

CONTESTATIONS OVER BIODIVERSITY PROTECTION: CONSIDERING PEIRCEAN SEMEIOSIS

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Abstract

We develop the general outlines of an evolutionary biodiversity policy that is consistent with the pragmatism of Charles Sanders Peirce and the institutional economics of John R. Commons. Our model is applied to recent experiences with biodiversity policy in Finland, especially a local policy initiative: Natural Values' Trading (2003-2007). The purpose of this experiment was to explore how a voluntary, fixed-term, payment- and incentive-based scheme for biodiversity protection might perform. As a result of the experiment, the scheme has become a formalized part of Finnish forest biodiversity law and policy. In this paper we analyze the evolution of this particular institutional arrangement by applying Peircean semeiosis and the negotiational psychology of Commons. A central component of our approach will be to explicate the role and significance of sign processes in: (1) how and why the need for new policy instruments emerges; (2) how those policies are developed, designed, and tested; and (3) how decisions about those new instruments are made. We urge that the sign process play a greater role in how scholars understand the evolution of biodiversity policy. Semeiosis is “good to think with.”

Keywords: Biodiversity policy; Institutional evolution; Pragmatism; Institutional economics;
Semeiosis

I. The Challenge of Biodiversity Protection

Finland, as with many countries, has not been successful in crafting a feasible biodiversity policy. For the most part this failure can be traced to the inability to reconcile biodiversity protection with feasible livelihood strategies in rural areas (Hiedanpää, 2002). The problem is compounded, and may be insoluble, by the standard approach that some ecosystems are for human use, while other ecosystems are for ecological preservation (Hanski, 2005; MA, 2005). This attitude makes life difficult for governments as they work hard to reverse the long-run trend of rural depopulation. The policy challenge is one of a continual interplay between rural income prospects and governmental programs that can foster economic and social opportunities necessary to maintain the appeal of living in rural areas (Grieg-Gran et al., 2005; Pagiola et al., 2005).

At the intersection of these two problems there now exists an institutional innovation called payments for ecosystem services (PES) (Vatn, 2010; Fisher et al., 2009; Wallace, 2007). In Europe, various programs have been crafted in an effort to bring institutional, economic, and ecological coherence to this new suite of policy instruments (TEEB 2009). The alleged promise of PES schemes is that they will promote both biodiversity protection and the enhancement of rural livelihoods. But of course this promise of success requires clarity about how specific policies and organizational arrangements evolve as new ideas emerge and are tested. But it is clear that if biodiversity policy is to offer coherence and the possibility of success, there will need to be a reformulation in the prevailing theory and policy practice of what it means, in institutional terms, to protect biodiversity. And, there will need to be a reconsideration of what it means to encourage rural livelihoods.

We focus here on recent experience with biodiversity policy in Finland. A local policy invention—Natural Values’ Trading (2001-2002)—was drafted in 2002 (Hakila, 2002). It then became a policy innovation when it was incorporated into the Finnish Biodiversity Programme for Southern Forests (2002-2007) and therefore put to a practical test. In 2008 NVT became a formal policy practice when it was introduced both in the Action Plan for Southern Finnish Forest Biodiversity (2008-2016), and in the Act on Financing Sustainable Forestry (2009). However, the key principles envisioned in the local version of NVT differed rather significantly from what was eventually adopted in SW Finland.

This evolution from an idea to a practice provides an object lesson in the evolutionary insights of John R. Commons and the formal pragmatism of Charles Sanders Peirce. Our approach here is that of abduction—a quest for sufficient reasons (Bromley, 2006). Our purpose is to illuminate the process of institutional change in the face of inevitable contestations over the “human will in action.” [1, endnote]

II. Peircean Semeiosis and Institutional Evolution

We shall first embed the account of new biodiversity policy in Finland in a more general model of institutional evolution. We necessarily start by noting that in contrast to biological systems, which must be analyzed in terms of function, human systems must be analyzed in terms of purpose.

Our focus is different from that of most scholars working on institutional evolution. There are two general lines in economics on institutional change and evolution: (1) institutions are designed; or (2) institutions emerge spontaneously [2]. This binary divide does not bother us here because our need is to explain the role and significance of variation, heredity, and selection in

institutional change (evolution). That is, what varies, what is passed on to the next generation, how it is selected, and most importantly, what is the unit of analysis of that selection? For us, that essential unit of analysis is the purposeful transaction.

Many evolutionary scientists, including a few economists, have acknowledged the importance of Charles Sanders Peirce's cosmology and philosophy of science, including the legendary Frank Ramsey, Bertrand Russell and Ilya Prigogine. But none—as far as we are aware—has used his theory of signs to explore institutional evolution [3]. However, in order to use Peirce to inform the process of institutional evolution, an additional conceptual apparatus must be deployed to allow the incorporation of what might be thought of as “societal forces.” We therefore intertwine Peircean pragmatism and sign processes with Commons' volitional economics and negotiational psychology [4].

With this background, we now turn to semeiosis.

A. Semeiosis

“I understand pragmatism to be a method of ascertaining the meanings, not of all ideas, but only of what I call “intellectual concepts”...those upon the structure of which, arguments concerning objective facts may hinge” (CP 5: 467) [5].

One of Peirce's core ideas is that life has a tendency to take habits. Peirce insists that this tendency applies to nature, to the mind, and to society. In his theory of categories, habits belong to thirdness, a concept whose elaboration would take us too far afield (Hookway, 1985). But what matters for our present purpose is to understand that habits include laws, dispositions, beliefs, and—most important in the current setting—stopping rules. Habituation is the key normalizing power in mind, in society, and in nature. To Peirce, evolution is a continuum of overlapping disturbances, adjustments, and habits. Focusing on human systems, evolution must be understood

as a continuous process of doubt, inquiry and gradual settling down to a new “fixed belief.” The arrival at what it is now understood to be “better to do” is acknowledgment of the intimate connection in Peirce between belief and action. Habit taking to Peirce is the “instituted personality” to Commons. To Commons, the habituated mind settles on what comes to be regarded as reasonable to believe—and therefore to do (Hiedanpää and Bromley, 2002). It seems appropriate here to comment that evolution as elaborated by Darwin rests on a long tradition of evolutionary analysis applied to human societies (von Hayek, 1982). The Peircean approach for understanding evolution does not privilege Darwinian “natural selection” over what Commons—discussing social evolution—would call “artificial selection.” Peirce sees both “selections” at work on the mind, on societies, and on nature.

Institutional evolution—of which Natural Values’ Trading is an example—works in a similar manner. We follow Peirce in our assertion that human systems change—evolve—in some purposeful way. Having said that, we acknowledge Peirce’s warning not to identify purpose with a conscious goal. To Peirce, “a purpose is merely that form of final cause which is most familiar to our experience” (Peirce, CP 1: 211). Notice that these “final causes” are not things or events. Rather, final causes are nothing but “operative desires”, the object of which is never concrete, but always general. They are general types that may be realized in the future (Hulswit 2002). G.L.S. Shackle called them “created imaginings” (Shackle, 1961). Accordingly, there is no clear and direct mapping between a single a priori purpose and the evolutionary trajectory of the constructed institutional architecture that constitutes the behavioral sign-posts of evolving human systems. However, the general characters of the evolutionary trajectory of human systems are assuredly the result of continuous thought, communication, and action dedicated to a continual re-constitution of the institutional underpinnings of the economy and the polity. Surprisingly, von Hayek (1982: 17–18) held similar views:

“The cultural heritage into which man is born consists of a complex of practices or rules of conduct which have prevailed because they made a group of men successful but which were not adopted because it was known that they would bring about desired effects. Man acted before he thought and did not understand before he acted. What we call understanding is... simply his capacity to respond to his environment with a pattern of actions that helps him to persist.”

For Peirce final causes—purposes—are basically habits that “habitually” direct processes toward an end state. Like human habits, the habits (“laws”) of nature are also final causes because they too display tendencies toward an end state (Hulswit, 2002). For now we shall put to one side nature’s tendency to take habits (see Reynolds, 2002) and turn to an elaboration of how the tendency to take habits constitutes a basis for evolution in human systems. This will then offer conceptual insights concerning our interest in policies for protecting biodiversity.

Peirce insisted that communication, sign processes, and meaning-making (semeiosis) play important evolutionary roles. Peirce regarded a sign as “something which stands to somebody for something in some respect or capacity (CP 2: 228).” (See figure 1). Notice: (1) the sign; (2) the person to whom the sign stands in some relation; and (3) the capacity (relation). We have one thing (object) being represented by another thing (representamen) to a third thing (interpretant). Sign relations are always triadic. A sign “determines” its object and interpretant, and the interpretant “refers” to the sign and its object (Hoffmeyer, 2008; Sheriff, 1989; Hoffmann, 2009) [6].

Peirce held that the interpretant is a “proper significant outcome of a sign” or “proper significant effect of signs” (CP 5: 475; CP 5: 473). In his later semeiotics Peirce distinguished between the “emotional”, “energetic” and “logical” interpretants (Short, 2004; Bergman, 2009).

The emotional interpretant is identified with a feeling determined by the sign in the interpreter; it is felt as a sense of comprehending the meaning of the sign (Bergman, 2009: 121). The energetic interpretant is a singular effort or reaction caused by the sign. In a point that will be elaborated below, “The emotional interpretant is the familiarity with the words felt by those commanded, while the energetic interpretant is the effort of obeying the order” (Bergman, 2009: 122). The ultimate logical interpretant—the interpretant that ends intellectual interpretation—is characterized as a habit or as habit-change (CP 5: 476).

Peirce had other trichotomies for analyzing sign processes. This particular—emotional, energetic, and logical—trichotomy is suitable for our purposes because it focuses on the semiotic effects of an interpreter in a particular process of interpretation (Bergman, 2009: 123; Short, 2007: 178-206). [7]

Insert figure 1 here

B. Negotiational Psychology

“In each of these historical stages new concepts of rights and reasonable practices have rapidly impinged upon the old, until we reach the present contesting concepts of reasonable value in a world that inherits the old but is compelled by economic maladjustment to evolve a *new* out of the obsolescent *old*.” (Commons, 1990: 682).

Public policy is collective action that restrains, liberates, and expands individual action (Bromley, 2006). The purpose of collective action is articulated and agreed upon within a particular polity by an authoritative body of some kind. The authoritative body possesses a right (a socially sanctioned capacity) to impose binding rules (institutions) on members of the polity. In doing so, the authoritative body apportions burdens and benefits among members of the polity. Commons called such action “rationing transactions” (Commons, 1990).

Commons (1990) offered a unique means for exploring the use (and abuse) of language and communication in authoritative and authorized transactions. He called this field of inquiry negotiation psychology (Albert and Ramstad, 1997; Biddle, 1990). According to Commons, ownership is control over future benefit streams, and there are particular discursive means for transferring ownership. Likewise, there are discursive means for altering the institutional setup within which these transfers take place. Perhaps most important here, there are discursive means whereby beliefs about the exact actionable content of the social condition called “ownership” can be changed. Commons regarded activities such as arguments vs. pleadings, command vs. obedience, and persuasion vs. coercion as central constituents of this discourse. Negotiation psychology explores the conditions and the effects of these communicative practices.

To understand the concept of negotiation psychology from Commons, it is necessary to grasp the idea that to Commons the fundamental unit of analysis for economics cannot be that of an individual and a commodity—a set of preferences and a good. Commons dismissed this view as a futile preoccupation of the hedonists. He saw little scope for an evolutionary economics predicated on the individual modeled in this way. Nor did Veblen (1898). To Commons the fundamental unit of analysis must be seen as a transaction between two or more “wills in action.” With this issue now before us, Commons stressed the centrality of persuasion to the “contest of wills” (Ramstad, 1990). Commons insisted that this then requires a “...psychology of persuasion, coercion, duress, command, obedience, fear...hope” (in Ramstad, 1990: 64.)

From this start, Commons perceived the fundamental psychological state of an individual to be tending toward a “willingness” to act—and that engagement with others in the inevitable “contest of wills” was an essential aspect of arriving at a state called “willingness.” It may be noticed that this is a direct analogue to the Peircean notion that “a belief is that upon which we are now prepared to act.” Similarities need not stop there. With little effort we can think of

Commons’ “persuasion and feeling” as Peircean Firstness; we can think of Commons’ “command and reaction” as Peircean Secondness; and we can think of Commons’ “argument and habit” as Peircean Thirdness.

An institutional setup and its functioning are critically dependent on discursive practices and powers. It is this that connects Commons’ institutional economics with Peirce’s theory of signs and in particular emotional, energetic and logical interpretants in the constitution of meanings and broader significances – general ideas and habits of thinking and acting. Our task here is to explore how sign processes, exercised negotiational psychology, and actual institutional structures are interlinked in the communicative process of institutional change.

III. Change in Biodiversity Policy in Finland

A. Rural reactions

The launch of the EU-wide Natura 2000 nature-conservation network caused bitter disagreements and conflicts between local landowners and regional environmental authorities in Finland. In 1997 four forest owners went on a hunger strike in Karvia (a municipality in SW Finland) to protest the way in which the network had been planned. They claimed that their interests and views had not been considered, and they regarded this oversight as an undemocratic rejection of their proper role in the planning process. Their campaign attracted nationwide attention, including personal visits by the Minister of the Environment and the Minister for Agriculture and Forestry. Over 15,000 letters of appeal from throughout Finland were delivered to the Supreme Administrative Court (Hiedanpää, 2002).

According to the complaints filed, communications between the implementing authorities and forest owners were especially problematic. The authorities communicated with forest owners through formal EU documents, directives, or requirements. The official documents of Natura 2000 were posted on notice boards of community halls. In this particular case, notices were not posted in Karvia (3,000 inhabitants) but at a larger town 40 km distant (Kankaanpää with 10,000 inhabitants). The reaction in Karvia was strong—some forest owners evinced hatred towards the planning authorities whom they accused of “nationalising” their land. Others took their frustration out on Finnish society for submitting to this external exploitation. Some landowners reported frustration that they had not clear-cut their forests before the land had been marked out for inclusion in the Natura network. Others were happy that they had indeed clear-cut their land. There was anger directed toward environmental authorities (Hiedanpää, 2002). Of course, there were expressions of support for Natura 2000. Some forest owners were pleased that they had sold their beautiful spot of land for a good cause, and there were a few who felt enormous satisfaction that their land had been recognized for its outstanding natural beauty and other important values. All these landowners, however, were critical of the flawed communications associated with the planning of the Natura network. There was widespread hope that in the future, planning processes would be more democratic than this one had been (Hiedanpää, 2002).

The people of rural Finland became the emotional interpretants. We see in these initial reactions against Natura 2000 in SW Finland that the European Union has become a threat to rural people. The environmental authorities used the EU directive-driven arguments to justify their purpose. They did not expect much more than pleading from the side of rural people. But there soon emerged an energetic interpretant when some of the forest owners decided to launch a hunger strike (Figure 2). The object of this sign was anger. When the regional land (and resource

use) authorities entered to “solve” the new problematic situation we have another energetic interpretant—a regional network of collaborators (Figure 3).

Insert figure 2 here

Insert figure 3 here

B. Regional Adjustments

About the time of the hunger strike, the Regional Council of Satakunta (SW Finland), a regional land-use planning authority, was ready to release a report of its fourth regional nature conservation survey. However, in the face of considerable agitation stirred up by the Natura controversy, it was decided to release the report in two parts. The first part, dealing with nature conservation in general terms, was published immediately upon completion in 1997 (Hakila, 1997). Publication of the second part, which included a detailed inventory of natural values and proposals for the protection of almost 300 new sites, was postponed until much of the agitation had dissipated—approximately three years later (2000) (Hakila, 2000).

In the time between these two publications, regional cooperation for the protection of forest biodiversity and sustainable land use had intensified and strengthened considerably. In fact, there was a sense that effort was being “wasted” as a rapid succession of new collaborative projects was introduced. This new climate of negotiation and persuasion is attributed to the disagreements surrounding Natura, and to changes in legislation that arose because of EU harmonization efforts. The major reason, however, appears to be the growing realization that in order to protect forest biodiversity in SW Finland, land owners and stakeholders would now have to be taken seriously—and this meant that they would need to be involved in the process. Soon, regional participants in environmental and natural resource policy and management constituted a

local network of organized actors. The network was rather spontaneous, since none of the regional participants was in charge of the process.

During this same period a local mathematics teacher, Raimo Hakila, an experienced nature enthusiast, the author or a co-author of three out of four of the nature conservation surveys mentioned above, and also a member of the Nature Conservation District of Satakunta, proposed that biodiversity might be properly protected—voluntarily—in private forests. He began articulating the original principles of his idea in the late 1990s, just prior to the release of Natura 2000. The idea gained currency in 2001 with the emergence of a project concerning Natural Values' Trading. The project was funded by the Regional Council of Satakunta, and the Ministry of Agriculture and Forestry. A lesser degree of funding came from the initiator, The Nature Conservation District of Satakunta. The purpose of the project was to develop these initial ideas, and to ascertain whether natural values trading had the potential to become a feasible instrument for biodiversity protection on private land. By the end of 2002 the development phase was completed and the basic ideas of trading had become clearer (Hakila, 2002).

Fortuitous timing, and a successful first phase, indicated the general feasibility of the NVT pilot project and so in 2003 it was integrated into METSO I (the Forest Biodiversity Programme for Southern Finland 2002-2007) (The Forest Biodiversity Programme, 2008). An experimental phase of NVT began. A steering committee—containing five key regional authorities and the initiating NGO—was established to guide the experiment. The Ministry of Agriculture and Forestry, and the Ministry of Environment co-funded the project (€ 400 000 annually) and authorized the steering committee to: (1) design the rules and practices for NVT; and (2) fine-tune the arrangement to improve its workability and acceptability. As the principles of the new NTV spread over the boundaries of Satakunta region, and as they were then applied as part of other METSO projects, we can see an “invention” being transformed into an “innovation.”

The principles and practices of this landowner- initiated, voluntary, payment-oriented, and temporary approach to forest biodiversity protection (habitat ecosystem services) continued to be tested and refined between 2003 and 2007.

From the negative emotional reactions something positive and constructive emerged. But of course this creative process required a “spirit of collaboration in problem solving.” Hence, collaboration itself became a new sign, and a shared idea and willingness to participate in this collaborative endeavor—drafting a new instrument—represents the object of this sign. The energetic interpretants in this sign phase were the active forest-related regional actors that constituted the steering committee of NVT. And beyond these five going concerns, there are no major regional players in this field. Hakila and this group organized and directed this rather chaotic process of collaboration into a pathway of potential consummation. The energetic interpretant “took hold” of the situation and developed both the concept and the plausibility of NVT. (Figure 4.)

Insert figure 4 here

C. Committed to Design

We suggest that Hakila represents an “institutional entrepreneur” who was active in transforming hostile emotional reactions into a pride-inducing activity. NVT as a joint enterprise altered a negative emotional regime in Satakunta. Hakila played a prominent role in further developing this innovative approach . He prepared the report for the Lumomaa programme (2004-2006) (Hakila, 2006) while on the payroll of the Satakunta branch of the Central Union of Agricultural Producers and Forest Owners (MTK). This alone is path-breaking because it was exceedingly rare for an active conservationist to work with agricultural producers. He also

initiated a project called the Private Forests Nature Inventory and Training Project (2004–2006). The leader of this project worked at the Western Finland Forest Owners' Association. Both MTK and the Forest Owners' Association were members of the steering committee of NVT. The purpose of the latter project was to train 11 staff members of the Regional Forestry Centre of SW Finland, and of the Forest Management Associations to integrate surveyed natural values into farm-level forest management planning. The aim here was to strengthen the position of natural values' trading as a complement to timber production. Hakila saw his task as educational in nature—to get landowners and their associated organizations committed to the idea of natural values' trading.

Hakila's advocacy for combining nature conservation and economic activity has not been confined to the often-parochial beliefs of landowners. He altered habituated beliefs of professionals in land-use planning and nature conservation. Specifically, it had been customary to keep nature conservation areas separate and distinct from land devoted to commercial forestry. Hakila's innovation was to combine these two categories into a new concept of commercially managed forests. Under this new vision, commercial forestry would be practised such that no harm would befall natural values. Indeed, it soon emerged that those important natural values might actually be reinforced by careful forestry practices. More generally however, he attempted to show that it is possible to protect valuable forest biodiversity by sacrificing just a small portion of the traditional economic value from forestry activities. And, doing so can often give rise to increased economic activity at both the individual and regional level.

By way of reflection, notice the quite stark difference here from the rather standard approach to biodiversity protection. There, elaborate schemes are put in place for payments to landowners (and others) to induce them to change their behaviour with respect to nature. In contrast, here we see the nature of the forest enterprise itself undergoing modification. Here,

landowners are paid for letting natural values persist and flourish, and they may be paid for actively improving the conditions of those natural values. New habits have emerged and gained “fitness” value—the approach is regarded as a cost-effective scheme for biodiversity protection, and it has been accepted by forest owners (Juutinen et al., 2005; Juutinen et al., 2008).

In Peircean terms, we see here a new commitment to experiment and develop a new policy instrument. The sign and its object determined two interrelated interpretants: (1) an emotional interpretant (mainly rural land and forest owners); and (2) a logical interpretant (the Finnish state and its natural resource administration). The emotional interpretant created the positive sentiment that the direction of biodiversity policy was right (“correct”) since it was voluntary, temporary, and payment-oriented. The rural emotional regime, the habit of feeling called “nature protection” was transformed. This emotional interpretant is also a necessary constituent for the logical interpretant to emerge.

Both the Ministry of Agriculture and Forestry and the Ministry of the Environment now acknowledge the role and significance of NVT in altering the institutional set up for biodiversity policy in Finland. Namely, NVT had found its place in everyday language amongst landowners and rural people, “luonnonarvokauppa” is a broadly recognized symbol of a new era. NVT had transcended traditional economic uses of the forest, and it modified the idea of “conservation” of certain natural values. It opened up a communicative opportunity for biodiversity-related concerns in mutually understandable ways. Protection of natural values can make economic sense at the farm level. NVT had become embedded both into livelihood prospects of rural Finland, especially in SW Finland, and into incentive structures of environmental administration (Figure 5).

Insert figure 5 here

D. Making Rules

Public policy is nothing but thinking about, weighing, and ultimately choosing among alternative institutional setups that will give rise to alternative imagined plausible futures, and to new potential and possible associations. Institutional change redefines realms of individual action (Bromley, 2006). Here we see an evolution of acceptance, and the incorporation of new thoughts—Peircean belief—into formerly habituated thought and practice.

NVT has become normalized with the renewed law on “Financing the Sustainable Forestry” (2008). But of course the original parameters have not survived unscathed. The authoritative agents changed some features as the policy innovation was formalized. First, natural values (ecosystem services) are not actually paid for—only the value of timber losses are compensated according to the list price of €39 per hectare per year. This modification was required because the EU forbids the Finnish government to support forestry in a way that might distort competition of forest-related goods (European Parliament, 2005; European Commission, 2008). Second, all accepted sites must fulfill the Biological Nature Conservation Criteria (BNCC) (Ministry of the Environment, 2003).

In the initial scheme, the price varied according to the ecological significance of the natural values being protected, timber losses and completed management work, and site selection was contingently stretched outside of the BNCC. This permitted forest owners to suggest an area of lesser importance in the same conservation package with the significant areas. However, all contracts must include sites that fulfill the BNCC. In these cases, minor natural values were paid very little. In addition, the latitude (+/- 15%) in price negotiations was removed from the NVT official. One other deviation from the original NVT is that most of the new contracts are

permanent rather than voluntary (on original NVT, see Gustafsson, 2008). The new formal policy instrument is now very different from what was successfully tried in SW Finland.

In other words, NVT was changed as it became formalized. The EU and the Finnish state redefined it to suit their purposes, their authorities, and their competencies. The new product differs from those general ideas with which it originated. This transformation brought forth two interpretants—one logical and one emotional. The logical interpretant is an established habit of mind that NVT is now a concrete element in the institutional scaffold of Finnish biodiversity policy. That is, this new set of forest biodiversity practices will actually produce the effects they are expected to produce—to improve the state of Finnish forest biodiversity. On the other hand, and consequently, the emotional interpretant continues to bring agitation (Figure 6).

Insert figure 6 here

E. Animation, again

Gradual adaptation to these new institutional arrangements entails a process in which the general political community comes to “identify with” the new “created imagining” that emerged as the reason for the actual institutional change (Bromley, 2006). Legislators may (and do) argue about their reasons for enacting new legislation, but when the new rules on biodiversity finally become “the law,” the citizenry is expected to settle down as it adapts to the new institutional setup. Notice that adaptation need not imply that the problem has been fixed once and for all. Perhaps the imagined solution to a problem is not quite right because the original problem had not been correctly diagnosed. Or, if the diagnosis was correct, perhaps the institutional change introduced to fix the problem was not quite right. The matter will be revisited and a new solution will be advanced (Bromley, 2006).

This evolutionary process was played out in Satakunta as a new adaptive cycle of Peircean doubt-inquiry-belief got underway. Frustration and disappointment with the new institutional set up produced a new phase of animation and adaptation that redefined NVT. The energetic interpretant was constituted mainly by the joint concern of the very same network of regional actors that initiated the original NVT (Figure 7). In the late fall of 2009, the project called Maaemo (Mother Earth) was initiated—the purpose of which was to resist EU-mandated forest biodiversity legislation, and the judicial interpretations of it. Maaemo, for instance, helps forest owners to find ways to continue voluntary conservation after the first NVT contract periods (10 years) ends. The first contracts terminate in 2013.

Insert figure 7 here

IV. Understanding Institutional Evolution

Peirce:

“The hypothesis... is that all laws are results of evolution; that underlying all other laws is the only tendency which can grow by its own virtue, the tendency of all things to take habits. Now since this same tendency is the one sole fundamental law of mind, it follows that the physical evolution works towards ends in the same way that mental action works towards ends, and thus in one aspect of the matter it would be perfectly true to say that final causation is alone primary. Yet, on the other hand, the law of habit is a simple formal law, a law of efficient causation; so that either way of regarding the matter is equally true, although the former is more fully intelligent. Meantime, if law is a result of evolution, which is a process lasting through all time, it follows that no law is absolute. That is, we must suppose that the phenomena themselves involve departures from law analogous to errors of observation. But the writer has not supposed that this phenomenon had any connection with free will. In so far as evolution follows a law, the law of habit, instead of being a movement from homogeneity to heterogeneity, is growth from difformity to uniformity. But the chance divergences from law are perpetually acting to increase the variety of the world, and are checked by a sort of natural selection and otherwise... so that the general result may be described as "organized heterogeneity," or, better, rationalized variety. In view of the principle of continuity, the supreme guide in framing philosophical hypotheses, we must, under this theory, regard matter as mind

whose habits have become fixed so as to lose the powers of forming them and losing them, while mind is to be regarded as a chemical genus of extreme complexity and instability. It has acquired in a remarkable degree a habit of taking and laying aside habits. The fundamental divergences from law must here be most extraordinarily high, although probably very far indeed from attaining any directly observable magnitude. But their effect is to cause the laws of mind to be themselves of so fluid a character as to simulate divergences from law. All this...constitutes a hypothesis capable of being tested by experiment.” (CP 6: 101).

And Commons insisted that:

It is the volition of the authoritative agents (the legislature and the courts) that produce, with a purpose in mind, the institutional structure to which all of us become habituated in our daily lives. That is, the ‘volition’ of the authoritative figure(s) is the 'cause' of the behavior its hoped-for attainment elicits from citizens of the going concern (Ramstad, 1990: 81).

It is not in doubt that “biodiversity” is an intellectual and policy concept, the structure of which invites consideration of objective facts and collective intentions. Nor can it be doubted that our life world and its formal scaffolding—both in its evolutionary sense and in its habituated sense—are the volitional creation of authoritative agents’ intent on effectuating imagined futures. In melding these ideas here we have set ourselves the task of articulating the general outlines of a theory of institutional evolution. We have elaborated the nature of cumulative causation—and the sign processes—in the institutional continuum. The core idea is Peirce’s insight that life has a tendency to take habits. Any theory of institutional change, and of habit-change, must account for three issues.

First, the theory must account for reasons why “fitness” is first challenged. The land owners in Karvia found reasons why their emotions were perturbed because of Natura planning and implementation. They felt that particular purposes of life (habits) were put in jeopardy because of Natura. Rural people in Finland started to doubt the purpose of policy that seeks to redefine economic opportunities in rural areas. This is the first phase of semeiosis where the meaning of disturbance is felt by emotional interpretants. The theory must enable us to

understand the beginnings of sign processes that continually animate new purposes, new final causes, and new reasons when fitness becomes the source of Peircean “irritation of doubt.”

Unsuccessful habits of mind and action trigger the process of exploration for new purposes and, eventually, new habits.

Second, the theory must account for the emergence of an adjustment process that leads to new deontic structures and subsequent outcomes. The theory must enable a new conceptual exploration of possibilities for the sake of purposeful institutional modification. Desired new outcomes are the reasons for the felt need to undertake institutional change thought instrumental to the realization of new (desired) outcomes (Bromley, 2006; 2008). That is, the theory must enable participants to grasp the intertwined roles of imagination, language, and persuasion in creation and emergence of general ideas. These aspects enable the emotional, energetic, and logical interpretants to guide developments toward potentially feasible possibilities and building blocks. The emergence of a new idea—and a commitment to act accordingly—is an essential property of all inventions and innovations.

Finally, the theory must account for how a new order emerges out of conflict and mutual dependence. The existing institutional structure provides that order, and changes in that institutional structure move the economy along some volitionally constructed evolutionary pathway. This institutional adjustment—this purposeful adaptation—is what John R. Commons (1990) called artificial selection. It is artificial precisely because there is no natural—in the sense of being purposeless—trajectory for institutional development. All trajectories are the result of strategic or routine transactions by authoritative agents. Theory must account for identifying specific stopping rules and reasons for those rules. In doing so, theory sheds light on the role of the logical interpretant.

Our purpose here is to remind those who write about environmental policy (and environmental values) that a fundamental aspect of public policy in this realm is seriously under-theorized. What seems to be missing is a fuller account of the evolutionary process whereby environmental problems are identified, authoritative agents issue “downward rulings,” and then individuals are expected to reorganize their habits of mind and action. Most contemporary accounts view institutional evolution as the result of some over-simplified bureaucratic design process, or else such evolution is seen as the quite beneficent autonomous process in which the working rules of society are consensually modified in a rather harmonious manner. Neither view comports with reality. The reality of policy change is the enduring contestation of various “human wills in action”—invoking persuasion, command, resistance, reactions, argumentation, law, and finally, a new settled belief. Soon, and often without specific design, a new habit has taken hold. Left out of these accounts is the recursive aspect of fixing new beliefs and thus modifying the habituated mind. Is the new (evolved) habituation exactly the “imagining” that animated the process *ab initio*? Of course not. Those imaginings were simply the starting point for the coming contests of contending persuasions (Bromley, 2006).

As we see in the Finnish case, Peircean semeiosis allow us to incorporate a new dimension to evolutionary policy analysis and environmental management. Richard Rorty (1989) calls those individuals who challenge existing habits of thought and who re-describe current conditions and new emerging possibilities, “liberal ironists.” We call those individuals, such as Hakila who, with their capacity of performative imagination, are essential for the generation of purposes and testing of new policy possibilities, institutional entrepreneurs. In SW Finland, entrepreneurship was supported by the government and administration that purposefully used “softer methods” in: (1) setting a biodiversity agenda; (2) policy formulation; and (3) exploration of policy alternatives. The process that began in SW Finland and spread nation-wide deflected

negative emotional regimes, it allowed a re-definition of biodiversity protection, and it enabled new possibilities for rural livelihoods. Consequently, a need and a seed for a new governance ethics was initiated. We call this “scaffold ethics” (see also Hiedanpää, 2004). Ethics of this breed is a critical and deliberate practical policy and management tool for identification and assessment of the contingent and instituted features of normalising powers of habit-change and habit-taking. As Finnish (and European) biodiversity policies evidence, animation, adjustment and adaptation for new policy instruments (such as PES) springs from collective doubt, inquiry and powers of stabilizing meanings and significances. This new form of institutional and environmental ethics is that engaged in by an alert and sapient civic society—a “Deweyan public”—in its quest for workable institutional arrangements. Commons would call them “reasonable.” Peirce would call them “the truth.”

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Figures:

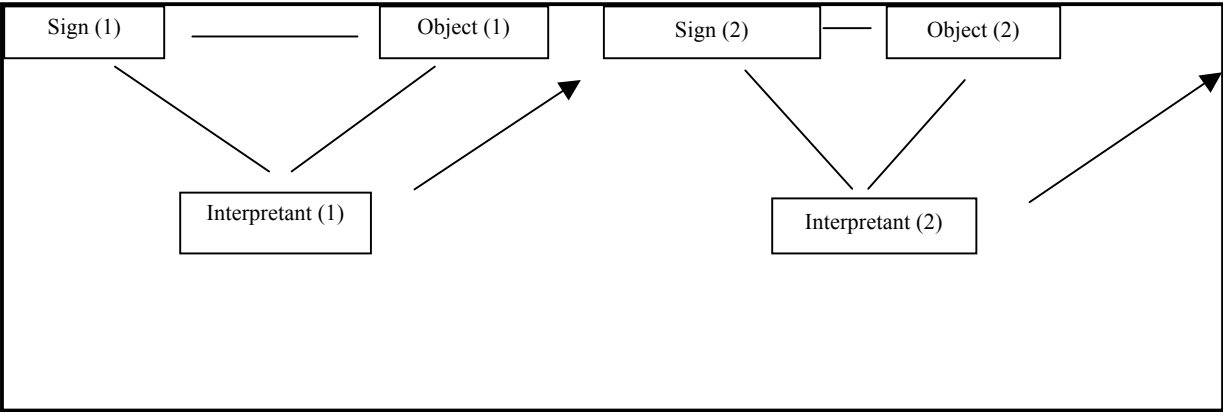


Figure 1: A Peircean sign process

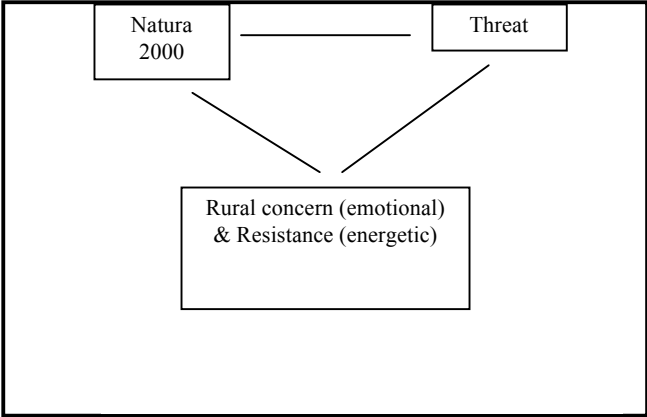


Figure 2: The first phase of sign process

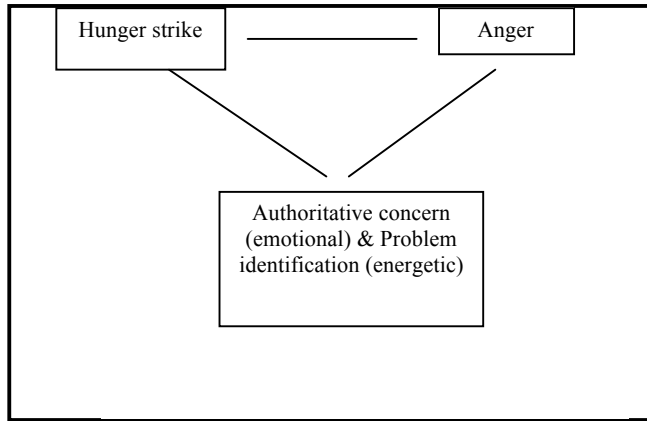


Figure 3: The second phase of sign process

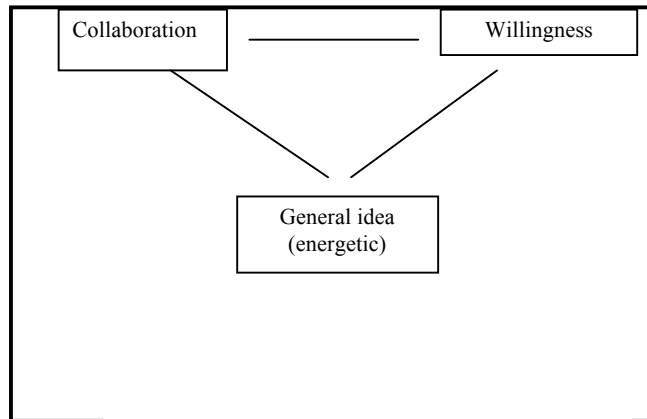


Figure 4: The third phase of sign process

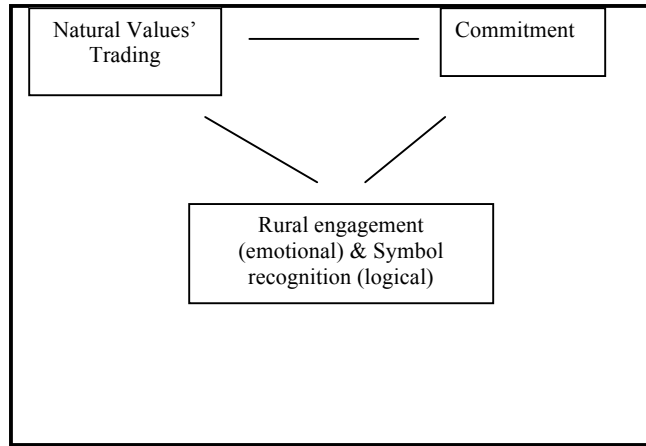


Figure 5: The fourth phase of sign process

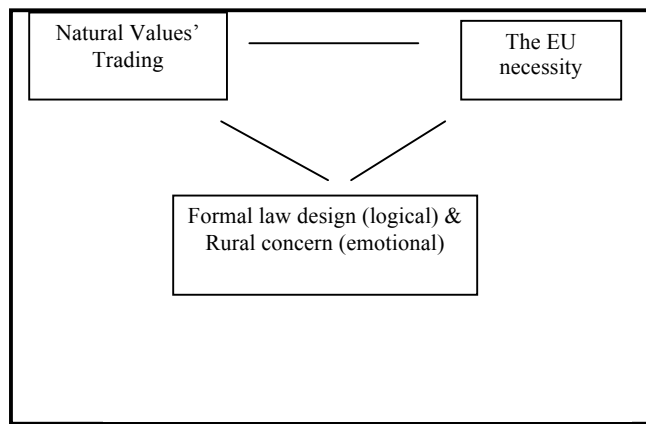


Figure 6: The fifth phase of sign process

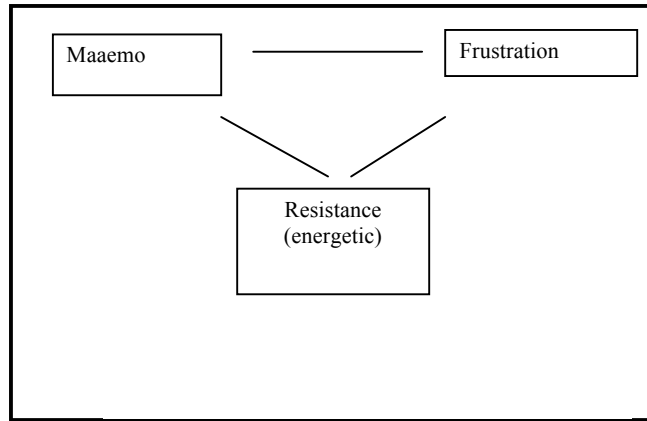


Figure 7: The sixth phase of sign process

Endnotes:

[1] We follow closely the pragmatism of Peirce and Commons. For spatial reasons we must leave many branches of pragmatist literature untouched. In this footnote we take up environmental pragmatism. Understandably, environmental pragmatism has flourished on the American side of the Atlantic. Scholars such as Bryan G. Norton (2005), Anthony Weston (1992), and Ben A. Minteer (2006; 2005) have each developed their version of Deweyan pragmatism. In elaborating the Deweyan program, they each identify regions of tension and try to reconstruct and re-articulate the complexities of those regions for the sake of improved understanding concerning the conditions and consequences of these tensions. Their purpose is to aid the construction and re-construction of reasonable policy planning and decision-making. On this see also Andrew Light and Eric Katz (1996). However, few of these prolific environmental pragmatists have worked with, or elaborated, the pragmatism of Peirce. One exception to this is Norton. Peirce is of significance to him (1996: 123), because “Peirce... replaced the failed project of representational and foundational realism with a constructivist method that recognizes that the correctibility of scientific inquiry must be fully characterized within human experience, not by reference to ‘external objects’ that exist beyond experience”.

[2] There are many excellent reviews and explorations concerning the nature of institutional evolution and the overlap between the design-spontaneity debates. In economics see Vanberg (1994); Hodgson (1993, 2004), Lawson (2003), Rutherford (1994) and Mirowski (1994). On the side of policy science, see Pierson (2004; 2007), Thelen (2004), Clements and Cook (1999), Murphy (1994) and Crouch (2005). Metcalfe (2007) speaks of a traditional, “developmental view,” that is, an internal unfolding of entities on the one hand compared with the modern idea –

post-Darwinian – of evolution as the adaptation of a population of entities under the guiding process of competitive selection.

[3] Deacon (1997) and Gärdenfors (2004) have used Peirce in their work on the co-evolution of language, brain, and mind.

[4] John R. Commons (1864-1952) is considered one of the founding fathers—with Thorstein Veblen (1857-1929) and Wesley Mitchell (1874-1948)—of institutional economics. Their debt to pragmatism is well known (Mirowski 1988, 106-133; Hodgson 2004). Veblen was Peirce's student (at Johns Hopkins), and he is often thought of in evolutionary terms. In his magnum opus, Commons devotes an extensive section to Peirce, but unfortunately he does not develop his theory in the direction of Peircean semeiosis. For him, Peirce's philosophy of science—and the role of habits in social and economic life—are quite obvious (See Commons 1990, pp. 102, 140-157.)

[5] Peirce's *Collective Papers* are cited by volume and paragraph number.

[6] Hoffmeyer (2008) uses the slap as an example. The slap takes the role of primary sign, and the anger or aggression causing the slapping is the object the sign refers to. The interpretant is the process whereby the slap and the anger are connected to a sign relation. The slap is a sign because it is involved in a triadic relationship: the slap itself does not know that it refers to an angry person.

[7] There are other two trichotomies: a) immediate, dynamical, and final and b) intentional, effectual, and communicational. The first one is a description on a higher level abstraction, normatively encompassing semeiosis toward the end state. The latter trichotomy examines communicative exchange in a particular process of interpretation. (See Short, 2007: 178-206; Bergman, 2009:124-127.)