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**Habits Die Hard: The Semiotics of Wolf Management in Finland**

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1. Introduction

Wolf policy has not been easy in Finland. The wolf was accorded protection in 1973, but effective conservation began when Finland joined the EU in 1995. In the last twenty-five years, the annual wolf population has fluctuated between fifteen and thirty packs, totalling some hundred to two hundred and fifty individuals. Finland's alleged problems with complying with the EU Habitats Directive resulted in the European Commission initiating an infringement procedure in 2001. In its reasoned opinion, Finland responded to the charge that Finland had a specific cultural relationship with the wolf. According to the Finnish government, this approached an explanation of why Finns cannot easily live in harmony with the species. The reasons Finland offered during the infringement procedure did not satisfy the European Commission, and Finland was called to the European Court of Justice in 2005, where it was found guilty of the unselective hunting of wolves in 2007 (Hiedanpää & Bromley 2011).

Interestingly, however, the wolf population has often declined after policy interventions, though their purpose has naturally been the opposite. There have been two periods when the wolf population has considerably and continuously strengthened in Finland for several years. Both periods occurred during the management plan process for the wolf population : the first during the 2005 plan (2005); the second during the 2015 plan (2015). One explanation for this strengthening is that both management plan processes were participatory, engaging citizens, civil society groups, and stakeholders in the preparation process.<sup>1</sup>

My aim is to give a nuanced account of what has happened in Finnish wolf policy design and implementation, especially after the latter wolf management process. I will look both backward from the wolf management plan process of 2015 to the period when the first wolf management plan was processed and enforced between 2001 and 2005, and forward with the ongoing LIFE BOREALWOLF project, “Toward better human coexistence with wolves” from Oct. 2019 to Sept

I will use the semiotic approach to study how wolf policy intentions were reacted to and acted on in Finland. My approach combines Peircean semiotics with old institutional economics and ecological economics.

## 2. Theoretical Perspective

### 2.1 Ecological Economics

My theoretical perspective in studying wolf policy challenges is that of ecological economics. Ecological economics is often separated from normal environmental economics (Norgaard 1994; Gowdy & Erickson 2005). The latter is based on the neoclassical theory of rational action, while ecological economics is based on the thermodynamic understanding of human–nature transactions (Amir 1994; Baumgärtner 2004; Gowdy 1994; Herrmann-Pillath 2015). Environmental economics applies regular quantitative economic methods such as cost-benefit analysis and economic environmental valuation, while ecological economists take a more pluralist approach to their methods (Söderbaum 1987; Söderbaum & Brown 2010). Concerning policy advice, environmental economics searches for efficient and effective incentives, while ecological economics examines the individual and societal conditions of behavioural change more deeply (Maréchal 2010). For ecological economics, nature is not an outside source of natural resources and nature values. Instead, culture, society, and economy are co-constituted in the thermodynamic processes as dissipative structures, i.e. in productive practices of many kinds (Dyke 1988).

As with all disciplines, various schools of thinking can also be found within ecological economics (Remig 2017). I will raise three perspectives that are close to my approach. According to Clive Spash (2012), socioecological economics examines society, especially the role and significance of civil society actors in the identification and solving of environmental problems. Jouni Paavola and Neil Adger (2005) have written about institutional ecological economics. They maintain that social arrangements and policies play a key role in the birth of environmental and development problems, and as their solutions. Arild Vatn (2015) addresses the significance of institutions as motivation structures in shaping and guiding behaviour and motivation in the face of environmental concerns. He focuses on the decision architectures, individual motivation structures, and social factors that affect them.

### 2.2 Institutional Economics

Policymaking is usually understood as the task of designing and implementing societal arrangements to direct and redirect organised and unorganised action in a collectively desired direction.<sup>2</sup> These arrangements are usually called institutions. In the institutional economics literature, institutions are understood

in a tripartite way. Institutions are planned arrangements such as legislation, and they are social norms that grow gradually in human interaction. These two have different enforcement mechanisms, and their characteristics can also be designed or spontaneous, such as economic incentives or feelings of shame. These three

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aspects – formal rule, social norm, and enforcement characteristic – are present in almost all definitions. The variations in how economists and policy scientists conceptualise institutions in their work are relatively insignificant (see e.g., North 2005; Vatn 2005; Bowles 2004). The school of institutional economic thinking that holds that institutions exert structural constraints on human behaviour, and that the task of economics is to study the behavioural effects of these structures and constraints, is called new institutional economics.

Old (classical) institutional economics deviates from new institutional economics, especially in that the former is strongly based on American pragmatism (Rutherford 1996; Mirowski 1987). According to Commons (1931 : 649; cf. Bromley 2006), for example, institutions are “collective action in control, liberation and expansion of individual action”.<sup>3</sup> Institutions as collective action shifts the attention from structures and rules to functions.

A key analytic concept for Commons is transaction, “a transfer of legal control” (Commons 1990 : 60) of a future benefit stream (Bromley 2006 : 38-41).<sup>4</sup> Commons (1995 : 62-142) has two classifications of transaction. One is tripartite, which devises rationing, managerial, and bargaining transactions, the other is a dyadic division into strategic and routine transactions (Commons 1990 : 628-648). I will use the latter divide for my analytic conceptualization. Commons’s thinking about strategic and routine transactions has one key predecessor and one key successor, Charles Sanders Peirce (1934) and Terrence Deacon (2012) respectively.

First, Deacon’s (2012) view of thermodynamics, complexity, and constraint is an updated version of Commons’s understanding of Peirce. Strategic transactions control limiting factors by establishing new constraints to bring to the fore something not yet in existence. Routine transactions rely on existing constraints to sustain an already existing function. Both transactions bring about the absentee states of affairs – grain into bin or confidence between actors – but the difference is that strategic transactions deliberately create new modifications to channel effects and bring out something that is yet to exist. As Commons (1950 : 194) puts this, “By controlling the limiting factor in the present, we expect that our control of it will result in bringing about what we now want but which is, as yet, in the future”. The limiting factors are the controlled and different types of constraint initiated to alter functioning so that absentee states of affairs still come about. However, as this happens, novel functional and conceptual spaces are opened for new interrelations,

and this may lead to surprises, accidents, and emergent effects.<sup>5</sup>

### 2.3 A Semiotic Approach to Institutions

I will use Peirce's semeiotics to examine, in detail, the strategic and routine transactions in Finnish wolf policy in order to explicate the events, interpretative processes, and surprises they contain. My approach to Peirce illuminates the relationship of institutions, policies, and consequent action very differently from regular, ecological, or institutional economics. My starting point is Peirce's tripartite semiotics of the sign, the object, and the interpretant. I apply this scheme to policy analysis.

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Policymaking guides and coordinates individual and social action by establishing physical or virtual policy objects, and policy objects as policy signs indicate the collectively desired direction. The most difficult part of policymaking – for example, in Finnish wolf policy – is to enable significant policy interpretants, i.e., to create the conditions for societal actors, including administrators, decision makers, and citizens, to understand, communicate, accept, and in other words, act in accordance with these policy objectives – policy objects and signs.

Interpretants become important. During his career, Peirce had several classifications of interpretant. However, as Liszka (1990 : 20) notes, “the received view in Peirce scholarship suggests that the divisions of interpretant into immediate, dynamic, and final are archetypal, all other divisions being relatively synonymous with these categories”.

According to Peirce, the immediate interpretant is “all that is explicit in the sign apart from its context and circumstances of utterance” (CP 5.473). It is the total unanalysed impression which the sign is expected to produce, prior to any critical reflection upon it (Savan 1988 : 53). For Peirce, the dynamic interpretant is the “effect actually produced on the mind” (CP 8.343), or as the “actual effect which the sign, as a sign, really determines” (CP 4.536). The dynamic interpretant, then, is the understanding or reaction we reach, or which the sign determines. The final interpretant is where our understanding of the dynamic object would be complete. As Liszka (1996 : 80) puts it, “It is primarily concerned not only with the systematic and inferential growth and development of signs, but also the significant effects such signs have on sign interpreting agencies. So it is also concerned with the establishment of habits in these agencies”. According to Savan (1988 : 62), “Peirce's intention was to identify the third type of interpretant as providing a norm or standard by which particular stages (Dynamical Interpretants) of an historical process may be judged”.<sup>6</sup>

My research question is : How can we explicate how policy objects are communicated, developed, understood, and accepted (as signs) to fulfil their purpose?

### 3. Methodeuteic

The study of the sign and its interpretations is speculative rhetoric, according to Peirce (Bergman 2009; Liszka 1996 : 79). For Peirce (CP 2.93), speculative rhetoric “is substantially what goes by the name of methodology, or better, of methodeuteic. It is the doctrine of the general conditions of the reference of Symbols and other Signs to the Interpretants which they aim to determine”. Peirce emphasises that the interpretant is not necessarily an interpreter as actor. Rather, the interpretant is the effect of a sign, an act, or event that follows from the semiotic situation (CP 8.332; Short 2007 : 52).

Methodeuteic studies the general conditions of signs fulfilling their purposes (de Waal 2013 : 74). To express this more concretely, methodeuteic is “the science of the essential conditions under which a sign may determine an interpretant sign of itself and of whatever it signifies, or may, as a sign bring about a physical result” (EP 2.326, in : Bergman 2009 : 63).<sup>7</sup> Aitkin (2016 : 151) expresses this most clearly : “Methodeuteic

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shows how signs and arguments generate the habits and actions that lead to the growth of concrete reasonableness”. Of course, in attempting this, methodeuteic study can also reveal the general conditions of signs and arguments not managing generated habits of action, thinking, and feeling.

In my endeavour, I will exercise methodeuteic to study the semiotic conditions of habit breaking and habit making in the management plan design and implementation context.

The core reflections presented in this paper are drawn from the 2011–2015 “Human – Wildlife Transactions : A Pragmatist Approach to Institutional Fit (FITPA)” Project. FITPA was motivated by a pragmatist approach that was interdisciplinary, ethnographic, practice-oriented, collaborative, and based on the insight that human feeling, action, and thinking were environmentally mediated. In FITPA, our action research was a response to the civil society wish that people who lived in wolf territory should have an appropriate place in wolf policy formulation, management planning, and an active agency in the implementation of policy measures. FITPA focused on wolf territory-level conditions of coexistence between people and wolves. Its major practical outcome was the wolf management plan for the Finnish wolf population in 2015 (for more, see <http://fitpa-project.blogspot.com/>).

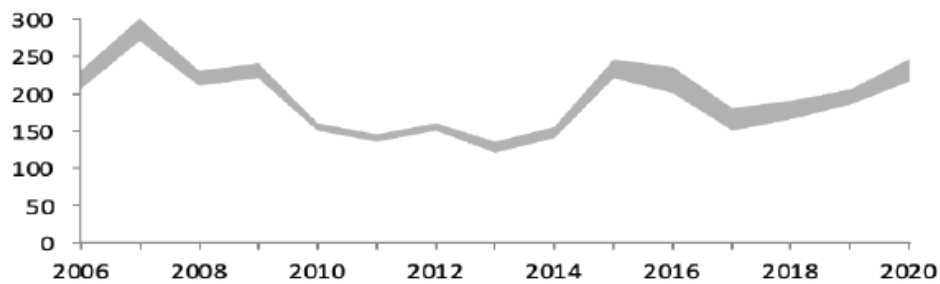


Figure 1. - The Wolf Population Dynamics in Finland

We were optimistic, because the territory level actors had already shown great ability and motivation in acknowledging the presence of wolves. Animal husbandry practitioners have learned to prevent wolf depredation. Hunters have learned new hunting methods when using assisting hunting dogs. And damage-based licences to derogate from the strict protection of the wolf have been actively sought and provided lessons for acting with wolves, which are repeatedly problematic. Reading out from the unregistered fluctuation and weak development of the wolf population (Figure 1), the means of the illegal killing of wolves have also been exercised. These are signs of multi-level learning and becoming accustomed to the presence of wolves. The average total of compensated wolf-related damages has been low, about €150,000 euros per year. This also speaks for the improved practices of coexistence and that wolf conflict is not an economic problem, but as the Finnish government explained, a cultural problem. (For economic problems and concerns, see Hiedanpää & Bromley 2016 : 93–114.)

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The nine projects and fifty-three concrete measures in the 2015 management plan called for cooperation, collaborative knowledge production, and new co-designed damage preventive actions. The working hypothesis of our action research was that such activities would begin to reform livelihood practices and reduce frustration and worry. At the same time, with these concrete measures, a positive attitude to wolves would grow and facilitate a change in thinking habits. Growing understanding would gradually make the wolf a species with which people could live as with other wildlife. We knew that change would not happen in a moment. However, we were quite optimistic, because we felt the process was on the right track.

The wolf management plan of 2005 was responsive to the general public and regional stakeholders' concern about the strengthening presence of wolves. Researchers from the University of Helsinki arranged about thirty hearings for citizens and interested parties around Finland (Bisi 2010; Bisi & Kurki 2010).

The process for the first management plan was based on what is known as hot deliberation (which in practice means public hearings with provocative arguments and strong emotional outbursts, see Fung 2003). This first management plan was made under EU pressure. In the 2005 management plan, concrete actions were avoided. It was written for a general level and in a passive voice (Ministry of Agriculture and Forestry 2005).

The 2015 management plan was the opposite : matters were discussed concretely, and its nine projects and fifty-three measures built on local skills for living with wolves, and especially for strengthening the motivation and processes of social learning for coexistence. The group formed by the Natural Resource Institute Finland (Luke) and Finnish Wildlife Agency first arranged online discussions in six territories about how wolf policy should be developed : what the problems were, their roots, and how to overcome them (Salo et al. 2017). In e-deliberation, “cold” deliberation was exercised (see Fung 2003). After the online discussions, the team arranged ten solution-oriented workshops in different areas of Finland (Hiedanpää et al. 2016). These two stages – facilitated online discussion with the articulated rule of conduct and workshops with specifically invited participants – produced an interactive foundation for the 2015 wolf management plan.

As the wolf population increased during the process, the interaction and discussions seemed positively to affect the attainment of the wolf policy object. However, after the 2015 plan was ratified and implementation had begun, and surprisingly, despite its concreteness, ground-up design, and implementation with the desired collaboration, the wolf population began again to fall. No natural causes for the decrease of the wolf stock were perceived (Suutarinen and Kojola 2017). The general purpose of this article is to seek an understanding of what happened.

## 5. Results

### 5.1 Policy Signs and Immediate Interpretants

In the 2015 management plan, the managerial hunting of the wolf (# 8) was a key project (Table 1). The intended policy sign was that by allowing more hunt

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ing (prior to the management plan, only damage-based hunting was practised), tolerance of the presence of wolves would increase, there would be less pressure for illegal hunting, and the status of the wolf as a valuable game species would grow. The premise was therefore that hunting would assign localities with a moral responsibility to look after the viability of the wolf population. The concrete policy object expanded the individual and social opportunity space by loosening constraints. The idea behind the policy object and sign – the objective – was that



strategic transaction would spontaneously lead to more sustained coexistence.

1. Cooperation groups and a wolf coordinator
2. Improvement of voluntary large carnivore observation network in the reindeer husbandry area
3. Partial wolf pedigree / genetic monitoring of wolf population
4. The use of camera traps in population monitoring
5. Developing quick reactivity to wolves regularly visiting residential areas
6. Exploring the effects of non-lethal actions for wolves regularly visiting residential areas
7. Effect and impact of the management plan – wolf-human conflict at local level
8. Management wolf hunt in 2015 and 2016
9. Payments for improved ecostructure.

Table 1. Projects in the 2015 Wolf Management Plan

Some strategic constraints, legal adjustments such as the aggravated hunting offence (2011) and the increase in nominal value of the wolf (2010), had already been executed before this, but these did not have the intended positive effect on the wolf population. Instead it had continued to decrease (Hiedanpää 2013).

The introduction of managerial hunting – and the management plan in general – constituted a strategic turn in Finnish wolf management strategy. The shift opened an opportunity for spontaneous ground-level adjustments and learning to support the intended policy signs, that is, their purpose, the favourable conservation status of the wolf. However, as already indicated in the introduction, the wolf population decreased when the implementation of the management plan started. In 2016, during the second experimental year of managerial wolf hunting, a total of seventy-eight wolf deaths was registered, of which nearly fifty happened as a consequence of management plan projects, and the rest due to licences for damage-based hunting and traffic collisions. Given that there were some two hundred wolf individuals, the number was not insignificant.

Managerial hunting was not the only implemented project that involved the armed forces. To illustrate the strength of routine transactions, two other projects, Developing an action threshold for cases where wolves approach human settlements (# 5) and the Effectiveness of repelling wolves (# 6), became important. The police, hunters, and wildlife administration saw these new joint experiments

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as a genuine opportunity. However, these two projects encouraged the killing of wolves, despite the fact that they were intended to develop non-lethal measures.

The actors were not trained to prevent wolf damage but to hunt wolves (Ministry of Agriculture and Forestry 2016). Policy objects were routinely acted on (dynamic interpretant), while the original policy sign pointed in the direction of coexistence.

Here we witness the presence of both the dynamic interpretant and the immediate interpretant. According to Peirce (CP 4.536), “the Immediate Interpretant [...] is the interpretant as it is revealed in the right understanding of the sign itself, and is ordinarily called the meaning of the sign”. So did the participants in these two experiments misinterpret the policy sign? If not, what happened? We might also think that a certain type of dynamic interpretant, a disturbed culturally shared habit, was present. The wildlife administration that supervised the experiments acted in good faith and in accordance with the routine interpretation of the Hunting Law. The dynamic interpretant supported the routine, lethal purpose embedded in culture and rural practice. The police and organised hunters acted on the immediate interpretant, and the opportunity space was opened, calling for more hunting. Non-lethal experiments (# 5 and # 6) resulted in wolf-killing. However, the blame for the decrease in the wolf population cannot be placed on the implementation of the management plan alone because illegal killing was being practised in the background at the same time (Suutarinen and Kojola 2017). The management plan explicitly involved an attempt to affect wolves’ unregistered mortality due to illegal hunting by allowing managerial hunting.

Yet, the consequence was that the plan increased legal killing due to three experimental policy objects. The management plan opened novel opportunities for the actors, some of whom rose to play a surprisingly significant role by focusing the operative attention on killing wolves. While some dynamic interpretants reinforced routines supporting the idea that living without wolves was good, novel strategic structural and functional modifications in the environment remained in the background.

## 5.2 Immediate Objects and Dynamic Interpretants

The above three policy objects show the importance of understanding how interpretants mediate the object and the sign. Before moving on to the other remaining projects, I will ground this initial finding in the Peircean extension of ecological psychology.

Recall that the purpose of the 2015 management plan was to modify the action environment and the interpretant conditions (motivation structures) therein with strategic transactions to give birth to new possibilities, providing novel conditions and pathways for coexistence. The study was motivated by our pragmatist understanding of environmentally mediated action, in this case, that the modification of the action environment of both humans and wolves would improve the conditions of coexistence.

The concept of affordance was coined by the ecological psychologist J. J. Gibson (1979). From the perspective of an actor, affordance is a good or bad possibility

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offered by the environment. Affordance can be material or immaterial, tangible or intangible. In the countryside, the traveller usually uses the narrow passage to cross a ditch – or the lowest section in the fence. Some social customs (a phone call to a neighbour after a wolf sighting), linguistic expressions (lone wolf), social rules (ownership), and social relations (peer-to-peer learning) contingently open and create worthwhile possibilities for some actors.

Affordances contain useful information. Dynamic interpretants are affordances. As Peirce puts it, “the Dynamic Interpretant [...] is the actual effect which the Sign, as a Sign, really determines” (CP 4.546). According to Dennett (2017 : 114), there are two types of useful information, economic and semantic. Economic information indicates the information that merits some work; semantic information indicates whether a design is worth getting. In Peircean terms, these are dynamic (energetic) interpretant (secondness), and final interpretant (secondness in thirdness) respectively. Economic information helps to carry something out; semantic information adapts and adjusts conditions to fit the purpose, entailing habit-break and habit-take.

Signs of these two types of information – dynamic interpretant and final interpretant – were also present in planned strategic transactions in the management plan. Our thought was that it was worthwhile for local actors to participate and engage in the projects and measures because they could have an affect on the negative impacts caused by the presence of wolves. The intended strategic modifications would enable the dynamic interpretants to grow towards becoming final interpretants, or habit-change.

The population estimates for large carnivores produced by the Natural Resources Institute Finland (Luke) are based on observations documented in the TASSU System by large carnivore volunteers. The purpose of the policy object Improvement of voluntary large carnivore observation network in the reindeer herding area (#3) was to improve the workability of TASSU. The development of TASSU was also a general objective of the management plan in Southern Finland. There are some 1,200 large carnivore volunteers in Finland. In Lapland, the network is relatively sparse compared to southern Finland.

Now, with the management plan, the estimation of the wolf stock became two-phased. For managerial hunting, the estimate of the size of the wolf population on the territory level should be known in the early winter before managerial wolf

hunting in February and March. The first estimations were typically published in early February. The two-phase procedure produced difficulties in the areas with negative attitudes towards TASSU and led to the data being outdated. It is a routine sign of resistance to Luke in some areas not to mark sightings in TASSU. With the new management plan, it became essential to document the observations in TASSU because this indicated the presence of wolves. Otherwise, if wolves were absent, the managerial hunting licence could not be considered. Previously useless information became suddenly useful and began to produce exact population estimations and novel operative arrangements – in other words, new semantic information.

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The other strategic transaction was the Identification of wolves by scat DNA analyses (# 3) project. DNA-based identification of wolves was and still is based on analysing scat and other samples. The project was first implemented between 2015 and 2017 and has continued. The project produces indisputable information about the minimum number of wolves living in the wolf territories during the selected period. The samples may also be used to investigate the family relations of the wolves and screen the potential occurrence of wolf-dog hybrids in Finland. This information helped bring the permanent dispute about the exact number of wolves in Southwest Finland to an end and to communicate the movement patterns of young wolves to a wider audience.

All the above measures were designed so that the economic and semantic information met up and constituted together novel immediate interpretants and consequently dynamic interpretants and affordances.

### **5.3 Dynamic Objects and Collateral Experience**

The establishment of territory-level cooperation groups (# 1) was a policy object to structure and direct social learning. The general policy object was to make the wolf management planning and decision-making processes relevant both to the people living on wolf territories and to the monitoring of the wolf population. The cooperation group was tasked to assemble an overall picture of the wolf situation in the locality, plan preventive measures, weigh the priorities of hunting carried out to control damage or manage the population, and deliberate the means of reducing harmful effects. In addition, the groups were to discuss special regional issues, e.g., cooperation on border zones and the reconciliation of protection of wild forest reindeer and wolves, for example. We might call them a community of inquiry.

In the summer of 2020, twenty-seven wolf territory cooperation groups were established around Finland. The working rules of cooperation groups are groundup, because the wildlife administration has not steered their specific working

rules, structure, or functioning. Only the general principles were articulated in the management plan. The rules-in-use have developed spontaneously. After five years, their operating rules are still in formation. The groups comprise around seven (the current average) actors living and acting in a wolf territory area. The Finnish Wildlife Agency employed a coordinator to manage the implementation of the projects and measures in 2017. To enable social learning, the groups have been put into contact with each other regularly.

The policy object has given birth to various dynamic interpretants. As such, the groups have potentially good preconditions to develop the bottom-up means of coexistence. However, not all dynamic interpretants enable full collaboration in all cooperation groups. In some groups, the conservationists have not dared, or they are not allowed, to join the group. Some dynamic interpretants have been disappointments with the mandate : the establishment of groups did not automatically increase the number of licences for managerial wolf hunting. In general, the cooperation groups are regarded as a success because they coordinate data acquisition and deliberation about the wolves' routes and risky pastures. In sum, this can make changes possible in order to prevent wolf damage.

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A shared collateral observation of this kind leads to gradual changes concerning what people might consider an attainable end, and it takes the shared feelings and visions about the admired direction, the purpose, for habits to grow. By collateral observation, Peirce (CP 8.179) meant “previous acquaintance with what the sign denotes”. In the context of wolf management, this means that the collaboration, self-controlled deliberation, and collateral learning potentially facilitate a gradual shift in what is admired in given environmental settings, and how the agents react to the next moment of doubt in thinking about disturbances in the environment.

But how has social learning taken place? The Effect and impact of the management plan – wolf human conflict at the local level (# 7) policy object meant that the impacts of the management plan were followed and evaluated. National surveys were conducted in 2016 and 2020, the first under the auspices of the 2015 wolf management plan, the second under the BOREALWOLF project. The results of the analysis illustrate that a challenge of wolf management in Finland is the increasing fear of large carnivores, especially the brown bear and the wolf. This is in spite of the relatively stable wolf numbers over the years. Another challenge of wolf management in Finland is the illegal killing of wolves. According to the latest survey of 2020, the acceptance of illegal wolf hunting is quite common and increasing. Citizens regard data sources, namely wolf observations recorded by volunteers, wolf DNA samples, and especially GPS location data of wolves as reliable for supporting wolf management. Surveys show that there is a need for more local opportunities to influence wolf management at the expense of the EU.

Respondents are also prepared for such opportunities (Pellikka and Hiedanpää).

Recall that reducing the human fear of wolves, activating people to get involved in wolf policy formation and implementation, and reducing the community support for the illegal killing of wolves were the objectives of the 2015 wolf management plan. The managerial hunting of the wolf was a two-year experiment in 2015 and 2016. It was based on Hunting Law 41§ (e), on managerial grounds. In 2017 and 2018, the wildlife administration issued some hunting licences according to Hunting Law 41§ (c) on social grounds (threat). Otherwise, the issuance of damage-based licences to derogate from strict protection was sparse. Read from the above survey results, it may be that the growth of habits of thinking and tolerance for coexistence depend on the hunting of the wolf.

One aspect of this would offer some real-life benefits for the people living in wolf territories. This was the purpose in the Payments for improved ecostructure (# 9) policy object. It has not been realised. As part of the management plan process, we applied abductive reasoning and illustrated the basic features of an economic scheme that would help finance and coordinate practical modifications to ecological, economic, and institutional circumstances and settings in wolf territory areas. These activities may include the coverage of fencing costs, development of precautionary non-lethal measures, and rewards for successful wolf hunts. We described the organisation, functioning, and financing of a policy object that would enable collaboration and collateral learning by opening a conceptual space for novel immediate and dynamic interpretants (Hiedanpää et al. 2016). Collateral observation and social learning entail a semiotic process of sense

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making, meaning giving, and significance making under the truth-oriented but radically fallible community of inquirers (MacGilvray 2014; Bergman 2009). As we have now observed, a set of policy objects does not suffice. Success calls for a semiotic approach to understand how signs and objects are mediated by interpretants – acts and events – that produce real-life effects, novel thoughts and facilitate habit-breaking and habit-taking.

## **6. Final Interpretants as Habits and Routines**

Finnish wolf policy shows that the interplay of strategic and routine transactions is not obvious. Especially, our exploration of wolf policy revealed some details concerning how intended policy signs and concrete policy objects gave birth to immediate, dynamic, and final interpretants of expected and surprising kinds. The managerial hunting that came to be allowed by the experiment and some other policy objects designed in the management plan became surprising dynamic interpretants – affordances – not only to the hunters on wolf territories

but to the wildlife administration itself, and the actors were therefore not prepared for the outcomes and consequences. This holds true especially for the two abovementioned policy objects, which incited the police and wildlife administration to kill wolves in a joint action. A curious end-directed interplay of routine and strategic transactions was present.

Robert Macfarlane (2013 : 17) helps us to understand the end-directedness of transactions, maintaining that “paths are the habits of the landscape”. Few people walk next to or clear new paths to a familiar landscape. Regarding Finnish wolf policy, “a walk in the semiotic wilderness” [7] has started gradually to make some new paths visible. For example, cooperation groups, DNA-based population estimation, social peer-to-peer learning, and some other features have started to modify each other collaterally and co-creatively. Dynamic interpretants may in time mediate policy signs, converting them into novel and more sustained and sustainable habits of feeling, acting, and thinking – final interpretants.

Policy designers often forget that if they are to operate, policy objects require certain preparedness and capabilities on the part of the recipients to digest the purpose and initiated measures as intended. Important information and wellintended policy signs about policy objects do not necessarily change the routines, as I have indicated above. The successful policy depends on how will and motivation – the dynamic interpretants – meet up with policy objects, i.e. the signs and the objects. If created signs and objects do not fit with routines, will, capabilities, and/or motivation, they do not lead to intended action but to surprises of various kinds. Consequently, we cannot really talk about created or co-created affordances. Again, we can talk about emerging dynamic interpretants leading policy consequences astray.

Dynamic interpretants may break a habit, and a new habit may be formed as a final interpretant. The habit is a central concept for Peirce, as it is also for other pragmatist philosophers, such as John Dewey (1988), who asserted that the routine was an unintellectual, repetitive action, while habit was not a repetitive action, but an organic set of potential feelings, actions, and thoughts. For pragmatists, habits

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are general. For Dewey, “Habits are like functions in many respects, and especially in requiring the cooperation of organism and environment. Breathing is an affair of the air as truly as of the lungs; digesting an affair of food as truly as of tissues of stomach” (1988 : 14).

However, Peirce does not understand habit primarily in organic terms. For him, habits are not so much about the functioning of the organism–environment transaction, but relate to cognition, perception, and action tendencies – in other

words, to beliefs : “And what, then, is belief? ... First, it is something that we are aware of; second, it appeases the irritation of doubt; and, third, it involves the establishment in our nature of a rule of action, or, say for short, a habit” (CP 5.397). Peirce continues, “The essence of belief is the establishment of a habit; and different beliefs are distinguished by the different modes of action to which they give rise” (CP 5.398). Both pragmatists would hold that people do not have habits, but people are their habits. The more manifold the habits, the wider the repertoire of possible feelings, actions, and thoughts in a specific problematic situation. Belief is not only a preparedness to think in particular ways, but also feeling and acting.

It is habit that makes certain affordances tangible, convenient, and meaningful. Without habit, affordance is not recognised. Effort is required to break habits for different outcomes. One does not need to be Wittgenstein (2009 : §346) to understand that the habits, life-worlds, and systems of meaning of the wolf (or lion) and the human being differ to the extent that it is impossible to find a common note or shared meaning. Encounters cause problems. The human being can understand the wolf as an animal, and the creation of good and bad affordances for the wolf is possible, even easy. Of course, the wolf itself can also understand the actions of human beings and can exclude some affordances, creating new ones. The management plan attempted to modify the environment, wolf affordances, near human residents; but on the other hand, it also attempted to create affordances to live with wolves in wolf territories. However, the creation of affordances was much more problematic than we might imagine. The seeking of licences to kill wolves was the affordance that seemed most exciting when the management plan was implemented.

In our management plan process in 2014, we tried to initiate the ultimate final interpretants, but up till now the management plan has only managed to produce diverse conditions for dynamic interpretants, and some emerging and interacting affordances. As Peirce puts it,

The real and living logical conclusion is that habit; the verbal formulation merely expresses it. I do not deny that a concept, proposition, or argument may be a logical interpretant. I only insist that it cannot be the final logical interpretant, for the reason that it is itself a sign of that very kind that has itself a logical interpretant. The habit alone, which though it may be a sign in some other way, is not a sign in that way in which that sign of which it is the logical interpretant is the sign. (CP 5.491)

The establishment of an ultimate final (logical) interpretant (a habit of feeling, acting, and thinking) is a teleodynamic endeavour. Deacon and William Connolly (2013) and Stuart Kauffman (2016) have all written about the teleodynamics, or purpose-orientation, of open living systems such as ecologies, economies, and



societies. For them, teleodynamics is a kind of path dependency, but what has taken place earlier is less important than the kind of future that is developing (Connolly 2011; Kauffman 2016). Sherman (2017) has articulated the nature and significance of futurity in the context of adaptive biological “selves” that deliberately affect their environments. Thus, teleodynamic understanding is an endeavour not only for humans, but a process that incorporates non-human species and their living environments.

Now, in conclusion and in drawing some lines for future research needs, I claim that the problems in Finnish wolf policy are due to ententionality, or homeostatic resistance to change. As generally understood, policymaking is an intentional target-oriented rule-following activity to attain a symbolic or material state of affairs. However, the ententional activity that also characterises all living entities is about functions and functioning for the sake of internal completeness. As Deacon (2012 : 549) puts this, ententional activity seeks to fulfil an internal need to make an action situation complete. Ententionality is a tripartite feature in policymaking : it is a critical functional ingredient of habit-breaking, habit-formation, and habitretaining. And as we have both observed strategic and routine transactions point to the specific kind of composition and purpose in wolf – human coexistence : struggle and conflict.

## 7. Concluding Remarks

Methodeutic studies how signs, objects, and interpretants generate habits and actions that lead to the growth of concrete reasonableness. This is a core issue in sustainability sciences, though it is only rarely articulated as such. Here, the endeavour has been to take a methodeutic approach to the wolf management challenges in Finland. The social scientific disciplines grounding them have been ecological and institutional economics, the first providing the ontology for how human–wolf coexistence is understood, the latter providing the epistemic vantage point. The Peircean methodeutic has done the actual deed.

The managerial hunting of wolves was one of nine key policy objects in the 2015 management plan. Although it was widely supported by the wildlife administration and the key national and territory-level stakeholders, several of the managerial hunting licences were contested and appealed in 2015 and 2016. Some were taken to court in 2016. One of the appeals went all the way to the Supreme Administrative Court of Finland (SAC) (Epstein & Kantinkoski 2019). The SAC decided to ask for the preliminary ruling of the European Court of Justice (ECJ), the highest court, concerning whether the managerial hunting of wolves was in accordance with the derogations of the Habitats Directive.

On 10 October 2019, the ECJ (Case C-674/17) gave a preliminary ruling that the managerial hunting of the wolf must be based on scientific evidence regarding the impacts of managerial hunting on illegal hunting on wolves and the long-term fluctuation of the wolf population. The ECJ confirmed that the hunting of strictly protected large carnivore populations remained compatible with EU law, providing that all strict conditions were met. In its final verdict on the case in the spring of 2020, the Finnish SAC judged according to the preliminary ruling of the ECJ.

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Immediately after the judgement, the Minister of Agriculture and Forestry established a working group (“the wolf fist”) to deliberate according to which rules and principles the managerial hunting of the wolf could continue in Finland (Finnish Government 2020). Neither the development of the non-lethal approaches nor the general conservation status of the species was included in the agenda. The reasons and reactions, immediate and dynamic interpretants, and preparedness to solve short-term wolf challenges by hunting are already familiar to the reader. This may be an understandable tactic, because long-term problem solving for the sake of co-creating novel final interpretants will be pushed forward by the BOREALWOLF project, financed by the European Commission and orchestrated by the Luke. The project produces and disseminates information about wolves and their behaviour, promoting and coordinating local interaction in developing ground-up tools and approaches to prevent the adverse impact and losses caused by wolves.

However, the ministry-level well-disseminated intention that killing wolves is acceptable is an effective policy sign. Until now, it seems, the killing of wolves has been an ultimate final interpretant in Finnish wolf policy. According to opinion polls, people in wolf territories are also abreast of these habits of feeling, acting, and thinking. However, as the long-term strategic policy objects promoting coexistence are now under development and experimentation, and with the recent ECJ ruling as a critical background, the government of Finland and its wildlife administration have also been placed on the teleodynamic trajectory of change. The internal structure and functioning of human–wolf coexistence – intentionality – will probably look different in the near future. Until then, the hope for coexistence seems an eternal recurrence of the same – of immediate, dynamic, and final interpretants.

## Notes

1. The third wolf management plan, an update to the second one, was launched in the autumn of 2019. It was built on eight stakeholder dialogues arranged around Finland in the spring of 2019 (2019).
2. Mainstream economists offer policy advice regarding the efficiency or cost-effectiveness of different policy alternatives. Institutional economists provide policy advice on institutional substantial, procedural, and distributional impacts.

3. There are differences in how Commons's approach, methodology, and concepts are understood (Hodgson 2003; Rutherford 1996; Ramstad 1986). To create yet another different angle, I will take Commons's reading of Charles Peirce as my starting point (Commons 1990).
4. For Williamson (1985 : 1), a transaction denotes the transference of a good or service across a technologically separable interface. For Grief (2006 : 46), not only goods or services but an attitude, belief, or feeling may be transferred from one social unit to another.
5. German sociologist Ulrich Beck (2016) also claimed that policymaking was a reaction to side effects produced by earlier institutional adjustments. Institutional design is initiated by a surprise, and reacting to collective action produces emergent effects and new surprises. This a peculiar feature of institutional evolution.
6. Peirce also distinguished between the emotional, energetic, and logical interpretants. These settle into a hierarchical interrelationship : logical interpretation holds within the energetic the (functional) interpretation that holds within the emotional interpretation (Spinks 1991 : 181–182). The emotional interpretation is the emotion produced by the object, conveyed by the character. It is, for example, obliging or commanding a sense of familiarity with words

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or a sense of wolf fear. Energetic interpretation is made by the character the ailment that the operator sees in the obligation or on hearing the order. A feeling is involved. Logical interpretation decides the semiotic process, after a new habit is formed. This is built from the reactions and feelings from which acts launch and continue.

7. A metaphorical subtitle for C.W. Spinks (1991) book Peirce and Triadomania.

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#### Abstract

Finland has struggled to formulate and implement policies for the national grey wolf (*Canis lupus*) population. Institutional adjustments were undertaken to improve wolf protection and human–wolf coexistence, but the wolf population has decreased. This calls for an explanation. I will apply Charles S. Peirce’s concept of habits and his semiotic theory to understand why it is so difficult to design and implement a workable wolf policy. I intertwine Peircean methodology with the ontology provided by ecological economics and the analytic epistemic tools by old (traditional) institutional economics. Institutions exist to serve human purposes, and the modification of institutional infrastructure affects how social-ecological functions can still bring absent features of policy and management into existence. I therefore explicate the semiotic interplay of policy signs, objects, and interpretants in wolf management adjustments and consequent outcomes. Finally, the difficulty

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of habit formation for coexistence will be discussed and policy advice given.

Keywords : Wolf (*Canis lupus*); Protection; Coexistence; Institutions; Policy; Pragmatism

#### Résumé

La Finlande a eu du mal à formuler et à mettre en oeuvre des politiques concernant la population nationale de loups gris (*Canis lupus*). Des ajustements institutionnels ont été entrepris pour améliorer leur protection de même que la coexistence humain-loup. Malgré ces efforts, la population de loups a diminué. Cela appelle une explication. J’appliquerai le concept d’habitudes de Charles S. Peirce et sa théorie sémiotique pour comprendre pourquoi il est si difficile de concevoir et de mettre en oeuvre une politique viable concernant les loups. J’entremêle la méthodologie peircienne à l’ontologie fournie par l’économie écologique et les outils épistémiques analytiques de l’économie institutionnelle ancienne (traditionnelle). Les institutions existent pour servir des objectifs humains, et la modification de l’infrastructure institutionnelle affecte la façon dont les fonctions socio-écologiques peuvent encore faire exister des caractéristiques absentes de la politique et de la gestion. J’explique donc l’interaction sémiotique des signes politiques, des objets et des interprétants dans les ajustements de la gestion des loups et les résultats qui en découlent. Enfin, la difficulté de la formation d’habitudes pour la coexistence

sera discutée et des conseils politiques seront donnés.

Mots-clés : Loup (*Canis lupus*); protection; coexistence; institutions; politique; pragmatisme

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