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# Language clustering and knowledge sharing in multilingual organizations: a social perspective on language

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**Abstract**
Knowledge sharing is a product of the collaborative and supportive environment shaped by socialization and informal communication between employees. Under the pressure of globalization and business internationalization, organization's workforce has become increasingly diverse particularly in terms of language. This has implications for knowledge sharing. It has been observed that employees tend to gravitate toward their own language communities leading to language clustering (language-based grouping) which affects informal communication and knowledge mobility in organizations negatively. Although existence of such clusters has been reported in many previous studies, we do not clearly understand how and why language brings these clusters into being and what kind of implications this has for knowledge sharing. This paper draws upon the theory of the semiotic processes of linguistic differentiation taken from linguistic anthropology to provide a theoretical framework capable of explaining the dynamics of language creating language clusters. Unlike previous knowledge management studies, which largely focus on the instrumental aspect of language, this paper adopts a social perspective on language. It is argued that to deal with language clustering we have to explore the dynamics operating behind it in detail. This will not only allow us to understand its implications for knowledge sharing but will also be helpful in devising potent knowledge management initiatives in multilingual workplaces.

**Keywords**
Knowledge management; knowledge sharing; language; language clustering; language diversity; multilingual organizations

## 1. Introduction

The world economy has shifted from an industrial/manufacturing-oriented economy to one based on knowledge and information. As a catalyst for organizational learning and development, knowledge has emerged as the principal organizational resource in today's knowledge society [1]. Unlike other organizational resources, knowledge is of most value if shared [2]. Successful execution of strategic plans requires constant collaboration and knowledge mobilization underlining the importance of knowledge sharing between employees [3]. Although integral to any knowledge management strategy, promoting knowledge-sharing practices in an organization is a daunting task [4]. Complexity of the phenomena emanates from the fact that a number of interpersonal, organizational and contextual factors influence informal knowledge sharing at the individual level. Recently, by virtue of business globalization, language diversity has been recognized as one of the influential factors in the process of knowledge sharing [5]. International mobility in general and firms' cross-border commitments (such as recruitment, mergers, and outsourcing) in particular have rendered workplaces linguistically diverse [6].

Language is usually considered a valuable resource since it allows the organization to communicate across borders and to use this resource in serving the diverse clientele efficiently [7]. Along with the benefits, there are also some disadvantages of the linguistic differences particularly concerning the internal functioning of the organization. One of the most evident disadvantages is the potential for linguistic differences to distort the smooth communication and social

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networking within the organization in a way that may not occur in the case of the presence of homogenous language speakers. In this regard, language clustering has been identified as an important phenomenon which affects knowledge sharing by moderating the informal communication between employees e.g. [8]. Language clustering occurs in multilingual organizations as a result of enhanced communication and socialization between same language speakers. In this way it affects knowledge sharing, which is a natural output of communication and strongly influenced by social relationships and frequency of interaction [9, 10]. Although empirical evidence suggests that language clustering affects knowledge sharing, we have, however, very limited knowledge of language clusters. Why these clusters come into being, why language similarity and differences become a source of socialization and categorization and what implications this has for knowledge sharing remain largely unanswered. It is argued that to thoroughly understand the influence of language clustering, we have to explore the dynamics operating behind it in detail. This will not only allow us to understand its implications for knowledge sharing in a different way but will also be helpful in devising potent knowledge management initiatives in multilingual workplaces.

This paper draws upon the concepts of linguistic anthropology that have rarely been consulted in knowledge sharing studies. The semiotic processes of linguistic differentiation have been used as a guiding framework to explore the formation of language clusters in multilingual organizations. It is argued that to understand knowledge-sharing peculiarities in multilingual contexts, we should view language from a social perspective. Social dynamics of language have a strong potential to explain certain knowledge-sharing practices in multilingual contexts and in this regard, the field of linguistics that has developed its theories and concepts over decades, may provide novel insights.

The paper is structured as follows: first, the literature of language clustering will be reviewed; then, the research gap in current explanations of language clustering, and the reasons for this, will be discussed. Following this, the semiotic processes of linguistic differentiation will be introduced and used as a guiding framework in providing the potential explanation for the formation of a language cluster through the social perspective of language. Finally, implications of language clustering on knowledge sharing will be discussed, followed by the conclusion.

## 2. Language clustering

Language clustering has not been studied in great depth, although its existence and implications for knowledge sharing has been recognized in a number of previous studies [8, 11-13]. Language clustering has rarely been defined in exact and explicit terms; instead, one has to grasp this concept by explaining the phenomenon in general terms. However, a consensus does exist on the basic concept of the phenomenon; it is the grouping of the people due to their tendency to interact more with those with whom they share a common native language in multilingual workplaces. One of the most explicit definitions of language clustering is found in Tange & Lauring [13]. According to these authors, language clustering is the "language users' orientation of social interaction towards the members of their own speech community" [13, p.228]. Thus, a language cluster is the group of people who engage in interaction more with those from the same speech community than with those from a different speech community. It is important to recognize that language clusters usually do not have clear cut visible boundaries and may not be as clearly identifiable as teams and communities of practice. Instead they are an unstructured group of people who engage in interaction more because of their linguistic similarity [8]. Members of the cluster may even be unaware of the existence of their own groupings because they see this increased language-based communication as a natural phenomenon rather than an output of the influence of a variable. This may have important implications for the knowledge-sharing process, since the subconscious aspect of the communication pattern makes existing knowledge flows look spontaneous and instinctive.

### *2.1. Language clustering and knowledge sharing*

In organizational studies, the existence of language clusters was first observed by Marschan-Piekkari, Welch and Welch [11] in their empirical study conducted in a large Finnish organization. Later, a number of other studies also identified language clustering practices in multilingual organizations [8, 12-14], although this had not been the main theme of their studies (with the exception of [13]). In their study of communication between subsidiaries and headquarters, Marschan-Piekkari et al. [11] observed that the communication pattern in the multinational organization is largely predicted by language differences in the organization. They reported different subsidiary clusters based on language similarity such as Germans and Austrians forming one cluster, Americans, British and Australians forming another cluster, Scandinavians making a third cluster and Spanish, Mexicans and Italians, a fourth cluster. They found that language clusters imposed their own structure on organizational hierarchy in terms of communication patterns and information flows. Seeking advice or information for decision making across linguistic islands was a rare practice in the

organization. Their study had an international management perspective; clustering was observed at the subsidiary level. However, it is important to note that the process of clustering almost always initiates at the individual level. This is apparent in the findings of the study on interpersonal similarity and knowledge sharing by Makela et al. [8] in which language was found to be an important source of clustering at the individual level in multilingual organizations. Language affects employees' capacity to build social networks which multiply and then start to appear at the subsidiary level. They proposed that actual subsidiary level language clustering appears to be an aggregate effect of individual language-based clustering. Similar to Marschan-Piekkari et al. [11], Tange and Lauring [13] also found language clustering in their study of informal communicative practices in a multilingual Danish organization in Denmark. They found that the Danes and other international workers preferred to interact in their native languages within their own speech communities even though English was the official language of the organization. This was particularly true for informal discussions and small talk in the corridors and cafeterias. This influenced the trans-organizational knowledge sharing resulting in the containment of knowledge within linguistic groups. By taking language in the larger sociolinguistic context, Remennick [14] studied the communication and language preferences among Russians and Georgians working in a medical organization in Israel. They showed how the presence of a large number of Russians in the organization left the Hebrew-only rule impotent. Language appeared to be the primary criterion for friendship and social engagements, influencing information-sharing potential between language communities negatively.

Though the existence of language clustering has been reported in many studies, there is very limited knowledge of how such clusters form and are sustained over time. This is apparently because language clustering has not been taken as a primary subject of investigation. A review of previous literature shows that language competency has been often used as the most common explanation for the language clustering. It has been argued that language competency in the second language or official language of the organization is an important factor in defining the communication patterns and ultimately language clustering [11, 15, 16]. This is a rational, however, over simplistic explanation, which seems to be applicable mostly to those who have limited proficiency in the corporate language. However we know that, nowadays, organizations consider language competency as an important element of employees' professional portfolio. Proficiency in a corporate language (mostly English) is used as an important criterion in the recruitment process particularly in knowledge intensive industries [17]. This implies that most of the employees particularly in the middle and top management should have good proficiency in the corporate language. In this scenario, it seems that language competency although very important cannot be an only defining factor for language clustering. This is particularly so in the contemporary globalized and multilingual world, where language has become a resource - valued and traded in the global market [18]. Learning a foreign language, particularly English, has become part of school and university education around the world, ensuring students are communicatively competent across linguistic borders. This is the era of bilingualism or in Edwards' [19, p.251] terms "élite bilingualism" which means that, at a given period of time, people learn a language other than their own due to its prevalent instrumental value and prestige at that specific time. At this particular moment, English can be considered as the second language of today's élite bilinguals, educated and trained for knowledge work in the information society.

It is important to explore the development of language clusters which have direct bearing on knowledge-sharing practices in an organization. The way we understand the development of this grouping largely affects the ways we conceptualize its implications for knowledge sharing. Moreover it also influences how we address the clustering issue. A common understanding that language competency explains the formation of language clusters, as discussed above, has contributed significantly in developing the concept that language diversity seems to be best dealt with by enhancing translation capability in terms of documents and knowledge management systems and by hiring bilingual employees, competent in the official language of the organization [17]. It is assumed that the introduction of translation services and bilingual employees will allow inter-linguistic dialogue, cooperation and communication which may neutralize the linguistic differences, hence increase the potential for smooth knowledge sharing across the organization. This is an instrumental perspective of language where the focus seems to be more on proficiency in a language (knowledge of grammar, morphology, phonology, and syntax), the number of languages (bilingual, multilingual), lingua franca (common language) or translation and the like.

Language is not simply a conduit to transfer messages; instead there is also a social aspect to language which sheds light on all non-instrumental aspects of language. Language is social in nature and it continuously interacts with the society and its users which make it more than a simple mechanism of message transfer. In order to understand language clustering and its implications for knowledge sharing, we should approach language from both instrumental and social perspectives. This is in line with the views of those linguists who insist that any study of language which focuses entirely on the instrumental function of language will be deficient and that "inappropriate limitations and restrictions can cripple insights" [19, p.1]. This paper tries to explain the phenomenon of language clustering by adopting the social

perspective of language. This means the focus would not be on an instrumental aspect such as proficiency in language but rather on the social aspect of language, which focuses on the intersections of language and emotion, social relations, power and politics. In order to achieve this purpose, the theory of the semiotic processes of linguistic differentiation given by Irvine and Gal [20-21] from linguistic anthropology has been used as a framework to explain the development of language clustering. With this new perspective in mind, language clustering implications for knowledge sharing have also been explored.

## 3. Semiotic processes of linguistic differentiation and language clustering

A plethora of research has been done on the effects of language in social life particularly within the latter half of the previous century. In the context of multilingualism and bilingualism, research done by both sociolinguists and linguistic anthropologists has been very useful in elucidating the links between social concepts such as power, identity, class, solidarity, social relationships and language. The usefulness of their work is not limited only to their fields. Many other disciplines in social science have benefited from insights on language generated by sociolinguistics and linguistic anthropology e.g. [22]. One of the important implications of the work on social aspects of language is the recognition of the association between language and society and, more importantly, its capacity to influence social behavior.

Three semiotic processes of linguistic differentiation presented by Irvine and Gal (1995, 2000) may also be considered as part of the social aspect of language research. At a general level, Irvine and Gal [20] tend to explain the way people cognitively and behaviorally react to different language speakers in multilingual situations. We hold certain views about language in general. These views are known as language ideologies and in language contact situations these pre-existing beliefs about language become an important defining parameter in categorizing others. Irvine and Gal propose that it is through the semiotic processes of iconization, fractal recursivity and erasure that people interpret sociolinguistic complexity by associating languages with certain persons or groups, which help in rationalizing the linguistic differentiation as a base for social differentiation. This theory has certain characteristics which make it suitable for exploring language clustering phenomena. First, the focus is on the group rather than on the individual. This is in line with the concept of language clustering that is a group level phenomenon. Second, it deals with multilingual situations where there is language contact. This contact can be at a general level in the society such as immigration, colonialism or, at a specific level within the institutions of the society, such as organizations. Third, and most importantly, the link between language and social phenomena is emphasized. In this way, sociolinguistic dynamics of multilingual situations have been explained from the social perspective of language by, for example, associating language with social identity and self-categorization processes in multilingual contexts. Finally, this theory provides a potential explanation for not only formation but also continuous existence of language clusters. In this paper, as we will attempt to show in the following discussion, it is argued that iconization explains why language clusters form, and fractal recursivity and erasure shed light on how such clusters continue to exist over a period of time. Irvine and Gal [20, p.37-38] describe the semiotic processes of linguistic differentiation as follows:

- Iconization involves a transformation of the sign relationship between linguistic features and the social images with which they are linked. Linguistic features that index social groups or activities appear to be iconic representation of them, as if linguistic features somehow depicted or displayed social groups' inherent nature of essence.
- Fractal recursivity involves the projection of an opposition, salient at some level of relationship, onto some other level.
- Erasure is the process in which ideology, in simplifying the sociolinguistic field, renders some persons or activities (or sociolinguistic phenomena) invisible.

### *3.1. Formation of language clusters - Iconization*

Iconization is the process through which a relationship between language and social image is constructed. Language identity becomes a parameter for defining one's non-linguistic characteristics such as culture, social identity, nationality, etc. Linguistic practices are then seen as a reflection of certain cultural and social images which may have nothing to do with the present reality. This bias towards iconic relationships leads to the point where we start to see this relationship as natural and true. Gal and Irvine [21] explain this phenomenon by reference to an example from a Hungarian village characterized by two dominant professions: craftsmen and farmers. Craftsmen usually used a speech style which was aesthetic and grammatically pleasant, as opposed to the farmers whose speech style was relatively plain and restrained. With the passage of time, these linguistic practices became iconic, resulting in the association of certain speech styles with professions in the village. Woolard [23] argues that this phenomenon is also prevalent in our societies at large,

where plain speech is associated with the common public and ornate speech with intellectuals and social élites. This phenomenon also extends to multilingual contexts where certain languages become iconic representation of social and cultural features. For example, hearing a language other than English in England, particularly one from South Asia, a region from which most British immigrants originate, may trigger the impression of foreignness, along with the mass of conjectures associated with it [24].

Iconization is a useful concept and has potential to shed light on group formation and categorization in multilingual workplaces. As mentioned earlier, the language cluster is a form of grouping, and when it comes to studying group formation one of the most suitable strategies has been through the concept of symbolic boundaries. Symbolic boundaries are "conceptual distinctions made by social actors to categorize objects, people, practices and even time and space" [25, p.168]. No kind of voluntarily formed group can exist without conceptual distinctions, hence approaching group formation through an analysis of symbolic boundaries allows us to explore "typification systems or inferences concerning similarities and differences" that groups use for the definition of self and the other [ 26, p.15344]. The concept of the boundary has been central in a wide range of literature in sociology dealing with the constitution of self and other in contexts such as gender, religion, social identity, ethnicity, immigration, nationalism and politics, e.g. [27, 28]. Here the formation of language clusters or groups is studied in terms of the formation of iconic or symbolic boundaries. It is proposed that language generates the symbolic boundaries out of its symbolic value through the process of iconization. In other words, how we see our own and others' languages, and how we associate different features with different languages, define iconic boundaries that lead to categories of us and them. What the symbolic value of language is and how this symbolic value is converted into symbolic boundaries leading to language clusters are important questions which are discussed below.

### 3.1.1. Symbolic value of language

An important feature of the process of iconization is the tendency of language to be symbolic. Language acts as symbolic representation of features of its native society, such as history, heritage, nationalism, collectiveness and freedom [19]. It is involved in all aspects of our lives ranging from socialization, education and work to performance of traditions and rituals, religious ceremonies, weddings and festivals etc. It is believed that the strong involvement of language in all the functions of society plays an important role in developing the associative capacity of language with social dynamics of the society. It has a tendency to become associated with those very features of society for whose expression it is usually used, such as culture. This symbolic relationship seems to be further reaffirmed by dependence of our linguistic communication on cultural cues and conceptions. According to Edwards, the symbolic value of language, along with its continuously accumulating historical and cultural associations, provides a rich underlay for every communicative interaction [19, p.5]. Apparently this is what makes it possible to read between the lines and understand what is not explicitly stated.

The value of the symbolic function of language is apparent from the fact that even though some languages are not spoken, they are still used as a common reference of association as, for example, Irish in Ireland, Welsh in Wales and Polish for fourth generation Polish Americans. Although Irish is spoken by only 3% of the population of Ireland it still continues to serve a symbolic role in Irish identity and culture [19, p.56]. Eastman [29] calls this an associated language, one that is not spoken by its group members but still works as common point of reference for group identity due to its association with its heritage. This shows that language has more than simply a communicative function. This symbolic perspective emphasizes the relational element of language which binds people together and gives a sense of collectiveness. The reality and existence of the symbolic value of language is apparent in many of those social conflicts in multilingual contexts where language emerges as a central point of discussion and source of social categorization, e.g. [30]. Using language for differentiation is apparent in the findings of Blackledge's [31] study that show that, in the wake of riots in northern England, language appeared to be an important categorizer in public debate. Although linguistic diversity had nothing to do with the riots, foreign language, specifically Asian languages, was still taken up to distinguish between ethnic and non-ethnic British. The riots were then portrayed as the division of British society and cultural conflict. The most important thing here was the exploitation of language to define the distinction between ethnic and non-ethnic British which would have been difficult to maintain otherwise.

One of the most researched symbolic relationships of language has been its association with identity e.g. [19, 32-35]. The relationship between language and identity is now more important than ever before due to the delineation of differences between nations in the face of globalization and the formation of regional blocks such as the European Union and ASEAN [34]. In this scenario, language appears to be the most suitable and easily available resource to capitalize on in order to fulfil the human desire to be different, particularly in multicultural contexts. The intermingling of language and identity has reached the point where the two seem to be inseparable [36]. Identity is the most powerful

feature that both divides and unites groups, communities and societies [36], and when language becomes a symbol of identity, it is likely to be conceived of as having the same powers of differentiation and association which define who is in and who is out. This ethnolinguistic identity model posits that when language is laden with the symbolic representation of cultural and national identity, individuals will tend to perceive the social differences in linguistic terms, and be more inclined to converse with their so- called own people in their own language [14]. This then establishes the basis for language clustering.

#### 3.1.2. From symbolic value to symbolic boundaries

When language is considered as a symbol of one's culture and identity it is more likely to be used as a cognitive tool in defining one's relationship with others. In other words, if language is an index of identity, culture or even nation, then interacting with native speakers of dissimilar languages means interacting with people of dissimilar cultures, identities, values and thoughts [20, p.49]. This attitude is more pervasive in multilingual conditions where the presence of different languages and their speakers may heighten the sense of identification with language [37 p.37] Our perception that speakers of the same language as us are similar to us in certain respects may lead us to develop cognitive closeness with them while distancing those who speak a different language. This accords with homophily theory in sociology, which suggests that we like and feel close to others whom we think are like ourselves, e.g. [38-40]. An important output of this language-based perception of similarity or difference is the emergence of a symbolic boundary referred to by Irvine and Gal [20] as an iconic boundary, which exits in cognition only.

Language-based interpretation of psychic distance between people, whether right or wrong, is likely to influence the choice of individuals with whom one would like to communicate and socialize in multilingual workplaces. Such an internalization of conceptual distinctions into social behavior leads to the establishment of social boundaries [41]. A social boundary is based on the symbolic boundary which divides and segregates people, or any other social activity, *in practice* [25, 42]. This separation may not only be spatial but also take the form of communication and interpersonal links [42], as in the case of language clusters. Language clusters may sometimes be spatially segregated as, for example, in the case of a group of German speakers who always sit together during lunch in an English company, and, whereas at other times virtually segregated, for example, talking and networking mostly among themselves (within the language community at work). Unlike symbolic boundaries, social boundaries do exist in the real world, in our actions and not in our minds only. Social psychologists argue that the appearance of this conceptual distinction in practical behavior is quite common [43] because when we think we are different then we actually tend to indulge ourselves in the activities that ultimately reinforce and create the difference. Similarly, when we think we are different because we speak different languages (i.e. a symbolic boundary), our language behaviour is more likely to become aligned with this perception of differentiation, meaning that, for example, we socialize more with same language speakers than with different language speakers (i.e. a social boundary). This conversion of symbolic boundary into social boundary plays an important role in group/cluster formation. Historical evidence suggests that language has been one of the oldest elements used for erecting boundaries between groups, communities and even nations [20**,** 44], and in doing so it sometimes supersedes other categorizers such as nationality and culture [13, 8].

Until now, there seems to have been more focus on the capacity of language in a multilingual environment to promote segregation and division. However, it is also important to recognize that, from the symbolic value perspective, language clustering is also a result of social solidarity, or language-based unification. Language similarity lowers the psychological discomfort associated with language-based emotional and cognitive disparity [8, p.3]. This is particularly true for people who work in an organization in a foreign country where most of their day-to-day discussion inside and outside work is in the foreign language. Ramennick [14] finds this in case of Russians working in a medical organization in Israel, for whom speaking Russian, even though it was resisted by the company management, was a source of great emotional and psychological relief and a way to practice their culture in a foreign land. In short, iconization, a process of linguistic differentiation, provides a useful conceptual understanding of the mechanisms contributing to the formation of language clusters from the social perspective of language. It explains language clustering by underlining the differentiating capacity of language that is driven by its symbolic value and the conversion of this symbolic value into symbolic (iconic) and social boundaries in multilingual contexts.

### *3.2. Cluster maintenance - fractal recursivity and erasure*

Fractal recursivity involves the "projection of an opposition, salient at some level of relationship, onto some other level" [20, p.38]. It is the reoccurrence of the dichotomy which exists at the linguistic level on other levels [45, p.80]. In short, once the boundaries are formed and groups have emerged, judgments will follow. Iconization provides the minimal

criteria for differentiating and asserting group membership. However, in order to sustain language-based iconic boundaries, more differences are required. This process of attaching more differences to language-based grouping is fractal recursivity. It is known that distinctive features other than language are dragged in to fine tune language categorization irrespective of their relevance in reality [46]. In multilingual contexts, this phenomenon is experienced quite often when people make judgments such as: "if you are a speaker of language X, you must be an X sort of person" [47, p.27].

Many previous studies have noted that language acts as a frame of reference consciously or unconsciously in articulating the 'us and them' divide [ 48], which is then projected onto other domains, such as: 'we are rich, they are poor', 'we are diverse, they are homogenous', 'we are the majority, they are a minority', etc. Milani [49] observed this phenomenon in his study of the public debate on the introduction of language testing for naturalization in Sweden. Textual analysis of public policy documents revealed how the iconization of foreigners with Swedish (language) deficiency was projected into other domains (economic, social, cultural) by generating "causal relation along a chain of oppositions: (i) having/lacking the Swedish language, (ii) employment/ unemployment, (iii) having/lacking authority, (iv) understanding/not understanding Swedish culture" [49, p.40]. In this way, iconization of linguistic features continues to be exploited from one level to another in a recursive manner. In an organizational context, Remennick's [14] study shows how Russian was associated with arrogance, low competency, socialist characteristics and low organizational rank by Hebrew-speaking employees in an Israeli medical organization. Many other organizational studies have pointed to this phenomenon, e.g. [50, 7]; however, it has never been conceived and discussed from the point of view of fractal recursivity.

The underlying processes of fractal recursivity accord with the self-categorization theory proposed by Turner, based on the work of Henri Tajfel and his colleagues who worked on group formation and socialization in the early 1970s [51]. This theory describes how those who belong to a certain group moderate behaviors in terms of a number of factors, such as conformity, stereotyping, ethnocentrism, and so forth [51]. One of the important principles of this theory is that when people identify themselves with a social group membership they accentuate intergroup differences. This accentuation is the outcome of the group association which motivates the individuals to fit the newly-found perceived differences into their current cognitive categories. If we see the process of fractal recursivity through the lens of self-categorization theory, then it can be implied that this tendency to attach extra linguistic features to language communities is actually a strategy to fine tune the differences, in order to sharpen the iconic boundaries. Whether these newly-associated features are true or not is subject to debate and is of less relevance here. Instead, what matters is the tendency of the cognitive mechanism to value information that increases rather than decreases intergroup differences [52]. By strengthening the feelings of group attachment and in-group cohesion at the expense of out-group differentiation and distinctions, fractal recursivity plays an important role in group maintenance.

How have extra-linguistic characteristics that are attached to a certain language community become accepted and shared among other language speakers in a multilingual setting? Extra-linguistic here means those social factors that are not directly related to language [53]. For the sake of simplicity, we may call these extra-linguistic characteristics stereotypes. If fractal recursivity occurs only at the individual level then it can be assumed that different individuals within the same language community are likely to have various sorts of conceptions about other language speakers which would lack the consensus needed to maintain the element of groupness. In this scenario, the fractal recurvisity would be a rather less effective mechanism for the boundary maintenance work. According to McGarty et al. [43], when the conceptions are not held in common, their effect on group categorization and maintenance is weak. A plausible explanation for the sharedness of stereotypes can be found in the social psychological literature, e.g. [54-56]. The stereotypes come to be shared because the stereotype-making group usually process information on the basis of the same ideological beliefs, shaped by historical and/or current events. This commonality of views plays an important role in maintaining group boundaries, by insuring that newly-found differentiating characteristics are shared and agreed upon across a certain language group. There is a field of study called language ideology in linguistic anthropology which sheds more light on this phenomenon. It aims to explain the "ideas with which participants and observers frame their understanding of linguistic varieties" and, more importantly, how these ideas moderate their social behavior [Irvine & Gal, 2000 p.1, for further discussion, see 53, 57-58]. Fractal recursivity may work as long as individuals and groups continue to find information that is congruent with their existing impression of other groups. But how come they do not notice incongruent information and what happens when they do find information that does not correspond to their existing social image of others. This is when erasure enters the picture.

Erasure is the third semiotic process of linguistic differentiation. It is the process by which some individuals and activities become invisible due to the observer's tendency to fit sociolinguistic phenomena into existing linguistic beliefs [21, p.974]. This means all those activities and elements which do not correspond to our language-based

categorization and expectations are explained away or go unnoticed [50]. Erasure is also an important process that contributes to group maintenance, since, in this process, incongruent information is handled subconsciously in such a way that it does not disturb the current conception of 'us and them'. For example, in the case of the Hungarian village mentioned earlier, the dichotomy of the two separate groups that were seen as internally homogenous actually erased the differences within those groups in terms of wealth, education, linguistic competencies etc. The process of erasure was also noticed by Lønsmann [50] in her study of a multilingual organization in Denmark. Danish employees were critical of English-speaking employees in a Danish organization. They believed that all Danish employees were proficient in English, which allowed them to communicate with non-Danish speaking employees. However, English-speaking employees, particularly the ones who had lived in Denmark for a long time and had not learned Danish, were considered to be reluctant to socialize with and integrate into the Danish community. She explains that Danish employees blatantly presumed that all Danish employees in the organization were proficient in English. This supposition was influenced by their ideological belief that Danes in general are proficient in English, she argues. This conception presented the Danes as a homogenous group within the organization and the differences within the group, for example the presence of Danish employees, particularly at a lower hierarchical level, who could not speak English at all, remained inconspicuous.

Pre-existing beliefs and cognitive categorization play an important role in processing new information about our own and other groups. We tend to simplify things by reaffirming our pre-existing beliefs, which gives the impression of false consistency and control. This seems to be a preferable option for many, since updating old linguistic conceptions every time new information is received may lead to an uncomfortable state of mind. Some social psychologists also agree with this phenomenon and believe that in order to process the information in the most effective way we try to categorize it according to our existing cognitive categorization, e.g. [59, 43]. This gives us a sense of control and simplifies things that otherwise would be complicated and that, in some cases, may challenge our iconic boundaries and identity. "There is good evidence that even when the facts do turn against us and destroy the useful and comfortable distinctions, we still find ways to preserve the general content of our categories" [60, p.89].

Erasure not only helps in keeping current linguistic beliefs intact but also contributes to strengthening the group identity by invoking a certain set of rights and obligations. The conception of similarity, strengthened by fractal recursivity and erasure, informs the interlocutor how language choice is likely to be conceived by others in the group. This raises the prescriptive effect of language beliefs, which define certain expectations regarding language choice of group members. Language choice is then influenced not only by the symbolic role of language in the immediate environment but also by the social value it has acquired as an "obvious characteristic of the group" [30, p.108]. "One's language of choice informs others of one's affiliation with a specific speech community and/or one's ethnic origin" [14, p.7]. As a member of a certain so-called homogenous language group, it is unlikely that a group member would use marked language, which would result in resentment among the group members and may lead them to question the speaker's identity as a group member. Marked code is language which is seen as unusual or unexpected. It usually provokes a reaction from the interlocutors. By contrast, the unmarked code is language which is commonly accepted and expected during interaction (for further discussion see [61]). Usually, a language community or members of a group consider their own language to be unmarked and a foreign language to be marked code for daily interaction and discussions among themselves, e.g. [62]. This view of language based on the concept of linguistic markedness provides a good alternative explanation of why people use their own language when they converse with a speaker of the same language, particularly in informal contexts (such as small talk in the corridor, discussions around the coffee machine, and sharing stories and jokes at lunch time).

In short, both fractal recursivity and erasure are cognitive processes which play an important role in the maintenance of language-based groups that emerge through iconization. Fractal recursivity increasingly highlights differentiating characteristics, whereas erasure helps in disengaging the inconsistent information which may challenge the current linguistic categorization. In this way, language clusters that first occur as a result of iconization continue to exist.

## 4. Implications for knowledge sharing

Derived from the ideas of linguistic anthropology and sociolinguistics, the social perspective of language in general and the three processes of linguistic differentiation in particular have been used to provide a different and deeper analysis of the dynamics of language clustering. The next question is: how does this new social perspective on language help us in understanding the implications of language clustering for knowledge sharing? The answer lies in the two very important aspects of language that have been apparent throughout the discussion of the semiotic processes and cluster formation

and maintenance. First, language is symbolic, and second, it is hierarchical. Both of these aspects provide a chance to interpret the implications of language clustering for knowledge sharing from a different perspective.

## *4.1. The Symbolic aspect of language*

As mentioned earlier, language is symbolic in nature [19, 53]. It not only transfers content but is also content in itself [63]. The dual role of language in social interaction, on one hand to transfer content and on the other continuously to signal interlocutors' social characteristics such as identity, loyalties, social and economic status (fractal recursivity), underlines the influential role of language in social interactions [63, 24]. In multilingual contexts, the symbolic power of language becomes quite relevant because it may not only influence our social interactional behavior (such as language choice and style) but also moderate socializing behavior in terms of who talks with whom and with how much intensity, formality and frankness [19]. The capacity to influence behavior also extends to organizations, which are an extension of social life and therefore equally prone to individuals' perceptions of associations and emotions. This symbolic aspect of language highlights the likelihood that symbolic association with linguistic communities moderates the socialization patterns that usually influence knowledge sharing practices, as discussed below.

### 4.1.1. Socialization

Speakers of the same language, identifying themselves with the same culture and having the same identity, may find it important to socialize and communicate with each other in their own language in the workplace. Empirical evidence has noted this attitude before [14, 50]. In this way, they will not only have a chance to use their native language but also communicate with those who, according to their perception, may be more understanding and closer to a certain set of shared values. This leads to enhanced socialization within a language community. Socialization is known to be an important factor in building informal networks and transactive memory systems containing information about who knows what; an important precondition of informal knowledge sharing [64-67]. What we can infer here is that a language cluster is likely to have more knowledge of each other's domain of expertise due to within-cluster socialization, creating more opportunities for knowledge sharing between cluster members. Within-cluster knowledge sharing practices may be further strengthened due to cluster members' sense of social identification with a certain language group; a by-product of language symbolism. This can justify their sense of obligation and rights; moreover, cluster members may feel more confident when asking for advice and conversely more obliged to help and share important information with their own linguistic group members. In conclusion, this symbolic aspect of language proposes that language is likely to generate invisible constraints and possibilities by promoting socialization and perceptions of associations which tend to favor knowledge sharing within the cluster. Now the question arises: what is new in this, since there have already been studies showing within-cluster knowledge sharing as discussed in the language clustering section above. The new element here is the perspective from which we understand the within-cluster knowledge sharing attitude. It tells us that within the language cluster knowledge sharing may not only occur as a result of the common language (shared code and competence), but also because of the potential socialization behavior which, though instigated by language, still has its own significance due to its direct connection with knowledge sharing. The symbolic aspect of language enables us to see the socialization as a mediating variable between language and knowledge sharing, one that is usually neglected in the traditional approach to language, where language competence is seen to have direct influence on knowledge sharing behavior. Hence, to grasp language effects in current knowledge sharing behavior in multilingual organizations and to develop a knowledge sharing strategy accordingly, we should not look only at the employees' language competence but also at the socialization patterns prevailing within and between language communities in the workplace.

## *4.2. The hierarchical aspect of language*

The fact that languages are hierarchal is the second aspect reflected in the semiotic processes. This hierarchy exists between languages and also within languages (for example, accents) depending upon the context [68, 69-71]. In multilingual contexts, some languages are valued more highly than others due to the economic and social success of their native speakers. This linguistic hierarchy is due to the tendency of language to develop an indexical relationship with the people who speak it (iconization), and their social and economic features (fractal recursivity). In other words, language has hierarchical features because it is associated with social features (such as the social status of the speakers) which are hierarchical in nature. When an indexical relationship is established, a certain language becomes a symbolic icon of those social and economic characteristics and generalizes it onto the whole speech community (erasure), hence

leading to further fine tuning of the categories within the hierarchy. In such cognitive conceptions of generalization, general group characteristics are consulted more than specific individual characteristics by others [72]. This hierarchical aspect has implications for knowledge sharing because if languages are hierarchical it means that language clusters or linguistic communities are also hierarchical, which may influence their professional identity and inter-cluster cooperation dynamics as discussed below.

#### 4.2.1. Professional identity

Language identity is known to affect professional identity in multilingual organizations. Sometimes professional competence of an employee comes under threat due to language association. Association with a low hierarchy language community may result in a low value being attached to an individual's professional competence by others. For example, an English accent in certain contexts is associated with the group who are foreigners, less educated, low in confidence, economically and culturally poor, e.g. [73]. Such a concept may sometimes influence the evaluation of their, intellectual worth, credibility and intelligence, as has been shown in a number of studies on English accent [73, 74]. Harrison [7] shows that accented English speakers working in the social field in Australia are subject to negative evaluation in terms of professional knowledge and skills, not only by clients but also by their peers. This is very important in terms of knowledge sharing, since perception of a person as less competent or knowledgeable may decrease the number of queries for advice and help he or she receives from colleagues. Sometimes an organization's attitude toward linguistic groups further contributes to undermining the professional value of the employees with certain linguistic associations. For example, a university professor of Chinese ethnicity was refused promotion solely because of his English accent [73, pp.161-65]. Such organizational decisions implicitly send negative signals or impressions to other employees in the organization about the professional competence of certain linguistic groups which may damage the potential for informal knowledge sharing between different linguistic groups.

#### 4.2.2. More cooperation than competition

Language clustering is usually seen as a barrier to knowledge sharing because it promotes segregation. In the knowledge management literature, segregation in the social life of the organization is usually considered harmful for informal knowledge sharing at the individual level. However, if we look from the hierarchical perspective of language then language clustering may also lead to positive consequences for knowledge sharing in multilingual organizations. Employees associated with the linguistic group high in the organization's language hierarchy may experience the phenomenon of basking in reflected glory and may become attractive to other linguistic groups for networking. In a multilingual organization, it is quite common that some languages are regarded as superior to others; usually English as a lingua franca [50], a local language of the organization [75], the language of the top management in the organization [11]. In their study, Lauring and Bjerregaard [76] explain how the senior management, which mostly consisted of Danish managers in a Saudi Arabian subsidiary, always used Danish among themselves. As a result, neither Arabic (the commonly spoken language in the organization) nor English (the official corporate language) emerged as the language of power and high organizational status, but instead Danish did - putting it at the top of the linguistic hierarchy in the subsidiary. It was a symbol of top management; speaking Danish meant access to a valuable information network and resources. A general impression of who knows whom is important in social network building and in shaping knowledge sharing patterns in organizations [66, 77]. Positive feelings toward a language community are likely to result in a situation where the other language speakers attempt to socialize or network with the valued language community, which would certainly influence knowledge sharing practices in the workplace. In a situation where one language group is favorably inclined towards another, we can expect more cooperation than competition in terms of sharing knowledge and other resources. Gaining this new insight into the positive side of language clustering for knowledge sharing has been made possible through the adoption of the hierarchical view of language presented here, whereas in the commonly used instrumental view of language in knowledge sharing, language clustering has always seemed to hinder intergroup knowledge sharing.

The above discussion shows that the relationship between language clustering and knowledge sharing is not a simple one and cannot be understood solely by adopting an instrumental perspective on language. The two extra aspects, identified from the social perspective in this study, are useful in providing a fresh viewpoint from which to observe knowledge sharing behavior in multilingual organizations characterized by clustering practices. Where on one hand, the symbolic aspect proposes within-cluster knowledge sharing as a norm, the hierarchical aspect on the other hand seems to suggest between-cluster knowledge sharing possibilities. However, in what situation which aspect would be more influential than the other is a difficult question and is left for future research. It seems that to comprehensively understand the effect of language (clustering) on knowledge sharing, a suitable strategy is to adopt a broader perspective

on language in knowledge management research. This paper is an attempt in this regard. By focusing only on the instrumental aspect of language, we may end up with deficient insights into language and the knowledge sharing relationship, ultimately making it difficult to understand discrepancies in knowledge sharing patterns in multilingual organizations.

## 5. Conclusion

The purpose of this paper has been to shed light on language clustering as it is known to influence knowledge sharing practices in organizations. It is argued that better understanding of the formation of language clusters would enable us to better understand and manage knowledge sharing patterns in multilingual workplaces. By borrowing the concepts from linguistic anthropology in general and the semiotic processes of linguistic differentiation in particular, an attempt has been made to explore the underlying mechanisms of language cluster formation. Iconization, which is the first process of linguistic differentiation, explains the emergence of language clusters. Language has symbolic value that converts into group forming symbolic boundaries when different language groups start to practice socialization through the lens of linguistic association in multilingual settings. The second and third processes, fractal recursivity and erasure play an important role in maintaining the boundaries of language clusters. Fractal recursivity strengthens the group by alleviating interlinguistic community differences and erasure insures that incongruent information which may challenge the existing group boundaries goes unnoticed.

One of the most important aspects of this paper has been the use of this social aspect of language, which has attracted only limited attention in knowledge management research so far. The use of the sociolinguistic concepts in explaining language clustering has allowed us to shed light on implications of language clustering for knowledge sharing from different perspectives. While the focus was on language clustering, the social dynamics of language have been explored from different angles which may provide very useful food for thought and alternative perspectives for exploring information behavior. For example, erasure provides a new perspective on the mysterious ways in which people process information about others on the basis of linguistic association in a multilingual environment. Unfortunately, in knowledge management in general and in knowledge sharing in particular, language has often been approached from a communicative perspective where the focus has been on designing knowledge management systems that can handle multilingual content in terms of data mining, extraction, translation and presentation e.g. [78, 79]. This view of language is more aligned with the codification strategy of knowledge management, where technology equals a panacea. In this study, the social aspect of language is highlighted and it may be implied that it falls under the personalization strategy of knowledge management, which deals with knowledge in association with social and contextual dynamics. In terms of implication for knowledge sharing, it is proposed that by adopting a social perspective on language, we are able to highlight two important aspects of language. These two aspects are useful in interpreting implications for knowledge sharing in a different way from that which we usually derive from the instrumental aspect of language.

In terms of practical implications, it is clear that organizations should also look at the social aspect of language while developing knowledge sharing culture. One possible strategy could be to encourage social interaction between language groups, for example by arranging different social activities and competitions involving multilingual groups. Moreover group projects can also be used as a useful platform to promote intermingling at work by moderating the group composition. However, it is important to note that a strategy to encourage social interaction may not yield expected benefits if other forces are at work. Some language groups may have certain vested interests in maintaining the status quo, particularly if it is to their advantage. In this regard, we need further research[1]. We need empirical research on linguistic differentiation in multilingual organizations to see how these semiotic processes operate in practice in different contextual conditions. Do all three semiotic processes always work together? Can we differentiate individual effects of each semiotic process in terms of knowledge sharing? Moreover it would be interesting to explore how linguistic differentiation works in conjunction with organizational factors such as type of work, organizational policies, management structure, organizational culture. Hopefully further research on linguistic differentiation will be able to provide more practical applications of this concept for organization management in general and strategies to promote knowledge sharing in particular.

### Notes

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