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# **THE COMMONS DILEMMA REVISITED: EXPANDING RATIONALITY AND ANIMATING INSTITUTIONAL ANALYSIS**

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**THE COMMONS DILEMMA REVISITED:  
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**Grupo de pesquisa: Agricultura, Meio Ambiente e Desenvolvimento Sustentável**

## ***Abstract***

The classical theoretical prediction for the “commons dilemma” is as tragedy. The situation popularized as “the tragedy of the commons” became intriguing because beneath this unfortunate and surely undesired result of collective action laid the model of “rational actor”. Yet, the messiness of alternative theories of human behavior has been motive of hesitation to adopt more realistic assumptions than those of the rational choice to address collective action. Still, a deeper understanding of the interplay among cognition, values systems, and institutions should be the starting point for any discussion of societal change. In this paper, we present a new approach to advance the theory of collective action by combining the framework of institutional analysis with Clare Graves’s theory of adult *biopsychosocial* development. Moreover, we sketch an empirical strategy for investigating the behavioral hypotheses resulting from the Graves’ model using experimental CPR (common-pool resource) games. The results from the suggested approach

promise to be a valuable improvement toward a more integral approach to collective action problems and sustainability.

**Key words:** commons dilemma, experimental economics, institutional analysis, psychological stage theory

## ***Introduction***

The classical theoretical prediction for situations typifying the so called “commons dilemma” is as tragedy. The situation popularized as “the tragedy of the commons”, after Hardin’s paper (Hardin, 1972), became intriguing because beneath this unfortunate and surely undesired result of collective action rests the model of individual rational choice.

Notwithstanding, the fact that individual rationality can lead to a collective untoward result is not the major concern in this paper. This can be attributed to various intervening situational variables which prevent the so called *rational actors* of predicting accurately the outcome resulting from their interaction ones with the others and with the environment. Instead, the central issue in this paper concerns the modeling of the agents themselves.

The relatively new field of computational economics has been exploring the flexibility opened by the simulations techniques in order to model the economic agent in a richer way than otherwise possible in the analytic approach. In general, the psychological research offers the theoretical ground to support alternative behavioral heuristics animating the artificial agents. Although presenting important advantages, the artificial simulation approach is frequently criticized based on its weakness concerning external validity. In this sense, the combination of the computational and the experimental approaches, in addition to field work, has been seen as complementary.

In any case, according to Ostrom (forthcoming) the messiness of alternative and frequently contradictory theories of human behavior has been motive of grave hesitation to adopt more realistic assumptions to deal with collective action than those of the rational choice model.

The purpose of this paper is to present a theory of psychological development, due to Clare Graves, which was conceived precisely as an effort of find some order and rationale in the messiness referred by Ostrom. In 1971, in a seminar at the Washington School of Psychiatry, Graves said:

I chose as an area of research concern, the confusion and contradiction, the conflict and controversy in psychological information and theory. If you, for instance, turn to some of the writings of Carl Rogers you'll see that he says that the view of psychotherapy is in a mess. And he goes on and describes the horrible mess that it is in. Well, you can generalize that to the totality of the behavioral sciences. The field was an ungodly mess and still is. I went into this area (Graves, 2004).

Graves' theory is a conceptualization built upon near three decades of empirical research, resulting in a broader and richer description of human behaviors than any other alternative psychological theory at his time (Hurlbut, 1979) or nowadays. The human behaviors in Graves' model are associated to a hierarchical development of psychological capabilities, reflecting different orders of solution for the tension between two basic components of adjustment: the adjustment of the environment to the organism (agency) and the adjustment of the organism to the environment (communion).

The hierarchical (in fact holarchical) structure and the alternation pattern of agency and communion characterizing the psychological systems in Graves' model, in addition to his study of the changing condition either fostering or precluding the psychological development of biologically mature humans beings, offer a promising new avenue to both computational and experimental research in the field of social dilemmas. In particular, this paper exemplifies such a suggestion by placing Graves' model in the center of the schema set forth by the institutional analysis of collective action. It is our intent to show that Graves' theory furnishes an empirically grounded rationale to animate institutional analysis, thus integrating the interior psychological determinants of behavior to the already extensively study of the external (situational) variables.

### ***The internal mental models in the action arena***

The Figure 1 illustrates the conceptual model of the action arena, as in Denzau and North's (2000). The schema depicted in Figure 1 incorporates the dynamic nature of human mental models (or psychological systems) driving choices and actions.

The conception shows that the mental models mediate the perception of the action situation and are influenced by culture. Such cultural values, shaping the mental models, limit the range of alternatives that the individual may consider acceptable as possible actions. They also imply different value systems according to with the outcomes of alternative actions are evaluated. Further, the agent depicted in the illustration has limited capability to reason, as any

real human beings. So, the objective information about the situation is not the same information the individual perceives (which is represented by the change from full to dotted line in the Figure).

It is based on such partial and imperfect information, mediated by their mental models, that the agents can form their expectations about outcomes from alternative actions. Unfortunately, the actual outcome can diverge substantially from what was expected and, again, the agent cannot be sure why it is so, for the information she or he have about the outcome is also partial, imperfect and mediated. It is based on such quite uncertain condition that the agents may revise (or not) their mental models of the situation.

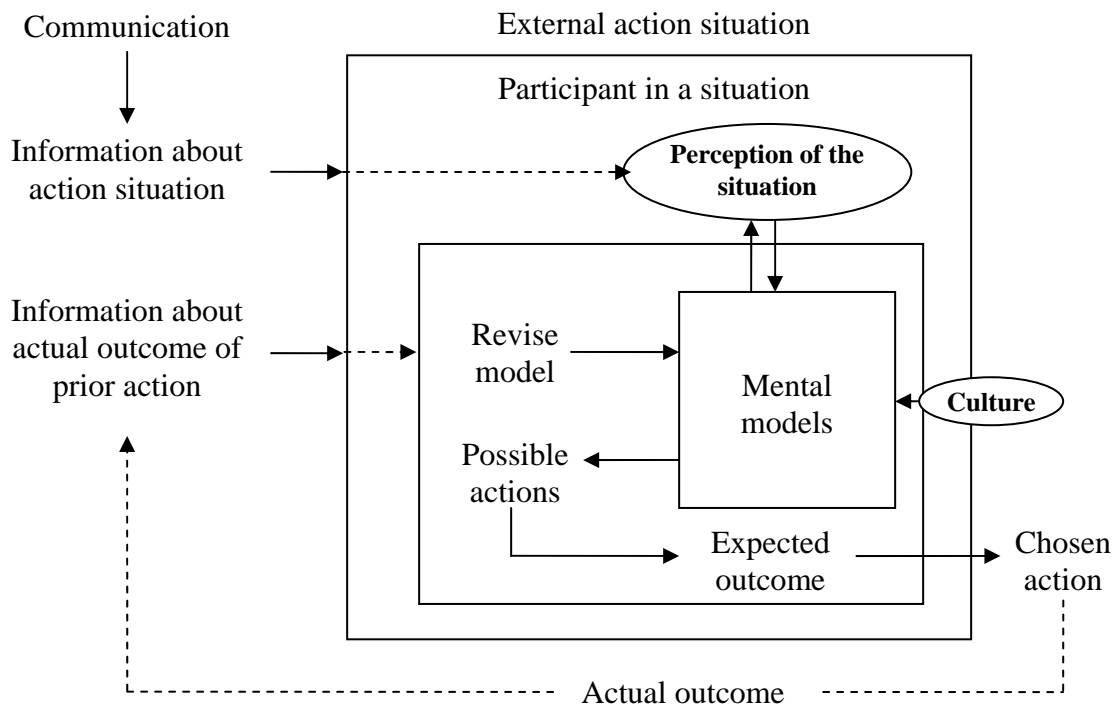


Fig 1 – The relationship between information, action-outcome linkages, and internal mental models. *Adapted from Denzau and North (2000, p.36)*

Denzau and North (2000) stress the importance of communication. In Figure 1, following Ostrom (forthcoming), communication was added as a variable changing the set of information about the action situation. It may thus induce a change in the individual mental model by affecting ones perception of the situation. The authors emphasize the role of communication as a

way channeling the mental models to converge, particularly through information sharing concerning the action situation.

Of course, the convergence of the mental models helps analysis. However, diversity is always unfolding and the consideration of such diversity is precisely the challenge to animate the analysis in a more realistic fashion. “How can we understand a person’s choice if, when confronting a given environment, she can have multiple representations, each of which is associated with different values?” (Frohlich and Oppenheimer, 2001, p. 6).

The natural answer is: We need a theoretical model which offers a logical and empirically supported basis of individual cognitive processes and thereby decision making. This leads us to Clare Graves’ Model of Adult BioPsychoSocial Systems Development.

## **Graves’ model**

### **The cyclical, double-helix, and open-ended aspect of Clare Graves’ model**

Clare Graves’ theory presents several characteristics which make it particularly helpful for our purposes of expanding rationality and animating institutional analysis. This is especially true in the context of the commons dilemma, which characterizes the agency-communion tension between the individual and the collective outcomes of decision making and action.

Based on extensive empirical data produced along near three decades of experimental research, Graves was able to conceptualize eight well characterized systems of thinking, perceiving and behaving in a variety of situations. Each of these systems presents a particular solution to the agency-communion tension as represented by the two main components presented in Figure 2. In this sense, each system embodies a different sort of rationality that is consistent with the individuals’ perception of their environment and action situation.

Before exploring the main characteristics of Graves’ model, let’s begin by presenting the summary statement of his Theory of Levels of Human Existence.

*Briefly, what I am proposing is that the psychology of mature human being is an unfolding, emergent, oscillating spiraling process marked by progressive subordination of older, lower-order behavior systems to newer, higher-order system as an individual’s existential problems change. Each successive stage, wave, or level of existence is a state through which people pass on their way to other states of being. When the human is centralized in one state of existence, he or she has a psychology with is particular to that state. His or her feelings, motivations, ethics and values, biochemistry, degree of neurological activation, learning system, belief systems, conception of mental health,*

*ideas as to what mental illness is and how to it should be treated, conceptions of and preferences for management, education, economics, and political theory and practice are all appropriate to that state* (Graves, 1981).

The mechanism investigated by Graves to account for the dynamic interaction of the coping systems and the existential problems is threefold: structural, biochemical and behavioral. The brain's structure ought to support the potential for the psychological development. The behavior is the main mechanism of interaction with the exterior world and the major source of information through which the individual perceives harmony and dissonance between his/her necessities and aspirations in relation to the life conditions. The biochemistry of the brain would be the bridge linking behavior and structure. Grounded on his measurements associated with the systems, Graves suggested that the entire physiology of the organism would be involved in the process of psychological changing in agency vs. communion response to the life conditions; hence BioPsychoSocial system.

In Figure 2, the neurological coping systems are represented in the vertical axis and the existential problems in the horizontal axis. The general hypothesis underneath Graves' conceptualization is that "we are equipped by nature with certain information processing devices and certain decision making equipment to handle in an hierarchical ordered way a series of problems of human existence" (Graves, 2004). Graves was working back in time, but his conception of the brain as structured functionally, rather than physically, into a series of hierarchically ordered dynamic neurological systems has been confirmed by the finds of the modern neuroscience. Such copying systems would be gradually activated along the dynamic produced by the two components in the interaction of the organism with the environment. The remarkable quality of this gradual activation in Graves' model is the increasing of the organism's behavioral freedom, according the vital nature of the existential problems diminishes along the horizontal axis.

Thus, the A sort of problems represent those involving the operation of imperative periodic physiological needs of the organism, such as nutrition and rest, and Graves hypothesized a functional systems, N, in the brain that specifically relates to the task of running such vital processes, periodic in nature, in the organism. At this point, the degree of behavioral freedom of the organism is minimal, as it is limited by the narrow physiological bounds defining the organic equilibrium (homeostasis). Accordingly, Graves hypothesized that it would exist a demonstrably

distinct neurological coping system, O, that would be different from A not only in its structure or its network in the brain but also in term of the stimuli, the B sort of problems, which will activate it. The B problems would still involve physiological needs but which do not have the characteristic of being periodical, like the problems of shelter, for instance. In terms of leaning Graves associated the coping system B to the Pavlovian conditioning and now the organism has more freedom to choose among alternatives.

Roughly speaking, Graves associated the C kind of problem to the threat of enemy attacks, particularly in the sense of invasion and submission of one society to another. The corresponding learning systems, supported by the hypothesized coping system P, would be the instrumental conditioning. The existential problems coded as D was associated by Graves with the conception of a punitive God, probably related to the unpredictability and eventually disastrous manifestation of natural phenomena, including disease and the very event of natural death. Such view of a world ruled by a punitive God would activate the avoidance conditioning as the major system of learning (supported by a distinguishable copying system Q). Graves associated the E and F sort of problems to the need of social status and social acceptance. The corresponding coping systems, R and S, would allow for strategic behavior and consensus. In term of learning systems Graves mentions the expectance learning and the operational learning processes.

At this point Graves' data called for a qualitative change in the nature of the existential problems in order to account for a "tremendous change in behavior", as observed in the subjects operating from the level G-T in Graves' experiments. Such change was mainly associated to the behavioral freedom and creativity in finding solutions to open-ended problem situations. Graves reported that the individuals in groups operating from the level G-T were able to find more and better solutions than all the other groups all together.<sup>1</sup>

Grounded on his threefold account of the systems, Graves stressed out the fear element, associated to the biochemical factor in the hypothesized coping system G, as possibly involved in this dramatic increase of behavioral freedom. He suggested that people operating from level G-T are not afraid of not finding food (A-N) or shelter (B-O). They are not afraid of predatory man

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<sup>1</sup> He mention that this "tremendous jump" in behavioral freedom, portrayed by the area defining each system in Figure 2, is not properly represented in term of size, for it would be grater than the summation of all the areas defining the systems 1 to 6.



(C-P) or a punishing God (D-Q). They are not afraid of not making their own in this world (E-R) or of social rejection (F-S).

Graves thus suggested the emergence of a second order existential problem which he called the problem of being, in contrast with the first order problems of surviving (either biologically or socially). Finally, for the system H-U, Graves' physiological evidence is the electrical resistance of skin. He reported that the people classified as operating from this level presented skin resistance 2 to 4 standard deviation higher than the mean of the other groups. In regard to behavior, he found that those people could "go out of this world and go off into other levels of consciousness and come back at will". That is, something many people attempt to achieve through psychotropic type drugs, including ritualistic beverages used in religious contexts.

Notwithstanding, what is of our concern is first that Graves' systems present a clear alternation pattern of agency and communion. So, in Figure 2, the uneven numbered systems form a family of self expressing systems, represented by the spurts of the component adjustment of the environment to the organism (agency). Similarly, the even numbered systems form a family of self sacrificing systems as the agency component plateaus and the component adjustment of the organism to the environment spurts (these two components were the foundational traits identified in the conceptualization of Graves' empirical data). This is a very important trait of Graves' model in terms of the behavioral predictions we can advance within a situation as the commons dilemma. Before going further in how we suggest applying Graves' model to animate the institutional analysis, let's expose two others aspect we should take into account.

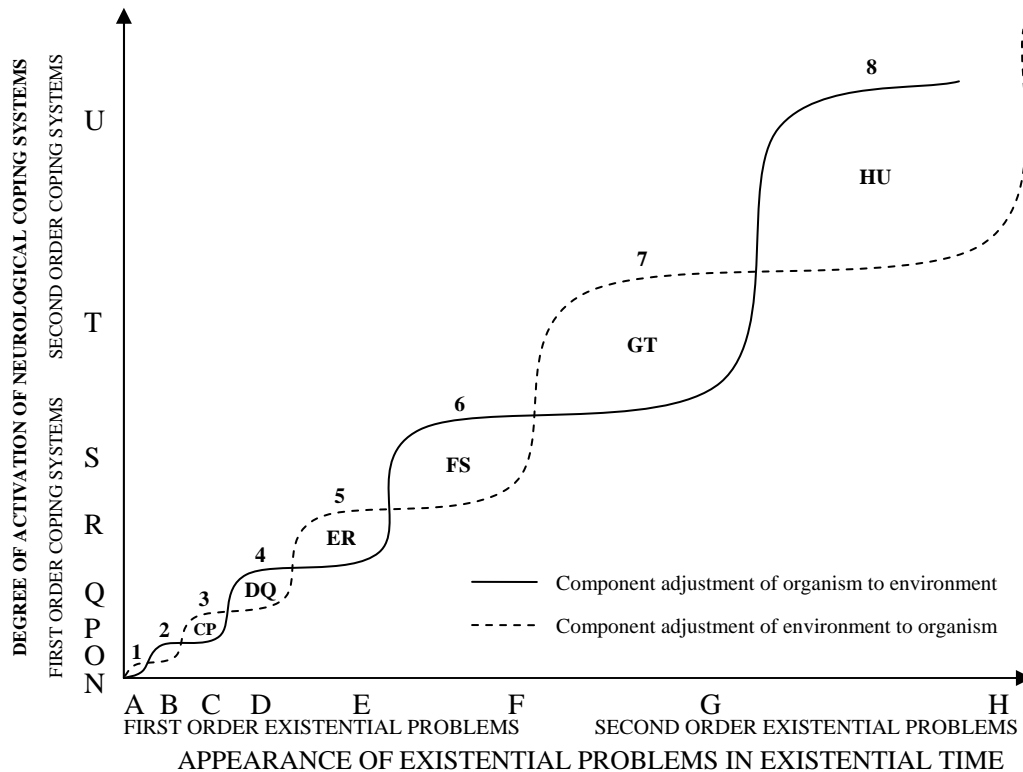


Fig 2 – The double-helix, oscillating and spiraling aspect of adult psychological systems.

### The nested and the wave-like aspects of Clare Graves' model

The nested aspect of Graves' model can be illustrated as in the Figure 3. This representation helps to see that Graves' model is not grossly hierarchical but truly *holarchical* (from *holon*), since the higher systems do not really exist separated from the lower ones. Each system is thus a *holon*, that is, a whole that is at same time a part of a higher structure and whose totality is inseparable of its components.

In fact, it is this holarchical structure what explains the increasing behavioral freedom briefly discussed in the previous session. That is, the possible behaviors or actions opened by any lower-order system are still open to and supporting the higher-order systems. At same time, some particular behavior learned through the skills which emerge at higher levels systems, as how to drive a car by operational conditioning for instance, can be latter delegated to a lower system, as it becomes automatic. Similarly, even though potentially available to a higher-order system, some particular behavior marking the emergence of a given lower-order system may become extraneous as the life conditions and the existential problems change. This is indeed what is

expected for the most part of the behaviors so that each level is well characterized and their typical chosen actions within specific action situation can be predicted. Moreover, the holarchical structure of Graves' model limits the alternatives opened to the lower-order systems.

However, all this is complicated by the fact that, at any given time, various systems are operating together and different systems can be more or less active in different contexts. These ideas are presented Figure 4. In the illustration, the vertical line at the E-R system indicates only that the individual behavioral *center of gravity* is characteristic of that level. Observe that the D-Q system is decreasing and that the F-S system is already unfolding.

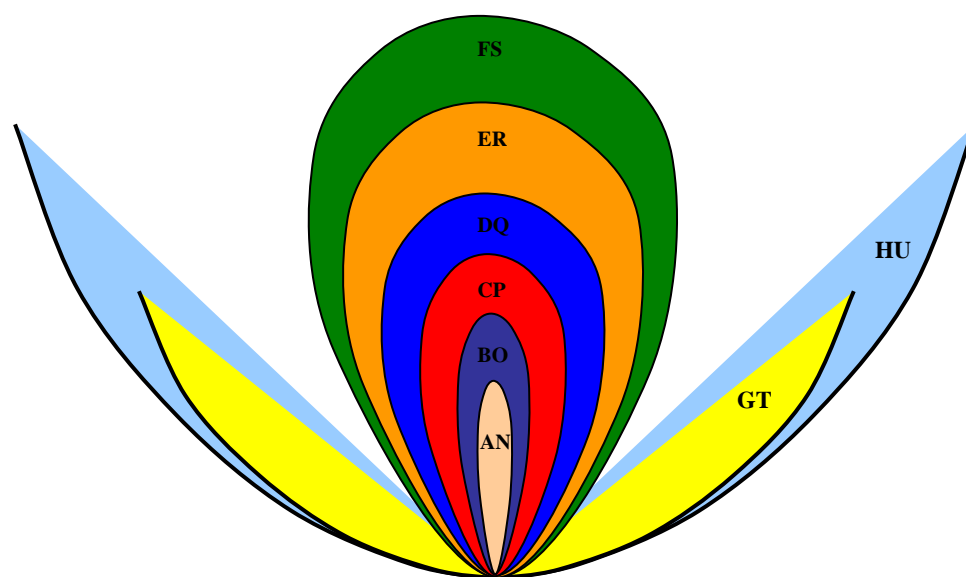


Fig 3 – The nested aspect of adult psychological systems.

The complexity of the actual systems functioning can barely be pictographically illustrated. Indeed, the whole system is, up to a certain extent, context-sensitive so that we may observe a different configuration for two sufficiently distinct contexts. The behavior of a particular individual can be typically strategic competitive (E-R) at work and impulsive competitive (C-P) in regard to sports, for instance. Even though, according to Graves, unless the individual presents some sort of pathological disintegration of personality, she or he ought to present an identifiable center of gravity in one of the systems, which should remain valid for the most part of the relevant situations.

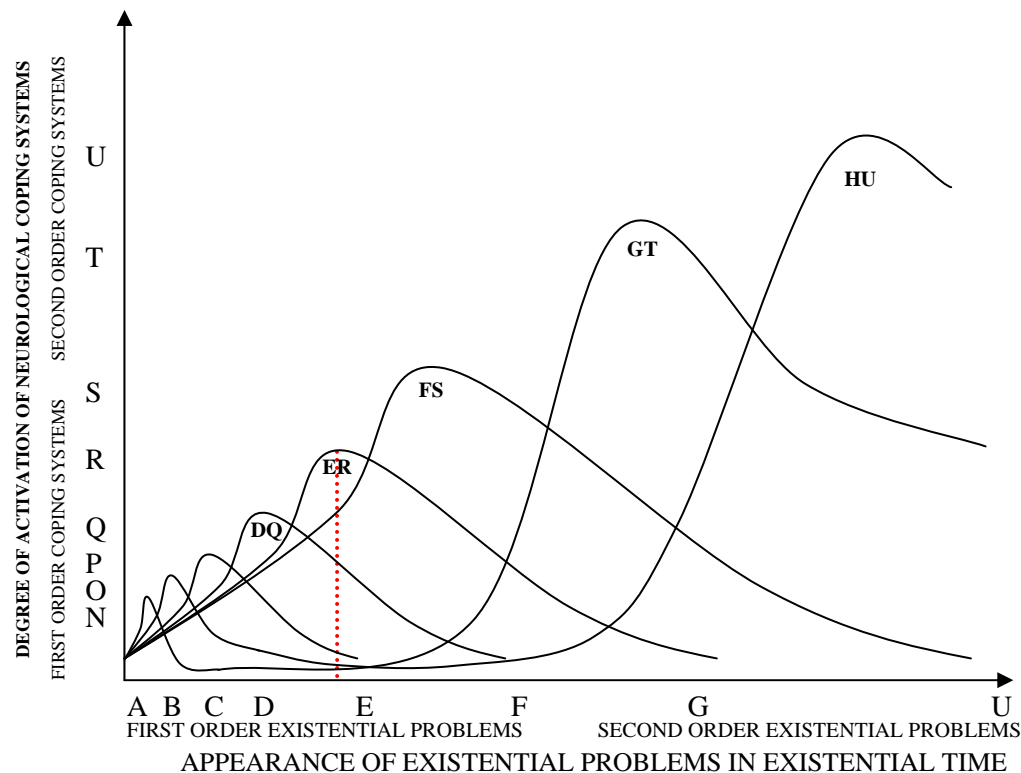


Fig 4 – The wave-like aspect of adult psychological systems.

In fact, Hurlbut (1979), who developed and tested an instrument for assessing Graves' systems, showed that the primary and secondary psychological levels of existence were identifiable and remained within three levels of each other (98.8% of the individuals tested). A further advancement of the assessment tool was proposed and tested by Lee (1982), who was able to found 83% of conformance to the criterion of two level spread between the primary and secondary psychological systems identified in his subjects.

Given this empirical ground and the existence of sufficiently reliable assessment tools, it seems perfectly possible to set forth and to submit to test clear hypothesis describing a diversity of expected behaviors within a specified social dilemma, as suggested by Graves' theory. The next section thus presents a brief description of each one of Graves' psychological systems and the corresponding expected behavior within the commons dilemma.

## ***Expanding rationality***

Before inserting Graves' model in the action arena to animate the institutional analysis, we need to extend our characterization of each system and set forth our expectations about the behaviors driven by different systems within the commons dilemma situation. In doing so, we will assume the minimal institutional configuration as in the original game theoretical approach to the commons dilemma. Besides, we will be talking of each system in isolation.

Clearly, in any concrete situation we should find a complex mixture of systems, since people dealing with different sort of existential problems are expected to be operating from different systems. As noted before, communication as a mechanism of sharing information has an important role in the process of building a common perception of a given situation. However, as we will discuss in the next session when talking about the changing conditions, Graves' model offers also a base to understand the limits of communication to accomplish such a task. In any case, by considering the different rationales typifying each of Graves' system we are able to relax the assumption of the rational choice theory to enrich the analysis of the collective action.

### **Graves' systems in the commons: expected behaviors**

In Table 1 there is a brief summary of the main cultural and personal manifestations of each of Graves' systems, as popularized by Beck and Cowan *Spiral Dynamics*. For our current purposes the first relevant system is possible the third (C-P or Red). As we saw, the C-P is an expressing-self system in which the agency-like trait appear as impulsiveness. The individual at C-P is generally describes as egoistic and heroic. Cooperation may emerge as a behavior toward conquering group acceptance and construction of group identity, as in youth groups and "gangs". However, in the context of the commons dilemma, where what is in place is the temptation to cheat and try to get an immediate higher pay-off versus the effort to coordinate behavior in order to obtain long term benefits, the theoretical prediction for a person at C-P is to defeat. A person whose center of gravity is centered at C-P and, at same time, is able to perform strategic thinking (fully opened at E-R), would probably try to cheat by inducing other to cooperate. Thus, assuming the minimal institutional settings where there are neither communication opportunities nor sanctioning institutions we can guess a very poor performance for a group mainly composed by people centered at the C-P system.

Table 1 – The eight stages (or living strata) of the Spiral Dynamic model

Stage/ Wave	Color Code	Popular Name	Thinking	Cultural manifestations and personal displays
H-U	Turquoise	WholeView	Holistic	collective individualism; cosmic spirituality; earth changes
G-T	yellow	FlexFlow	Ecological	natural systems; self-principle; multiple realities; knowledge
F-S	Green	HumanBond	Consensus	egalitarian; feelings; authentic; sharing; caring; community
E-R	Orange	StriveDrive	Strategic	materialistic; consumerism; success; image; status; growth
D-Q	Blue	TruthForce	Authority	meaning; discipline; traditions; morality; rules; lives for later
C-P	Red	PowerGods	Egocentric	gratification; glitz; conquest; action; impulsive; lives for now
B-O	Purple	KinSpirits	Animistic	rites; rituals; taboos; superstitions; tribes; folk ways & lore
A-N	Beige	SurvivalSense	Instinctive	food; water; procreation; warmth; protection; stays alive

Adapted from Beck (2005)

A higher level of cooperation would be expected in a group mainly composed by people at the D-Q system (Blue), which is as sacrificing-self system living for later rewards. Also the D-Q system tends to accept authority and behave according the rules. Thus, the very nature of the commons dilemma seems to be the kind of situation in which the D-Q system is called to discipline behavior by avoiding the temptation to cheat. Clearly, the impossibility to communicate would bring some coordinating problems. However, if communication is allowed and the group is approximately homogeneous at D-Q, the theoretical prediction is for one of the highest levels of cooperation, possible without the need of any sanctioning institution. A caveat refers to the possibility of towering rivalry among groups expressing opposing forms of closeness at D-Q, as in the religious fundamentalism.

The E-R (Orange) system typifies the materialistic achiever self. The strategic thinking at E-R makes cooperation conditional to the circumstances. The utmost simplification of the E-R

system produces the rational expectation model so that, in this case, with minimal institutional devices, the theoretical result is the classical tragedy of the commons. Since none actual behavior corresponds to such abstraction, the theoretical prediction is mainly a function of the institutional setting. People at E-R are basically willing to cooperate, if the discounted pay-off in the future, which must be sustained through cooperation, is expected to be higher than the pay-off that can possible be taken from non-coordinated behavior.

The sacrifice-self component of Graves' systems unfolds again at F-S (Green). The F-S worldview is described as ecologically and socially sensitive, valuing equality and the sense of community; feelings and caring should supersede cold rationality. At the same time, F-S is free of dogma, network thinking and averse to hierarchy, which distinguishes it from the D-Q system. The expectancy is thus for a cooperative prone behavior in the commons dilemma and we can also expect that a group centered at F-S would take great advantage of communication opportunities and probably reject the imposition of sanctioning institutions.

Since the systems are *holons*, the cooperative prone behavior and the network understanding of the situation involved in the commons dilemma are also present at the G-T system (Yellow). However, now the egalitarian value is complemented with natural degrees of ranking and excellence. Knowledge and competence should supersede power, status or group sensitivity (Wilber, 2001). At G-T the agency-like behavior is no more concerned with the individual surviving but with the planetary sustainability. If so, we may expect conditional cooperation at G-T and in this sense it would be difficult to differentiate the G-T from the E-R behavior in a situation with minimal institutional setting. We could possible find out the differences in motivations among these systems by imposing costs of communication or punishment institutions. In these circumstances we expect that G-T would be willing to assume individual costs to foster the better collective result more than E-R.

Beck and Cowan (1996) mention Gandhi and Mandela as examples of person operating at H-U system (Turquoise). The H-U system adds a sort of profound spiritual understanding of life to all network complexities grasped by F-S and G-T. It was hypothesized by Graves that the recognition of the whole spiral unfolds at H-U together with a sort of abandonment of material desires and attachments. Thus, in the commons dilemma setting, cooperation at H-U is expected to be unconditional.

## ***Animating institutional analysis: Graves' model in the action arena***

In order to present our suggested framework we placed an alternative pictorial representation of Graves' model, as popularized in the *Spiral Dynamic* (Beck and Cowan, 1996), in the center of Denzau and North (2000) representation of the action arena (Figure 5).

Again, the complexity of any actual situation is more than what can be plainly represented. Nonetheless, the match of these two models seems evident. Graves' theory furnishes the structure required to advance some predictions about how, in which direction and in which circumstances the mental model of individuals in the action arena would possibly be revised. The holarchical structure of the mental models permit to anticipate, for instance, that an individual centered, say, at the D-Q system (Blue), will barely be able to revise his model so to consider actions which are open only at the F-S (Green) level. Reversely, an individual well established at G-T (Yellow) would require extreme circumstances in order to choose an action which otherwise is typical for one operating at C-P (Red).

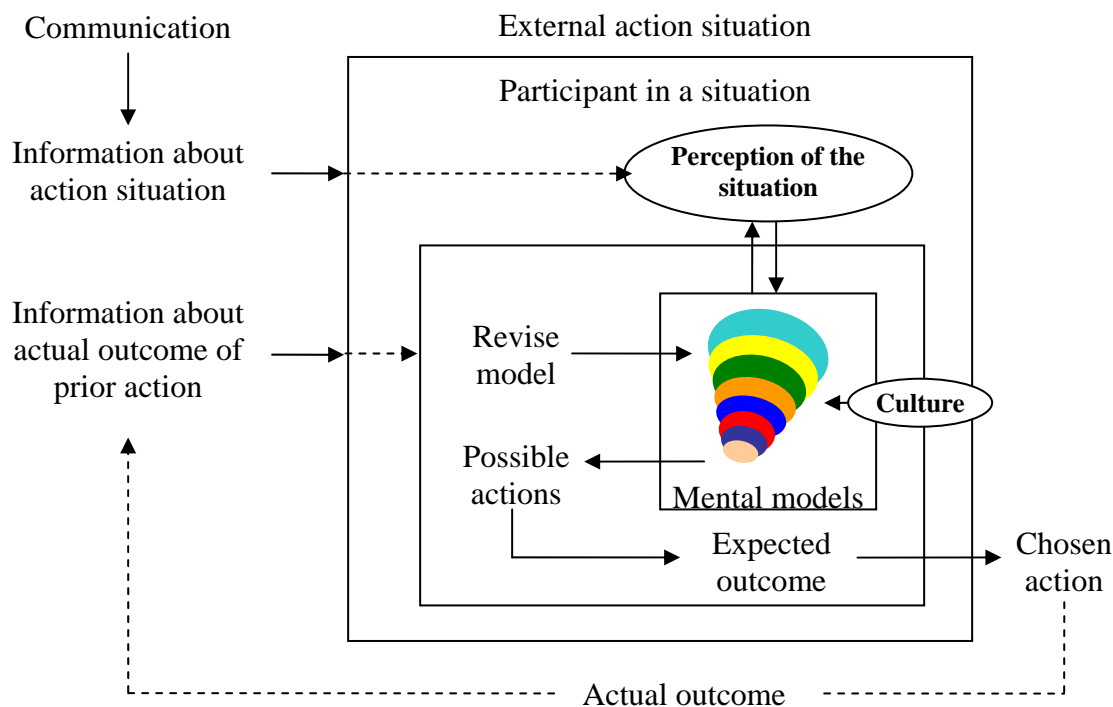


Fig 5 – The spiral dynamics in the IAD framework



Indeed, Graves' theory includes detailed discussion of three different kinds of dynamic of change characterizing the psychological development. Besides the vertical change, which represent the truly awaking of a higher level of thinking, reframing the perception of the situation in the environment and expanding the range of possible actions, Graves also discusses the horizontal and the oblique kinds of changes. Very briefly, the horizontal changes portray the dynamic of improving the capabilities within a given systems (more of the same). The oblique dynamic represents the experimenting phase with select elements of a more complex system of thinking, perceiving, evaluating, information processing, etc.

Graves discusses six basic conditions for a vertical change: (1) structural and genetic *potential*; (2) quality and number of *solutions* (possible actions) already developed for dealing with problems at a given level, (3) degree of *dissonance* between current solutions and actual outcomes, (4) *insight* into alternative means to handle problems (influx of new information changing the perception of the situation, but not only passing through communication), (5) ability to identify and manage *barriers* to change, and (6) existence of *support* to consolidate transition (institutions included).

The Figure 6 shows the phase transitions in an abstract vertical change. The *Alphas* represent the centers of gravity of any two contiguous systems, in the sequence proposed by Graves. As such, they are times of stability and congruence when solutions match problems. So, the individual has no incentive to change his mental model in these circumstances. But the circumstances changes and eventually the degree of behavioral freedom the individual has at a given level is no longer sufficient to manage problems. *Beta* is so a time of dissonance and uncertainty.

The specific dynamic as well as the proper conditions, specially the *support* to foster change, will depend of the kind of system in which the individual is operating from. If the current system is of the kind *sacrifice-self*, as in D-Q or F-S, change can be supported by authority. Graves explains that D-Q (Blue) will respond to higher authority, in the strict sense, while F-S (Green) will accept only peer's authority. People centered in an *express-self* system otherwise generally do not respond to authority and demand support to search new solutions for themselves. In any event, before truly consider a vertical jump, ahead, the individuals engage in horizontal dynamics and regressive searches for old solutions.

The dotted lines in the Figure 6 portray alternative qualities of change conditions. In favorable conditions the path is smoother. In adverse conditions the depression through *Gamma* is more profound. *Gamma* is thus a state of anxiety, fear and frustration where the problems are apparent but the solutions cannot be found. Clearly, the limit situation is suicide. Nonetheless, there is also the potential for pathological *closedness* in any given system or even regression to lower levels as the individual becomes trapped by barriers. In the first case the individual avoids or denies the challenging situations, expressing any sort of fundamentalism and intolerance as he become locked in an excusive horizontal dynamic. In this case, the influx of news information has no effect at all in changing the way the individual perceive the situation (see Figure 5). Moreover, the individual either deny the dissonance between expect and actual outcomes or attribute it to interference of others (like in some radical defenses of free markets).

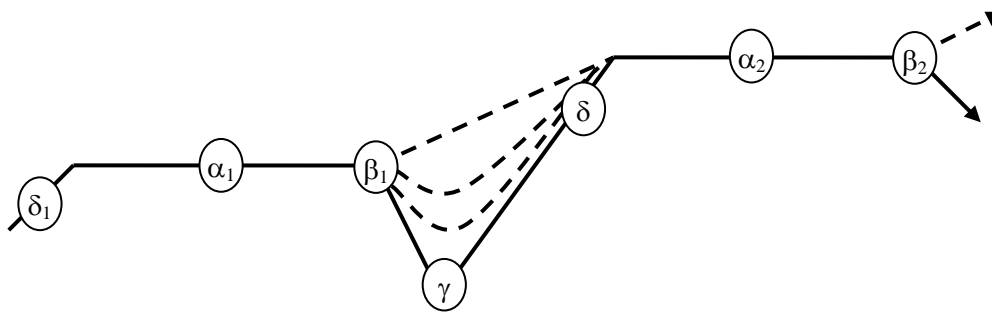


Fig 6 – The changing states and the alternatives paths of change.

Moreover, it is opportune to note that what counts as dissonance is in itself a function of the system, for to attribute the frustration of expectative to the personal intervention of god(s) and devils(s) is a typical mode of understanding at the B-O (Purple) and the D-Q (Blue) systems (with do not mean that such understanding is not accurate). Anyway, if the conditions foster change, the individual eventually arrives to *Delta* and thus to a new and higher level *Alpha*. *Delta* is a period of excitement and zeal to share the bliss of new discoveries and increased behavioral freedom. At the new *Alpha* the complexity of problems and thinking again come into alignment so that balance seems to be restored, just to be broken again and give way to new and increasing difficult process to achieve the farther capabilities of human potential.

## Conclusion

Based on what was presented we believe that Graves' theory can be tremendously helpful in advancing the theory of collective action.

In linking learning, institutions and economic performance, Mantzavinos, North and Shariq (2004), stressed out that "cognitive science is not a merely of peripheral importance for social scientists, but should be the starting point for any serious discussion of social change". True enough, the cognitive science is itself asocial. On the contrary, Graves' biosphycosocial systems, or levels of existence, are indeed empirically generated behavioral systems accounting not only for the assumptions we can sustain about typical valuation process in each system but also about the information processing capabilities and selection processes. That is, it supplies a complete theory which enables us to relax the three foundational and awfully restrictive assumption of the rational choice theory altogether.

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