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AN APPLICATION OF SEARLE'S THEORY OF SOCIAL PHENOMENA
TO NEW INSTITUTIONAL ECONOMICS

Javier **Legrís** y Paulo **Pascuini**



Instituto Interdisciplinario de
Economía Política de Buenos Aires
(IIEP-BAIRES)

Universidad de Buenos Aires, Facultad de Ciencias Económicas
Instituto Interdisciplinario de Economía Política de Buenos Aires
Av. Córdoba 2122 - 2º piso (C1120 AAQ)
Ciudad Autónoma de Buenos Aires, Argentina
Tel +54 11 5285-6578

<http://iiep-baires.econ.uba.ar/>

Consejo Nacional de Investigaciones Científicas y Técnicas
Ministerio de Ciencia, Tecnología e Innovación Productiva
Av. Rivadavia 1917 (C1033AAJ)
Ciudad Autónoma de Buenos Aires, Argentina
Tel +54 11 5983-1420

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Javier Legris

UNIVERSIDAD DE BUENOS AIRES. FACULTAD DE CIENCIAS ECONÓMICAS. DEPARTAMENTO DE HUMANIDADES. BUENOS AIRES, ARGENTINA.
CONICET-UNIVERSIDAD DE BUENOS AIRES. INSTITUTO INTERDISCIPLINARIO DE ECONOMÍA POLÍTICA DE BUENOS AIRES (IIEP-BAIRES).
BUENOS AIRES, ARGENTINA.

CONSEJO NACIONAL DE INVESTIGACIONES CIENTÍFICAS Y TÉCNICAS -UNIVERSIDAD DE BUENOS AIRES. INSTITUTO
INTERDISCIPLINARIO DE ECONOMÍA POLÍTICA DE BUENOS AIRES (IIEP-BAIRES). BUENOS AIRES, ARGENTINA.

javier.legris@gmail.com

Paulo Pascuini

UNIVERSIDAD DE BUENOS AIRES. FACULTAD DE CIENCIAS ECONÓMICAS. DEPARTAMENTO DE ECONOMÍA. BUENOS AIRES, ARGENTINA.
CONICET-UNIVERSIDAD DE BUENOS AIRES. INSTITUTO INTERDISCIPLINARIO DE ECONOMÍA POLÍTICA DE BUENOS AIRES (IIEP-BAIRES).
BUENOS AIRES, ARGENTINA.

CONSEJO NACIONAL DE INVESTIGACIONES CIENTÍFICAS Y TÉCNICAS -UNIVERSIDAD DE BUENOS AIRES. INSTITUTO
INTERDISCIPLINARIO DE ECONOMÍA POLÍTICA DE BUENOS AIRES (IIEP-BAIRES). BUENOS AIRES, ARGENTINA.

paulopascuini@gmail.com

UNA APLICACIÓN DE LA TEORÍA DE LOS FENÓMENOS SOCIALES DE SEARLE A LA NEW INSTITUTIONAL ECONOMICS

ABSTRACT

In Economics the notion of institution is not sufficiently defined, at least not in a formal way. In this paper, some elements of Searle's foundation for the formal study of social phenomena are taken to propose a more comprehensive and formal characterization of the concept. Also, for the purposes of an intuitive understanding of the proposal's attributes, it is tried out an application to the concept of institution in the case of New Institutional Economics, at least Williamson's account (1975).

RESUMEN

En economía, la noción de institución no está claramente definida, al menos no de manera formal. En este documento, se toman algunos elementos de los fundamentos de Searle para el estudio formal de los fenómenos sociales con el objetivo de proponer una caracterización más completa y formal del concepto. Además, a los efectos de una comprensión intuitiva de la propuesta, se ha ensayado una aplicación del concepto de institución en el caso de la aproximación Williamson (1975) a la New Institutional Economics.

Keywords: New Institutional Economics - Institution - John Searle - Philosophy of Sociality - Philosophy of Economics

Palabras claves: New Institutional Economics - Instituciones - John Searle - Filosofía de la sociedad - Epistemología de la economía

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1 Introduction

There is great diversity in social science literature on such basic questions as what is the proper way to conceptualize and analyze institutions. This is probably because the conceptual difficulties are almost inevitable [6]. In order to establish a constructive interdisciplinary dialogue it is necessary to establish a common conceptual ground to facilitate the discussion. In this sense, it is usual to take any of the many definitions of "institution" and from there proceed to work within the framework of economic research. Many times, the definitions and interpretations of the concept of institution are not explicit, as if there were an implicit consensus within economic theory about *the* meaning. The problem is that there is no such consensus on the definition of institution¹. In this regard, it is a critical task of philosophy to question, and if possible to answer, the ontology, form of existence and reality of institutions. The contribution of John Searle on the construction of social reality provides a foundation for the formal study of institutions, synthesized in his paper "What is an institution?" [18]. However, Searle's theory should not be regarded as a contribution to political philosophy devoted to the establishment and procedures of governments, firms, legal courts and the like. Instead, it aims at providing a general foundation for social ontology, being a contribution to the philosophy of sociality.

Although Searle's account of institution lacks mathematical precision and is not formalized, it constitutes a useful basis to develop a formal characterization of the concept of institution. For this purpose, some elements of Searle's account must be explicitly defined and further notions must be precisely introduced. These elements are those referred to the processes carried out by individuals in order to establish the existence of an institution, the set of information taken into account by them, and their own belief about what others believe with regard to the existence of an institution. Mainly, those ideas referred to the subjective nature of institutions must be clearly specified. The cumbersome character of the ideas to be formalized, leads to the need to illustrate them by means of a particular use of the concept of institution. For these purposes, the characterization will be tried out for the concept of institution present in New Institutional Economics (NIE).

Concerning the illustration, while the discipline recognizes the contributions of Coase, Williamson and North as NIE's theoretical foundations, there is no explicit agreement yet either on the characterization of NIE or its concept of institution. However, the direct applicability of Searle's account to the study of NIE's idea of institution is not clear. This may be because Searle's work focused on the ontology, existence and form of institutional reality, but not perspicuously enough to grasp the use of the concept of institution in NIE due to its specificities².

Given the above, we will attempt to explore the applicability of the formal characterization proposed by Oliver Williamson's characterization of NIE in *Markets and hierarchies: analysis and antitrust implications (a study in the economics of internal organization)* [23]. However, previously, it will be necessary to elucidate

¹For an in- depth discussion, see "Rationality, Institutions and Economic Methodology" [11], in which Uskali Mäki, Bo Gustafsson and Christian Knudsen take up, very clearly, the discussion about the differences between the two lines of thought, the debate on the concept of institution and other dilemmas that revolve around institutions within science.

²See Searle [17] and [19].

the implicit meaning of institution in the NIE.

This paper is organized as follows. In section two a review of the key notions of Searle's theory of institutions will be outlined. The third section is devoted to elucidating the concept of institution in the particular case of the New Institutional Economics that will be used as an illustration in section four. The fourth section will be divided in two subsections. The first proposes a formal and comprehensive characterization of the concept of institution on the basis of some elements taken from Searle's conception exposed in section two. The second illustrates the formal characterization previously presented by means a reconstruction of the concept of institution at NIE following Williamson [23]. Finally, the last section is a synthesis of the results arising from the analysis.

2 Searle's theory of institutions

In recent years John Searle has developed a philosophical account of the structure of social reality, that is to say, the fundamental nature and mode of existence of human social institutional reality, its creation and maintenance³. The general question to be answered by this account can be stated as follows: *What is the ontology of social reality?* This question has also obvious implications for the ontology of economics, in so far as economic phenomena are social. Searle's account attempts to solve traditional questions through a new conceptual framework within the analytic tradition in philosophy and different from social theory or social constructivism.

Searle's ideas evolved from his contributions to the philosophy of language, but they have their roots in an important tradition of contemporary philosophy concerning the *intentionality* of mental phenomena. The theory of speech acts led him to the idea that language is a basic institutional phenomenon in social life. Generalizing this claim, all social facts are of institutional nature. On this basis, it can be argued that "Economics is largely concerned with institutional facts" ([18], p. 1). In few words, this means that the mode of existence of economic entities (*e.g.* money, commodities, stock markets) is institutional. *Institutional facts* are facts depending on human institutions (*e.g.* buying a piece of chocolate with a one dollar bill). They exist as a result of *attitudes, intentions*, etc. There is a dependence on human beings and their *intentional states*. In general, *intentionality* has to do with the "directedness" of the individual mind; it is a feature of the mind by which it is directed at objects and states of affairs (that must be objective). Hence, intentionality is subjective and individual⁴ and the ontology underlying Economics is a *subjective ontology*.

In order to justify these claims concerning the institutional character of social facts, Searle follows the methodological tradition of *analytical philosophy*, so he tries to achieve an elucidation of the nature of institutions by analysing statements reporting *institutional facts*. Statements such as "This is a one dollar bill", "Paulo is a graduate student in Economics", "Benjamin is the father of Charles", "Mardi Gras is celebrated in New Orleans", "She rents an apartment in downtown Buenos

³See mainly Searle [17] and [19].

⁴See chapter 2 of Searle [19] for a more detailed account of intentionality.

Aires”, etc. represent institutional facts. In his philosophical framework, Searle includes some sort of realism concerning physical entities; a strong scientific realism, according to which the basic facts of the structure of the universe are given by natural science (physics, chemistry, biology, etc.). Social facts, on the contrary, are “observer dependent phenomena” and in their constitution subjective aspects play a role, so that they presuppose a subjective ontology. Now, the main problem is:

to explain how there can be an epistemically objective institutional reality of money, government, property, and so on, given that this reality is in part constituted by subjective feelings and attitudes and, thus, has a subjective ontology. [18], p. 4f.

According to Searle there are three⁵ basic notions that are indispensable in order to characterize social reality:

1. The first of these notions is *collective intentionality*. Individual behaviour is just part of the collective action, where the intentions of the individuals are, in an extremely complicate way, related to the collective intentionality that constitutes the basis of society⁶ However, it must be stressed that for Searle collective intentionality is dependent on and derived from individual intentionality⁷ A brief explanation could be the following: Being *A* an individual and *ZZ* a group of individuals performing an action collectively, *A* engages in collective action, so *A* is doing what she does as part of the “*doing*” of *ZZ*. Somehow, the intentionality of *A* is part of the collective intentionality of *ZZ*. In short, “any fact involving collective intentionality is a social fact” ([17], p. 38). It must be stressed that in this account of social reality collective intentionality functions as a primitive notion, even if it depends on individual intentionality.
2. The second basic notion in the characterization of social reality is the assignment of functions. Human beings have the capacity to assign specific functions to objects (and also to persons). Tools are the simplest examples. An individual can use a trunk as a tool, a group of individuals can use a large trunk as a bank. When this notion is combined with the previous notion of collective intentionality, the idea of a *collective assignment of functions* arises: social groups or communities assign functions to objects. Assigned functions are observer relative.
3. The third basic notion is a special case of assignment of function to objects, the *status function*. There are some actions that an object or person can perform only by virtue of the fact that a certain *status* has been collectively assigned to

⁵ Actually, Searle considers a fourth basic notion that he uses to explain intentionality: There are preintentional capacities in the mind that enable intentional states. Searle calls these capacities the “Background”, for further details see Searle ([17], p. 129ff). As this notion depends on a particular thesis in Searle’s philosophy of mind and language, it will not be discussed here.

⁶ Searle considers that human beings can engage in cooperative behavior and do not consider non-cooperative actions as a possibility of collective action.

⁷ See Searle ([19], p. 4). Hence, Searle presupposes methodological individualism.

this object or person (so that this status is accepted by the group). A typical case would be an instructor in his function of evaluating the written exams of students.

Collective intentionality, as defined above, presupposes another attitude consisting in the *collective recognition* of status function as characterized above. Particularly, status functions can only work if they are collectively recognized. Collective recognition is as an *epistemic* attitude, and it must be distinguished from both cooperation and agreement. Searle makes this distinction explicitly: collective recognition does not imply some degree of approval, and “collective recognition need not be a form of cooperation” ([19], pp. 57 f.)

However, Searle does not dedicate special attention to characterization of collective recognition and its main features. So, as some clarification is due, the following interpretations of collective recognition will be proposed. Individual belief is presupposed in collective recognition; the individual recognition of status function takes for granted the belief in its recognition by other members of the society. Thus, collective recognition implies that each individual,

- comes individually to recognize a status function
- believes others have their own individual recognition of the status function, and
- believes something⁸ about others, who are relevant for individual recognition of this status function. Therefore, it can be argued that collective recognition can be reduced to individual recognition plus their belief about individual recognition of others⁹.

Now, in terms of the first three notions (collective intentionality, assignment of functions and status functions) and in terms of the features proposed for the notion of collective recognition: the general form “*X counts as Y in context C.*”, where *X* represents certain features of an object, a person or a state of affairs, *Y* assigns a special status to *X*, and *C* indicates that this assignment holds in a determinate context (a legal framework in force, the situation of a group or a community, etc.)¹⁰, and there exists collective recognition of *Y*, represents the form of institutional facts. It is obvious that from this perspective, the coming into being of institutional facts is a complex process, in which different intentional attitudes are simultaneously involved.

If the institutional fact becomes regularized, it becomes a *rule*, and then it becomes an *institutional structure*. Here the term “rule” can be understood in a dual sense. First, a rule expresses a regularity in the social reality, and hence it expresses a *law* in the social world. Second, it may express and explicit social *norm*, if the institutional structure is formulated in a code¹¹.

⁸That each of them recognizes or not individually the status function.

⁹This proposal may differ from Searle’s account, particularly in the idea of “mutual belief”, and could be compared with Raimo Tuomela’s approach [22].

¹⁰Of course, this general form can be iterative, that is, *Y* can include other institutional facts, and the context can be institutional with their corresponding institutional context.

¹¹In some cases it may be difficult to distinguish the two senses.

Anyway, the general form “ X counts as Y in C ” expresses also *constitutive rules* of institutional structures. This means that they establish or constitute the institutional practice or behaviour: Acting in accordance with such rules is constitutive of the behaviour in question. Thus, the existence of the institutional fact (as *institutional*) depends on the rule. From this basis, Searle claims that,

the institutional ontology of human civilization [...] is a matter of states functions imposed according to constitutive rules and procedures ([18], p. 9)¹².

Let us see, for example, the case of a real estate lease agreement. A written signed piece of paper counts as a lease agreement in certain circumstances. This lease agreement counts as assuming commitments, and assuming commitments counts as a contract. These (constitutive) rules are instances of the mentioned form “ X counts as Y in C ”. If there are no such rules, there exists no contract. On the other hand, these rules carry rights and duties for the tenant and the landlord, regulated by the same rules.

3 New Institutional Economics

The New Institutional Economics has been shaped primarily from the contributions of Ronald Coase [3], [4] and [5], Oliver Williamson [23], [24] and [26], and Douglass North [12], [13] and [14]. These authors consider institutions as a key factor in explaining the differences in performance between industries, nations and regions because they frame the behavior and the exchanges at the market, business networks, communities and organizations, influencing the results of their interactions. According to North’s characterization, NIE’s goal is to extend existing theory through the incorporation of transaction costs that give rise to institutions in order to remove the assumption of instrumental rationality. Not only North, but also Williamson, in his own characterization of NIE, points out that what is done is complementary to, and not a substitute for, traditional analysis (see [23], p. 1).

In short, according to NIE as described by North and Williamson, institutions emerge from the existence of transaction costs that arise from the limited and incomplete capacity of humans to analyze data which leads them to make decisions resulting in imperfect markets. Thus, institutions are created in order to generate exchange modes that reduce transaction costs. The two institutional modes in which NIE focuses are: internalization of coordinating of resources allocation within the firm (*make*) and coordinating of resources allocation through the market (*buy*). In Williamson’s words: “I focus on transaction and the costs that attend completing transaction by one institutional mode rather than another” ([23], p. 1).

¹²Searle distinguishes between two functions of constitutive rules. Constitutive rules of the form “ X counts as Y in C ”, as mentioned above, determine or constitute a certain event or entity: an institutional structure. But they also regulate behaviour, and, consequently, in most cases, they behave also as regulative rules. Regulative rules are not necessarily constitutive; they can regulate activities that exist independently of the rule.

Going back to Ronald Coase [3], NIE tries to understand the reasons for coordinating the allocation of resources using firms or market. Following Sykuta [21], the explanation that Ronald Coase proposed to that enquiry was:

1. The price mechanism is not costless, so sometimes it would be cheaper to use internal organization to allocate the resources.
2. The firm's managerial and coordination costs increases at the same time the firm's scale and heterogeneity of transactions do. So, these costs will go on increasing to the point where marginal cost of completing the transaction of another resource into the firm is higher than attempting to complete that transaction in the market.

So, the decision to internalize resource allocations or use price mechanisms can be made using a marginalist approach. This approach is to compare the marginal cost of transacting an additional unit of resource by each institutional mode. In simpler words, the aim is to decide whether to *make* or *buy* it. The market institution refers to a broad manner in which price and quantity for trade are agreed. In the ordinary sense a market is a physical place where there are sellers offering products or services they want to sell, and buyers who want to buy them. In an institutional sense, the market is a specific mode of transaction governed by a price mechanism.

Typically, there is a price posted by a seller and fixed for some duration. Then, each buyer can accept or reject this price. Sometimes, the price posted can be seen as an invitation to negotiation, so buyers will offer a lower sum that can be accepted or rejected, and so on, until the time at which it is decided whether or not the transaction is performed. Of course, there are many other possible combinations of market structures and sequences of interaction between bids and offers to reach the quantity and price that will govern the transaction.

Initially, the transaction in the market, roughly speaking, would be the simplest and more usual way to transact. In a monetary economy, the market transaction may simply imply an exchange where the buyer gives to the seller a monetary sum according to the price posted by the latter and then receives from it the good or service purchased. Since dealing with suppliers and subcontractors entails risks and incentive problems, such as moral hazard and adverse selection [15], transaction at the market may be more complicated in relation with the simplest example. Then it would be beneficial to take precautions in order to ensure the fulfillment of the promises in each of the situations that could trigger a default of them. This leads to two observations:

1. Taking precautions is expensive.
2. It is impossible to know all the states of nature that would lead to a breach of promise, which means that the transaction has an inherent risk.

As further precautions are taken to ensure the fulfillment of promises, risk is reduced but the transaction costs rise to the point where it is more convenient to

internalize the activity (*make*) instead of performing the market transaction (*buy*)¹³. At the other extreme, there is the option to coordinate the allocation of resources into the firm in order to avoid market risks. It is the so called *hierarchies scheme*, where there are people (employees) that promise to fulfill certain kind of tasks they are commanded to (subordinate to the authority) by other people (employers or their representatives) as long as they are promised a remuneration (wage) for their activities within the organization. It should be noted that as in market transactions, the coordination of the allocation of resources within the firm involve promises, which again involves risks, such as moral hazard and incentive problems. In part, the employment relationship reduces risk because the existence of a lasting bond between the parties creates incentives for both of them to fulfill their promises. Then, the existence of certain states of nature that can lead to non-fulfillment of the promises establishes the framework for the emergence of new institutions aimed at reducing the costs associated with those risks (*e.g.* unions, labor contracts, labor laws).

4 A formal characterization of institution

Even if Searle's presentation of the structure of institutional facts is perhaps too simplistic, lacks mathematical precision and is not formal enough to adequately express phenomena such as iteration, the foundation of rules and norms or the clear distinction between generic facts and specific cases, it constitutes a useful cornerstone to develop a more general, comprehensive and formal characterization of the concept of institution. For this purpose a formal characterization¹⁴ of the concept based on definition of its constituent elements and the bond between them will be proposed.

In order to provide an intuitive illustration of the attributes of the proposal, will be attempt to reconstruct Williamson's account, and to study the causes and effects of different modes for governing the allocation and coordination of resources in an economy in terms of the characterization. So, the problem will consist in determining the different processes of buying and making as "institutional modes" by means of which the allocation of resources can be accomplished. The main idea should be that the usual coordination mode of allocation of resources for a task is the fact that gives rise to an institution.

This section is divided into two stages, a first one where the formal characterization is proposed and a second one with an illustration based on the NIE's concept of institution.

¹³It seems evident that between the market and the firm there is a wide grey range of organizational structure. The complexity of this great gray area, "hybrid" accordingly to Williamson [25], is widely covered by contractual theories. However, the analysis of it is outside the scope of this paper.

¹⁴Although the epistemic game theory would be an interesting approach, for the purposes of dealing with an appropriate extension of Searle's account, the characterization will be carried out by direct stretch of his original formalization.

4.1 The proposal

In a first approximation, an institution will be a system of institutional structures compounded by institutional facts, where the institutional facts obey the general structure "X counts as Y in context C" by virtue of the collective acceptance that something (X) has a certain status (Y). So, the main task is to define the elements X, Y and C and the collective acceptance.

The first step will be to define the context:

Definition 1 Context: *A context C will be conceived as a finite set,*

$$C : \langle W_1, W_2, \dots, W_n \rangle$$

With n finite, of facts or events of every kind.

A context¹⁵ C_j will be a particular context j . Intuitively, the context is compounded by the whole world information.

Given that context C has been characterized, it is necessary to make it clear that the individual does not necessarily have access to the entire set C_j of information, so Q_j^i will be the available information subset for individual i included in C_j . So, $Q_j^i \subseteq C_j$.

Let's define the constitutive elements of the institutional fact X and Y:

Definition 2 Aspect of an object, or person or affair: *X_n is an aspect of an object, or person or affair that has the property to be assigned a status function. With n finite.*

Definition 3 Status Assignment: *Y is a specific function that can be assigned to an object, a person or affair. This status can be assigned individually by virtue of the individual acceptance that something has this status or jointly by virtue of the collective acceptance that something has this status.*

Some examples of status assignment are given in section two. Once that it has been established that the individual has limited information of the world and there have been defined the elements of the structure "X counts as Y in context C" which may be considered an institutional fact by virtue of the collective recognition, the next step is to define the collective recognition. In order to define it, let's first characterize the individual recognition as the result of a process made by individual i in order to establish her own individual recognition of a certain status assignment.

Definition 4 Individual Recognition: *k_n^i , with n finite, is the result of individual recognition process $H_i(Q_j^i)$ made by the individual i using her Q_j^i available information of the context C_j , with relation to certain status assignment Y over X_n . So, $k_n^i = H_i(Q_j^i)$.*

There are two aspects of the result k_n^i of i individual recognition necessary to be highlighted:

¹⁵For the present discussion is not essential to make a neat distinction between facts and events as ontological entities.

1. The process H_i is subjective to each individual i and takes into account information in Q_j^i that may include some elements that will not necessarily be quantitative.
2. About the i evaluation process H_i , since it is particular and subjective to each individual, it can only be said that it is the process used by the individual i to decide whether X_n may receive the individual status assignation Y . In other words, k_n^i , for each n , may represent the recognition that, for i , a particular (object, person or affair) X_n has the the status asignation Y .

Once the *individual* recognition has been defined , the next step is to establish the necessary elements to characterize *collective* recognition. Now, we will establish R^i as the set of T individuals r whose individual recognition is relevant for i , where:

$$R^i : \{r_1, \dots, i, \dots, r_T\}$$

Note that obviously, i is included in its own R^i set of T relevant individuals r for itself.

As individual i cannot be certain about the actual individual recognition of each r ($r \neq i$) individual compounded in R^i , i will have its own belief $K_{r,n}^i$ for each r 's individual recognition, with n finite and r included in R^i set of T relevant individuals for i . For the particular case $r = i$, then $K_{i,n}^i = k_n^i$. This means that i can be certain about i 's own individual recognition, so what i believes about i 's own recognition is actually what i recognizes.

In order to complete the characterization of the collective recognition, once individual recognition has been defined, the set of R^i individuals whose individual recognition is relevant for i and i 's belief of r 's individual recognition, as individual i will not assign the same importance to each r 's individual recognition, it will be established α_r^i as the relative importance assigned by i to r individual recognition (according to i belief: $K_{r,n}^i$), where, $\sum_{r=1}^T \alpha_r^i = 1$

Finally, the individual collective recognition will be characterized as the result of a process by which each i individual will define her belief of collective recognition.

Definition 5 *Individual Collective Recognition:* A_n^i , with $n = \text{finite}$, is the result of i 's process G^i , to establish i 's own belief in the collective recognition, where i assigns different weights to what i believes about the individual recognition of the T individuals r included in set R^i of relevant individuals for i , so: $A_n^i = G^i(\alpha_r^i K_{r,n}^i)$.

Following Searle's theory of institutions, the definition of institutional facts, institutional structure and institution will be:

Definition 6 *Institutional Fact:* Any event that obeys the general structure " X counts as Y in C ", by virtue of collective recognition that something has a certain status.

Definition 7 *Institutional Structure:* Is a procedure X counts as Y regularized as a constitutive rule.

Definition 8 Institution: *Is a system of institutional structures.*

It is extremely important to note the presence of the subjectivity of i (i) at her individual process of individual recognition (as well as r do), (ii) at her subjective construction of R^i set of T relevant individual recognition individuals, (iii) at her belief of others individual recognition, (iv) at the weight i applies to her belief of the individual recognition of other individuals, and (v) at her own process to reach her belief on the collective recognition. Once clarified, the existence of an *institutional fact* is subjective to each individual.

Then, summing up Searle, once the *institutional fact* regularizes (rules), it becomes an *institutional structure*, and finally if there exists a system of rules, an *institution* is formed according to Searle's conception. Now, as noted in the previous paragraph, the idea of regularization is subjective to each individual.

4.2 An illustration

For the purposes of the illustration, the main task is to fix the values of X , Y and C for the specific case of coordination of allocation of resources and define the collective acceptance in this particular case.

First it will be necessary to define two relevant subsets belonging to the context C . These will be the information of costs subsets:

Let f and m be two subsets such that: $f, m \subseteq C$, and containing the whole information about the direct and indirect costs related to the accomplishment of the transaction in a specific way. Here, m included in C is the subset of direct and indirect information of the costs of coordinating the allocation of resources by the market and f does the same with the firm.

Now, a particular context C_j will be composed of n facts or elements where we will just be concerned about those included in subsets f and m that contain only information referred to costs. So, a particular context j is:

$$C_j : \langle f, m, \dots \rangle$$

There are two aspects of context C_j necessary to be highlighted:

1. f and m include values that are not necessarily quantitative (*e.g.* m may include information related to the risk associated to the accomplishment of the transaction through the market).
2. These costs also include the costs associated to coordinate the resource allocation in a particular way (*i.e.* the famous transaction costs). Some examples are moral hazard, managing, etc.

In this case, the available information $Q_j^i \subseteq C_j$ will be a subset that contains among its elements some available information respect to m and f for the individual i .

Let's define the Y status assignation and X that represents aspects of an object or person or affair. In this particular case, the status assignation Y will be the way

of coordinating the resource allocation and X_n is a specific way of coordinating the resource allocation, with $n = 1, 2$.

Now the two specific X_n can be considered:

- X_1 : Buy.
- X_2 : Make.

So, X_1 (“buy”) or X_2 (“make”) may receive the status assignation Y (“is the way of coordinating the resource allocation”) in a particular context C_j ¹⁶.

It must be remembered that this structure (“ X counts as Y in C ”) may be considered as an institutional fact by virtue of the Collective Recognition.

To reach collective recognition in this particular case, first it must be established that the result of the individual recognition process $H_i(Q_j^i)$ may have as result a value k_n^i , with $n = 1, 2$.

Then, k_n^i can adopt two values for each n :

- k_1^i : is individual i 's recognition that *buy* is the way of coordinating the resource allocation.
- k_2^i : is individual i 's recognition that *make* is the way of coordinating the resource allocation.

The individual i relevant set of individuals R^i will not have any particularity in this case. Here the individual belief of the individual recognition $K_{r,n}^i$ of other individuals will be i 's belief of each r individual recognition. With $n = 1, 2$ and r included in R^i set of T relevant individuals for i . So, $K_{r,n}^i$ can adopt two values for each n :

- $K_{r,1}^i$: is i 's belief that r individually recognize that *buy* is the way of coordinating the resource allocation.
- $K_{r,2}^i$: is i 's belief that r individually recognize that *make* is the way of coordinating the resource allocation.

Then, the individual i collective recognition A_n^i can adopt two values for each n :

- A_1^i : is i 's belief that there is a collective recognition that *buy* is the way of coordinating the resource allocation in context C_j .
- A_2^i : is i 's belief that there is a collective recognition that *make* is the way of coordinating the resource allocation in context C_j .

Once the values have been fixed that the elements of the structure “ X counts as Y in C ” can adopt for the particular case of the institutional modes of coordinating the resource allocation in NIE (Williamson’s account), and once the collective recognition has been characterized, in this framework there exist two relevant “disjointed” *institutional facts* for individual i :

¹⁶Compounded by n elements, where the only relevant ones are those related to the costs of coordinating the resource allocation in a specific way being included in subsets m and f depending if they are related to buy or make as the specific way of coordinating the resource allocation.

- X_1 counts as Y in C_j (*Buy* counts as the way to coordinate the resource allocation in specific context C_j).
- X_2 counts as Y in C_j (*Make* counts as the way to coordinate the resource allocation in specific context C_j).

By virtue of i 's A_n^i belief of collective recognition¹⁷.

In fact, these sentences represent “general (institutional) facts”, that are (hypothetically) valid in every time and space, given certain context. They can be used as basis for norms and can have instances related to specific situations, processes and objects, in a particular space and time. These facts are economic facts, because they refer to the allocation of resources.

It may be observed that both the regularized way of coordinating the allocation of resources as well as the context itself can prompt the rise of further institutional facts. This is keeping with Searle’s idea that institutions can be iterative. Regarding Searle’s account, let us consider an example of iterated institutional facts for this illustration. As seen in section 2, Searle considers that an institutional fact is any fact that can be represented through the semiformal structure: X counts as Y in C . Suppose now the case of *make*. Coordinating the allocation of resources within the firm (X_2) counts as a regulated way of coordinating the allocation of resources (Y) in a given context C_j . But this institutional fact gives rise to the possibility that the firm can provide the market with a new good or service in which case a further institutional fact (thinking about NIE) will take place, and so on.

5 Conclusion

In the preceding sections the main elements of Searle’s theory of institution were presented, improved and expanded in order to get a comprehensive and formal characterization of the concept of institution. This characterization has displayed the subjective features of the processes carried out by individuals to establish the existence of an institution including elements referred to a limited set of information available to individuals, their beliefs and evaluations of others beliefs.

To illustrate the use of the characterization proposed, the particular use of the concept of institution at NIE was presented. After attempting an elucidation of the implicit meaning of institution in the particular case of NIE (more precisely Williamson’s characterization of NIE), it was reconstructed by means of the formal characterization proposed. It has been found that, in NIE, the notion of institution is implicit in the analysis of the different modes for governing the allocation and coordination of resources in an economy. In the illustration, the two different modes of “buy” and “make” are described as modes of *institutional facts*. According to NIE, the elements in each case have specific features that have their origin in the context of the two different ways of attempting to complete transactions. So, in the illustration, the description provides an elucidation of the social ontology underlying these economical phenomena, giving an answer to the questions referred to

¹⁷These institutional facts in terms of Searle [18] are those institutional modes noted by Williamson [23].

ontology, existence and form of institutional reality that takes into account the NIE specificities. Now, the notion of institution resulting from the framework of the NIE (at least as defined by Williamson) has been analyzed, and fits properly, with some reservations, in Searle's formal characterization based on the general structure "X counts as Y in context C".

Although this is a first approach and it is expected to extend the analysis to other economic fields, the preceding discussion suggests that economical phenomena may be regularized actions of economic agents which are the result of collective recognition and of their particular actions, such as assignment of functions to objects and they have the formal structure first defined by Searle.

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