
8. Language and economic organization

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In this chapter, two broad perspectives on organization and language are reconstructed. The first perspective focuses on language in organizations: how language is used in organizational settings. This includes economic modeling and experimental work, inspired by both Arrow's influential notion of 'organizational code', but also more qualitative field work on language games organizations play. The second perspective focuses on organizations as language. Moving from Searle's view that institutions are at the heart a fact of language, two main issues are explored: the combinatorial (generative) nature of organizational processes and forms, and recursion as a fundamental organizing principle. Despite its apparent fragmentation, the study of organization and language appears mature for integrative efforts that may help to reconsider how language shape organizational life.

INTRODUCTION

Language is ubiquitous in organizations. It permeates virtually all organizational phenomena. It is hard to imagine any form of human organization without language supporting it. Yet, despite language pervasiveness – or maybe for its taken-for-grantedness – research on organization and language is still a largely underdeveloped province of organizational studies. It mostly consists of an unsystematic set of theoretical principles and empirical observations, and of research streams hardly communicating with each other. Writing a handbook chapter on information and language is thus a peculiar challenge, since the matter lacks the organization and the set of generally understood principles and regularities that make a 'handbook spirit'.

This chapter has no pretense to provide a complete map of a rather scattered territory, but instead suggests a simplified organization of select research around a few thematic principles. First of all, I make a distinction between 'language in organizations' and 'organization as language'. The former clearly aims at studying how language is used within organizations and how it interacts with important aspects of organizational life. The latter indicates that organizations can be analyzed as language phenomena; or more weakly that organization and language share important structural features.

The study of 'language in organizations', in turn, has been undertaken under fairly different points of view, reflecting different theoretical commitments from loosely coupled communities of researchers. In his chapter, I will focus on two main perspectives. The first one belongs to a tradition ascribed to the influential book by Arrow (1974) on *The Limits of Organization* – although dating back at least to March and Simon (1958). It focuses on the analysis of 'organizational codes', that is, of how organizations structure information representation in order to enhance coordination effectiveness and efficiency. This tradition of research, at the crossroads of information economics and

models of bounded rationality, emphasizes the advantages deriving from organizational information-handling, while considering also its potential negative side-effects. Recently, research on organizational codes has received renewed attention both in modeling and empirical efforts, reported below.

A second major thread of research on how language is used in organizations addresses the interactions of language and action patterns in organizations. If research on codes is mainly dealing with semantic issues of meaning representation, this research addresses a sort of organizational language pragmatics. Studies in this field are often grounded in the (second) Wittgenstein's concept of 'language games' (Wittgenstein 1953), or in the theory of speech acts (Austin 1962; Searle 1969). The fundamental point from this stream of research is that in organizations 'people do not use language primarily to make accurate representations of perceived objects, but, rather, to accomplish things' (Alvesson and Kärreman 2000: 137). The same piece of 'code' can be used for very different purposes. Research in this area mostly focuses on the reconstruction of such different usages and how they integrate in larger units of discourse, as reported below.

As Searle (1995) has repeatedly argued, however, language is not just instrumental in human institutions; it is the stuff of which institutions are made. This leads to the section of this chapter focusing on organization as language. Most of it deals with issues related to the broader grammatical aspects of organizing. Two classical structural features of grammar are especially relevant to analyzing organizations. The first one is the combinatorial (or 'compositional') nature of language, and its associated generative capacity; that is, the capacity to generate potentially infinite new combinations. The second, associated aspect is the recursive nature of language: the fact that linguistic entities can be embedded within themselves, generating self-similar structures. Recent research has investigated how the combinatorial and recursive aspects of organizing generate the variety of organizational forms and action patterns, and may help to solve the puzzle of organizations as intentional agents. Finally, I suggest avenues for a possible conversation among the different research communities populating this vital but still fragmented research area.

Any attempt to selectively map a loosely structured research field is bound to leave out important domains of analysis. I chose to neglect fundamental contributions that, while highly relevant for the study of organization and language, are addressing core issues that find more easily home in other organizational research domains. It was an especially painful choice to leave aside the rich set of contributions to the semiotic analysis of organizational culture (Barley 1983; Fiol 1989, 2002), which is much contiguous to the themes in this chapter, and that would deserve an autonomous treatment. Also, issues of organizational narrative and storytelling (Boje 1991, 1995; Czarniawska 1998), that deal with higher levels of discourse organization, were left out with regret. Reasons of space, and the focus of this Handbook on integrating economic and organization theory, determined the choice of issues in this chapter.

ORGANIZATIONAL CODES

In general, a code is a system of symbols assigned to represent some information, which is shared or agreed between a sender and a receiver. The use of 'code' as a way

to characterize information representation in organizations is associated to Kenneth Arrow's seminal book on *The Limits of Organization* (Arrow 1974). While the concept of 'code' in Arrow is clearly inherited from communication theory (Shannon 1948), its use diverges from the original, since 'different bits of information, equal from the viewpoint of information theory, will usually have very different benefits and costs' (Arrow 1974: 38). Arrow's analysis introduces two fundamental assumptions: individuals have limited information processing abilities, and from an individual point of view acquiring a code is an irreversible investment. These two assumptions have major implications for understanding how code affects organization.

Codes are relevant in organization because 'much of the information received is irrelevant' (Arrow 1974: 53). Reducing the costs of handling irrelevant information is a fundamental task for organizations: codes arise to enhance the efficiency of communication within organizations. One may see an organizational code as a specialized language employed within an organization. Of course, a code can work only if it is adopted on both sides of a communication channel, by both sender and receiver. Thus, organizations have to invest in codes shared by their members, who in turn have to invest in learning them. Shared codes considerably enhance the coordination capabilities within organizations while making communication efficient. Yet, their nature of irreversible investment generates some peculiar implications.

Firstly, efficiency comes at the cost of potential information loss. Information that can be relevant might never be channeled through the organization. Organizational codes limit the 'agenda' of organizations, the items that are considered relevant for decision making. Of course, a well-designed code should capture the information which is more relevant to the organization; but even in this case, new issues may arise, criteria of relevance may change, and thus a code may act as a barrier preventing the acquisition and processing of information of significant decision-making value.

Secondly, organizational codes generate path dependence. A code may be generated to respond to specific circumstances, but its nature of irreversible investment will freeze the effect of those circumstances and carry it on to new contexts, since changing a code is costly. Furthermore, changes in codes might disrupt coordination if they are not simultaneously adopted by anyone in a given organization. As a result, codes will become firm specific, depending on the time and the context of their original creation, and rather rigid over time.

Arrow's analysis has been greatly influential. However, most subsequent analysis of organizational communication has focused more on issues of information channel design (Radner 1993; Bolton and Dewatripont 1994; Christensen and Knudsen 2010), while Arrow's analysis of organizational languages or codes has not been developed until recently, when the design (or spontaneous emergence) of codes has become the object of significant theoretical and experimental developments.

On the theoretical side, much attention has focused on the degree of coarseness of organizational codes. How coarse a code is has obvious implications for organizations. Think of the degree of 'coarseness' of a code as the categories agents use to classify situations, objects, actions, and so forth. Clearly, agreeing on broader categories when classifying a specific object is easier than agreeing on finer ones. At the same time, finer categories are more informative. Thus, a fundamental problem of design is to deal with the trade-offs between the informativeness and the coordination advantages associated to a given degree of coarseness of a code.

Crémer et al. (2007) preserve Arrow's original assumption that an organization can design its own code, and develop a simple formal model of code optimization from which remarkable properties follow. The basic set-up is made of two agents – say a salesman and an engineer – that serve clients demanding a solution to a distribution of (finite) problems. The salesman, given bounded rationality, has an upper limit k of problem categories into which to classify problems. The organization has to design a code made of k 'words' (each word stands for a category) that allows the salesman to transmit to the engineer information on the class of the problem presented by a client; in other words, the code is an organizational lexicon of problems. In turn, the engineer has to work out a diagnosis of the problem before solving it, and the less precise the word, the more costly the diagnosis activity. The optimal code is thus a code that minimizes such diagnosis costs, given the k limitation.

An immediate implication of the set-up is that an optimal code will assign less frequent events to 'broader' words (i.e. to coarser categories), while keeping more precise words to label more frequent problems. Furthermore, under conventional assumptions of convexity of the diagnosis cost function, coarser categories will be used less frequently.

Increasing the number of salesmen has an interesting (and somehow surprising) consequence. Imagine that there are an engineer and two salesmen, that have to communicate the category of problems presented by two different groups of clients carrying different distributions of problems. Despite the differences in the environments the two salesmen face, the optimal code will be the same for both of them (and contain k words). Thus, organizations will tend to 'standardize' their language against the variety of environments ('no dialects'), while saturating their agents' cognitive capacity. Furthermore, the resulting code will be the one you might expect if a single agent had to face the total distributions of both salesmen; and will reproduce the properties mentioned in the paragraph above.

Some of the most interesting implications however arise if organizations are left free to decide simultaneously both their code and their organizational structure, given the environment they face. Consider now two different services A and B, each consisting of an engineer and a salesman, and each facing a potentially different client environment. If problem distributions are different for the two client populations, optimal codes for A and B will also be different. At the same time, A and B might have an interest to collaborate if clients' rate of arrival is uncertain, in order to optimize the use of productive capacity, represented by the engineer's available time. When will it be convenient to integrate A and B, and what will be the implications for the organizational code? The predictions of the model are that integrated forms should prevail as the cost of each diagnosis decreases, the homogeneity of the two client distributions increases, and the synergy between the two services increases. The code of the integrated units will be, as above, the same for both. Thus, the distribution is that the relative disadvantage of using a more 'generic' common code for both units will be offset by lower unitary diagnosis cost (since the cost of 'imprecision' will accordingly diminish), by greater homogeneity of demand populations (which implies that the distance between the separate codes should be lesser), and (obviously) by greater synergy between the services.

Hierarchy can be introduced as vertical communication with separate local codes. Rather than integrating via horizontal communication, services A and B could preserve separate, specialized languages and hire a hierarchical 'translator' that receives messages

from one unit and translates it to the other one. Crémer et al. (2007) show that hierarchical integration will prevail in cases intermediate between those implying prevalence of separation or horizontal communication; in particular, for values of the diagnosis (+ translation) cost which are intermediate between the high costs favoring separation and the low costs favoring integration by horizontal communication.

The theory can be used to formulate some interesting predictions, that contrast with those based on incentive considerations, as in conventional agency models. A good example is predicting the impact of information technology on organization. As information technologies reduce the cost of using imprecise categories by decreasing diagnosis costs, the prediction of the model is that one should observe increasing centralization of information and decentralization of decision making. Centralization of information is favored by an increase in links across and within firms by the means of both hierarchy and common codes at the expense of separation. And horizontal, decentralized coordination spreads as a substitute for hierarchy. Both predictions find ample support in the evidence over organizational changes induced by the diffusion of ICT.

Similar concerns animate Wernfelt's (2004) model of organizational languages. Just like Crémer et al. (2007), Wernfelt is interested in the implications of coarse coding, for example the use of some broad partition of the states of the world in communication (and thus the use of 'imprecise' words). Differently from Crémer et al., however, Wernfelt does not assume that an organization can design an optimal language, but instead looks at the set of codes that can be supported in equilibrium in a coordination game. The context is that of a team (thus, there are no conflicting interests) where members have to coordinate in allocating resources and each member has a privately known valuation of the resources. Communication is costly, so the team has to solve the trade-off between coordination advantages and communication cost. The main result of Wernfelt's model is that here will be multiple equilibria, some of which are inefficient. Furthermore, equilibria in which different groups of members use different codes may exist if the importance of the 'local' group coordination exceeds the advantages of inter-group coordination. The model has implications for both inter- and intra-firm phenomena. On the one hand, the model implies that stable differences in firms internal languages may be a source of inter-firm differences in an industry; on the other one hand, heterogeneous environments may raise difficulties for intra-firm coordination due to the internal code differences they induce.

In parallel to the renewed interest in modeling organizational code, and independently from it, there has been a recent stream of experimental literature looking at the emergence of codes in coordination games played in the laboratory. Very much in Arrow's spirit, this literature emphasizes the efficiency of codes, their effects on coordination, and their specificity and history-dependence. At the same time, it is concerned with the emergence of coordination equilibria rather than code design, and opens new windows onto the internal structure of code. It also demonstrates the wide applicability of experimental methods in such field of research.

Weber and Camerer (2003) investigate a simple experimental paradigm derived from research on psycholinguistics (Clark & Wilkes-Gibbs 1986). In the basic set-up, sender-receiver pairs of subjects have to develop a common system of verbal expressions (in natural language) to represent ('denote') single objects out of larger collections of them. For example, a sender must enable the receiver to find a single picture representing a

scene of office life out of a collection of 20 pictures of similar subject. Players have a common interest, being rewarded for mutual success. Cost considerations can be added by introducing rewards for faster communication, providing incentives for the emergence of shorter codes. Thus, pairs of subjects have to solve the fundamental expressive trade-off between efficiency and clarity of communication (Martinet 1964). Long descriptions make it easier to individuate single pictures and succeed in coordination, but are too costly. Shorter descriptions are more efficient but risk to miss their communicative goal.

Camerer and Weber show that, within each pair, stable and efficient codes tend to emerge with experience; the duration of each element of the code evolves along classical learning curves. At the same time, codes tend to present substantial path-dependence, being highly pair-specific. As a result, attempts to match subjects coming from different pairs generate substantial breakdowns in performance, due to differences in the codes developed by each pair and to inertia in adapting to the new organizational setting. Besides these results, that confirm the basic Arrow (1974) predictions, Weber and Camerer (2003; see also the subsequent Feiler and Camerer 2010) can extend their framework to an experimental analysis of the causes of mergers failure, by considering the effects of integrating individuals coming from different organizational codes in pre-existing pairs. Taking organizational codes as metonymies for organizational cultures, they show how individuals facing the perspective of a merger tend to systematically underpredict the impact of structural change on the speed of adaptation of the code (and consequently on organizational performance).

Selten and Warglien (2007) develop a different experimental paradigm, looking at the development of artificial languages in pairs of subjects facing a coordination game, in which they have to agree on a code to denote geometric figures composed combinatorially out of a set of constituent features. The use of an artificial language (made out of arbitrary signs) allows a stricter control of the cost of communication and of the structure of the language being generated. Furthermore, Selten and Warglien compare how different environments affect the nature of the language generated. This allows for establishing some new results. On the one hand, the endogenous emergence of roles is demonstrated. The need to attain efficient code with little coordination failure often leads to the spontaneous establishment of asymmetric roles, where one member of the pair is assuming the role of the designer of the code, while the other member follows. This supports the idea that even in pure self-organizing contexts code design may emerge as an effective answer to the need to achieve linguistic coordination. The most interesting result, however, concerns the internal structure of the code. Selten and Warglien observe that whenever subjects have to deal with often repeating sets of figures (stationary environments), efficient but idiomatic, structureless codes tend to emerge. However, when dyads of subjects face ever-changing sets of figures, they tend to develop grammar-like languages structures that allow for capturing the combinatorial structure of the figures and express it in a rule-based, compositional language. When a figure will be seen only once, there is no room for idiomatic codes learned through repetition. Subjects need to find ways to express objects seen for the first (and last) time and make their expression understandable to others. When *ex post* adjustment is not possible, some sort of '*ex ante*' flexible coordination rule has to be found. The result corrects the somehow pessimistic conclusions of Arrow (1974): once one looks at the internal syntactical structure of lan-

guage, its combinatorial, generative capabilities can to some extent correct the inertia and rigidity that may be suggested by a look at its lexical aspects only.

Language Games, Speech Acts and Organizational Pragmatics

Research on codes addresses a very simplified view of organizational language: its basic lexical aspects, or how elementary ‘units of meaning’ represent single entities such as objects or events. Indeed, very little is said about the internal structure of organizational languages (with the possible exception of Selten and Warglien, looking at conditions favoring the emergence of compositional proto-grammars), nor about the way language is actually used ‘in action’: what could be broadly labeled the ‘pragmatics’ of organizational language.

A fairly differentiated thread of research has tried to address the latter issue – how language is used in organizations – by looking at more qualitative evidence and building on conceptual, verbal theorizing. Being often radically critical of economic thinking and adverse to what is often (mis-)labeled as ‘positivistic research’, this stream has unfortunately rarely sought interaction with the literature on organizational codes (the same applies symmetrically to the latter). As an unfortunate result, there has been no effort to integrate the results of both, although, as I will argue later, there might be important opportunities for dialogue and cross-fertilization.

If economic thinking on organizational language has been much leveraged on a view of codes as representations, much research on language in action has taken as a reference point Wittgenstein’s (1953) concept of a ‘language game’. Originally, the concept of language games was meant to convey the move from a view of meaning as ‘representation’ to a perspective on meaning as use. As is well known, Wittgenstein never gave an explicit definition of language games, as an expression of his late preference for the use of ‘family resemblances’ between concepts rather than definitions based on necessary and sufficient conditions. Instead, he provided examples and suggested general properties associated to such examples, the foremost being that language games are ‘part of an activity, or form of life’ (Wittgenstein 1953: 12). In a similar vein, researchers have suggested and analyzed examples of language games played in organizational context. I will briefly refer here to three such examples: the leadership game, managerial ambiguity and the use of linguistic ‘war games’ in competing organizations.

In his essay on leadership as a language game, Pondy (1978) submits the concept of leadership to one of those ‘therapeutical’ language analyses characteristic of the late Wittgenstein style. In particular, Pondy notices that since behaviors are observable, while meaning is not, leadership studies have overemphasized the nature of leadership as influence on behaviors, underestimating its nature of a language game that engages a leader in influencing meanings – how people perceive and conceive the nature of their activity, the problems they face, their sense of identity. As a matter of fact, Pondy claims, much leadership acts are language acts, that affect behaviors only through the mediation of the meaning creation process: ‘the real power of Martin Luther King was not that he had a dream, but that he could describe it, that it became public, and therefore accessible to millions of people’ (Pondy 1978: 230). It is thus the use of language subtleties that makes leadership effective. For example, by articulating in words the inarticulate, tacit feelings of a group, a leader can transform such feelings in a social fact, as many

successful orchestra conductors are able to do. By recognizing this aspect of leadership one can understand a fundamental issue of leadership, the possibility to induce surprise while being understood at the same time; generating new meaning implies a mixture of novelty and the common ground that makes understanding possible. Moreover, leadership is open-ended: one cannot understand the open-ended nature of leadership acts without referring to the generative property of language, its ability to generate a potential infinity of new, understandable expressions – a point that will be developed later in this chapter.

Astley and Zammuto (1992) analyze in a similar vein the inherent ambiguity of managerial language. In their own words, ‘organizations are created and sustained as managers engage their surroundings through the use of linguistic codes and conventions that define appropriate patterns of social activity. Corporate language categorizes and structures organizational context, define organizational boundaries, and provides a framework within which action unfolds.’ (Astley and Zammuto 1992: 449). Why should managers demonstrate a preference for linguistic ambiguity rather than adhering to rules of clarity and unambiguity like, for example, scientists? Astley and Zammuto argue that ambiguous language responds to the fact that managers have to face inconsistent demands while producing a sense of order and direction. Ashley and Zammuto illustrate their claims by the example of managerial language in organizations trying to recover from bankruptcy (Ertel et al. 1991). The language game managers have to play during recoveries from Chapter 11 bankruptcy is that of creating a sense of (new) direction while reassuring constituents that their concerns are addressed. Thus, their statements must be equivocal to be compatible with a variety of interpretations. The nature of organizations as a political coalition of heterogeneous interests (Cyert and March 1963) forces management to provide an ambiguous language.

It has often been claimed that the language of conflict can shape our perception of other players in a game (McNamara et al. 1999). Schelling (1960) has strikingly remarked that while our vocabulary is rich in words designating common interest or adversarial relationships, there are no words to designate the relation between players when motives for conflict and cooperation coexist. While we have a rich lexicon for partners or for opponents, how are we to designate someone who is a partner and an opponent at the same time? Devetag and Warglien (2008) provide experimental evidence of the inherent difficulty in representing the coexistence of conflicting and common motives on simple ‘mixed motives’ games, and relate it to basic linguistic constraints. Rindova et al. (2004) analyze how organizational language can trap organizations in extreme conflict and competition – in ‘war language games’. Using the ‘cola wars’ of the 1980s as a leading example, Rindova et al. (2004) show how the use of a war language in competition creates an ‘enemy mindset’ in which organizational actors and stakeholders are increasingly mobilized in an effort to destroy the competitor, using all available competitive ‘weapons’. Typical effects of the war language game are attribution errors (declines in performance are attributed univocally to aggressive moves of the competitor); focus of attention on competition with the rival, disregarding other factors; greater emotional involvement in rivalry; and the legitimation of aggressive moves. Once started, a war language game becomes self-reinforcing, triggering a sequence of retaliation moves that locks both rivals in the interpretation of behavior of the other as merely aggressive. Thus, Rindova et al. (2004) argue that

rivalry in industry can depend not only upon the structural conditions of an industry, but also the (history-dependent) dynamics triggered by the language games organizations engage in.

It is common to associate language games and speech acts. However, while language games tend to conflate meaning and use (Bach 2006), the notion of speech acts (Austin 1962; Searle 1969) tends to separate them, making a clear difference between the meaning of words and what a speaker can make with words (the speech act). Examples of speech acts are commands or excuses. In a way, the notion of a speech act directs attention to what is represented in a code. One particular type of speech act, performatives, has attracted the most attention of organizational theorists interested in language. According to Austin (1962), a performative is a sentence which does something in the world rather than describing something about it. Examples include a promise, a sentencing to jail or a nomination to an organizational position.

Perhaps the most influential use of the category of performative speech acts for organizational analysis is Winograd and Flores's (1986) attempt to define organizations as networks of commitments, and to suggest design strategies for organizational communication on the grounds of such definition. Flores and Ludlow (1976) analyze 'what do people do in an office' and find the prevalence of two types of performatives: directives, expressing desire that an action be performed ('I would like you to go immediately to the headquarters'); and commissives, expressing commitments to perform an action ('I promise to deliver the report tomorrow morning'). Flores and Ludlow suggest that 'organizations exist as networks of directives and commissives' (p.102), a point that might suggest a strong similarity with a contractualistic view of organizations as systems of mutual promises. However, the emphasis on a contract-like relationship is somehow integrated by the centrality of notion of breakdown: things happen all the time that make contractual-like relationships fail, and organizational (and managerial) action is mostly concerned with repairing such breakdowns through conversations (linguistic interactions) that trigger new networks of directives and commissives. Thus, Flores and Ludlow (and later Winograd and Flores) suggest a sort of conversational counterpart to the modern theory of the firm, where managerial conversations are the fundamental organizational answer to the inherent incompleteness of ordinary networks of work commitments.

Speech acts theory has been employed in the analysis of different organizational issues. Ford and Ford (1995) analyze the change process in organizations as a phenomenon that occurs within organizational communication (rather than being just supported by it). They claim that in different phases of the change process different types of performative speech act are prevalent. For example, phases in which the process focuses on understanding are characterized by assertives (commitments to bring about evidence about assertions), while performatives and commissives (see above) play a major role when action for change (focus on bringing intended change results) is called for. Ford and Ford also describe in conversational terms how breakdowns in the change process may happen and what can cause them. Donohue and Diez (1985) study the use of conversational directives in work negotiation in relation to different parameters characterizing the negotial process. Cooren (2004) analyzes the production and use of texts in organizational contexts, and explores the type of actions that can be performed by texts by using Searle's classification of speech acts.

Among speech acts, declarations (Searle 1969) have special relevance for the investigation of the relationships between language and organization. They are speech acts whose content is brought into existence by the very performance of that act. The legal founding of a company, the nomination of a chief executive officer (CEO), the bankruptcy declaration are such kind of speech acts. In an insightful analysis of such speech acts, John Searle (1995) points to some fundamental properties of declarations that have broad implications for theories of institutions (see also Hodgson 2006). First of all, what kind of ‘fact’ is created by a declaration? A declaration attributes to a person or a thing a function – a function that is not ‘naturally’ associated to the person or thing. For example, being a piece of printed paper does not imply being money. When John is nominated Dean, he is attributed functions (legal rights he can exert, decisions to make, etc.) that are not originally associated to John as such. Thus, declaring a Dean or a CEO is performing a constitutive rule (Searle 1995) of the type ‘X counts as Y in C’, where C is the context within which the attribution of function (‘counts as’) is defined. The second relevant property of the ‘fact’ created by a declaration is that it is an ‘institutional’ fact as long as the function attributed to X can be performed only if there is a collective agreement or acceptance in some constituency. If nobody (or even not enough persons) in a community do not recognize to that piece of paper the attribution of money, it ceases to perform such function. The third important element of Searle’s analysis is the claim that institutional facts are inherently language-dependent. This is due not only to the fact that constitutive rules are almost universally performed through some linguistic medium. More deeply, a constitutive rule has by itself a linguistic nature, since the attribution of function is a symbolic act that imposes a status on X by a marker, a symbolic element that make it possible to add to X its institutional status.

While this short summary of Searle’s analysis can hardly do justice to its breadth and depth, it should suffice to illuminate a fundamental point: a formal organization, as any institution, cannot come into existence and be reproduced without constantly relying on institutional facts of a linguistic nature. Organization is language, a point that will be further developed in the next section.

ORGANIZATION AS LANGUAGE

Generative Rules for Organizing

An often-cited Karl Weick definition is that organizing is a ‘consensually validated grammar for reducing equivocality by means of sensible interlocked behavior’ (Weick 1979: 3). The analogy between language and patterns of actions has deeper roots (often gone unnoticed) in Chomsky (Miller and Chomsky 1963; see also Skvoretz and Fararo 1980). The challenge to look at grammar as a model for organizational phenomena has been taken up by a thread of research which has emphasized that organizing can be considered as a language, with its lexicon and its syntactical rules.

In a series of important contributions, Brian Pentland (Pentland 1992, 1995; Pentland and Rueter 1994) has explored how processual aspects of organizations can be analyzed in terms of explicit grammatical models. After Chomsky, modern linguistics has been emphasizing the generative nature of grammar: its capability to generate a potentially

infinite set of (correct) sentences out of finite elements. By specifying structural constraints over admissible sentences, grammars 'describe a set of possible outcomes, not an individual outcome'. Pentland has suggested a basic description of the elements of an organizational grammar, applying it to organizational processes, that can be considered the organizational equivalent of a sentence. First of all, Pentland (1995) suggests mapping the lexical components of a grammar to the 'moves' in an organizational process. The concept of a 'move' is derived from Goffman (1981). Moves are acts (not just 'speech acts') that 'have a distinctive unitary bearing on some set or other of the circumstances in which participants find themselves' (Goffman 1981: 24). For example, in a software support organization (Pentland 1992) moves can be 'assign', 'transfer', 'refer', and so on. Secondly, syntactical aspects can be identified. Pentland (1995) suggests two types of syntactical elements: syntactic constituents and syntactic constraints. In linguistics, syntactic components are subunits of the sentence structure (such as noun phrases or verb phrases). Sentences are obtained as combinations of such constituents. Pentland notes that 'syntactic constituents provide a way of describing the structural features of a pattern without elaborating it down to the specifics of the lexicon' (Pentland 1995: 545). March and Simon's (1958) 'performance programs' or Nelson and Winter's (1982) routines are suggested to be the organizational syntactic constituent. Like language ones, they can be combined and nested together in larger units. Constraints over admissible combinations, however, are provided by grammatical rules. Example of such constraints are: institutional structures (e.g. institutional constraints on access to resources), technological structures (that affect possible combinations of actions in interaction with artifacts), coordination structures (interdependencies between individuals' actions that constrain their combinations, such as sequential constraints *à la* Thompson 1967) and cultural structures (constraining appropriate behavior). In an analysis of a customer service center providing support to users of a software product, Pentland and Rueter (1994) offer an example of how a grammatical analysis of organizational processes could be performed, demonstrating the empirical viability of his approach. The case analyzed is especially interesting because, on the surface, it displays a great variety of behaviors; something apparently far from a routinized process. However, once 'moves' are coded and their sequences are analyzed in the light of a grammatical model, strong regularities emerge. By using a testing method based on work by Olson et al. (1994), Pentland and Rueter show that most observed sequences of moves can be 'rewritten' in terms of the rules of a simple grammar made of a limited number of rules.

The issue of generativity takes center stage also in the contribution of Husey in Leblebici (2000; see also Salancik and Leblebici 1988). However, in Leblebici's approach the focus shifts from moves and routines to transactions and forms. The problem addressed by Leblebici is how to explain the generation of the variety of existing organizational forms (and how new forms can come about). Rooting his approach in the institutionalist tradition, Leblebici shifts the unit of analysis to transactions (which in turn have a sort of 'morphology' constrained by the nature of the goods object of transaction). Generative rules should help to understand how sets of patterned transactions (forms) can be organized. Four rules are suggested, that considerably overlap with those defined in Pentland's approach, but are framed in ways more consonant to the view of the firm as a 'nexus of contracts' (while the former is clearly akin to behavioral theories of the firm). Rules of causal order establish constraints over sequences or groupings of

activities. Rules of membership define who can be party to a transaction. Rules of allocation determine responsibilities and rights among member parts. Finally, rules of social discourse provide socially validated templates for modes of organizing (e.g. categories of organization forms such as ‘fast food’ or ‘elementary school’). Since these rules are subject to continuous social evolution, their change provides opportunities for innovation in forms. On the grounds of this conceptual structure, Leblebici sketches an analysis of the diversity of forms of governance structures based on the generative properties of rules of allocation. Different forms of governance result from different combinations of duties, power, liabilities and obligations, and other rights and obligations among parties, according to rules that are derived from an analytical classification of legal relations between transacting parties.

The Recursive Constitution of Organization

A feature of language strictly associated to generativity is recursivity: the possibility to nest propositions within larger propositions, as in ‘I think that you are guessing what I am thinking’. Recursivity is a more general capability of human cognitive systems, maybe its most characteristic signature; Hauser et al. (2002) actually claim that it is what makes humans unique. It is the same principle that allows us to bootstrap on the ability to add 1 to a natural number to generate an infinite set of natural numbers. Organizational hierarchical architectures, subsystems nested within other subsystems, are clearly children of recursion (Simon 1962). Indeed, the two fundamental abstract metaphors that allow us to think about hierarchy (and represent it) – the tree and the nested boxes – are recursive.

The recursive nature of language can help us to better understand one enduring puzzle of organizational discourse: how agency can be attributed to organizational entities. Organization theorists have always been oscillating between two ontological statuses of organizations. On the one hand, organizations have been viewed as actors with their own identity and intentionality; on the other hand, organizations have often been reduced to interactions among interdependent individuals. The first view is perhaps the most diffused, especially in classical organization theory, but also the most problematic. The nature of the organization as an actor that can decide, commit itself, adapt to a fragmented environment or even be proud of itself, is far from obvious. Of course, there is a set of legal constitutive facts (an instance of Searle’s declaratives) that provide juridical personality to organizations. But an organization is more than its juridical status. It has to reproduce itself each day through its participants’ behavior. Once more, Searle’s principle of ‘X counts as Y in C’, can help us to understand how language creates and reproduces multiple levels of agency by (recursive) function attribution.

This is the core of Robichaud et al.’s (2004) analysis of the constitution of organizations as actors through discourse. The challenge they face is how the intrinsically ‘multivocal’ and pluralistic nature of organizations as systems of individual actors can coexist and be reconciled with the univocal view of organizations as actors. In their view, recursivity is the key feature of language allowing the emergence of organizations as autonomous entities. They claim that the constitution of organizations as actors is based on the recursive embedding of levels of agency through discourse. Organizations persist and reproduce themselves through the mediation of language interaction – ‘organizational conversations’. The basic idea is that since conversations can ‘embed’ other conversations, collec-

tive agency is the result of recursively embedding the participants of a conversation in a new discursive entity (e.g. a group) of a higher level. For example a 'group' embeds the linguistic interactions among its participants by shifting to a higher level of discourse. This is possible because in a conversation participants can refer not only to each of them, but also to the relation among them established by the conversation. Thus, an 'us' level can be established. This process can only be successful in constituting a collective level of agency, however, as long as one individual can talk not only about a group, but talk for it, standing in a 'counts as' relationship with the new entity. More plainly, a collective entity can emerge not only where it is possible to refer to it, but also when 'there is a voice to represent it', instantiating the agency of the higher-level entity (see also Callon and Latour's 1981 theory of macro-actors). For example, union representatives can speak on behalf of a group of employees, but once single employees become 'the group' and someone can speak for the group, the single employees are 'black-boxed' in the new entity, that now can make commitments, be frustrated or accept. It is important to stress that the new entity does not need to be legally represented; it is enough that it is consensually represented in language, that all participants can identify as the 'group'. The legal declaration is just a special case of this broader process of linguistic constitution of a collective entity.

Robichaud et al. (2004) illustrate this framework by analyzing how in an encounter between a mayor and citizens the 'city as actor' increasingly becomes institutionalized at an autonomous level able to act, judge and listen, in a process that allows a shift from the level of personal stories carried to the encounter by participants to a more abstract representation of a 'voice translating many voices' in which 'individual voices will echo in the distance, as a ghostly presence' (Robichaud et al. 2004: 629). This allows the mayor to re-establish himself as the representative of the citizens' voice rather than a polemical interlocutor of their complaints.

While the evocative language of Robichaud et al. (2004) may look distant from the abstract language of economic thinking, it addresses issues that have become relevant in the recent economic debate. What makes us able to reason in terms of collective entities? Theories of team reasoning (Sugden 1993; Bacharach 1999) have recently stressed the power of reasoning in terms of collective entities to favor coordination. For example, Bacharach informally characterizes team reasoning in this way: when each member of a group works out what to do by putting themselves in the position of an imaginary manager and determining the action which the manager would prescribe for them, they "team reason". Robichaud et al. (2004) provide a first effort to understand how language shapes the emergence of such collective entities and their collective recognition and legitimation at multiple levels, and how we can imagine that such an entity 'reasons'.

SOME CONNECTIONS

The lack of interaction among different research threads is one of the major factors hampering the emergence of 'language and organizations' as a field with a recognizable agenda and a shared sense of key research questions. In particular, economic, typically formal views of organizational language and more cognitively, semiotically, typically qualitatively oriented ones have substantially ignored each other, with a great loss of

opportunities for intellectual progress. Yet, a more productive disciplinary dialogue is mature and timely. I briefly suggest three examples pointing in this direction.

Language and Cognitive Representations in Organizations

The literature on organizational codes has been often trapped in an oversimplified view of ‘meaning’ as simple reference to states of the world. More qualitative views of language in organizations have stressed how language contributes to the way organizations interpret or make sense of their environment: how language contributes to organizational cognition, and vice versa. The two views are not irreconcilable. A richer cognitive characterization of organizational codes is possible without losing formal rigor. For example, models of code ‘coarseness’ (Crémer et al. 2007; Wernfelt 2004) provide a first step towards a richer characterization of how categories are represented in codes (Jäger and van Rooij 2007) and how they affect interactive behavior (Mullainathan et al. 2008). Similarly, the role of context and metaphors in shaping how agents jointly construct meaning through language has often been emphasized in sense-making views of organizations. Without losing the richness of their content, these cognitive factors can be represented formally in ways that make them amenable to the modeling of interaction (Warglien and Gardenfors 2011); for example, one could represent and model how the manipulation of contextual cues affects the capability of two organizational agents to reach a ‘meeting of minds’ over the interpretation of a given situation.

Modeling Language Games in Organizations

Attempts to model language games – and bridge semantics and the pragmatics of language use – have been blooming in recent years (Benz et al. 2006; Parikh 2010). They might provide interesting ways to connect qualitative, interpretive studies of language use in organizations to formal models of communication. As seen above, field studies have repeatedly highlighted how ambiguity increases in organizational language as multiple constituencies with diverging interests exert their pressure over management (Astley and Zammuto 1992). This observation clearly resonates with a well-known result in the literature on communication in game theory: as agents’ interests diverge, the better-informed agent will send increasingly noisy (uninformative) signals to the less-informed one (Crawford and Sobel 1982). More recent developments in modeling language games can further contribute to explain how games of ambiguity work, for example by analyzing how agents disambiguate ambiguous signals (Parikh 2010). Of course, introducing behaviorally informed views of game playing might further enhance our understanding of the use of language in organizations. For example, taking into account cognitive difficulties in representing mixed-motives games (Schelling 1960; Devetag and Warglien 2008) can help to understand how the ‘war language games’ described by Rindova et al. (2004) may effectively tilt organizational members towards greater competitive aggressiveness. More generally, field research on organizational language can greatly enrich our view of the language games organizations play, while (possibly behavioral) game-theoretical models of such games can refine our understanding of agents’ strategies and the equilibria of such games.

Incomplete Contracts in the Light of Language

The notion of contractual incompleteness has been playing a central role on the stage of the debate on the economics of organization for several decades. In the recent theoretical debate, there has been a remarkable shift of attention towards the cognitive and behavioral aspects related to incomplete contracts (Tirole 2009; Hart & Moore 2008; Fehr et al. 2011). This has led to closer attention being paid to the flexibility inherent to incomplete contracts, and to the role of contracts as ‘reference points’, as well as to the fact that contracts might be ‘too complete’, not too incomplete. I suggest that attention to the semantic and pragmatic issues involved in contracting might provide a useful complement to such perspectives.

For example, traditionally the literature has focused on incompleteness as related to the insurgence of ‘observable but unverifiable states of the world’. This constrains the analysis to a very specific form of legal ‘truth gaps’ in the semantics of the contract. However, from the perspective of this chapter, it is clear that the different forms of contractual incompleteness are to a large extent related to semantic and pragmatic issues. In other words, and unsurprisingly, contracts happen to share most of the common ‘imperfections’ of the natural language in which they are written (and as in language, such imperfections may be virtues as well as defects). This would reveal a complex typology of form of contractual indeterminacy (Varzi and Warglien, n.d.), some of which are not really incompleteness but correspond instead to forms of overdeterminacy (e.g. to a form of ‘truth gluts’ that are dual to the classical forms of underdeterminacy).

When obligations and state of the world are not quantifiable or anyway not quantified in contracts, contractual elements are expressed in lexical terms that are usually evaluated in terms of categories (e.g. ‘stewing chicken’). In turn, categories have prototypes against which belonging to a category is established. The role of such prototypes as reference points provides important elements for understanding much of the informal agreement and shading processes that surround incomplete contracting (Fehr et al. 2011), as well as legal resolution of contractual disputes (see the classic *Frigalment Imp. vs. B.N.S Int’l Sales*). Furthermore, contracts themselves are usually written on the basis of default templates (Tirole 2009) that are usually molded on prototypical situations. Economic analyses of categorization and decision making (Mullainathan et al. 2008) might find a promising field of application in the analysis of incomplete contracts, and enrich the cognitive dimension of contract theory.

Finally, analyses of organizational speech acts have suggested that organizations are regulated by networks of commitments and promises (Winograd and Flores 1986) that share important similarities with incomplete contracts. Understanding how these commitments and promises are negotiated and maintained, and how their breakdowns are faced, might provide important comparative elements with the way in which incomplete contracts are negotiated, maintained and repaired. There are large dialogue opportunities between formal theories and field work that might shed new light on the continuum of forms of ‘directives and commissives’ that weave organizations and markets together.

CONCLUDING REMARKS

In a recent comment Brandenburger and Vinokurova (2012) have suggested that time seems ripe for ‘work in what might be called “organizational linguistics”’. This chapter has tried to map some of the research that might feed such work. The relative fragmentation of such literature may lead us to underestimate how much has already be done, and its potential impact on classical issues in research on economics and organization. Most of the current research on organizations and economics still implicitly considers language as a neutral veil on organizational decision making. New insights may be gained by removing this assumption and by starting to look into the deep effects of language on the nature of organizational life.

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PART III

THE SHAPING OF ECONOMIC ORGANIZATION BETWEEN DESIGN AND EVOLUTION

