Proximity and Localization [1]

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Abstract:

The objective of this article is to pave the way for an analysis of the relations between proximity and localization of activities and people, two notions that are often mistaken for one another. Our method consists in exploiting the semantic wealth of the notion of proximity (I) We distinguish two types of proximity (geographical and organized) and propose a grid of analysis of the main models of geographic organization of activities by articulating both types of proximity. We then introduce the phenomenon of tension between geographical and organized proximity in order to discuss problems that are often under-estimated in spatial economy. (II) Firstly, organized proximity offers powerful mechanisms of long-distance coordination which constitute the foundation of the increasing geographical development of socio-economic interactions. The confusion between information interactions and knowledge exchange and the constraint of being located in proximity neglects the fact that the collective rules and representations do manage, and at a distance, an increasing part of these interactions. (III) We then show that there is a disjunction between the need for geographical proximity and co-localization of actors, by introducing professional mobility and temporary geographical proximity. We also emphasize the ability of big organizations to manage the presence in different areas of their units, whereas smaller ones are more constrained by fixed co-localisations which are only needed for certain phases of their interactions. (IV) Finally, we raise the often neglected question of the negative effects of geographical proximity, which creates tensions between the actors who use limited support-goods, and tends to damage the local relational network. However these negative effects can be limited by integrating them within organizations or institutions, that is through a re-composed organized proximity enabling one to solve conflicts and launch processes of cooperation or negotiation within ad hoc mechanisms.

Introduction

In an ever more globalized economy marked by the increasing nomadism of firms (Zimmerman et al, 1995) and the mobility of individuals, proximity still matters. Territories are being re-discovered, local systems given more importance, the merits of the decentralization of decision-making are celebrated and most people agree that more decisions should be made at local level. The origin of this phenomenon is clear: the more globalized relations are, the more anonymous they become and the more uncertainty they create; this leads to the necessity for economic actors to lean against local identities, support bases thanks

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to which they can face international competition. It is therefore hardly surprising to see the term proximity so widely used in the contemporary discourse, in particular that of developers, planners and politicians.

But what is proximity? Or more precisely, what is its relation to geographical space? The question might seem preposterous: doesn't « being in proximity » simply mean being situated near and not somewhere else? Yet this answer is not that obvious. What does « being near » somebody mean? What does it imply in social and economic relations? Neighbors might ignore or even hate one another. Local firms can be rivals and refuse any cooperation. Furthermore, one can be present and active both here and there thanks to communication technologies and travel. Finally, being in proximity of someone does not only mean being near him/her, it might also mean having a strong complicity with a person who is geographically distant, whether that person belongs to the same circle of friends, family, or even the same network of firms or professionals.

Therefore, the term proximity is much more ambiguous than the term localization. But at the same time, it is this ambiguity that makes the term interesting because it concentrates in one single term the multiplicity of spatial scales within which economic actors and individuals situate their actions. The term should therefore be retained but its ambiguity should be lifted by exploring and developing the different forms of proximity. In particular, the multiplicity of proximity should help us shed new light on the questions of localization and geographic concentration and thus go beyond the traditional literature which generally only considers mono-located actors and monopolar spaces[3].

The objective of this paper is to propose an analysis of the relations between proximity and localization based on a basic grid of analysis progressively developed. In section I, we present the grid of analysis based on the duality of proximity. Two types of proximity (geographical and organized proximities) are defined for this purpose. The articulation of both types of proximity provides a simple but relevant grid of analysis of the way in which economic actors are nowadays « situated » in geographical space.

In section II, using the grid of analysis, we discuss the confusion, frequent in literature, between agglomeration and interactions of geographical proximity; we stress the importance of the phenomena of social and institutional embeddedness (Granovetter, 1973) in order to account for the role of geographical proximity in economic coordination, and we show that one of the most important questions of research is to explain the phenomenon of ubiquity that characterizes nowadays the behavior of economic actors. In section III, we introduce the mobility of individuals in our presentation. Indeed, one often forgets that the need for geographical proximity (to realize cooperation for instance) does not necessarily imply that the actors should be located near each other. Indeed, it is less and less the case. For people travelling frequently or staying away for temporary periods of time, the proximity constraint becomes relative. Finally, geographical proximity does not only have virtues, even though literature generally only stresses these dimensions. It can be a factor of conflict, rivalry or negative externalities which the mobilization of resources of organized proximity can help solve (Section IV).

I. Geographical proximity and Organized proximity: a framework of analysis.

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[3] We shall distinguish mono polar spaces defined by the relations between one center and one periphery of multi polar spaces defined by the existence of a network of poles.

Various definitions of proximity, referring to notions such as space, neighborhood, institutions, inter-individual relationships, epistemic communities, kinship, representations… have been offered in economic, geographic, mathematics and sociologic literature (See Bellet et al, 1998). In the field of economics, Bellet et al (1993) or Kirat & Lung (1999) refer to three types of proximity (institutional, organizational and geographical), whereas other authors, such as Boschma (2003) or Huriot (1998) identify more categories which, according to them, correspond to various types of relationships between individuals or institutions. As for us, we have retained a simple definition based on a distinction between two types of proximity, called geographical proximity and organized proximity respectively (Torre & Gilly, 1999; Rallet & Torre, 2000; Rallet, 2002).

As its name indicates, the former is a geographic notion whereas the latter is not of a geographic nature. It is the nature of both types of proximity that is at the basis of their distinction. Let us examine them.

- *Geographical proximity* expresses the kilometric distance that separates two units (individuals, organizations, towns…) in geographic space. It has two essential properties.

a) It is binary: naturally, there exist infinite gradations (more or less far from, more or less close to) but the purpose of examining geographical proximity is to determine whether one is « far from » or « close to ». A series of consequences, presented below, ensues from this division.

b) It is doubly relative. Firstly, geographical proximity, which is at the basis of the division between proximity and distance, is relative to the means of transport. The kilometric distance is weighted by the time and/or the cost of transport. Secondly, proximity is not only an objective data. It proceeds from a *judgement* made by individuals on the nature of the geographical distance that separates them. The judgement consists in processing the parameters that influence the distance, to convert them into the statement according to which one is close to or far from. These parameters include objective data (km, time, and price) but also the perception individuals have of them. And this perception varies according the age, social background, gender, profession of people… (For example, the possibility of meeting someone once a day can be perceived differently according to the individuals). However, although it has a social (determined by the means of transport) and subjective (referring to a statement) nature, geographical proximity may be, at a time t, considered as a physical space data representing a constraint imposed, at that particular time, on the actors to develop their actions. This is how we understand the term.

- *Organized proximity* is not geographic but relational. By organized proximity we mean the ability of an organization[4] to make its members interact. The organization facilitates interactions within it, and anyway, makes them *a priori* easier than with units situated outside the organization.

Two main reasons explain this.

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[4] In this article, "organization" is a term that designates any structured unit of relations. It might take any form of structure, for example, a firm, an administration, a social network, a community, a milieu…

Firstly, belonging to an organization translates into the existence of interactions between its members, inscribed - as the evolutionist language puts it - in the *genes* (routines) of the organization. This is what we call the *logic of belonging* of organized proximity: two members of one organization are close to each other because they interact, and because their interactions are facilitated by (explicit or implicit) rules and routines of behavior that they follow. Thus, other things being equal, cooperation will, a priori, develop more easily between researchers and engineers belonging to the same firm, the same technological consortium or the same innovations network.

Secondly, the members of an organization are said to share a same system of representations, or set of beliefs [5], and the same knowledge. This social relation is mainly tacit. This is what we call the *logic of similarity* of organized proximity. Two individuals are considered as close because they are « alike », i.e. they share a same system of representations, which facilitates their ability to interact. Thus two researchers belonging to the same scientific community will be able to cooperate more easily because they not only share the same language, but also the same system of interpretation of texts, results…

These two logics are partly complementary, partly substitutable. They are complementary because the shared beliefs (or *cognitive maps*) limit the possible divergent interpretations of the formal rules and thus makes coordination effective through rules. Similarly, interactions founded on tacit representations generally lean on a minimum number of formal rules (for example conventions or contracts between scientific laboratories). But the *logic of belonging and the logic of similarity* are also partly substitutable: in an informal community, that is an organization with no strong explicit rules, the weakness of the cooperation between the members can be compensated by the existence of strong behavioral cohesion that creates implicit rules of interaction. It is the case of communities of researchers, which are not highly structured formally but which are characterized by a strong cohesion resulting from the homogeneous formation of a university group of researchers at international level.

The intersection of both types of proximity (geographical and organized) provides a grid of analysis of the different models of geographic organizations of activities. Thus industrial districts, innovation milieus or localized systems of production (LSP) are characterized by the existence of both types of proximity. In this type of model, organized proximity – defined by the intensity of the client-supplier relationships, the exchange of know-how or the existence of an « industrial atmosphere » - is based on the co-localization of actors within a determined zone.

Although this model is widely discussed in economic literature, it is but one model among others. Indeed, organized proximity – which consists of functional relations (interactions) or relations between people sharing the same « identity » (common beliefs and cognitive maps) founded on the organization and not on the territory – often exists without any geographical proximity. In this case, geographical proximity will be weakly organized if at all, whereas organized proximity will not take any geographic dimensions. Because organization is not geographic in essence, it has the ability to cross territories and frontiers. It is situated in a space, takes territories into account, but is not defined nor limited by them: the organization of a multinational firm is a good example.

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[5] This obviously does not mean that all the beliefs of the members of identical but that there is a common core of beliefs through which the organization identifies itself as one collective entity. Furthermore, the common corpus of beliefs can be based on the representation of the organization as a place of conflicts.

This point is important because one often neglects to distinguish the *territorial genealogy* of organizations (any organization has a territorial origin: it is founded and develops originally on one given territory) from *their nature which is a-territorial* (the interactions, the explicit or implicit rules which define it). The innovative milieus (Maillat, 1995) and industrial districts (Asheim, 1996) approach has introduced great confusion in this regard by using a particular case as an analytical model. The approach we have adopted does the opposite: it is not based on the fusion of both types of proximity but on their disjunction. The first approach (the fusion of both types of proximity as an analytical model) confines the analysis of local development to a specific case *de facto* considered as a norm. The authors of the districts or milieus movement admit that this norm is not universal and that there are other possible models of territorial development but their analytical mechanism, trapped in the fusion of both types of proximity, is unable to account for it. The second approach (the disjunction of both types of proximity) straightaway introduces the plurality of the forms of territorial development and proposes a method to examine them: analyzing how two types of proximity that are analytically different (geographical and organized) are articulated.

In order to illustrate this idea, we have drawn a table of the relations between geographical proximity and organized proximity. The table must be read from left to right. It highlights the results obtained when both types of proximity cross each other and the consequences of this intersection in terms of interactions between firms at local level.

**Table I: The intersection of both types of proximity
and its results in terms of interactions.**

	Geographical proximity	**Organized Proximity**
Geographical proximity	*Agglomeration without interactions* I have a lot of neighbors but I don't know them) (no direct coordination). Agglomeration due to infrastructures for example.	*Local Systems of innovation, production, clusters…:* GP activated by OP.
Organized Proximity	*Non permanent co-localization* Long distance coordination implies temporary face to face (sales representatives, researchers).	*Supra-local organizations* Coordination between sedentary people located in different places, supported by organizational rules and ICts.

The top left box means that geographical proximity cannot alone generate synergies, and that anyway, it is unable to create interactions between economic actors at local level. Geographical proximity facilitates interactions (for example random meetings), and enables

actors to observe the actions undertaken by others and to draw comparisons (Malmberg & Maskell, 2002) but it does not in itself facilitate coordination. When geographical proximity only crosses itself, economic actors are agglomerated but have no direct relations with one another. This case enables one to distinguish agglomeration from localized relations, which empirical literature too often omits to do (see in particular some works on geographic spillovers, Wallsten, 2001, Jaffe et al., 1993)

Indeed, one cannot infer from the co-localization of actors that they necessarily have direct relations with each other and that it is for this reason that they are in the same location. On the contrary, it is important to show that the current phenomena of agglomeration, in particular in big cities, are not necessarily based on direct functional relations because of the difficulty to establish these relations in these big centers. Great cities function like hubs paradoxically making long-distance access easier than local access. In this case, the economic actors agglomerate geographically, not because of a direct need for coordination, but because they have similar access to infrastructures (airport, high speed railway station, highways, interchanges…)

The top right box shows that, in order to generate interactions, geographical proximity must be structured and activated by organized proximity. It is the case of the above-mentioned districts, milieus and other local systems of production or innovation. Similarly, the negative effects of geographical proximity can be overcome by mobilizing the resources provided by organized proximity. This case will be examined in section IV.

The bottom left box indicates that organized proximity can be transformed temporarily into geographical proximity or even better, that it can only survive at a long distance through the implementation of temporary meetings using geographical proximity (situation of sales representatives, or business trips in the context of a cooperation project between firms). As in the previous case, organized and geographical proximities are complementary but only temporarily so. This case will be examined in section III.

Finally, the bottom right box illustrates situations in which supra-local organized relations occur: multi-unit firms, global networks of firms, national or international professional communities…. The supports of coordination are the sharing of norms and standards (such as ISO 9000 standards), the existence of formal rules and common representations. There is little or no individual mobility because coordination does not require face-to-face interactions. It is the case when, prior to the realization of a collective project, tasks have been precisely divided between geographically dispersed work units, and when coordination only concerns technical aspects and no decisions have to be made. The creation of a software product whose different modules are designed by several teams located on different continents is a good example of this.

The intersection of the two analytically distinct types of proximity has enabled us to distinguish several models of geographic organization of activities. It also enables us to relativize the implicit postulate underlying most spatio-economic analyses, i.e. the search for geographical proximity as a factor of localization of firms and households.

II.   From the importance of social networks and institutions to the ubiquity of actors.

It is very tempting to explain the process of spatial concentration of firms and populations - which is one of the major characteristics of contemporary economies - by the

existence of direct externalities of proximity [6]. This explanation is not exclusive to the industrial districts and innovative milieus movement. It is found in economic literature as a whole.

According to this explanation, actors concentrate in the same locations because geographical proximity is necessary for them to be able to interact. This is one of the answers given by Lucas (1988) to the question of the localization of industrial activities, or by the New Economic Geography which considers that economic actors (firms and workers/consumers) tend to agglomerate because they have relations of exchange of goods or work (Krugman, 1991). Other authors highlight the transfer of knowledge or information to explain co-localization (see literature on the geography of innovation, Feldman, 1999, Feldman & Massard, 2001), or simply psychological or sociological reasons leading them to settle closer to one another, pushed by a need of a social nature (Ota & Fujita, 1993). Whatever the motive (financial, technological, social) externalities are said to be externalities of proximity. But this is seldom demonstrated. More often than not it is merely an implicit claim : indeed, as Malmberg & Maskell (2002) have shown, most empirical works attempt to prove the existence of geographic spillovers rather than to produce empirical evidence at firm level. In these approaches, the search for geographical proximity only appears economically limited through congestion forces that prove to be the negative aspect of agglomeration (increase of land, property, labor, environmental, social costs).

This answer, which mistakes the search for geographical proximity and the process of localization, is invalidated if one observes the evolutions of the contemporary world. Without mentioning globalization, it is quite clear that the geographic sphere of interactions between economic and social actors has considerably widened in the last few years, whether they be of individuals or organizations. The search for permanent geographical proximity is no longer the factor generally emphasized in the strategies of firms, in particular of big firms, the units of which are sometimes called *footlose* (free from any geographical attachment). Similarly, the need for individuals to be mobile has significantly increased (leisure travel, mobility to go to work or job changes and the modifications of localization they imply). This process is even true for actors said to have a limited spatial horizon such as SMEs (which are developing their ability to find suppliers or markets far away) or employees (through the increase of inter-regional geographic mobility or the important increase in the distance between home and the work place).

And yet, in spite of these obvious facts, the existence of direct externalities of geographical proximity seems to be considered as *a fact of nature* in the literature dedicated to spatial questions (the literature that considers that face to face interactions will always be required to establish social contracts and exchange information). This approach has not only been adopted by the new economic geography, but also by more heterodox works that justify the co-localization of innovating firms by the natural properties of knowledge (with equations of the type: tacit knowledge = face to face transmission = need for geographical proximity = constraint of co-localization) (see Howells, 2002). This presupposition, often given as a basic postulate of the analysis, remains to be proved. At the very least one should question the role of interactions of proximity in an economy founded on the increasing de-territorialisation of economic relations or − as it is called in our grid of analysis - the increasing disjunction of geographical proximity and organized proximity (development of the bottom right box of table 1).

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[6] Direct externalities of geographical proximity are all direct interdependence between actors requiring geographical proximity to occur, whatever the form of externality, financial or technological.

Thus, it appears judicious to relativize these analyses by integrating behaviors other than the mere search for geographical proximity leading to a process of localization. First of all, the search for geographical proximity does not always lead to a process of localization, and secondly the development of long-distance interactions thanks to the increasing mobility of individuals and information tends to reduce the weight of local coordination. In particular, the increase of non-local organized proximity tends to demonstrate that local development is not exclusively founded on the search for synergies between local actors.

In this regard, two main ideas have emerged from the research carried out by the group « Proximity Dynamics » [7] :

1) Although for certain types of activities of production or transactions, the constraint of geographical proximity subsists, it is highly relative in economic coordination, including for activities that are supposed to require it, such as information and knowledge intensive activities (Rallet & Torre, 2000).

In any case, the need for geographical proximity in coordination cannot alone explain the geographic concentration of actors and the existence of systems of production or innovation with a local (or partly local) basis.

Two other factors explain the relative nature of the constraint of geographical proximity:

Firstly, economic relations (for which the need for geographical proximity is reduced) are embedded in highly territorialised social networks (Gertler, 2003). In this perspective, the existence of localized networks of innovation is less due to the functional need for face to face relations in order to exchange knowledge, than to the fact that cooperation occurs between researchers and engineers belonging to different organizations but originating from the same university or belonging to the same social and family network (see Grossetti & Bes, 2001). Geographical proximity is not so much an *economic cause* of agglomeration as a *social effect* of the embeddedness of economic relations in inter-individual relations. Face-to-face interaction between two actors cannot alone generate synergies ; the latter can only develop between two individuals who belong to the same network or share common representations.

Secondly, the geographic framework of economic interactions is largely conditioned by the role of institutions. And nowadays geographical proximity appears to be a powerful factor of legitimacy of these institutions (valorization of the local in itself). Thus, local policies produce geographical proximity institutionally as a privileged mode of economic interactions. The search for synergies between local actors has logically become the alpha and omega of most policies of local development.

Therefore, if geographical proximity is given so much value in the discourse of local development, it is less for reasons that are intrinsic to the need for economic coordination than

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[7] The "Proximity Dynamics" group, made of French speaking economists, sociologists and geographers, has started since the beginning of the 1990s a collective reflection aiming at displaying convergences and coherence in the ensemble of new theoretical approaches of the economic space. This reflection lies on the common belief that space is not neutral and must be taken seriously by analysis. As soon as the group was put together, the ambition of the proximity researchers was (and still is) to explain the nature of the effects of proximity and to contribute to the endogeneisation of the space variable in the economic theory. Works and articles have been published by the members of this group. Among the most important are: Bellet M., Colletis G., Lung Y. (eds), (1993) ; Rallet A., Torre A. (eds.), 1995 ; Bellet M., Kirat T., Largeron C. (eds), 1998 ; Gilly J.P., Torre A. (eds), 2000 ; Burmeister A., Dupuy C. (eds), 2003 ; Pecqueur B., Zimmermann J.B. (eds), 2004. In English, Kirat T, Lung Y. (1999) ; Rallet A., Torre A. (2000) ; Torre A., Gilly J.P. (1999). Furthermore, the « Proximity Dynamics » group organizes a Congress on Proximity every other year. The most recent congress took place in June 2004 in Marseille : http://139.124.177.94/proxim/program.php

because of a double embeddedness of economic interactions in social networks on the one hand, and in institutions on the other. These conclusions are in keeping with the research orientations shared by a certain number of current movements in the economic analysis (interactionist, neo-institutionalist, evolutionist, regulationist) inasmuch as - as Kirman puts it (1999) - interactions between economic actors strongly depend on the organizational structure of the economy. The analysis of the articulation between this framework and economic interactions then becomes indispensable to understand the spatial dimension of coordination.

2) What is at stake is not so much to determine whether long-distance coordination is going to replace interactions of geographical proximity or whether local relations will prevail. It is rather to show *the diversity of spatial scales* to which actors establish their interactions.

Nowadays social and economic actors are often in a situation of ubiquity, that is capable of being at once here and there. Far from being a product of science fiction, this capacity, which has existed since the invention of the telephone, has increased decisively since the emergence of the Internet and the development of information and communication technologies (ICT). One individual, or even better, a firm can act at once locally and globally by making its suppliers compete with each other at global level, or by passing orders on stock exchanges abroad, for example. Actors are not only localized but also capable of acting in real time in different places, which means that their registers of actions go far beyond their mere location and that they can develop interactions at local and « global » scales (which has been possible for a long time with the development of techniques of transport) at the same time, in real time (which is new). This characteristic of actors' behaviours does not only concern the debate on firms' ability to acquire competencies outside their local system of production ; it also concerns the relations between all individuals capable of acting at once here and there). It is this relative ubiquity of the action of actors in geographic space which must be examined in order to understand how a " space of flows " is linked to a " space of places " (as mentioned in archipelago economics: see Velz 1996).

This approach of proximity, a combination of geographical proximity and organized proximity taking into account the ubiquity of actors, questions once again the traditional conception of the localization of activities. The problem is no longer to determine where an actor is localized (in relation to the localization of other actors) but to understand how the action of actors develops simultaneously at different spatial scales. Furthermore, the localization of actors must be distinguished from geographical proximity which can be obtained thanks to more temporary meetings.

III. Temporary needs for geographical proximity

Another way of showing the necessity of separating search for geographical proximity from co-localization of individuals and organizations is to emphasize the importance of the increasing mobility of men, information and goods. Let us take the example of man's mobility. The importance of this mobility is under-estimated in literature. For example, it is often claimed that the localization of a service-providing firm in a given area means that its employees actually work in this area. But these services are more and more mobile: a service is often provided to clients situated in an area other than that to which the employee is attached administratively. The increasing nomadism of employees tends to separate the place where they actually work from the place to which they are attached administratively. In

France, in the last twenty years, the relative part of the distances between people's home and their fixed place of work has decreased because of the generalization of the continuous workday, but also because the part of mobility between the various places of work has increased (Orfeuil, Massot & Bellanger, 2000). This is due to the increasing part of mobile workers.

Indeed the professional mobility of individuals has increased with the development of transports (improved accessibility, increase of speed, reduction of costs) and the technological revolution in telecommunications (improved forms of long-distance processing and transfer of information in comparison with the telephone era, low costs of information transfer). The complementarity of transports and communication (the more individuals telecommute, the more they need to meet others, and vice versa) increases this mobility, so that an increasing number of actors no longer have a permanent work place. They work by traveling, that is not where they officially work according to statistics. Thus, Boulahbal (2001) has found that in France the number of people working outside their home in a fixed location dropped by 4% between 1982 and 1994, and that the number of people working in different locations increased by 600 000 during the same period. Grague (2000) also shows that the number of workers travelling, as part of their work, to various locations within the region where they are employed (i.e. "short distance trips") increased by 40% between 1982 and 1994.

Apart from migrations, which are not included in our field of analysis, spatial economy essentially considers one type of mobility, the daily mobility of employees between their home and work (commuting) but this type of mobility hardly questions the traditional conception of territories. It is actually used to delimit one type of territory (zones of employment defined by alternating migrations). But there are wider mobilities which cross territories and contribute to dis-identify them: the travelling of a sales representative, the round of duty of a maintenance engineer, the visits of several days of a consultant auditing a firm, the weekly or annual touristic trips of a family, the participation of a researcher to a national or international colloquium, the temporary visit of an engineer to the laboratory of a firm or university with which his/her firm cooperates. (cf. Lasen and Laugen, 2003, for the long-distance work-related mobility among employees in Danish high competence organisations).

Thanks to these developing mobilities, the constraint of geographical proximity, which is real for certain types of interactions - in particular for services or the sharing of knowledge - can be fulfilled temporarily through travelling without the interaction leading to the permanent co-localization of the partners.

In particular, we must emphasize the fact that the need for geographical proximity is generally not permanent. It affects certain phases of the interaction: the phase of negotiation in a transaction, the definition of guidelines and the organizational framework of cooperation, the realization of its initial phase in the case of a technological alliance, the necessity to share equipment in the experimental phase of a common research project or to exchange knowledge and above all to know personally the researchers (colloquium) belonging to a scientific community… Short or medium-term visits are then sufficient for the partners to exchange - during face to face meetings - the information needed for cooperation. As a result permanent co-localization is not necessary even for activities where physical interaction plays an important role in the coordination (services co-produced by the provider and the user, knowledge-intensive activities such as innovation and R&D activities). This is what we call *the need for temporary geographical proximity*.

The temporary nature of the need for proximity has an impact of the localization of firms. Indeed, the possibility of moments of temporary proximity tends to relativize one of

the most widespread theses in the regional analysis, that is the fact that firms have a strong tendency to settle near one another because of frequent and repetitive interactions requiring face to face relations. This idea can be found in particular in the research carried out in the field of innovation geography (Feldman, 1999): According to some authors firms need geographical proximity to exchange knowledge concerning their production, commercialization, and above all R&D activities. The thesis is based on the tacit nature of part of the knowledge, the transmission of which relies on face to face relations (learning by imitation, informal exchanges, intuitive solutions to problems…) whereas codified knowledge is transmitted more easily through ICTs or physical supports (articles, books, instruction manuals…) which are independent from the individuals or organizations that produced them.

In the context of our research (Rallet & Torre, 2000; Grossetti & Bes, 2001; Kirat & Lung, 1999), we have discussed and relativized this thesis. The equation of the sharing of tacit knowledge and geographical proximity on the one hand, and codified knowledge and long-distance relations on the other, is indeed simplistic. Firstly, it is difficult to separate the uses of both types of knowledge and therefore to translate them with different geographical terms. Secondly, face to face relations, and therefore geographical proximity, is not the only possible support for the sharing of tacit knowledge (Freel, 2003; Bathelt, Malmberg, Maskell, 2004). Thanks to the collective rules and representations that they produce, organizations offer powerful mechanisms of long-distance coordination (organized proximity). The movement of globalization depends precisely on the capacity of organizations to widen the geographic sphere of interactions. Thirdly, ICTs also make the long-distance sharing or co-producing of tacit knowledge possible thanks to the technological evolution of computer sciences which offer possibilities such as informal or visual communication (association of the image, written support and voice) or written communication that has become close to oral communication (e-mails, forums, chats…).

There is no denying that face to face relations remain indispensable for certain types of interactions, in particular to solve problems related to the heterogeneity of reasoning modes or those related to the processes of deliberation and negotiation. We could mention the example of two actors who do not know each other and start cooperating on a new program or a new technology. However, the intensity of the need for face to face relations varies according to the phase of the process, as shown by the example of transfers of technology in the sector of bio-technologies (Gallaud & Torre, 2004). In this sector, the cooperations between firms consist of successive phases that condition their relation to space. The role played by geographical proximity diminishes with time. It is used in complementarity with organized proximity during the phase of co-production of fundamental, tacit and contextual knowledge. Its role diminishes subsequently during the phase of absorption of the knowledge produced during the scientific phase, which implies a re-contextualisation of the latter in order to test it in various situations. Finally, it is often replaced entirely by organized proximity in the phases dedicated to the design of prototypes and clinical trials or to the codification of research results. Only two types of situations necessitate face-to-face interactions :
- the launch of innovative projects, in particular in cases where the actors have very different knowledge bases and where the project is not very structured (Rallet & Torre, 2000) ;
- cases of conflict management between innovators, proximity facilitating consultation between the participants regarding the use of communication facilities.

The needs for permanent or temporary geographical proximity are then different according to whether the firm faces a problem related to a choice of location or to the search for a new partner for an innovative project (Gallaud & Torre, 2004) :

- In the case of firms entering a new sector, the choice of location varies according to the size of the enterprises. Large, multi-unit enterprises can choose to set up their R&D department in a single large laboratory, thus benefiting from scale economies and avoiding the duplication of research programs ; or they might prefer to create several small laboratories in proximity of their main clients, in order to more quickly understand the latter's needs. SMEs, however, because of limited financial and human resources, have to locate in proximity of other firms or organizations whose role in terms of innovation is crucial ;

- In the case of firms that are already established and which are not necessarily located in proximity of organizations with which they wish to cooperate on innovation, there are several possibilities : create a joint venture, relocate the staff in charge of innovation projects, either for the whole duration of the projects or only for short periods of time. The first solution is relatively infrequently chosen by firms because it is very expensive. The second solution has the advantage of being flexible ; but relocating staff is equivalent to depriving the firm of part of its resources for the duration of the project, which proves difficult for small enterprises to do. The most frequently chosen solution consists in simultanuously assigning some employees to different projects located in different areas, the employees in question travelling to the different locations when necessary. Surveys on inter-firm cooperations show that in most cases, firms cooperate with organizations that are not located in the same regions (Freel 2002, Tether, 2002).

Indeed, the bigger the firm, the more easily it adjusts its localizations to the temporal nature (permanent, temporary…) of the need for geographical proximity. Thus, big firms can more easily fulfil the need for geographical proximity by de-localizing part of their staff, including for relatively long periods of time; whereas smaller firms (very small enterprises or small SMEs) are often forced to adopt a permanent co-localization even when they only need temporary geographical proximity. Big firms, group subsidiaries or universities can bypass the constraint of co-localization associated with the initial phase of exploration by sending teams of researchers or doctors for short or prolonged visits to distant research centers for example. These solutions are possible thanks to the important volume of human resources available to them. However, in the case of smaller organizations, the coincidence between the need for R&D exploration and the need for a permanent geographical proximity during this process is often a determining factor of localization, one person being appointed to tasks that are part of different phases of the R&D process. They are then forced to settle near other firms or laboratories, even if they only need geographical proximity during one phase of their R&D process.

Therefore geographical proximity must not be mistaken for localization of firms, the existence of permanent geographical proximity during the phase of R&D exploration in no way implying a compulsory localization in proximity, whereas this data often represents a constraint of localization for smaller firms. This is one of the reasons why the networks of innovations are highly localized in the case of small firms, which is less true for bigger firms.

The analysis of geographic mobility, of its increase, of its various forms and uses by firms depending on their size and by individuals depending on their income represents a great

challenge for spatial economy. We believe that the new patterns of spatial organization of activities cannot be explained without such an analysis. In any case, the latter reveals that mistaking a need for geographical proximity with localization is hazardous, if only because part of these needs can be met thanks to temporary geographical proximity.

IV. From the negative dimensions of geographical proximity to the restoring qualities of organized proximity.

Mobility is a factor that is essential to the functioning of contemporary economies, but this does not mean that all the components of economic systems are necessarily mobile: actors, goods, infrastructures or natural resources can prove totally or partly immobile for reasons related to natural (land availability), social (attachment to a territory of origin) or economic (financial limitations) constraints. Localization is then highly constrained by geographical proximity. It is the case of many activities related to the exploitation of the ground or underground, and therefore of an important part of agricultural and agri-food activities for which the relation to the land remains essential and which are therefore confined to a given territory (situation of *spatial lock in*), at the risk of having to share it with undesirable neighbors. Such tensions emerge when occupying the land forces actors to locate close to other actors who do not share the same logics of belonging or similarity.

More generally, tensions and conflicts emerge when using and occupying a piece of land imposes a localization close to other actors (the actors then suffer a constraint of geographical proximity) who do not have the same logics of belonging or similiarity (the drawbacks of the constraint of geographical proximity can partly be overcome by mobilizing the virtues of organized proximity). There again we find, in a slightly different role, our geographical proximity - organized proximity diptych:
- Geographical proximity is a source of tensions at local level (this is also highlighted by Boschma, 2003) ;
- Organized proximity can be mobilized in order to overcome these tensions and conflicts (in the sense of Schelling, 1960), through processes of cooperation or negotiation.

The situation of *geographical proximity constraint* is related to the presence of *support goods*, generally land or water. It creates negative externalities of proximity partly due to the localization of actors on one same support-good. These negative externalities may include the damage caused by eroding runoff, diffuse pollution, or toxic emissions provoked by the presence of industrial activities in the proximity of population concentrations. But this localization can also provoke conflicts related to the question of land, whether it be problems raised by the co-localization of buildings, congestion in housing settlement or environmental nuisances caused by the building of certain structures. Thus, the presence of support goods jointly consumed by different actors or their neighbors conditions the existence of a constraint of proximity.

In this perspective, geographical proximity plays a determining role in the development of tensions and conflicts between neighbors (sometimes temporary), or even between users, with their different expectations from one same area. Indeed, geographical proximity, generally presented as being *desirable*, can also be *unwelcome*. The principle is the following:

- *Geographical proximity* is *searched for* by economic and social actors who need temporary or permanent proximity. They are for example seasonal migrants, tourists, hiker, etc, who wish to satisfy – always for short periods - a need for proximity to the countryside in the context of leisure activities. In the field of production, firms seek to locate their silos or factories of transformation close to areas of agricultural production in order to limit transport expenses and loss, or to settle near their competitors in order to benefit from their knowledge;

- but *geographical proximity* is also often *unwelcome* by actors who are forced to tolerate a constraint of proximity (see Tir & Diehl, 2002). It is the case when secular or new land owners have to tolerate the presence of their neighbors and endure the toxic emissions and discharges provoked by the latter, or when an activity that is a source of environmental nuisance (noise, visual, olfactory pollution) is launched in their neighborhood. This situation can also be found when users do not agree on the use of an area, which some would like to use for leisure while others wish to use it for agricultural purposes for example, or even when access of different categories of users raises problems, when there are access restrictions for example, or when the multi-use of the area proves difficult or even impossible.

In all these situations, *the ambivalence between the desirable geographical proximity and the unwelcome geographical proximity* generates tensions and conflicts. Firstly the presence of support goods conditions the existence of a constraint of proximity from which one can only escape through mobility – i.e. moving to a different area in the case of a private resident, or relocating in the case of an economic activity. But this possibility is conditioned by two factors: a) the availability of resources (land, underground resources, water, etc can be found here and not anywhere else), and b) financial constraints which can be an obstacle to mobility. Let us note that the same person can successively be in a situation of desirable proximity and then in a situation of unwelcome proximity, for example a hiker involved in a land-use conflict with hunters. Secondly, the economic and social actors using the space are often confronted to a problem that largely conditions their relations with other actors and the solutions retained to solve the difficulties caused by the forced co-localisations: we call this phenomenon *inequality in the face of space*. It emerges in cases of neighborhood or contiguity. The physical characteristics of support-goods such as land or water, their very nature and the variety of situations and localisations that they impose result in the actors finding themselves in different and often unequal positions. Unlike in a relation of a productive nature, or an exchange on the local market, they cannot in this situation hope for a balanced relationship since the very topology of the space and their respective situations lead them to asymmetrical relations. The difference is at the basis of the relations between actors and cannot disappear in the context of their interactions (Torre & Caron, 2002).

It is the case, for example, of a catchment basin in which micro localization proves essential for the treatment of sewerage or for the management of eroding runoff, the actors situated upstream benefiting from a much more comfortable situation than those situated downstream who collect the discharge or must manage important volumes of water in the case of flooding for example.

From these oppositions between unwelcome and desirable geographical proximity, tensions and conflicts emerge between neighbors, the different users of the space. These tensions and conflicts are characterized by their micro-local nature (*i.e.* between contiguous or close neighbors) and by the fact that they emerge in relation to the uses of space. Whether punctual or repetitive, they emerge at inter-individual level (bad relations between neighbors, assaults, recourse to third parties, retortion, retaliation) but they can also be managed by individuals (elected people for example) and moral people or groups, in particular by

associations representing the users of the space, administrations, local or territorial collectivities. The conflicts and tensions are not systematically solved; they can last, with phases of confrontations and periods of antagonism.

Thus, geographical proximity is a source of conflicts and presents negative dimensions seldom emphasized in apologetic literature which often discusses it. The question that should be raised now is that of the resolution of the conflicts and of the modalities of coordination between local actors. They can be found in the other type of proximity, *organized proximity*. In this case, if the complex play between geographical proximity and organized proximity is visible, the crucial part played by the different forms of organized proximity proves once again essential.

It is important to stress first of all that organized proximity is not only a modality of resolution of conflicts and tension; it can also generate conflicts. For example, refusing to accept the presence of certain social or ethnic classes in the more wealthy housing settlements could be likened to a symptom of the NIMBY syndrome [8]: geographical proximity then fails because of much stronger organized proximities (Chamboredon & Lemaire, 1970; Boschma, 2003).

However, organized proximity is generally mobilized as a modality of anticipation, mediation or resolution of conflicts that emerge at local level. Indeed, going to court - often presented in literature as a sanction of the failure of the cooperative solution, and as being the most recognized form of conflict resolution - is but one possible solution to conflicts, or may even represent one phase of its history. Different modalities of conflict management, which sometimes can be carried out in parallel, must be distinguished (Wall & Callister, 1995). They are negotiation, verbal or physical confrontation, the recourse to the justice system, third-party mediation or the use of the media in order to bring the matter to the public opinion. It is during the negotiation phases, outside the peaks of conflictuality, and during mediations through third parties, that organized proximity intervenes.

Organized proximity contributes to the production of more or less temporary compromise, at local level, between the actors that generate tensions or conflicts. It makes it possible to either anticipate the conflict (see Commons' definition of the terms of negotiation (1950)), or to launch a mediation that will lead to a compromise, or to attempt to stop the conflict by finding a permanent solution. The negotiation then depends on the rules imposed at local level by the regional, national or supra national authorities, but it also aims to produce rules for local use, negotiated and produced collectively by the local actors in order to manage conflict situations. It can be carried out on indirect bases, through technical acts, signs (for instance road signs) or third parties who attempt to facilitate mediation. But it mostly takes a direct and explicit form expressed through face to face relations or within collective organization and consultation mechanisms.

In this case, both logics of belonging and similarity of organized proximity are required to ensure that the process of coordination functions. Belonging to one same network or one same organization enables the actors to start discussing the rules that must be produced within the implemented negotiation mechanism and the technical modalities of the solutions to be found (logic of belonging). But it is mainly the logic of similarity which is mobilized.

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[8] Not In My Backyard

Firstly because it conditions the acceptance of the common rules of negotiation that are at the origin of the process and are indispensable to its launching. Secondly because it alone allows the production of collective rules accepted by all parties involved in the negotiation, and the production of beliefs and anticipations shared by all actors, a temporary and revisable compromise that surpasses conflicts and tensions and enables the actors to trace a common path. It is this construction which organized proximity enables, for example in the case of the resolution of conflicts regarding the creation of a refuse incinerator or dump. Although it is not always easy to find a solution that satisfies all parties involved, sharing one's viewpoint with others and consulting with them often makes it possible to reach a satisfactory compromise.

Thus, in the case of land-use conflicts, the founding distinction between geographical proximity and organized proximity finds a new expression in which geographical proximity is a source of conflict and tension that can be solved by mobilizing the resources of organized proximity.

Conclusion

The objective of this article was to pave the way for an analysis of the relations between proximity and localization of activities and people. Both notions are indeed often mistaken for one another in contemporary literature, geographical proximity being de facto classified as co-localization.

Our method has consisted in exploiting the semantic wealth of the notion of proximity. We have distinguished, on the analytical plan, both types of proximity (geographical proximity and organized proximity) and proposed a grid of analysis of the main models of geographic organization of activities by articulating both types of proximity. We have obtained four scenarios.

We then introduced the phenomenon of tension between geographical proximity and organized proximity in order to discuss problems that are often under-estimated in spatial economy. This has enabled us to define three main lines of research for spatial economics.

Firstly, organized proximity offers powerful mechanisms of long-distance coordination which constitute the foundation of the increasing geographic development of socio-economic interactions. The confusion made in literature between interactions of information and knowledge exchange and the constraint of being located in proximity neglects the fact that the collective rules and representations of organizations do manage, and at a distance, an increasing part of these interactions. By defining behavioral rules and means of sharing information and knowledge, organized proximity increases the possibilities of long-distance coordination. As a matter of fact, it has been observed that globalization is accompanied by an increasing production of coordination standards, including between organizations (ISO 9000 standards for example). The rapid diffusion of information and communication technologies, added to this increasing formalization of coordination, contributes to increasing the potential of long-distance coordination. What matters is not so much to determine whether coordination requires geographical proximity or not as to analyze how the supports of coordination - i.e. rules and technologies - make it possible to extend so considerably the possibilities of long-distance coordination. Similarly, rather than claiming that the phenomenon of agglomeration no longer has a reason for being, it is more relevant to analyze how the foundations of the agglomeration process are evolving.

We then showed that there was a disjunction between the need for geographical proximity and co-localization of actors, by introducing professional mobility and what we have called temporary geographical proximity. We have also emphasized the ability of big

organizations to manage the presence in different areas of their units, so as to adapt to the temporal nature of the need for geographical proximity of these units (permanent, temporary, secondary) whereas smaller organizations are more constrained by fixed co-localisations which are only needed for certain phases of their interactions. The analysis of individuals' mobility and of its impact on the economic organization of geographical space must be developed and must not be restricted to discussing traditional aspects such as commuting or international migrations. The increase in mobility multiplies the possibilities of long-distance coordination as it provides a way of maintaining face-to-face interactions even between actors who are located in geographically distant areas. It also reinforces the role of the nodes of transport networks as a factor of agglomeration.

Finally, we have raised the often neglected question of the negative effects of geographical proximity normally praised for its relational virtues (it generates confidence, reduces costs of transaction…). But in the case of limited support-goods, geographical proximity creates tensions between the actors who use them and tends to damage the local relational fabric. In this case one could say that geographical proximity plays against organized proximity (to use the language used in this article). However the negative externalities of geographical proximity can be limited by integrating them within organizations or institutions, that is through a re-composed organized proximity enabling one to solve conflicts and launch processes of cooperation or negotiation within ad hoc mechanisms. A more dialectic approach to geographical proximity (positive and negative effects) and to its relation to organized proximity is thus proposed for this purpose.

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