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# How to think novelty
## The role of metaphor as a discourse and a practice of innovation

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How does novelty come about? Here, novelty is taken in the sense of an event that actually changes the state of the world, which creates a before and after, a disruption. This event is not planned (otherwise it would not be so new) neither is it a pure coincidence. In other words, how is it possible to understand the creativity of action (Joas, 1996), particularly in its strategic dimension (Depeyre & Dumez, 2014)?

The first question is: how to identify novelty? Many speeches that announce a disruption with fanfare actually hide a false innovation; many innovations that brought about a real disruption were not perceived as such when they first appeared. This question is directly related to another: how to analyze novelty?

This analysis is often based on an error that Schön aptly (and nicely) describes as "after-the-fact-ness" (Schön, 1963, p. 4) and explains as following: "[…] *the tendency to see thinking in terms of its products rather than its processes, the tendency to look at formed concepts which are being applied or explained rather than at partly formed concepts in process of formation*" (Schön, 1963, p. 105). It can take two forms. The first is to say that novelty arises from what preceded it and can be deduced quite easily. It is enough to go up the rails that lead to it. In this perspective, novelty is not so new as it was predictable: it is the result of what Porter (1991, p. 104) calls "drivers" that can easily be identified to explain it. The opposite option is aporia: because of its radical novelty, innovation cannot be explained. It is only the result of chance and can not be anything else. Neither determinism nor chance are satisfactory explanations of novelty.

*Forgetful Angel, Paul Klee (1939)*

How is it then necessary to proceed? An hypothesis is that novelty is neither a speech without action, nor an action without speech, but an intertwining of speech and action. But how can this intertwinning be accessed?

In situations where novelty occurs, the system of signs that constitutes language, our categorial system, is disturbed in one way or another. This disturbance is of a linguistic nature but it also affects our practical relationship to the world. Our categorical system and our ways of acting are disturbed at the same time.

This paper defends the idea that novelty comes from metaphor. This idea may seem strange. The metaphor is most often conceived as a literary and even a poetic figure. In fact, many philosophers of language have highlighted three basic properties of metaphor. First of all, it is at the very foundation of the functioning of language. The first section of an article by Hesse (1988) is entitled: "All language is metaphorical". Far from being only a poetic figure, the metaphor has to do with the very nature of language. Second characteristic of the metaphor, it is at the same time speech and action, intertwinning of the two:

> Metaphor is for most people a device of the poetic imagination and the rhetorical flourish–a matter of extraordinary language. Moreover, metaphor is typically viewed as characteristic of language alone, a matter of words rather than thought or action. For this reason, most people think they can get along perfectly well without metaphor. We have found, on the contrary, that metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature. (Lakoff & Johnson, 2003, p. 3)

Finally, the third characteristic of metaphor is its link with novelty. Ricœur refers to "semantic innovation":

> To say that a new metaphor is not taken from anywhere is to recognize it for what it is, namely, a creation of language that comes to be at that moment, a semantic innovation without status in the language as something already established with respect to either designation or connotation. (Ricœur, 2003, p. 114)

Hesse explains:

> Rationality consists just in the continuous adaptation of our language to our continually expanding world, and metaphor is one of the chief means by which this is accomplished. (Hesse, 1965, p. 249)

With metaphor, we therefore have a chance to be able to situate ourselves at the intertwining point of language and action, and to be able to understand the process by which novelty occurs.

It is important to clarify that our reference to metaphor differs from the existing literature on metaphor in organizational theory. The use of metaphors in organizational theory is probably as old as the organizational theory itself. Fayol already, in 1916, noted that three metaphors were often used to analyze the organization: the machine, the plant and the animal (Fayol, 1949/1916). In a more recent period, especially since Gareth Morgan's book, the metaphor has been systematically studied in organizational theory for its role in the construction of theory (Morgan, 1986; Tsoukas, 1991; Grant & Oswick, 1996; Cornelissen, 2006; Cornelissen & Kafouros, 2008; Boxenbaum & Rouleau, 2011). These studies focused on the character of the truth or the falsity of metaphor within the framework of organizational theory. The purpose of this article is completely different. Again, our focus is on the way novelty in organizations occurs[1].

In this perspective, this article will develop four essential points.

1. There is no real novelty without *metaphor*. An innovation that does not give rise to metaphor creation is a planned innovation, a non-disruptive change.

1. A book that addresses this issue (*The Emergence of Novelty in Organizations* - Garud et al., 2015) cites Schön's work on the reflexive practitioner but not his book on metaphor (Schön, 1963), only once his chapter (Schön, 1979).

2. A metaphor introducing a novelty (disruption) appears in a situation of discomfort, that the usual words do not allow to think. It is in the very situation where it appears that a metaphor must be analyzed.
3. A metaphor is a *proposition* of the form "A is B, while it is obvious that A is not B". When this proposition is put forward, the meaning of A and the meaning of B are affected and modified.
4. At the same time as it is a proposition (that is, it belongs to the domain of discourse), the metaphor is a *programme* (and so it belongs also to the field of practice).

We will rely on ignored or poorly read authors (mainly Schön, 1963; Ricœur, 1975/2003; Lakoff & Johnson, 1980; but also Hesse, 1965 & 1988).

The first part of this paper briefly introduces these authors. Then, it explains the fundamental distinction to draw between living metaphors that create novelty and dead ones. The case of the phone illustrates the process of novelty. Then the paper develops the two basic concepts of situation and programme. A second illustration is devoted to the notion of systems of systems. Finally, the paper addresses the methodological aspects of the study of metaphors and novelty and raises a conclusion.

May the style of this paper be forgiven: it is based on long (and may be too many) quotations of authors. Many articles today multiply all-out references to authors all put on the same level and often not read. We thus see Ricœur appearing in a parenthesis and in support of assertions of a disarming banality. Schön or him deserve to be read and not just quoted, and if possible understood (a challenge for Ricœur, which explains why he is quoted but rarely relevantly).

## Presentation of the mobilized authors

Schön was trained in philosophy. He taught this discipline but he also was a consultant. He sought to understand how a new theory emerged and how companies innovated: "The germ of this book was the notion that the evolution of theories is very much like processes of invention and product development. that I call the displacement of concepts" (Schön, 1963, p. ix). Schön calls "displacement of concept" the metaphor.

Ricœur was a philosopher of language. Rather than studying language as a system of signs, which linguistics has essentially done since Saussure, he has tried to understand how language innovates and allows innovation, in its relation to the world, what it calls "semantic innovation". His goal was to understand "the enigma of novel meaning beyond the bounds of all previously established rules" (Ricœur, 2003: 104). It should be noted that Ricœur was not aware of Schön's book, the latter being not a philosopher of language.

George P. Lakoff is a cognitive linguist and Mark Johnson a philosopher. Lakoff and Johnson believe that metaphors are a tool for defining concepts: "*Rather than being rigidly defined, concepts arising from our experience are open-ended*" (Lakoff & Johnson, 2003, p. 125).

Mary Hesse was a professor of philosophy of science at the University of Cambridge. Lakoff and Johnson, as well as Hesse, read Ricœur.

## Living metaphors and dead metaphors

In French, Ricœur's work is called *The living Metaphor*. The author accepted that the title of the English translation stood out from the French original and became:

*The rule of Metaphor.* One wonders if this was not a profound mistake. Our language is made of dead metaphors (the notion of "dying metaphor" comes from Richards, 1936). Lakoff and Johnson (2003/1980, p. 102) take the example of the following sentence: "*So far, we have constructed the core of our argument*". They note that such a sentence alone contains three metaphors: 1. An argument is a journey that brings us from one point (the introduction) to another (the conclusion); 2. An argument is a building that is based on foundations; 3. An argument is a container, it contains a heart or core. One can obviously gloss over these metaphors. But, most of the time, they play little or no role. We learnt in high school to write essays with an introduction that poses a question, two ot three parts and a conclusion, by putting the transitions (the passages that bring the argument from one stage to another and make the journey smooth). Later, we learnt about writing papers that start from a research question to lead to results. These metaphors surround us, we handle them daily, but they are no longer creative.

This reality concerns the everyday language in an obvious way: we speak of the foot of a chair or, if we think of holidays, the foot of a mountain. But it also concerns the scientific language, which is full of dead metaphors as Schön notes: "biological transducer", "atomic wind", "genetic code", "electromagnetic wave", "radioactive decay", "chemical linkage", "electrical reservoir", "computer memory", "voltage drop", "sound absorption" (Schön, 1963, p. 79) are all metaphors. That the organization can be thought of as a machine or a living being is a metaphor. But does this metaphor still play an important role? It is so banal that one can doubt it. Note also that the metaphor is complex and a two-way story: organum, in Latin, means a machine, a mechanical artifact with levers and springs, whose model appears to be the organ, a complex musical mechanics. To speak of an organism is to use a mechanical metaphor to think the living. To speak of an organization as an organism is to use the metaphor of the living, itself thought metaphorically as a machine... The sophistication of these semiotic trips and returns can be fun to watch but plays a minimal role in our practices, like when we talk about the foot of a chair. Only the living metaphor is really interesting: "*Everyone recognizes a distinction between live and dead metaphor: metaphor is interesting only when it is alive–provoking surprise and shock, indicating new thought. When this creativity is exhausted either by paraphrase or by persistent use so that what is metaphoric becomes literal in a new context, the metaphor is dead*" (Hesse, 1988, p. 4).

*Harbinger of autumn, Paul Klee (1922)*

The dead metaphor does not tell us much about our current practices, in or outside organizations. A fundamental distinction must therefore be made with the living metaphor, the one that introduces novelty by surprise. What is a metaphor of this kind?

## A living metaphor: What it is not, and what it is

Let's start with what is not a (living) metaphor. A metaphor does not express the polysemy of words: "*Metaphor is not polysemy […] The appearance, with the impertinent predicate, of extra codes values that the prior polysemy could not contain by itself require an event in the realm of discourse*" (Ricœur, 2003, p. 200). In the dictionaries are arranged the different meanings of the words (polysemy). We can play with, manipulate them. But that does not create a real new meaning effect.

A metaphor is also not the application of a concept to a new instance, even unknown. In this case, there is no appearance of a real novelty because the concept remains unchanged: "*The concept itself does not change except in the trivial sense of being found applicable to one more instance*" (Schön, 1963, p. 10).

Finally, a metaphor is not a form of sub-categorization. It is sometimes conceived as the connection between two terms distant from each other, this connection being made possible because there exists a common category under which these two terms can be placed. This is the classic idea of a metaphor as a discovery of similarities that comes from Aristotle. Ricœur rather uses the notion of Ryle, that of "category mistake" (Ryle, 1949, p. 16). One cannot really speak of a discovery of an existing category allowing the connection of two distant terms, as it rather proves the destabilization of the existing categorial order. For Ricœur, the metaphor is a proposition, we must speak of a "metaphorical statement" (Ricœur, 2003, p. 74). A metaphor is thus expressed in the form of a proposition of the type "A is B". But this is a particular proposition in which "A is B" is accompanied by an implicit "A is not B". It is precisely because A is not B, because A does not belong to the same category as B, that the proposition "A is B" is a metaphor. In English, children's stories begin with « *Once upon a time* » ; in French with « *Il était une fois* ». Ricœur quotes the formula that opens the tales in Catalan: « *Aixo era y no era* » that can be translated as: « there was and there was not ». It expresses for him perfectly the propositional nature of the metaphor: "A is and is not B". As Schön states: "*All metaphors are in one sense false, in fact absurd*" (Schön, 1963, p. 50). Such a proposal is actually based on something that is apparently a categorical error.

> The idea of category mistake brings us close to our goal. Can one not say that the strategy of language at work in metaphor consists in obliterating the logical and established frontiers of language, in order to bring to light new resemblances the previous classification kept us from seeing? In other words, the power of metaphor would be to break an old categorization, in order to establish new logical frontiers on the ruins of their forerunners. (Ricœur, 2003, p. 233)

Specialists of metaphor analysis note that A and B are generally not symmetrical or of the same kind. Richards (1936) proposed to call tenor or topic the term which is qualified and vehicle the qualifying term. The meaning of the metaphor comes from the interaction between the two. Lakoff and Johnson notice that often, for example, an abstract term, difficult to define, is related to a concrete term that can, by metaphor, clarify it. In all cases, the metaphor connects two terms that have not been so far, it is a creation, a semantic innovation to use Ricœur's terms.

> The essence of metaphor is understanding and experiencing one kind of thing in terms of another. (Lakoff & Johnson, 2003, p. 5)

But to bring together two words without a real link can only be pure nonsense. Schön, Ricœur, Lakoff and Johnson will therefore tackle this question: if I say that "A is B" when obviously "A is not B", how is it that this proposition can make sense? Before attempting to answer this question, let's give an illustration of what a metaphor may or may not be.

## First illustration: The case of the telephone

The telephone is a tool that makes it possible to hear the voice of someone who is at a distance and to speak to her. Originally, it's wired. When the mobile phone was invented, the concept of "phone" applied to this new instance, the mobile phone. But "Mobile phone" is not a metaphor. The fact that mobile phones existed at some point did not actually change the concept of phone: it still allows to transmit a voice emitted at a place to a distant place. Even though a wireless phone was unthinkable when the phone was invented, the innovation of wireless telephony did not disrupt the "phone" category. In 1993, IBM launched the Simon, which merged two objects: the telephone and the electronic agenda. The object changed and became indeterminate, problematic. The old telephone concept no longer reflected the new object. Other manufacturers were interested in the object, exploring its possibilities, and the word 'smartphone' appeared in 1996. In this expression, phone is the tenor and smart the vehicle. It should be noted that, unlike the case mentioned by Lakoff and Johnson, here the concrete object–the phone–is the one characterized by an abstract vehicle – smart. "Smart" is polysemic. It can refer to elegance, astuteness or intelligence. But this polysemy, in itself, is not metaphorical. If smart means elegance and astuteness, as a phone can be beautiful and integrate new astute design, smartphone is not a metaphorical proposition. But how can a phone become intelligent? Manufacturers, including Blackberry, would explore this metaphor and gave it meaning by adding features–camera, keyboard, mail, and many applications.

The case of the telephone introduces two concepts that Schön associates with the metaphor, the situation and the programme.

## Metaphor in situation

The "smartphone" metaphor appears in a particular situation marked by categorical discomfort:

> It is as though [the] situations asked to be cleared up, explained, straightened out. (Schön, 1963, p. 68)

When an electronic diary is added to a phone and if other features are planned to be added, the phone category does not seem to fit the object anymore, even if it continues to transmit a voice from a distance. The metaphor is a response to a problematic situation in which it appears that the old categories are no longer working well. Lakoff and Johnson do not think in terms of situation, but of experience. It is from experience that they analyze the copula "is" in the particular propositional form that constitutes the metaphor:

> […] the is should be viewed as a shorthand for some set of experiences on which the metaphor is based and in terms of which we understand it. (Lakoff & Johnson, 2003, p. 20)

In fact, the experience being situated, they are quite close to Schön's approach. Thanks to the metaphor, the situation of discomfort, perplexity, doubt, is transformed, as if the metaphor opened a possibility of control:

> Still more primitively, even at the point of intimation metaphors are ways of naming aspects of the new situation and therefore fixing and controlling them. This function should not be underestimated. In every displacement of an old theory to a new situation there is a feeling of transition from helplessness to power. Before, we were aware only of what was puzzling and disturbing; now, suddenly, there is something like clarity and a basis for action. (Schön, 1963, p. 60)

In order to get out of the situation of trouble that our old categories do not manage to lift, we must develop new ideas and this is what the metaphor makes:

> One of the factors governing the selection of metaphors in a new situation is the metaphor's effectiveness in leading to 'new ideas'. I do not mean a new concept, in the sense of a new theory, but the segment of a new theory that functions as a potential solution to a problem of action or explanation in a given situation. (Schön, p. 73)

These new ideas do not belong to the pure domain of language, they are language intertwinned with action.

> And it is indeed through the anticipatory imagination of acting that I 'try out' different possible courses of actions and that I 'play,' in the precise sense of the word, with possible practices. (Ricœur, 1991, p. 173)

The metaphor actually works as a programme.

## The metaphor as a programme

Here we come back to the fundamental question: what makes a connection between two words with distant meanings a pure nonsense or a metaphor? The clearest approach is that of Schön, who sees a metaphor as a programme of action: "Every metaphor [...] is an implicit riddle" (Schön, 1963, p. 62). As such, metaphors call for a work of elucidation.

> [The] metaphors, however appropriate or inappropriate they may be, name, fix, and structure what might otherwise be vaguely troubling situations. Armed with them we feel the ability to generate hypotheses, expectations, policies. Without them, we are merely confused. They are our way of learning from the past without being tied to it […] The very establishment of a symbolic relation provides a focus for change and a programme for the exploration of change, where change was not concretely thinkable before. (Schön, 1963, pp. 60-61)

The link between speech and action is central, here, and is close to Austin's perspective. This is not far from the notion of performativity (Abrahamson et al., 2016):

> Many of our activities (arguing, solving problems, budgeting time, etc.) are metaphorical in nature. The metaphorical concepts that characterize those activities structure our present reality. New metaphors have the power to create a new reality. This can begin to happen when we start to comprehend our experience in terms of a metaphor, and it becomes a deeper reality when we begin to act in terms of it. If a new metaphor enters the conceptual system that we base our actions on, it will alter that conceptual system and the perceptions and actions that the system gives rise to. Much of cultural change arises from the introduction of new metaphorical concepts and the loss of old ones. For example, the Westernization of cultures throughout the world is partly a matter of introducing the TIME IS MONEY metaphor in these cultures. (Lakoff & Johnson, 2003, p. 145)

It is necessary, however, to preserve this fundamental point from Austin's analysis– language has this in common with action that it can fail: *"It is precisely the possibility of failure that defines the speech act as an act, and that places the theory of speech acts in the context of a theory of action"* (Laugier, 2018, p. 130). So the question is not so much whether a metaphor is true or false (in a sense, as Schön says, it is always false) but whether, in a problematic situation, it offers the right programme of action or not:

> Though questions of truth do arise for new metaphors, the more important questions are those of appropriate action. In most cases, what is at issue is not the truth or falsity of a metaphor but the perceptions and inferences that follow from it and the actions that are sanctioned by it. In all aspects of life […], we define our reality in terms of metaphors and then proceed to act on the basis of the metaphors. We draw inferences, set goals, make commitments, and execute plans, all on the basis of how we in part structure our experience, consciously and unconsciously, by means of metaphors. (Lakoff & Johnson, 2003, p. 158)

To use Austin's terms to characterize performativity, a metaphor can be felicitous or infelicitous. If the programme of the metaphor succeeds, the categorical system reconfigures itself in a new way. The metaphor becomes a defined concept and it dies as a metaphor. The metaphor will have played the role of transitional vehicle between two categorical orders. It is, as Lakoff and Johnson (2003, p. 193) put it, "imaginative rationality": "rationality" because it has an essential relation to categories, "imaginative" because it creates something new. It allows to reconfigure the categorical system in a new way.

## Second illustration: The case of Systems of Systems

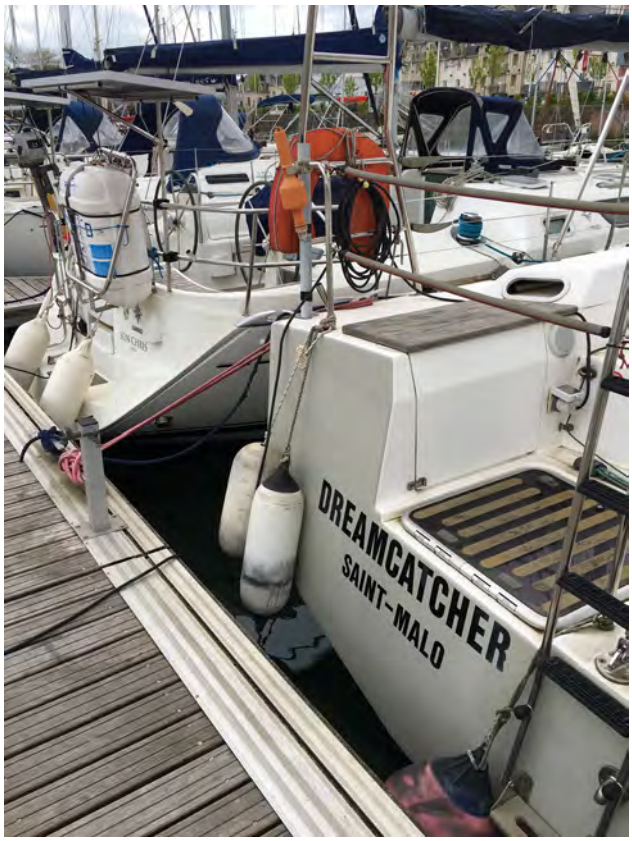
Since the 1940s, there was a fairly simple definition of what makes a system: *"A System is a set of elements in interaction"* (Bertalanffy, 1968). The concept quickly developed from a scientific (systems engineering) and industrial point of view: *"Systems thinking plays a dominant role in a wide range of fields of industrial enterprises and armaments to esoteric topics of pure science. Innumerable publications, conferences, symposia and courses are devoted to it. Professions and jobs have appeared in recent years, where they have been developed, systems analysis, engineering systems (SE) and others"* (Bertalanffy, 1968, p. 3). The systems have become more complex and sophisticated, as a nuclear submarine can be for instance, being often considered as the most complex technological existing system. But in the 1990s, new systems emerged: they were geographically distributed, connected by a network, with autonomous elements and able to perform unanticipated tasks. The community was divided: some thought theyr were just more complicated systems than the previous ones; others thought they constitued a new type of systems (Depeyre, 2009; Löfgren, 2014). The term "systems of systems" appeared. This expression is metaphorical in the sense that the definition of a system implies that a system cannot be composed of systems:

> […] the very specific contribution and peculiarity of the notion of a system also makes the notion of a 'system of systems' an antinomy, or a contradiction, in the sense of the expression "*a married bachelor*". This is so as a system, per definition, cannot consist of other systems, it can only be constituted by system *parts* that unlike the systems as such, lack their own independent identity. (Haftor, 2015, p. 23)

It is a particular form of metaphor since the tenor and the vehicle are the same word, system. System, as we have seen, is a well-defined concept. But the mere fact of using the same word as a vehicle creates a strangeness effect: the concept that we thought was well defined is no longer so good. In this metaphor, there might also be an effect

of reference to a kind of superlative of the Hebrew type (king of kings, vanity of vanities, song of songs).

This metaphor appeared in a situation of uncertainty–are we or not in front of a form of systems of a different nature even the most complex systems?–and opened new programmes. On the scientific side, a new discipline has been developed, the systems of systems engineering (Jamshidi, 2009). But the metaphor has also opened programmes in terms of business strategy. American defense firms began to use the term. They created simulation laboratories, bought specialized companies (external asset orchestration – Helfat et al., 2007), and reorganized themselves (internal asset orchestration). The most active was Boeing whose strategy was to become a system of systems integrator based on its commercial aviation expertise. Boeing convinced the Department of Defense to create the institutional position of Lead System Integrator in the development of military systems of systems and pursued the same strategy in the area of air traffic control. The program partially failed: Boeing experienced difficulties in the development of the 787 Dreamliner presented as a system of systems (Wilber, 2009), the Department of Defense suppressed the position of Lead System Integrator following the failures in developing several military systems of systems, and Boeing failed in its attempt to develop a system of systems in air traffic control (Dumez & Jeunemaître, 2017). In a sense, the development of the program launched by the metaphor was infelicitous.




*Le Dream Catcher, Deauville (2018)*

## Methodological issues

Studying the role of metaphors in the appearance of novelty raises a methodological issue. Metaphors are not found in dictionaries, even for traditional concepts. Lakoff and Johnson point out that in a dictionary, love, for example, will be defined as a passionate affection. But it is not from this definition that we think and live love, it is from a series of metaphors that do not appear in the dictionary:

> It would be very strange in a dictionary to see 'madness' or 'journeying' as senses of 'love'. They are not senses of 'love' any more than 'food' is one of the senses of 'idea'. Definitions for a concept are seen as characterizing the things that are inherent in the concept itself. We, on the other hand, are concerned with how human beings get a handle on the concept–how they understand it and function in terms of it. Madness and journeys give us handles on the concept of love, and food gives us a handle on the concept of an idea (Lakoff & Johnson, 2003/1980, p. 116).

However, these metaphors are dead metaphors. We have learned them since our adolescence in books, poems, songs, movies. We have a huge corpus allowing us to identify and analyze them.

The living metaphor lies in the discourse (the sentence). There is no grammatical feature that distinguishes metaphorical attribution from literal attribution (Ricœur, 2003, p. 298). We saw this in the two illustrations above. Lakoff and Johnson point out that often, in the metaphor, the tenor is abstract and the vehicle concrete (love,

a journey). But in *smartphone*, the tenor is concrete (the phone) and the vehicle is abstract (smart). The purpose of the metaphor is to make us understand that what we thought as a familiar object has become something else. This is a process of "defamiliarization" (Shklovsky, 1965/1917). In the second illustration, the grammatical structure is even stranger since the tenor and the vehicle are one and the same word, "system". In order to find living metaphors, those that introduce novelty, we must look for them through discourse analysis with the perspective of comprehensive research (Dumez, 2016). Content analysis, which is based on lexicons and statistical analysis of occurrences, is of no help (Hardy et al., 2004; Hopf, 2004). If we want to look at how the "system of systems" metaphor appeared in the strategy of American defense firms, we must go back to the annual reports of these firms and track down the expression (what has been done by Depeyre, 2009) by a suitable coding (Dumez, 2016). If you want to know when the expression first appeared, you have to do a similar job. For example, an error has often been reproduced from paper to paper: that the notion of "System of Systems" would have appeared in 1971 in a Russell L. Ackoff's article entitled "Towards a System of Systems Concepts". Softwares searching for the phrase "System of Systems" actually fall onto this article. But simply reading it, we see that Ackoff does not talk about system of systems at all. He explains that systems concepts are not approached in a sufficiently rigorous and systematic way and that a system of these concepts should be produced! Obviously, few authors have bothered to simply read this article and they naively reproduce, one after the other, the error that the expression "system of systems" appeared in 1971.

Methodologically, the analysis of novelty via the study of metaphors therefore presupposes:

a. To distinguish between dead metaphors and living metaphors (what most authors who talk about metaphors in organizations do not do);
b. To identify situations of uncertainty in which the existing categorical system is in crisis and can no longer describe what is happening;
c. To identify with the aid of discourse analysis, in an identified corpus (for example, the annual reports of firms–Depeyre, 2009), the appearance of metaphors; it is possible that several competing metaphors be formulated (some have advocated "collaborative systems" instead of "systems of systems");
d. To analyze these metaphors from the perspective of the programmes of action or experiences they open up;
e. To track the success or failure of these programmes (felicity or infelicity).

## Conclusion

In situations of uncertainty, which are characterized by a malfunction of the categorical system, two options arise. The first is to continue using the usual categorical system by missing out on the novelty. The second is to proceed by metaphor to generate new ideas in the form of a program of action. In the night of July 14 to July 15, 1789, the Duke de la Rochefoucauld-Liancourt, Grand Master of the Wardrobe, woke up the king to announce the storming of the Bastille. The king asked him a question: "But is it a revolt? ". The question showed a doubt about the way in which the existing category, revolt, could be suitable to analyze the situation, which appeared to have a new aspect compared to known revolts. "No, Sire, it is a revolution", replied the duke. This was a metaphorical statement. The two interlocutors obviously had not even the slightest idea of what would happen following this event. Nowadays, we

think of events under the term revolution precisely with the experience of the French and the Russian Revolutions and the metaphor is dead. At the time of the exchange, it was alive. Hannah Arendt has analyzed in detail the meaning of it (Arendt, 1990). Behind the metaphor, La Rochefoucauld-Liancourt proposed to the king a programme that was not a response to a mere revolt: to go to the National Assembly, to recall Necker, to withdraw the troops the king had brought to Versailles and in Paris.

It is in the field of strategy that the analysis of metaphors from the point of view of novelty appears to prove most fruitful. Richardson (1972) opposed the activities and capabilities of the firm. Capacities are defined by the possibility of developing activities similar to those mastered by the firm. The notion of similarity seems to refer to Aristotle's theory of metaphor. A more radical theory of metaphor must be referred to, which adopts the perspective of the creativity of strategic action (Depeyre & Dumez, 2014): through metaphors, programmes are developed that do not simply identify existing similarities, but are likely to create similarities that did not exist before the metaphorical statement. This requires that situations of categorical discomfort be encountered. And, of course, it must also be taken into account that these programmes can fail ■

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