' intention to give the word a plural meaning beyond the purely geographic. Beyond the de facto convergence between industrial and space economics, this first publication sought to draw attention to the theoretical advances necessary for "thinking the territorial and the local without postulating it" and adopts from the onset a cross-disciplinary approach to think outside the merely economic considerations.

The difficulty to identify a direct relationship between geographical proximity and firms' performance, but also the reasons behind firms' location decisions, on the one hand, and, on the other to understand the existence of efficient productive arrangements between geographically dispersed organizations (particularly through the use of new ICTs – Rallet, 1992), requires an extension of the notions of proximity to include

dimensions that are not strictly spatial. The novelty, at this early stage of the reflection, lies in considering proximity as what brings actors closer, further apart or separates them and as what conditions their ability to interact and coordinate with one another. This implies, from the start, that the concept of proximity should not be viewed in its strictly geographical sense. This is at the heart of the approach, which consists in going beyond spatial or geographical proximity alone.

Thus, a first distinction has been carefully made between geographical proximity and organizational proximity, which reflects the level of economic proximity between agents, individuals, different organizations and/or institutions, and economic proximity which refers to technological, industrial as well as financial dimensions. The intersection of the two concepts produced that of "territorial proximity," which was neglected for a long time.

At that stage, the authors of and contributors to that publication had no desire to create a new school of thought, nor did they seek to "establish the concept of proximity economics." Going beyond this founding intuition, they aimed primarily to draw from past works to pave the way for future research. Hence, the notion of proximity utilized in the various contributions is essentially understood as geographical, and is intended to help answer the following question: What makes geographical proximity a factor of production or innovative efficiency? In short, the aim is to analyze relations of geographical proximity and their success, at least such as those that characterize industrial districts for example.

At this stage, the authors were still using a production-based approach (industrial organization). But it was based on a logic of resource creation, which would progressively lead the research work on this question to take into account the institutional dimension – with the notion of "institutional density" advanced by Amin and Thrift – and the interactionist dimension – with the emphasis placed by Torre on inter-industrial relations and by Gilly and Grossetti on inter-individual relations. Here, the question of trust was raised and approached from a perspective similar to that of sociologist Granovetter who argued that economic activities were embedded in social structures. This led to a relatively innovative reflection on the notion of territory, but which would later face other, economic and non-economic approaches to proximity, as well as, more broadly, the necessity to take into consideration space and the notion of territory.

3.   THE FOUNDING HYPOTHESIS: PROXIMITY AS A POLYSEMIC CONCEPT

To what extent does the path opened by these scholars renew the analytical approaches to space in industrial and spatial economics? Is the approach to proximity as a multidimensional concept, which aims to look beyond the strictly spatial sense of the term, truly innovative? Would the reflection not benefit from the approaches to proximity developed by other disciplines? These were questions that needed to be raised before proceeding to the second stage, which marked the consolidation of the proximist approach.

3.1   A Program and Some Key Principles

In keeping with the productive and innovative tropism, Rallet and Torre (1995) undertook to take stock of the research conducted at the intersection of industrial and spatial economics and focused attention on the emergence of this new field of analysis. The interest expressed by many economists, both in a standard and heterodox perspective, brought to light a series of closely interdependent themes, around which the new issues of territorial development and dynamics are crystallized. Two of those themes are closely related to proximity approaches.

The first is that of location, which extends beyond the question of individual firms' location-related decision making to include that the decision-making processes of interdependent companies. Of course, the resulting effects of externalities and agglomeration economies are central to this theme. The organizational characteristics of spatial relationships are therefore essential, as are their institutional dimensions. Decisions to locate or relocate can then generate cascade or even lock-in effects (Arthur, 1990). The resulting dynamic aspects strongly influence the medium-term evolution of territories and consequently the degree of territorial embeddedness of firms (Zimmermann, 1998a).

The second important theme is that of dynamics of innovation, which crystallizes around the question related to the forms of industrial organization and in turn conditions territorial dynamics and resilience (Colletis et al., 1999). In this perspective, nonmarket interdependencies and institutional dimensions also have an important part to play in the analysis of the spatial dimensions of innovations, inasmuch as what is at stake here is the local or long-distance transfer of knowledge and innovations, and the reasons for their spatial concentration in a few emblematic places.

Although the notion of proximity, in its multidimensional understanding, was then very little used in those studies, it was present programmatically speaking. "A dynamic approach that does not merely take into account the weight of the past, but also the role of expectations implies understanding the formation of collective representations and examining how they fit into territorially-based rules and models of behavior" (Rallet and Torre, 1995, p. 31).

Before taking the big leap, it was also important to understand how the concept of proximity was used in the different disciplines, in the social sciences, but also in its mathematical representations. The contributions compiled by Bellet et al. (1998) reveal that the concept of proximity, while used in several disciplines such as sociology and law or geography, lacks shared theoretical foundations and its own history. However, it is considered as a relative and evolving concept, which refers to the position of an entity (individual, company, etc.), in relation to another entity or a place. In addition, "some contributors distinguish three forms of proximity: material proximity (relative to 'physical' distance), social proximity (referring to socially embedded relations between actors), relational proximity (degree of effective interaction) […] [allowing for] the identification and analysis of various ways of structuring individual and social relations, which overlap or contradict one another" (Bellet et al., 1998, p. 16).

3.2   The Emergence and Defense of Strong Ideas

At this stage of reflection, a number of strong ideas, shared by the whole group, emerged, thus reinforcing the validity of approaching proximity as a polysemic concept.

● Proximity is not a given but is constructed. It is the outcome of the history of social processes and of individuals' positioning with respect to these processes. What is true of all its non-spatial dimensions is also true of geographical proximity, insofar as the latter is not strictly the spatial distance (as the crow flies) between one entity and another, but results from land planning decisions and activities as well as from the ways in which individuals use the resulting facilities (including in its negative congestion aspects).
● The importance of the dynamics of the processes. If proximities are constructed, it is necessary to be able to trace back the historical processes that have led to a given local situation, by integrating the "path dependency" effects in the analysis. The analysis of economic situations cannot therefore be reduced to static models, even though synchronic analyses are necessary.
● The importance of social interactions and networks: the economic activities of a territory are partly dependent on social structures that can be examined through the lens of the various meanings of social proximity. The latter can refer to situations of similarity of social positions (the Russian-American sociologist Sorokin remarked in the 1920s that there was less distance in social space between two kings than between a king and his servant) or of geodesic distance in networks of interpersonal relations.
● The question of coordination is central. Coordination between actors is made possible, but also constrained, by how individuals activate the various forms of proximity that govern their relative positioning. It is therefore not only a question of economic and social coordination processes, but also of coordination in the geographical space.
● The concept of trust is particularly important because it results from the activation of proximities between individuals and reduces uncertainty when situations of moral hazard arise during the coordination process. Trust relations offer more flexibility than the use of formal contracts and allow for greater responsiveness and for fewer transaction costs. But the coordination of actors is never a matter of trust alone and can be based on relationships of other kinds, including mistrust, as shown by the use of the repeated game theory.
● Finally, the institutional dimension is essential in that it reflects a proximity based on adherence to (or at least acceptance of) a system of rules, which acts as a common referent on the basis of which coordination games can unfold. It is also central in the notion that cultural dimensions play an important role, for example, in cementing relationships between actors who are part of the same community.

Ultimately, all these reflections contribute to validating the founding hypothesis consisting of broadening the conceptions of proximity to dimensions that are not strictly spatial.

4.　COORDINATION AT THE HEART OF THE PROXIMITY APPROACH

It was from this process of reflection that what can now be described as the "proximity dynamics" approach was developed. First of all, it was necessary to describe more precisely what this polysemic concept covered, the key idea being that in addition to spatial, material or geographical forms of proximity, there exist non-spatial, immaterial or intangible proximities that pertain to individuals' mutual knowledge, their ability to interact or act together, the knowledge or culture they share, their adherence to common rules and norms, and their social profile.

4.1　Opening the Black Box of Externalities

Understanding local externalities and dynamics implies understanding why geographically close actors and individuals may or may not be able to act together and to coordinate their actions. Geographical proximity and non-geographical proximity(s) may or may not overlap, but the former does not necessarily guarantee the latter. Indeed, geographical proximity can only facilitate coordination between co-located actors if they share something other their location. Coordination requires that the actors know each other and interact. But at same time, this approach to proximity helps to understand why certain actors, permanently or temporarily, can do away with local relations by using other forms of proximity as a basis for their interactions with other actors. This approach also helps to understand and theorize the interplay between local relations and long-distance exchanges, by providing explanatory factors for each situation.

At the center of this approach is therefore the question of coordination; and since the positioning of individuals can evolve and take various forms, another important question is that of dynamics, which underlies actors' strategies and public policies. In 2000, Gilly and Torre considered that "the concept of proximity refers to the premise of an economic or geographical separation between actors (individual or collective) and therefore that there is more or less distance between them. It is grounded in a conception of economic and socio-cultural reality (in the sense meant by Bourdieu) that is essentially relational, inasmuch as social relations bring together (or drive further apart) actors with different types of, in the resolution of an economic problem, depending on the nature of the social relation they have with one another" (Gilly and Torre, 2000, pp. 11–12).

Moreover, non-spatial proximity is considered, in Torre and Gilly's work, to be based on two alternative types of logic: the logic of similarity and the logic of belonging. The logic of similarity refers to the idea that actors are drawn closer together when they share a likeness to one another, i.e. when they share the same knowledge, the same representations, the same standards of behavior, and so on. Thus, the institutional and cultural dimension appears to play an important role at this level. The logic of belonging, on the other hand, occurs at the organizational level, for actors who share common objectives, and relational spaces (firms, networks, etc.) within which they perform their activity, that is to say, within which their interactions are defined.

4.2   The Interactions

Thus, the question of coordination is related to that of interactions. In standard economic theory, interactions are mediated by global price signals, on the basis of which actors are likely to form rational expectations, and to ground their behavior, and decisions. In this approach, the role of space and geography is very limited, except in relation to transport costs, which affect the relative prices system. In an interactionist perspective, on the contrary, actors also rely, to make decisions, on more "local" signals that result from the nexuses of relationships through which they are in direct contact with the other actors with whom they have to coordinate (or at least some of them).

These interactions, whether they are based on geographical proximity or not, can take different forms – market or non-market, formal or informal, egalitarian or hierarchical. But they can also be intentional or non-intentional, which reveals the dual nature of a form of proximity that may be sought for but also unwanted. The concept of non-intentional interactions stems from an old tradition common to both industrial and spatial economics, and refers to the positive or negative externality effects, or even to spillovers, essential ingredients of localized innovation dynamics in particular. Intentional interactions, on the other hand, consist in market exchanges, contractual relations, relations of trust and cooperation, and partnerships, and also require non-spatial proximity between the actors.

4.3   Connections to the Territory

Another important aspect of coordination is what could be called the relationship with the territory or, in a more restrictive way, the firm–territory nexus. The relationship of a firm with a given territory involves two forms of organization or coordination: the participation of the firm in global networks, particularly in the case of a multi-establishment firm, and the coordination relations at the local level between heterogeneous actors, companies and institutions, enabled by their geographical proximity, i.e. in the implementation and exploitation of the potential benefits resulting from the latter (Colletis and Pecqueur, 1993). The interplay between geographical and non-geographical proximities, which governs the relationship between the firm and the territory (or even the territories) in which it operates is a complex issue, which the standard approach to location decision making alone cannot solve, in particular because this interplay is based on multiple interdependencies linked to the different forms of proximity.

This complexity generally implies coordinating collective action either through predefined institutional, formal or informal mechanisms or through the implementation of appropriate governance arrangements. Of course, the latter can be of a public, private or mixed nature, depending on the situation the cooperation is based on – and therefore the types of proximity involved – as a result of the history of the territories and the political will and capacity of public policies to act on the territory (Zimmermann, 1998b).

As a result, the territories are not closed entities. Indeed, economic actors are stakeholders in value chains that extend beyond the boundaries of their location and, furthermore, territories cannot claim to develop on an autarkic basis, and, beyond territorial competition, need external linkages to be able to gain access to inputs and markets, but also to remain connected to external, technological, organizational and even social

dynamics. These external connections/coordinations are based on non-geographical proximities, generally managed by a limited number of public or private actors, who act as gatekeepers, ensuring articulation between local groups forming a coherent and organized whole able to activate geographical proximities with global entities or networks (Rychen and Zimmermann, 2008).

Innovation initiatives, whether technical, organizational or social, contribute to the dynamism of these territorial systems and their resilience, through their ability to reveal and solve often unprecedented production problems (Colletis et al., 1999). They lead industrial actors to engage in a process of territorial embeddedness and help the territory keep up with the global world. In line with evolutionary approaches, the authors of the proximity school of thought consider that innovation is the driving force of contemporary societies. They have therefore sought to analyze the relationships between innovative firms, or between firms and laboratories, located within but also outside local systems, by investigating the spatial and relational characteristics of information and knowledge technologies, of knowledge production and dissemination.

This analytical positioning implies that the territory is not considered only as a construct liable to collapse, to fragmentation or disintegration, but also as one that can re-emerge, be reconfigured and changed according to the types of proximity the actors are able to activate. This of course raises questions about public action, which is too often restricted by contingencies related to jurisdictions, areas over which public authorities exercise their prerogatives. Relations of proximity may not be confined to these administrative boundaries but reach beyond them to form an economic system, which presupposes flexibility on the part of public policies, flexibility which is unfortunately all too often limited by electoral or territorial competition considerations.

4.4   Exploiting Proximity in the Territories

Thus, authors gradually moved beyond the link between proximities and territorial systems, to develop a more general theory of the relationship to space, first of companies or entities in the production and innovation sector, and then of individuals. They no longer approached the territory via firms alone but also via other stakeholders, whether public authorities, interest groups, NGOs, or local associations, etc. and they examined the question of governance by taking into account, not only the economic dimensions, but also the coordination of the different categories of local actors (Torre and Wallet, 2014).

The dependence of economic activities on social structures (in the broad sense including institutions), which the metaphor of embeddedness generally refers to, is not set in stone. It evolves over time and is counterbalanced by decoupling processes, that is to say, processes of autonomization and regulation of economic activities based on a strictly commercial logic. The ties between economic firms and territories can be examined through the lens of this tension; thus economic firms can become dependent on the territory in which they are located, or in other words, become "locally embedded"; or they may split from or exit the territory, which is what the term "decoupling" refers to.

As research progressed, it became apparent that it was necessary to distinguish between the historical processes of formation of local economic systems, which develop over a long period of time (several decades, even several centuries), and the socio-economic

factors explaining the organization of economic activities, at a given time. The former can involve political decisions, industrial initiatives, changes in global social and economic contexts, which are only represented in the activities characterizing a period by economic establishments and various organizations (laboratories, local administrations, associations, groups of various kinds, etc.). Historical processes cause certain types of proximity to develop (with feedback effects such as when an organization decides to locate its operations in a given place because of what already exists there), but other types of proximity tend to result from generic factors. For example, the partially local nature of interpersonal relationship networks is a constant in network analyses; one which influences relations between organizations through embeddedness effects.

5.　CONCEPTUALIZATION AND STRUCTURING OF THE CORE CONCEPTS

The polysemy of proximity, and more specifically the duality between geographical and non-geographical proximities, led to the idea that the different forms of proximity between two individuals do not necessarily overlap and that two entities may be close from a geographic point of view, but distant from a non-geographic perspective and vice versa. It is sometimes more difficult to coordinate with a neighbor than with a geographically distant partner, with whom other forms of proximity will act as a basis for the implementation of effective coordination arrangements. Moreover, geographical proximity can also have negative consequences for certain actors – the problems related to imitation and counterfeiting for innovation firms for example. More broadly, it can also lead to land-use conflicts or problems related to an unwanted neighborhood.

An individual's capacity for action is partly local, when the conditions for activating his/her geographical proximity with potential co-located partners are met. But it can also be deployed partly at a distance, when conditions of non-geographic proximity with potential geographically distant partners are satisfied and allow for effective coordination. Territorial systems are not closed systems, and therefore, necessarily include actors with the capacity to undertake both types of action, which not only meet their individual needs, but also, intentionally or not, contribute to the interface between the local system and its external environment.

To translate this idea, Rallet (2002) proposed the concept of *situated actor*, which refers both to actors' positioning within a geographical and economic space and, more generally to their positioning, strategic or not, within a cluster of interrelationships that condition their productive and commercial as well as innovation activities. "The notion of situated actor does not only mean that every actor is situated somewhere (s/he is here and not elsewhere), but also that his/her action stretches beyond his/her geographical location and causes him/her to be both here and elsewhere. Thus, any interaction between economic agents is situated: it can take place in proximity (geographical) and/or elsewhere" (Rallet, 2002, p. 18). The disjunction of actors from territorial systems becomes apparent when the ubiquity capacity of some actors is taken into consideration; capacity that enables them to be present in several places at once, particularly through using information and communication technologies.

5.1   The Grammar of Proximity

Researchers in the French School of Proximity have developed theoretical and empirical tools, to clarify what forms this duality between geographical and non-geographical proximities can take according to the situations considered. Different conceptualizations have been proposed, which, beyond their apparent differences, reflect complementary perspectives that enhance the analysis. These conceptualizations are the constituents of this "grammar" of proximity, which has been constructed over time and provides the theoretical foundations for the abundant applied research they have given rise to.

The initial core distinction between what was called geographical proximity and organizational proximity (Gilly and Torre, 2000), does not negate the importance of the institutional dimension in the latter, which is why a first typology in three categories of proximity was developed early on: geographical proximity, organizational proximity and institutional proximity (Talbot and Kirat, 2005). The distinction between "organizational" and "institutional," which is in keeping with the institutionalist analysis developed in the tradition of John R. Commons's work, refers directly to that formalized by North (1990) between organization and institution. For this author, the term "institution" refers to a set of codes, formal rules and informal constraints. The actors' individual adherence to these codes and rules generates a "common space of representations, rules of action and models of thought and action." In contrast, "organizations constitute a space of definition of actors' practices and strategies within a set of rules driven by institutions" (Kirat and Lung, 1995, p. 212).

To analyze the links between proximities and location and more precisely between actors' needs for proximities and their need for a geographic colocation of activities, Rallet and Torre propose an analytical framework based on the distinction between geographical proximity and organized proximity. Geographical proximity refers to the kilometric distance between two entities, weighted by the cost in time and money of covering that distance. Organized proximity is, in essence, relational. "By organized proximity, the ability of an organization to make its members interact is meant. The organization facilitates interactions within itself and makes them, a priori, easier than with entities situated outside the organization" (Rallet and Torre, 1995, p. 49). In this context, they use the distinction proposed by Gilly and Torre (2000) between a logic of belonging and a logic of similarity or adherence. These two logics appear to be partly complementary and partly substitutable. The logic of belonging facilitates cooperation between members of the same organization, because of their interactions and the rules and routines they share within the organization, while the logic of belonging facilitates interactions between two individuals who are "alike" or share the same system of representations.

Pecqueur and Zimmermann (2004) laid the foundations for a synthesis of these two *grammars*. Positioning themselves from the perspective of embedded methodological individualism, they suggest that it is the ability to form expectations about the behavior of other actors that will allow a given individual to coordinate with them. A fundamental distinction is relative to the extent to which the coordination mechanisms on which actors rely are based on direct interaction or not. This implies distinguishing between institutional-type mechanisms, without direct interaction, and organizational-type mechanisms, with direct interactions. Thus, the concept of situated actor covers a geographical proximity – which refers to the respective positioning of geographically located

actors – on the one hand, and an organized proximity, which reflects their positioning in terms of coordination potential. The analysis of the modalities of coordination, at the heart of this organized proximity, leads to the distinction between two irreducible canonical forms of proximity, referred to as organizational proximity and institutional proximity, depending on whether coordination involves interaction (OP + possible IP) or no interaction (PI).

Finally, Bouba-Olga and Grossetti (2008) propose a broader view by adopting a twofold approach that is more in keeping with economic sociology. The first dimension of this approach, which involves the concept of proximity in resources, consists in analyzing individuals' characteristics in terms of activities and resources, independently of the means of coordination available, and thus in examining the question of their complementarity or similarity. The second and complementary dimension covers the concept of coordination proximity and consists in analyzing what facilitates or on the contrary hinders their coordination, independently of their individual characteristics. This implies analyzing relationships and more broadly the networks they are part of. Raising the question of the nature of the resources (similar or complementary) they then make a distinction between a cognitive proximity and a material proximity. Whereas coordination proximity is defined either in relational terms and results from the positioning of individuals in the network, or in terms of mediation resources, that is to say the mechanisms that make it possible to exchange without exploiting a relational chain.

5.2 A More In-Depth Exploration of the Concept of Geographical Proximity

Following a period of in-depth elaborations on the non-spatial dimensions of proximity, the 2000s were a time of renewed interest in the analysis of geographical proximity, resulting in more in-depth developments on the subject. This return to fundamental concepts occurred hand in hand with the adoption of proximity approaches in new areas of research, in particular in land planning. Indeed, questions of territorial governance and territorial development were brought to the fore, which involved not only companies but also other actors in the territories, such as public authorities, local mechanisms of different types, associations, individuals – or even occasional visitors. This shift of attention back to territories implied a reflection on the coexistence in the same areas of these different actors (or stakeholders), and on how they match the respective plans and wishes of each stakeholder, hence the importance of the geographical factor. This shift also had the effect of broadening the scope of application of proximity approaches, as the question was no longer merely a matter of proximity between people or organizations but also of (geographical) proximity to places (as in the case of individuals living next to a factory or protected area, for example).

This extension made it necessary to define two categories of geographical proximity, depending on whether proximity is sought for or unwanted. It is sought for, for example, in the case of people wanting to locate close to remarkable landscape, in a gentrified neighborhood, or near a tourist attraction. But it can also be unwanted, when people are forced to live near dangerous areas, are exposed to high levels pollution, or have no choice but to live in ghettos. These two dimensions also apply to firms, for example when they are exposed to espionage by competitors located in close proximity, or on the contrary, when they benefit from the presence nearby of laboratories or other firms with

which they can develop cooperative relations. But it is primarily in the field of territorial governance and conflicts that this approach has been applied and developed. Thus, the concept of unwanted geographical proximity has been applied to the analysis of land-use conflicts, leading to the identification of three types of interaction – superposition, contiguity and neighborhood – which can lead to oppositions and conflicts (Magsi and Torre, 2014).

More generally, this approach is used in the analysis of territorial governance relations and is based on the concepts of geographical proximity as well as on that of organized proximities: organized proximity can contribute to easing tensions, or on the contrary to building solidarity between opposing groups. Hirschman's trio of exit, voice and loyalty (Hirschman, 1970) is then often used. The voice option corresponds, in a situation of unwanted geographical proximity, to an actor's expression of dissatisfaction with the behavior or activities of a neighbor. The loyalty option, on the other hand, relies heavily on relations of organized proximity while the exit solution often consists in a departure or break from the territory.

The development of approaches based on the concept of "the death of distance" has given rise to new developments in the analysis and to a reconsideration of geographical relations, as well as a revitalization of the concept of proximity, with the identification of temporary geographical proximity. Indeed, in contrast with the analysis according to which the success of local systems is due solely to the geographical dimension, a number of authors have, since the 2000s, argued that with the development of globalization processes and the development of long-distance communication technologies, the local dimension no longer matters, and therefore that relations of geographical proximity are no longer necessary. Thus, these approaches suggest that the triumph of the global village has led to the death of distance, or geography as barriers to communication, and in so doing imply that geographical proximity is no longer relevant.

Other authors then demonstrated the flexibility of proximity approaches by responding to the question of "the death of distance" in terms of temporality of the phases of geographical and organized proximities between actors. In particular, Gallaud and Torre (2004) analyze innovation production processes on the basis of a study of collaborations between geographically distant companies or laboratories. The authors show that while joint innovation processes do not require that the partners be co-located in the same area, they cannot, however, entirely eliminate the need for geographical proximity and face-to-face interactions. Indeed, collaboration projects between two or more organizations involve regular meetings, particularly at the beginning of the process, and when conflicts arise and solutions must be found. While relations of organized proximities between the stakeholders are essential, they must, however, be supported and cultivated through phases of face-to-face interaction, in other words, through temporary geographical proximity between the partners. Thus, a first revitalization of the approach was realized through the identification of different phases, ordered in time, and involving different dimensions of proximity (organized proximities based on similarity and belonging, temporary and permanent geographical proximities) (Torre, 2011).

Based on the canonical distinction between temporary and permanent proximities (Torre, 2008), this analysis was then extended and generalized. Permanent proximity is similar to co-location, as is the case in a cluster for example. Temporary proximity, on the other hand, corresponds to situations in which partners work at a distance from

one another, or to situations in which people with common interests or even objectives meet to exchange information. This is the case of fairs, professional meetings, or conferences that bring together researchers from different backgrounds (Bathelt and Schuldt, 2008). Beyond the field of production, the analysis also helps to understand the rationale behind the gathering of diaspora members in places such as recreation parks or thematic conferences, for example. Finally, it applies to tourist or leisure travel: people seek temporary geographical proximity to particular places (heritage) or natural or cultural amenities.

6.   A CONTRIBUTION TO THE RENEWAL OF THINKING

Thus the analytical approaches introduced by what is now commonly known as the French School of Proximity is part of a vast process of renewal in economic science in which it has opened up, in several respects, to neighboring disciplines such as sociology, psychology, geography, management sciences and political science, at both theoretical and applied levels.

6.1   A Social Science Approach

First, the proximity approach is based on the perspective that economic analysis is a social science, and in this respect, calls for a multidisciplinary dialogue or at least for an openness to other social science fields of study. Overall, the plasticity and polysemy of the term "proximity" has led to analyses of increasingly complex economic phenomena based on a spatial approach to activities and involving the "social studies of economy" and all other social sciences.

Indeed, taking into account relationships based on non-spatial proximity relationships implies breaking from the idea of economic agents as being fully informed, rational and utility-maximizing actors. There are several reasons for this. First of all, what would best be referred to as a social actor – characterized by objective and subjective preferences, embedded in institutions and networks of personal relations – behaves according to his or her own beliefs and representations of the world, which distinguish him or her from those of the standard rational agent and even the Walrasian representative agent. Social actors share a language, codes and references with some other agents and not with all. They collect partial, or even biased information through their own networks and information channels. They evaluate the behavior of other actors based on their perception of them, particularly in terms of trustworthiness, and on the history of their past interactions with them, or even their reputation – socially constructed in their interrelationship networks. Moreover, actors are likely to make choices that do not stem from the sphere of economic rationality; they may let emotional, cultural and social arguments convince them to make decisions through which they express their own feelings, subjectivity and identity. Finally, when situations combine geographical and organized proximities, the actors situate their action within a geographical or even territorial context that provides them with amenities and infrastructures whose development has a direct link to their own choices and those of the other actors, but also in which shared representations and objectives will develop and influence their own preferences and decisions.

As we have seen, the proximity approach shares a number of theoretical and analytical referents with economic sociology. Through the notion of social proximity, it squares with the analyses of networks of interpersonal relations that have become central to the "new economic sociology" promoted since the mid-1980s by network sociologists, such as Harrison White, Robert Eccles and Mark Granovetter. Although analyses in terms of proximity have less in common with the analyses of market mediations proposed in the field of the sociology of science and technology, they have integrated certain aspects of it by taking into account the impersonal dimensions of economic exchanges, in particular through the notion of "mediation resources" (Bouba-Olga and Grossetti, 2008).

The studies that use the concepts of embeddedness and decoupling have largely built on the contributions of the new economic sociology. If economic activities are embedded in social structures that take the form of networks of interpersonal relationships (Granovetter) and if these networks present a strong local dimension (ties with people residing in the same urban agglomeration), then the embeddedness can explain the effects of geographical proximity in science–industry relationships (Grossetti and Bès, 2002) or in start-up creators' access to resources (Grossetti, 2008). But there is always tension between embeddedness and decoupling logics, which tend to autonomize organizations' actions from individuals. Geographical proximity can be decisive in some phases of activities (contact between two organizations, the initial phase of newly created enterprises), but become less central in other phases, for example when organizational or sectoral logics based on the use of impersonal coordination mechanisms prevail over those of individual members of their networks of professional relations, but also of family or friendship relations.

The proximity approach also shares certain features with contemporary approaches to geography, such as evolutionary geography or social geography for example. Like the latter, it takes into account the relativity of distance and location, as well as the importance of the social dimension in the geographic location of actors, in their history and their relationships (Bailly). It converges with evolutionary geography in taking into account the notion of proximity and its different variants, such as those examined by Boschma (2005) and his followers, with their formalization and systematization of the relativity of proximity in the relatedness approach for example (Boschma, Frenken). The intersections are such that one may question whether there is a real disciplinary distinction between economists and geographers in the field of proximity geography, whose works overlap and intertwine.

6.2   An Embedded Individualism

Another aspect relates to the desire for renewal associated with the proximity approach: it is its positioning outside the individualism/holism duality, which the mainstream/heterodox opposition has long referred to, an opposition which has divided a large proportion of economists for decades. By placing emphasis on the conditions of coordination, the proximist approach, which is closer to both the interactionist school of thought and institutionalism, is based more on a notion of embedded individualism.

In the social sciences, theories can be grouped into three main "families." Individualistic approaches consider individuals as the atoms of all social life, whose logics of action must be theorized in order to understand collective phenomena, which are considered

as the product of the aggregation (or composition) of individual behaviors. These approaches are dominant, not only in economics but also in sociology (the rational choice theory, methodological individualism), and in most social sciences. They are traditionally opposed to holistic approaches, which, on the basis of a theory of the "whole" (system, society, social structure, etc.) infer the behavior of individuals. Holism remains an important concept in sociology and anthropology (through the notion of culture).

These approaches are not entirely contradictory and can be combined in the analysis of social processes. Authors involved in the "school of proximity" can be considered part of these different families, but they have in common the fact that they consider that there are socio-economic structures of proximity that cannot be reduced to market mechanisms and formal legal systems.

In standard methodological individualism, the idea is that social phenomena are explained by the decisions and actions of rational individuals who are perfectly informed through global signals available to all agents. The decision-making process is that of an isolated, calculating and utility-maximizing individual, and is based on his or her ability to form rational expectations about the behavior of other agents. In contrast to this view of individuals as under-socialized beings, the holistic approach refers to economic agents as being over-determined by their social characteristics and background.

By breaking away from this dualism, economic actors, as they are understood by the proximity approach, are close to those of the economics of interactions (Kirman, 2011) and square their relative individual autonomy with their social integration through a double form of integration into their economic and social environment. On the one hand, alongside global signals, they receive "local" information through the social networks and structures they are parts of. On the other hand, they refer to a set of rules, codes, conventions, and social norms that bring them closer to or, on the contrary, further away from the other actors with whom they share, or do not share those rules. It is in this sense that we can speak of an embedded individualism, that social actors are embedded both in clusters of inter-individual relationships (social networks) and in institutions.

In this respect, the proximity approach is in keeping with a school of thought that analyses the complementarities between market and non-market relations in both the Coasian tradition and that of institutions and networks. Beyond the spatial aspects, this approach contributes to the analysis of organizations, whether productive or not, geographically concentrated or dispersed. This tends to explain why the term organizational proximity, although abandoned by the founders, has continued to be used to this day, to the point of constituting one of the categories of Boschma's canonical approach (2005).

6.3   The Conception of Space

The third dimension of this renewal in which the proximity approach is involved concerns the question of space and how this approach relates, on the subject, to the main spatial analysis or regional science approaches.

First of all, the proximist approach is clearly at odds with the standard analyses proposed by the location or spatial competition theory, which are based on a conception of the point-space, to which proximists oppose the idea of the "thickness" of the territory as a construct of actors. The proximity analysis is also at odds with the geographical economy in that it focuses little attention on market relations. This is not to say that the

proximity approach negates the importance of the latter or their influence in terms of processes of polarization and unequal local or regional development, but rather that it places more emphasis on non-market relations and the social and institutional dimensions of coordination.

Proximity approaches present themselves as the heirs to both Marshall's theory of industrial districts and its extensions (localized production systems, innovative environments, or even clusters), and to the approaches in terms of agglomeration economies. They borrow from Marshallian approaches in the attention they pay to industrial or innovation and knowledge dimensions, and to coordination processes and the weight of history in the genesis of relations and cultural dimensions. With the theory of agglomeration economies, they share common questions: What are the advantages of a particular location? Does distance matter? However, their ambition is to open the black box of externalities and analyze the phenomena that underlie territorial thickness, not only by measuring geographical spillovers theoretically or in terms of distance, but also by examining why and to what extent they exist, and why they may not work or may be competing with more distant relationships.

This reasoning is grounded in a central distinction made between collocation and proximity (Torre and Rallet, 2005). Being co-located or located at a short distance from something or someone, is not considered sufficient to foster the success of a production project, of a collaboration or transfer of knowledge or innovation. And so there is a difference between proximity and co-location, because geographical proximity alone is not enough: to be effective, it must be combined with other relationships, of a social or economic nature, such as coordination or trust relations, or a common culture or institutions. Another reason is the fact that the very nature of geographical proximity cannot be likened to that of localization. Geographical proximity is far more complex and can take two forms. A comparison is relevant in the case of permanent geographical proximity, but not in the case of temporary geographical proximity. But one must also take into account temporary geographical proximity – in the form of participation in joint meetings, fairs, conferences, or even business trips – which may be all that is required to satisfy the need for geographical proximity, especially when these meetings give rise to lasting relationships between people. The disconnection from location processes becomes complete, since what matters is not to be co-located with others but to be able to combine the advantages of distance and the advantages of being able to travel (through means of transport and communication). Here, the relation to space totally differs from that of traditional spatial or regional analysis.

6.4   A Shift in Attention from Space to the Territory

The way in which proximity approaches address the question of the territory (and of its development) is complex and involves a somewhat tortuous process. At the heart of the approach is its opposition to the idea that a territory has "magical" spatial virtues such that the territory alone explains the success of coordination processes or collaborations between innovative companies. This opposition in the basic principle underlying Bellet et al.'s seminal article published in 1992, and the ensuing publications criticizing district- or milieu-based approaches deemed oversimplistic in postulating the advantages and virtues of the local, which proximity approaches have always avoided doing. So

much so that they will gradually shift away from the territory, through two complementary approaches. The first consists in providing a precise analysis of how some clusters operate, and in showing that their success rests, above all, on social and institutional dimensions, more than on mere geographical proximity, even though, under certain conditions (the existence of a local labor market, in particular) the latter promotes the establishment of local interpersonal relations on the basis of which collaborations can develop. The second consists in focusing on long-distance exchanges and in examining more in-depth ICT-enabled interactions, by focusing on the relationships of organized proximities that emerge (logic of similarity) or are built (logic of belonging) and looking beyond the spatial dimensions to the global or national level.

This shift in focus away from the territory, culminating in the approaches based on temporary geographical proximity, has led to highlighting the possibilities and benefits of long-distance coordination, and finally to minimizing interest in space-related questions, which some of the authors of the proximity school of thought eventually found somewhat contingent, to the point of considering them secondary to their approaches. But interest in the territory re-emerged in the 2000s, and in a somewhat paradoxical way, with research on conflicts and the negative dimensions of proximity, which have led to taking into account the processes of territorial governance.

Here again, as is often the case with proximity approaches, an already known idea is reactivated and reinterpreted. The standard spatial economic analysis has for a long time identified congestion problems and negative spatial externalities, related for example to diffuse pollution phenomena. While it has not convincingly explained those phenomena, it has led to the development of an important arsenal of tools for measuring the negative effects of agglomeration or the decreasing returns linked to the short distance between actors. Proximity approaches examining the question from the angle of conflict relationships issue from the perspective of the conflictual relationship, which seems to be a logical follow-up to coordination analyses, particularly in terms of trust. After having shown the relevance of these questions and criticized the overly virtuous vision of geographical proximity as offering important advantages, it seemed normal to pay attention to its negative dimensions (Torre, 2014).

The analysis of land-use conflicts then provided an opportunity to reintroduce the spatial and territorial dimensions into the discussion. Conflict arises from the over-utilization of land, which produces geographical proximity effects for three reasons: the superposition of uses, contiguity or neighborhood. Actors cannot do without geographical proximity because their relations to land and to the uses they make of it anchor their approach to the territory. The next step was logically to focus attention back on the territory, particularly on questions of territorial governance and development. From the moment geographical proximity results in constraints, it is the role of organized proximity that becomes key. The reintroduction of Hirschman's three concepts in a spatial context then serves to highlight different forms of governance or of relationship to the territory, ranging from loyalty to exit.

The territory then appears as a (social) construct of heterogeneous actors (companies, consumers, R&D institutions, public authorities, inhabitants and citizens). Its existence, reliability, and resilience capacity rest precisely on coordination phenomena, the analysis of which is at the heart of the proximist approach. Attention can then return to territorial proximity, which emerges as a combination of geographical and organized proximities.

The territory is changing, fluctuating, unstable and vulnerable, and is the place where these proximities intersect and are activated.

7.   CONCLUSION: A CONTRIBUTION TO THE CONVERGENCE OF THE SOCIAL SCIENCES

The "proximity dynamics" group, which comprises scholars from different fields of research and with different theoretical backgrounds, has placed the term proximity in the foreground in the theoretical and applied literature. Indeed, it has shown that the different types of proximity are very useful concepts for understanding changes in contemporary societies, or for influencing economic policies and public action. In the process, it has also given content to the concept of proximity and has highlighted what distinguishes it from other concepts – such as location or distance – that may seem close in meaning to proximity, while revealing its plasticity and how its meaning extends beyond the spatial dimensions to include the broader dimensions of human and social relations.

However, this school of thought has produced no "major theory" which all its participants might have adhered to. Rather, it has been a melting pot of ideas and debates through which a common epistemological basis gradually emerged, at the crossroads of the "social sciences of economics" and the analysis of economic coordination with a spatial dimension. This has enabled the authors to address many questions and to develop their own conceptions while contributing to the advancement of the collective discussion. At a time when empirical social sciences are beginning to move away from the reductive hypotheses of the standard economy and from biological or cognitive reductionism, this group, which has produced analytical and empirical content, can usefully contribute to this convergence and to progress in analyses of economic activities.

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