

# INTENTION IN INTERVENTION: A CONCEPTUAL MODEL

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## ABSTRACT

Intentions serve multiple roles in human action. They help in making sense of our actions and those of others, and on this basis, coordination is possible. They cause, guide and sustain our actions. Additionally, they are about the present when we do act intentionally, but also they are about the future when we intend to do something later. From the aforementioned characteristics, it can be argued that intentions have a fundamental part in organizational interventions. Based on this assumption the paper proposes a model to make use of intentions in interventions. It aims to help in describing, conducting and learning about intervention processes. The model uses the graphical language advanced by the Soft Systems Methodology. The concept of intention and the assembling of the model, draw from Philosophies of Action, Language and Explanation and by the Theories of Relevance, Boundary Critique, and Complex Adaptive Systems.

Keywords: Intention, Intervention, Boundary Critique Theory, Boundary Games, Critical Systems Thinking, Relevance Theory, Complex Adaptive Systems, Philosophy.

## INTRODUCTION

Intention has been a neglected concept at large in human sciences and philosophy. Bruner (2001) exposes two reasons behind this situation:

The dominance of positivism means that mental states such as intentions were seen as subjective and without explanatory power.

According to the psychoanalytic theory, people really do not know what their intentions are. Intentions are unconscious. Psychoanalytic therapy sets to uncover these hidden intentions. Therefore “the transparency of intentions was seen as deeply problematic” (Bruner, 2001: x)

However, currently there is a significant body of work that challenges these views in areas such as philosophy (Benett & Hacker, 2003; Bratman, 1987; Mele, 1997b; Saaristo, 2006), psychology (Malle, Moses, & Baldwin, 2001), cognitive science (Baldwin & Baird, 2001; Stone, 2004), law (Audi, 1994; Malle, 2006), child development (Meltzoff & Brooks, 2001), primatology (Zelazo, Astington, & Olson, 1999), language (Astington, 1999; Borg, 2004; Gibbs Jr., 2001), artificial intelligence (Hendriks-Jansen, 1996; van der Hoek, Jamroga, & Wooldridge, 2007; Wallis, 2004), and education (Sinatra & Pintrich, 2003).

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Regarding the status of intention in Systems Thinking, the references are sparse at best. However, its importance has been recognized. Checkland and Sholes (1990:2) working on the soft systems paradigm state that “Given the creation of an interpreted, not merely an experienced world, we can form intentions, we can decide to do one thing rather than another.” Ulrich (1983, p.238) regarding social phenomena asserts: “if we want to understand them in such a way that we can eventually change them, we must understand them as ‘facts’ produced by the working of human intentionality.” In both accounts, intentions seem central to building our social reality.

What is more, the concept of intention seems to occupy a central role in core concepts for Systems Thinking, such as methods and its standard use. For instance, in a method “All the respects which play a role in determining the method used in a given action are determined univocally by the intention of the agent” (Kotarbiński, 1966, p.449). Furthermore, a method is used in the standard way when applied “in the form its creator intended” Midgley (1997, p.317) or in “the way that they were originally intended” (Mingers, 2006, p.236).

However, the concept of intention in itself has not been explored in Systems Thinking literature. This paper looks to work on this gap providing a conceptual model to take advantage of some intention’s features to inform organizational intervention. It aims to help in describing, conducting and learning about intervention processes. The paper starts by giving some initial ideas about the roles that intention fulfills in human interaction from the perspective of Philosophy of Action.

Based on the roles fulfilled by intention, a first approximation to the model is presented. It follows the structure of conceptual models in Soft Systems Methodology. It suggests arranging the different roles of intention in nested levels of intention and monitoring according to their temporal orientation (present or future). A description of how intention works inside those levels is left to the following sections. A combination of Theory of Relevance and Boundary Critique Theory is proposed in the next section as a way to understand intentional action, the present-oriented side. Then complex adaptive systems are proposed as the way for future-oriented intentions.

After explaining the underpinnings of both levels of intention, the model integrating both accounts of intention and showing the inner workings is finally presented. The final section summarizes the arguments and presents some ideas about the possible benefits for Systems Thinking’s informed interventions at drawing from intentions.

## **INTENTION**

“If there were no intentional actions, actions would be of little interest at best, and perhaps there would be no actions at all” (Mele, 1997a: 16)

“What is left over if I subtract the fact that my arm goes up from the fact that I raise my arm?” (Wittgenstein, 2001, §621)

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“We do things intentionally, and we intend to do things” (Bratman, 1984: 375).

In this paper, the approach to intentions is both philosophical and pragmatic. It is philosophical because it cares about ways to clarify a concept (Benett & Hacker, 2003). It is pragmatic because rather than discussing what intentions are, it starts by noting the roles, the practical effects (Ulrich, 2001), suggested in this particular case by Philosophy of Action. Those roles are making sense of our actions and those of others, coordinating, causing, guiding and sustaining action (Baldwin & Baird, 2001; Enç, 2003; Mele, 1992).

The roles fulfilled by intention can be explained using the phrases in this section heading. The first phrase by Mele, points out that action requires intention to have meaning. Only when we are able to give to action a meaning, we can make sense of what we and others are doing. Based on knowing what we are doing and what others are doing, coordination of actions is possible.

Wittgenstein’s phrase points to a different direction. It is showing that there is a mental phenomenon that can produce action, this lead to the idea of intentions having causal powers and idea worth combining with Bratman’s phrase. Bratman, indicates that intentions are dual faced. Sometimes we act intentionally causing something in the present. Sometimes the intention that we hold now will cause something in the future. In this latter case, while waiting for, intention is needed to keep us engaged with the goal, to sustain our determination for action, and guide the precedent “moves” towards the aim.

The aforementioned characteristics make intention fundamental for human interaction, and a potentially powerful concept to be use in relation to intervention. After all when engaged with a group of stakeholders it is necessary to make sense of the situation, coordinate actions among the involved and also to produce change through actions that need to be guided and sustained.

The characteristics highlighted are arguably useful and fundamental for intervention. These were chosen to be reflected in the model through the integration of intention’s dual face and its roles. A first approximation to the model presenting a general outline is the function of the next section.

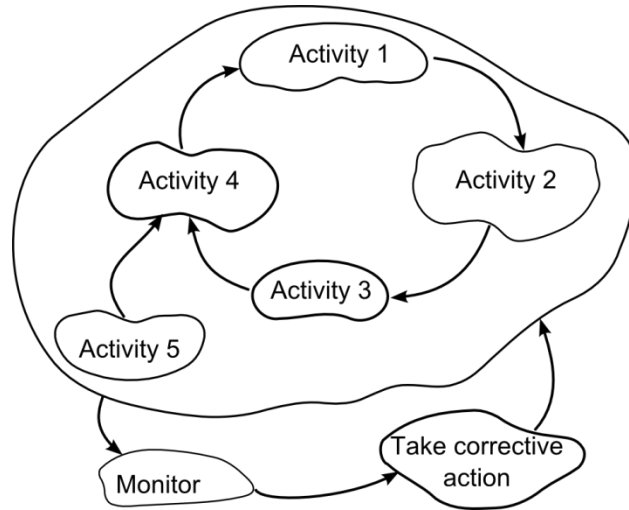
### **ITERATION ONE: THE OUTLINE**

Building a model for intention in intervention requires approaches to intention, intervention and a modeling language. Last section already introduced some ideas about intention. Intervention for the purposes of this paper can be defined as “purposeful action by an agent to create change” (Midgley, 2003, p.77). Therefore, a model for intentions in intervention needs ways to express actions and intentions, and because the approach to intention is pragmatic a way to recognize the intentions by their effects.

Soft Systems Methodology (hereafter SSM) and its conceptual models conventions provide such language (Checkland, 1981, 2000; Checkland & Sholes, 1990). An SSM’s conceptual model involves as Figure 1 shows, a “structured set of activities...consisting

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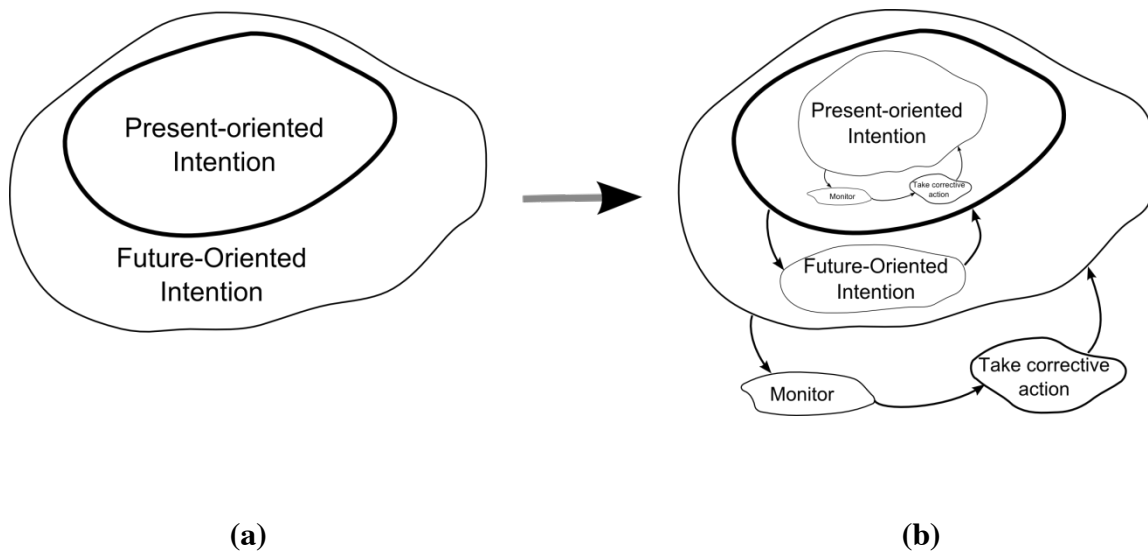
of an operational subsystem and a monitoring and control subsystem” (Checkland & Sholes, 1990:289). It is possible to nest different sets of activities. The nesting forms a hierarchy where the complexity is emerging with each new level. Furthermore, the existence of monitoring and control allows for communication among the different levels within the hierarchy.



**Figure 1. A generic Soft Systems Methodology’s Model.**

Following SSM’s modeling conventions, the different activities of using intention in an intervention, can be expressed as a hierarchy of levels of intention. Each level encompasses a set of activities with their corresponding monitoring activities for feedback. The proposal here is to have the future, and the present side of intentions, the dual faces proposed by Bratman, arranged as the hierarchy of levels (Figure 2a). Future intention the higher level, emerges from the lower-level intentional actions from the present. Present actions and their present-oriented intentions are shaping something that eventually will emerge as the path of a future-oriented intention. The monitoring can be represented as an extra layer (Figure 2b). It allows a mechanism to recognize if intentions are fulfilling their roles.

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**Figure 2. Levels of Intention**

The described roles of intention, making sense of our actions and those of others, coordinating actions, causing, guiding and sustaining action also have a part here. The proposal is to align the roles with specific levels of intention. Namely, some of the roles are related to the present-oriented side. The others do with the future-oriented side.

Up to this point we have proposed to arrange the hierarchy of levels of intentions based on their usefulness. However, no mechanism or detailed description of the internal activities has been offered. In order to do this it is necessary first to explain the theoretical underpinnings of each one of the levels. The next section starts this task by explaining the present-oriented intention.

### **INTENTIONS LEVEL ONE: DOING THINGS INTENTIONALLY**

The first level of intention deals with the present-oriented side. The proposal here is that in the present time intention is needed to coordinate action with others (sometimes with myself) at the present moment. Coordination requires the collaboration of other two intention's roles: to make sense of my actions and those of others. Two theories are used here to explain how intention is fulfilling these roles: Relevance Theory and Boundary Critique Theory.

Relevance theory proposes that individual actors possess cognitive environments, namely the background encompassing sets of ideas and assumptions that we use to make sense of situations. We use that background knowledge to make inferences about communicative stimuli. Stimuli could be almost anything produced by another actor. They can be words, gestures, actions and in the specific case of intervention, they can be even the use of tools and methods.

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Every time that we receive a stimulus, we assume it is intentional. Our brains aim to make sense of the situation and our cognitive environment changes. Cognitive environments are affected because “the human cognitive system has developed in such a way that our perceptual mechanisms tend automatically to pick out potentially relevant stimuli, our memory retrieval mechanisms tend automatically to activate potentially relevant assumptions, and our inferential mechanisms tend spontaneously to process them in the most productive way.” (Wilson & Sperber, 2002: 254). We look to make sense of the situation selecting the set of assumptions that enable to process the information “in the most productive way”.

What is more, in the communication process, we “alter the cognitive environment of your [our] addressees” and as a consequence, the “actual thought processes” are also affected (Sperber & Wilson, 1995: 46). The process of communication produces changes. New stimulus can weaken or strengthen old assumptions affecting their relevance. These are important because “a change in the mutual cognitive environment of two people is a change in their possibilities of interaction (and, in particular, in their possibilities of further communication)” (Sperber & Wilson, 1995: 61-62). Thereby, when people interact there is the opportunity to change the context in a way that allows us to extend the mutual shared cognitive environments of the actors. This leads to the possibility of actors coordinating their interactions thanks to a continually evolving shared cognitive environment.

A way to connect these ideas to Systems Thinking is through the notion of boundary and Boundary Critique Theory (Yolles, 2001). Boundaries can be understood as “social and personal constructs that define the limits of the knowledge that is taken as pertinent in an analysis” (Midgley, 2000, p.35). How they are defined, has an effect in what is considered as the problem, how intervention is conducted, and why it is perceived as important.

However, what has been seen as contained by the boundary varies from author to author. Ulrich (1983) proposes the different stakeholders. Midgley (2000) proposes enclosing values. Basically, the proposal here is first to conceptualize that a boundary surrounds the cognitive environment used to make the inferences. Second, that it is necessary a way to assess the effect that every communication, every use of language, or language games can have on the boundary. Relevance Theory provides us with such a way.

According to Relevance Theory, we use two conditions to define the productivity (relevance) of a stimulus in a communicative interaction: “a. Other things being equal, the greater the positive cognitive effects achieved by processing an input, the greater the relevance of the input to the individual at that time. b. Other things being equal, the greater the processing effort expended, the lower the relevance of the input to the individual at that time.” (Wilson & Sperber, 2002: 252).

Basically, something is relevant to somebody if it is possible to obtain many inferences from the stimulus, and it is not difficult to reach the inferences. In the process of defining the productivity of the stimulus, the hearer tries to match multiple contexts to the

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stimulus. The context that produces more positive cognitive effects using less effort is chosen.

Based on the productivity of the Stimulus, (Velez-Castiblanco, 2012) proposes a typology of intentions, boundary games (Figure 4) or ways in which we can affect the boundary of what is considered relevant in an intervention.

**Setting:** It creates a new boundary out of previous boundaries, establishing the core assumptions to be followed.

**Following:** It represents a movement inside a boundary, reinforcing it, reducing the processing effort required.

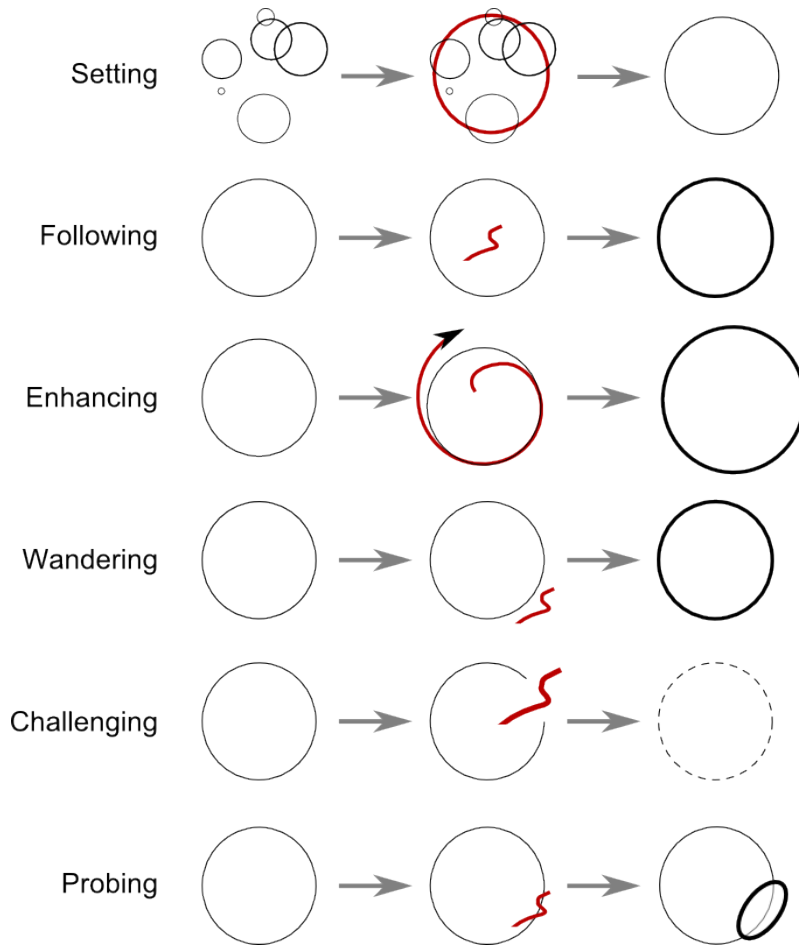
**Wandering:** It depicts a movement outside the boundary, showing what is not relevant and in this way reinforcing what is inside.

**Probing:** It shows a movement “testing” the boundary. It is useful to try to establish if an assumption falls inside or outside of the boundary lies.

**Enhancing:** It introduces new information, making the boundary bigger, increasing the positive cognitive effects.

**Challenging:** It weakens the boundary from the inside or the outside. It reduces the positive cognitive effects, or it shows that the processing effort increases.

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**Figure 3. Boundary Games.**

The fundamental idea here is that we can take any word, action or even the use of methods and methodologies in an intervention and through our intentions, we can make those affect the boundary in one or a combination of the proposed boundary games. As Wittgenstein (2001) suggests the meaning is not intrinsic, the meaning is determined depending how we use language.

### INTENTIONS LEVEL TWO: INTENDING TO DO THINGS

The second level of intention deals with the future-oriented side. The proposal here is that because there is a future target at stake, intention is needed to sustain efforts, and guide and cause actions toward achieving a later goal. This section is underpinned by Juarrero's (1999) ideas on intentionality based on Philosophy of Action and Complexity Theory.

Although Juarrero starts her exploration in Philosophy of Action, her work is better understood as a critique to the ideas in this field specially its understanding of cause. For



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this reason, she turns to Complexity Theory. Philosophy of Action uses mechanical or linear causes. In linear causes, causes and effects are separated. This drives philosophy of Action into the mission of finding the initial cause that is not affected by anyone else, but it is the solely responsible for intending. In fact, it is possible to find proposals that trace intention to individual factors such as reasons, belief, desire or plans (Mele, 1997b).

In complexity and systems, causes can be circular. In circular causes, the effects of a cause ultimately affect the cause itself. When a loop of causes is formed, the complete loop that sustains itself emerges as a self-cause. Juarrero's approach to intention is based on this self-causation. Namely, from the interactions among a set of elements emerge a web in which some of the elements reinforce each other and can sustain the existence of the web. In this scenery, there is not a core element producing intention. Instead, elements just as reasons, belief, desire, plans and others, are continually interacting and producing, sustaining and guiding each other.

Juarrero (1999) specifically relies upon the idea of second-order context-sensitive constraints. First-order constraints mean that after an event, some options are open for the next event but not others. Consequently, the second event is conditioned by the presence of the first one. Second level constraints, appear when some of the processes in a net connect creating a loop. In some conditions, this structure as a whole favors the events that sustain the existence of the loop itself, a kind of auto-cause or self-production. Additionally, the system constituted in this way constraint what events will be triggered in the whole chain. In other words, we have now a new level of organization with an emergent behavior.

Juarrero conceptualizes intentions as one of these second-order context-sensitive constraints. When applied to action, these constraints are manifest through "sudden changes in the conditional probability distribution of component behaviour" (Juarrero, 1999, p175). The alteration of the component behaviour is now biasing which actions will be pursued, thus guiding, sustaining and as a self-cause, causing behaviour.

In the same way, the biasing of behaviour is causing a partition of the space of possible actions. Not every action of the space of actions is available once intention acts. Some of the actions are included. Some are excluded from the possibilities. One of the reasons because this is important is because the meaning of the action arises based on how the space of actions is partitioned.

To explain the partitioning of the space and how meaning is obtained, Juarrero makes use of the concept of contrast space as put forward by Garfinkel (1981). This concept was originally conceived to highlight the differences between a set of explanations.

Garfinkel (1981) explains based on the following case: A priest asks a bank robber why he robs banks. The robber replies that the money is in banks. The idea is that here both the priest, and the robber are emphasising different aspects of the situation producing different explanations and contrast spaces. The priest focuses on the fact of the crime, so he is partitioning the space between rob and not rob and possibly ideas about the good

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and the bad. The robber emphasises banks, so he is partitioning the space considering different scenarios as attractive scenarios for the crime: banks, petrol stations, etc.

It can be noted that the meaning of “robbing banks” is not clear until we consider the contrast space. It could be a phrase to condemn the action (priest) or a confirmation of the kind of criminal activity in which somebody has chosen (the robber). What is giving the meaning is the contrast with the other elements within the contrast space.

Although the idea of contrast spaces seems static (the aforementioned example shows just one single comparison), second order contextual constraints are not. The use of the concept of an attractor and trajectories of actions show the dynamic side of the process. Juarrero conceives that we can understand actions as sequences of act-tokens. Consequently, they can be seen as a trajectory. In turn trajectories are affected by the second-order contextual constraints. Therefore, when they are in the presence of an intention, they are attracted to certain patterns. Combining this idea with the contrast spaces it can be said then that meaning attracts actions to a certain pattern, to a certain attractor.

This is a familiar experience. If somebody is already set to a course of action, this person will tend to use any comment to support her/his course of action. The contrast space is “colouring” every stimulus in the preferred direction. For that reason, the priest is thinking about his action in terms of saving a soul, and the same phrase is the consideration of a setting for the crime. The complex adaptive system of intention is then looking for ways to support the course of action. The element or stimulus is adapted despite its original intention (or lack of it).

Translating this to the domain of intervention, it can be seen how a process can start without a sense of direction. Later, when some approaches, methods and tools are used, a web starts to form. In the presence of the web, each new element added web needs to conform to the relationships in place. The meaning of the new element is now constrained. However, what the elements used mean in an intervention is multiplied, and the influence of external standards waned. After some iterations, the overall intervention starts to feel and look as a coherent whole.

### ITERATION TWO: MODEL’S FINAL ASSEMBLY

Having detailed the inner workings for both levels of intention, it is possible now to proceed to the assembly of the model. The model in Figure 4, is inspired in “The system to use SSM” in Checkland and Sholes (1990:294). The figure represents the two levels of intentions proposed here, and extra layer aimed to learn from the process and improve the way in which we intervene intentionally. The purpose is to organise in the way of a model some of the implications of using intentions to reflect about an intervention.

The inner part of the diagram deals with doing things intentionally. It shows a possible way to use Boundary Games (described regarding layer one). Basically, the process is to appreciate how the boundaries are affected by actions of all the involved in the interaction. Then on this foundation the practitioner can reflect on what effects are

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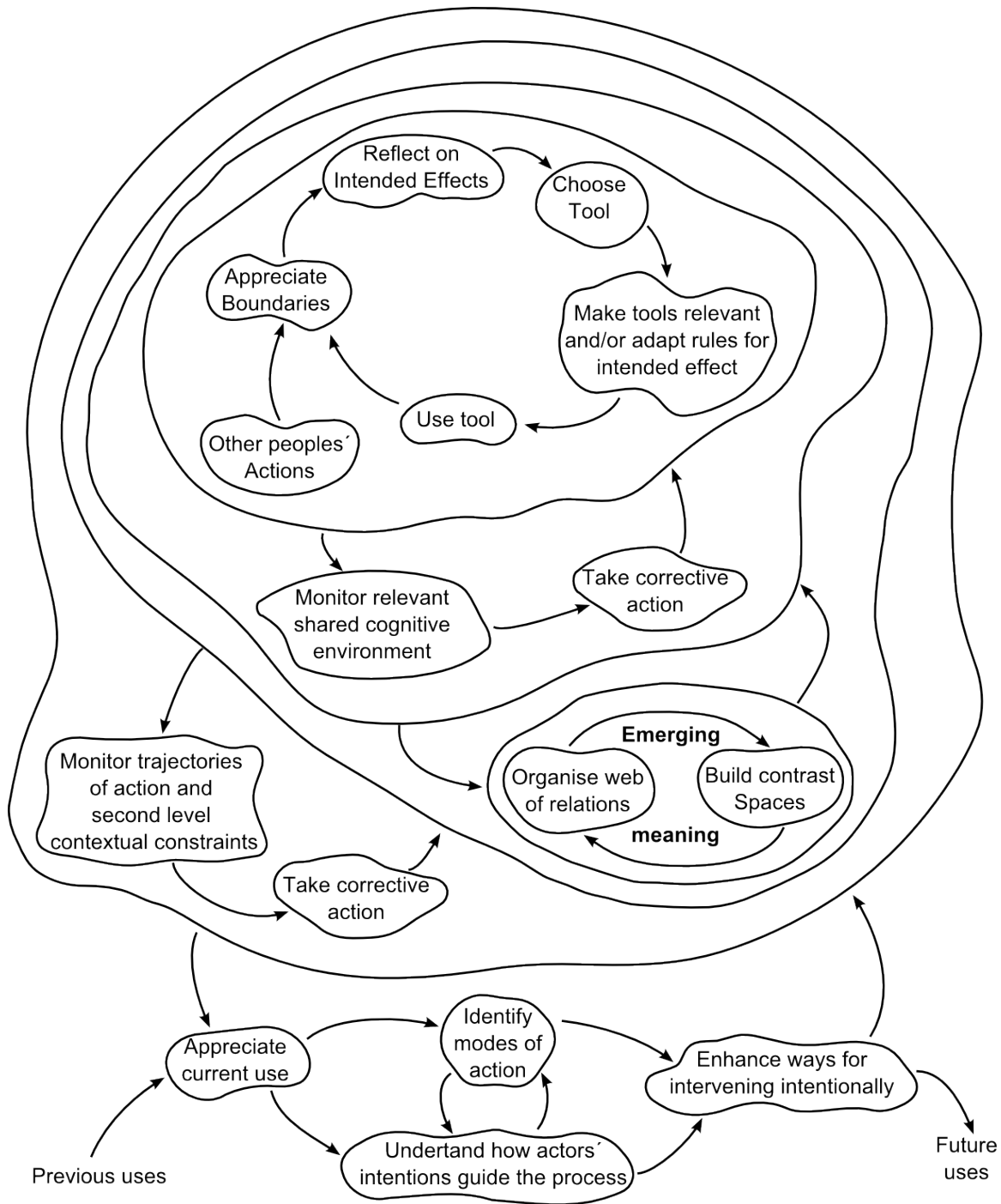
relevant for the situation. Finally, the practitioner can choose and adapt a tool for its use on the situation having into account a possible combination of the six games defined. The most inner part is then monitored in relation to the advances made towards building a relevant shared cognitive environment among the actors (the purpose of inferential communication according to Sperber and Wilson (1995)). The criteria to judge such a cognitive environment takes into account the usefulness for making sense of our actions, those of others and the consequent implications for coordination, namely the roles for present-oriented intention.

Having a shared cognitive environment is an important base for an intervention but is not enough. We can share some ideas, but we can disagree on their interpretations, implications, and more importantly on the course of action to follow. Consequently, on top of this layer came the intention to do things, the future-oriented side of intentions. This level is concerned with the emerging meaning derived from the interaction between a web of relations and the established contrast spaces. The idea is to direct the attention of the practitioner to build/organise such webs, and contrast this with what is not the web. This level of intention is then monitored in relation to the trajectory of actions and the second-order contextual constraints. The criteria to judge whether they are useful (or corrective action is needed) considers guiding, sustaining and causing the action, the roles of future-oriented intention.

Finally, in the most external level, the idea is to learn from the process for improving it and improving the ways in which the tools are used. This is done through the identification of modes of action and the understanding of how intentions guide the process and affect the meanings of the tools used.

Looking at the whole diagram it is tempting to speculate that the whole system is working simultaneously. When some tool is used to affect a boundary, at the same time some trajectory is implied. When a trajectory is suggested some operation is done on the relevant boundaries. Obviously, the middle levels are also affected. Consequently, in every interaction, the web of relations changes, and with it, meanings and contrast spaces.

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**Figure 4. Conceptual model for Intention in Intervention.**

This suggests that you can approach an intervention process from the top down but also bottom up. In a top down there is the idea of a trajectory or second level contextual constraints. The problem is how to build webs and contrast spaces able to guide, sustain, cause (constrain) actions? and how to create a shared cognitive environment to sustain this? From the bottom up you start to create a shared cognitive environment. The

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challenge is how eventually in these emergent process trajectories of actions and second level contextual constraints can be built.

### **CONCLUSIONS**

This paper proposed to understand intentions in a hierarchy of levels of different complexity. At the lowest level, intention is about the present. This level is explained in terms of relevance theory and boundary critique theory. Six intentions / Boundary Games are proposed to make sense of how intentions affect and change the boundary. The aim at this level is to achieve shared cognitive environments. Thanks to this intention can help us to make sense of our actions, those of others, and therefore, coordinate actions between actors.

The higher level of intention is future oriented. It is explained in terms of Complexity Theory and the concept of contrast spaces in Philosophy of Explanation. Intention is then a self-sustained web of interacting factors. They act as a constraint to the possibilities for action. The constraint guides and attract, produce actions coherent with the web. The aim monitored at this level is producing a trajectory of actions able to mobilize the situation at hand.

The framework, the theories used to underpin intention have as a shared concern language and action. This allows dissimilar elements in an intervention under the same framework. This is so despite differences such as level of elaboration (consider a word and a methodology), or philosophical underpinnings (consider mathematical modelling and storytelling). When used all of them are threads of language and action.

The model presented enables to reflect on the intervention process but also learn about it. It helps to describe actions that are the base for methods and methodologies. It also helps to consider meanings given to the tools and actions. In this way, it helps to give a place to the actor carrying out the intervention, something that tends to be forgotten in methodologies (Kay & Halpin, 1999). The proposal sees the levels of intention as complementary.

Finally, according to Churchman (1968:61) models are a “way in which human thought process can be amplified”. The model in this paper is looking to amplify the awareness of the practitioner about her/his effects on the use of tools in an intervention. If intentions have effects, tools and methods cannot be standard. If the actor can have a say on them, methods can be use in different ways, hence there is more space for flexibility and creativity in such processes.

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