

## Chapter 2

# On Habit: Peirce's Story and History

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We all know that real, genuine acting upon principle is exceptional; that at best what is so called is mostly only the working of a good habit, and at its worst of an odious inclination. Just so, what people dignify by the name of their reasonings are mostly mere passages from one judgment to another in a way in which natural bent, habit, experience, the example of the wise, half-consciously move them to think. (CTN: 2: 270, 1900).

**Abstract** Peirce's speculative story of the history of habit remains inferior to Thirdness, degenerating into individual belief (Firstness) with social rules (Secondness). The nervous sensation of habit is investigated by the physiological method of induction. The reactionary habit is caused by the emotional beliefs of the interpreter to remedy the discomfort of mind or body through energetic efforts. The variety of habits are emotional and energetic interpretants in search of logical interpretants. At a later time, Peirce developed habits into the psychological aspects, then a new discipline. Faced with the troublesome reasoning of habits, induction was re-considered as psychological abduction. Habits not merely reflect the moral truth of good habits but also provoke bad habits. Habit becomes habituality, ending in habituescence. Peirce's concept of habit interprets emotions and experiences to come to understanding (or misunderstanding). In Peirce's words, from desire (First) and pleasure (or displeasure) (Second), habits can grow into satisfaction (or dissatisfaction) (Third).

**Keywords** Habit-habituality-habituescence · Belief-doubt · Habit-interpretant · Induction-abduction

### Introductory Words

The desire to solve mysteries is as old as humanity itself, and nothing is more intriguing than the story and history of a "simple" word, that has been "translated" by Peirce (1839–1914) into a "complex" word with a surprising meaning (Casti

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1994: 1–42, 269–278). A familiar but perhaps surprising example is the abstract word “habit”, etymologically derived from Latin *habitus* (from *habere*), determining from the Middle Ages the actual state of having or holding something (a quality, interest, or property) to mark the formal fact of *tenere* (to hold) or *possidere* (to possess) an exclusive right. Peirce wrote that Aristotle’s *διάθεσις* (disposition, tendency) was the original source to broaden it into the philosophical type of habit (MS 681: 23–25, 1913).

Aristotle’s diathesis signified the ethical character of the good human life transpired in the Greek habits to live better (*Nicomachean Ethics* book 2, Aristotle [c. 335 B.C.E.]1996: 31–50). Aristotle’s practical rhetoric in the set of rules *pathos*, *logos*, and *ethos*, from *The Art of Rhetoric* (Aristotle [c. 335 B.C.E.]1926: *passim*), has inspired the threeway hermeneutic of Peirce’s triadic sign-action (semiosis) (CP: 1.215, 1902; 2.306, 1901; 2.553, 1901). Aristotle’s early version of habituation has also influenced the Christian habit-changes in Peirce’s good (and bad) effects of life, carrying from the virtue (or vice) to the habits of right (or wrong) behavior (CTN: 3: 278, 1906). Taking real habits is the “broader” and “complex” action of signs of Peirce’s semiosis (CP: 5.484–485; 5. 488–489, 1907).

In its historical development, the story of habit is, in traditional philosophy, a neglected issue. Still, the general term of habit remains, sometimes overlapping or replaced by the word of custom, usage, use, or wont, which “may be tentatively defined as a norm of action (precept, rule of conduct) generally accepted and practiced by a group of people who regard it as sanctioned by the general tradition of the group” (Ladd 1969: 278; OED: 6: 993 [9b]).

In the *Oxford English Dictionary*, Peirce’s notion of habit is not mentioned at all. Although Peirce’s habit means the habitual rule, this rule does not refer to the collective reality of group habits. He firstly determined with habit the personal thought, embodying belief in a single action, which serves as guiding line “in terms of the habits they generate, sustain, and modify” (Colapietro 1993: 109, see 50–51). Personal habits are transposed to the pluralistic society. Peirce’s notion of the “community” treasures the diversity of opinions, but he consciously decided to foreground the single entity in the social community. In Peirce’s semiosis, the habit is a social sign. The frequent repetition of the same action and reaction is basic to the technical, religious, and other terms of the good habit. The plan of semiosis in the hands of human manners and customs is the interpretation of the semiosis of habit, mediating sign and object into the interpretant. Yet genuine semiosis can easily become limited to human practice, moving from the ideal habit as close to Thirdness to the pseudo-semiosis of Secondness and Firstness.

Habits are basically inferior to real Thirdness. The triad of Thirdness can easily become degenerated downward to the dyad of individual chance (Firstness) functioning with social rules (Secondness) for the community. In Peirce’s terminology: “Chance is indeterminacy, is freedom. But the action of freedom issues in the strictest rule of law” (W: 4: 552, 1884). In the psychology of habit, Peirce described habit reversely as: “Chance is First, Law is Second, the tendency to take habits is Third” (CP: 6.32, 1891, see CP: 1.409, 1887–1888). Peirce’s “tendency” displays the sensuous drive (Second) of the agent or interpreter (First) to imply the habit as

the Third activity. Yet, in this process, “the trend of the driving force emphasizes the idea of the [...] variety of arbitrariness” of the interpreter’s feelings (First). In early Peirce, the concept of law (Second) “receives exaggerated attention” (CP: 6.32, 1891) without achieving the epicenter of philosophical thought of culture (Third). Law is regarded as the mediating process between the habitual ideas of the accidental circumstances of the First and Second to make the cognitive habit (Third). At a later date, habits are threatened by feeling and law to become, in the psychological perspective of habits, degenerate signs. The Thirdness of law is the voluntary “repudiation of any Secondness” to have “for its principal component the conception of First” (CP: 6.32, 1891).

Peirce’s notion of the degeneracy of signs (Gorlée 1990, 2007, 2014) reveals the story of the fragmentariness of the dyadic and monadic divisions and subdivisions of Peirce’s categories, reduced from three kinds of signs into two or even only one. Moving from the simple habit to the number of various habits with different meanings, the degenerated habit-sign gives multiple habits in the continuity of the interpreter’s action and passion, to be regenerated again in mental thought. Peirce followed Darwin’s organic evolution of natural selection, in which primitive habits would be transformed to a diversity in the stream of habits. Applied to every purpose and every intention, the natural harmony of habituality attempted to govern the future action of society from sign and object through the work of Peirce’s interpretants. If the personal habit has a set of habits through logical and illogical signs, habits are a set of social habits against a conservative force, producing a flow of new variants in habituality. The disordered variety of interpretants are also individual habits which embody the primordial tendency for people to repeat themselves in recurring habits. The unawareness of different and ambiguous forms of habituality is regenerated, in later Peirce, to the process of habituescence.

Peirce’s theoretical and practical questions about the concept of habit seem split into three stories, mixing up Peirce’s mathematical, logical, and scientific arguments into different moments of his life. First, habit expressed the fixed disposition of mind and soul to become the second nature of belief governing the primary habit. The concept of habit conducts the experience of human life calculated by geometrical behavior. Second, as suggested by Pascal’s *Pensées* ([1669], published in folio [1977]1995), the realism of the geometrical procedures (*consuetudo*), educated in his youth, turned later into the uncertainty of mystical meditations (CP: 1.281, 1902). Creating a number of conscious and unconscious habits, there emerges the new perfection (and sometimes imperfection) of Peirce’s habit. Habit originally meant incorporating new skills and style to make new habits. Third, this means that Peirce’s habit did no longer symbolize the morality of right or wrong *cursus* of the straight road of reasoning, but seemed to drive the human soul into the *via rupta* or broken road (CP: 5.493, 1907; see also Colapietro 1989: 95–97) with regard to evil reasoning.

The current sense of the *Oxford English Dictionary* is “A settled opinion or tendency to act in a certain way, esp[ecially] one acquired by frequent repetition of the same act until it becomes almost or quite involuntary” (OED 1989: 6: 993 [9a]). Repeated in the synonyms of habituation as readaptation, the *Oxford Companion to*

*the Mind* affirms that the reflex behavior of animals tend “to disregard irrelevant stimuli” since if “the snail came out every time its shell got tapped, it would get worn out!” (OCM 1987: 299). Reflexes require reinforcement in repeated experience (learning) for learning to settle in memory. Peirce would disagree with the acquired or learnt habits, he advised modes of intelligence in a much wider range, as follows:

Learning is largely concerned with establishing the predictive value of stimuli that do not of themselves demand responses. We recognize other animals as intelligent when they predict effectively from these stimuli, and as highly intelligent when they begin to predict by analogy, generalizing to the point where they can take appropriate preemptive action without prior experience of the particular sequence of events to which they are reacting. (OCM 1987: 389)

The intelligent mind of the neurological “brain” acts as a “system of signs displayed, for example, as a physical network, or structure, of neurons [, which] is transcoded into our central nervous system” (Sebeok 1991: 133). This ecosystem sensitizes the emotional reflexes of emergences in alarm calls, necessary to handle potential danger for the survival of the animal or human individuals (Gorlée 2015: 38–40, 59–61). This chapter will argue that the flux of emotional interpretants generate quick and forced habits, and the energetic interpretants emerge with pulsant quickness. Yet the logical interpretant can take some critical time to act.

In the three-way scientific categories of experiment (First) and experience (Second) to make expertise (Third), Peirce dynamized the habit formation down into habit reformation to rebuild all types of different voluntary and involuntary habits, with positive and negative effects. The effect of the uncertainty of habits dealt with person-oriented habits with ambiguous forms and contradictory shapes attempting to form social (or asocial) behavior. For Peirce, good habits have “attractive” feelings (EP: 2: 432, 1907) for ethical and meaningful habits, which produce correct feelings and conduct to pleasure. Bad habits have “repulsive” feelings (MS 318: 182, EP: 2: 432, 1907) with Peirce’s negative effect of pain as unethical and neurotic behavior to society. Peirce’s religious habits assumed free will to live better lives. The young Peirce wrote that “bad habits are quickly destroyed, those which have no habits follow the same course; only those which have good habits tend to survive” (W: 4: 553, 1884). However, in later years, Peirce’s rule of ethics experimented on the “living” habits to enjoy the pleasures and even suffer the displeasure of addiction.

Beyond some “philosophical” remarks about the inferential reasoning of drugs, interspersed among his works (CP: 8.12, 1871; 4.234, 1902; 4.463, c. 1903; 5.534, c. 1905), Peirce’s manuscripts do not mention the real fact that he strongly suffered from acute neuralgia. To endure the migrainous attacks of pain in his face, Peirce was addicted to opium and morphine (Brent 1993: 39–40, 48, 351–352 fn.). As a patient, Peirce took drugs to cope with his neurological troubles. But, at the same time, as scientific laboratory-man, he brought habit and habituality into sharpened focus to be investigated by the community of scholars. Peirce, as religious man, had the mismatch of his personality and intellect to do justice to the positive and

negative difficulties of his own beliefs and doubts. Peirce's struggle was to distinguish between punishment and blame, legal and illegal transactions. In semiotic terms, Charles S. Peirce was the rational-emotive interpreter (agent, inquirer, victim) of his own habit-interpretants.

## Attention, Sensation, and Understanding (1865–1880)

After the summary account of Peirce's terminology of habit, the footsteps of the scientific habit start, when young logician Peirce lived with his wife Melusina (Zina) in Cambridge, Massachusetts. He worked at the U.S. Coast and Geodetic Survey, but also gave series of lectures at different institutions. Peirce allowed himself further hope for an academic appointment in logic at Harvard (Brent 1993: 82–135).

At age twenty-nine, Peirce in "Some Consequences of Four Capacities" (CP: 5.264–5.317, 1868) wrote that humans have logical thought as their intellectual instrument. The human mind is removed from the weakness of the individual's bodily experience. Peirce's community actively works through the working-tool of inferential reasoning of sign and object to achieve the truth. The three-step methods of explanatory reasoning are expected to yield truthful conclusions by Peirce's method: inferential reasoning of semiotic signs. Surprisingly, Peirce's method did not concentrate on the linearity of deductive logic to give the logical certainty and truth to the character of habit. Instead, Peirce choose the less certain or probable reasoning of inductive reasoning. Focusing on Aristotle's induction, he formed a causal chain of cause and consequence "to substitute for a series of many subjects, a single one which embraces them and an infinite number of others", adding that, "Thus induction is the species of the reduction of the manifold to unity" (CP: 5.295, 1868). The uniformity of the experimental investigation consists in taking a fair sample to achieve a statistical view of the total. Inductive reasoning assumes that the signs of habit points outside itself to the single object (Esposito 1980: 95).

Peirce's historical parallel is significant of expressing the "regularity of continua" (West 2014: 117) of habit. In his first story, the young Peirce focused on individual "habits as nervous associations" (CP: 5.297, 1868). The random "sensation" of habit is an experimental cognition of the interpreter as the habit-agent performing this "sensation". In the second story, Peirce's course of sensation in the single habit can repeat itself "in a larger context of thought and action" (Esposito 1980: 132), to create a multiplicity of the same habit, changed or exchanged into different ones. The "voluntary actions resulting from the sensations produced by habits, [are] instinctive actions result[ing] from our original nature" (CP: 5.297, 1868). The variety of habits is denominated by Peirce as habituality, consisting of the variety of habits. Habituality attempts to be Thirdness, but really interacts with the sensory stimuli of habits, not coming from the logical mind (Thirdness), but from the natural body (Secondness) or instinct (Firstness). Habits are inferior to Thirdness. But if habits are formed inductively (Secondness), they must for Peirce

include the combination of all three cognitive elements to generate the true habit of habituality producing “true conclusions from true premisses” (CP: 5.367, 1877). Peirce’s reasoning would mean that habit as type of “nervous association” can no longer be regarded as the unconscious sign, but must be regarded as the conscious sign, changing the single concept of habit into a stream of habits.

Peirce’s basic formula for “Attention, Sensation, and Understanding” (CP: 5.298, 1868) claimed that habit is the conscious sign. If the role of the interpreter is to react immediately to the emotional or physical condition from the environment, he can directly sense, reason, and mediate the event in question as the “rational animal” (CP: 8.3, 1867; see also CP: 3.472, 1897; 5.585, 1898; 2.361, c. 1902; 1.591, 1903). Beside the close attention of human awareness, the interpreter needs for Peirce a state of “belief” (Firstness) that leads under the same circumstances to a habit of the same ideas and thought (CP: 7.332, 1873; 7.354–7.355, 1873). In Peirce’s essay “The Fixation of Belief” (CP: 5.358–5.387, 1877), he emphasized that the interpreter’s belief (Firstness) must end the doubt unsettling the inquirer and grow into new behavior (Secondness). The conscious inquirer can guess correctly the emotion (First) and information (Second) to have good habits (Third), but the unconscious agent can fall into the problematic state of bad habits.

Peirce’s early concept of habit analyzed the mechanical process of logic, fixing the positive or negative meaning in the certainty of sign and object in the single situation. Peirce changed the concept to include the habits into the triadic relation of sign, object, and interpretant. The interpretant is the reactionary habit of interpreting immediately the previous sign, but the meaning of the interpretant is impossible to anticipate. While the interpretant is itself a reactionary sign, this interpretant-sign can be re-inventing itself in new habits, acquired or learned, based on new knowledge. Peirce stressed that a habit can hardly be considered as the same as the logical Third, but must include non-logical signs of an emotional and bodily nature (First, Second). Habits work in a multi-layered relationship between the three kinds of signs, indispensable for all reasoning in Peirce’s semiosis. Habit remains a paradox.

In “How to Make Our Ideas Clear” (CP: 5.388–5.410, 1878), Peirce argued about the “false distinctions” of habits with “different beliefs” that require “different modes of action to which they give rise” (CP: 5.398, 1878). This “confusion” (CP: 5.398, 1878) of individual beliefs is Peirce’s difference with the degenerated meaning of the three types of interpretants, which, as he argued now, could be right or wrong, suppressed or distorted interpretations (Goriée 1990). The regularly connected series of Peirce’s three interpretants concern the immediate, dynamical, and final interpretant-signs, also called emotional, energetic, and logical interpretants, connecting together the sign and object. The interpretants offer three kinds of reasoning, moving from illogical to logical. In the individual habit, the habit can give an immediate (emotional) interpretant-sign within the dynamical (energetic) sign of human conduct. The intellectual habit of the final or logical interpretant of the sign hardly seems to occur. The individual habit is expressed with vague or unresolved interpretants—but Peirce stated that hard habits could possibly happen in the semiotic process of habit-signs.

Although Peirce's classification of interpretants has provoked a controversy (for example, Savan 1987–1988: 40–72; Johansen 1993: 145–185), my argument after studying Peirce's work will suggest that the first trio—immediate, dynamical, and final interpretants—must be limited to the successive stages of Peirce's technical process of semiosis. But the second one—emotional, energetic, and logical interpretants—shows pseudo-semiosis from the limited perspective of the inquirer's quasi-mind. Although the human ability of pseudo-semiosis produces the habit involved in what can be considered good interpretants, Peirce has at this early stage not yet mentioned the similarity of habits classified in the variety of the interpretants.<sup>1</sup> One can conclude that Peirce's habit must be regarded as a “confused” type of interpretant, out of step with the explicit values of the emotional, energetic, dynamical, logical and final interpretants. The interpretants of habit secretly break new ground. Coming together in the details of other alternatives of interpretants, sporadically used in Peirce's work, the interpretants of habit suggest the vague, suggestive, ejaculative, imperative, indicative, usual, destinate, and normative interpretants (CP: 5.480, 1907; 8.369–8.374, 1908; and others). Peirce's idea of these emotional effects would mean that habit belongs and participates in such vaguely unresolved and undiscussed alternative approaches, claiming that Peirce's habit must now be regarded as the conscious and voluntary interpretant-sign.

At the age of forty-one, Peirce criticized his own reasoning in the crucial year of 1878, when he presented the pragmatic maxim to herald the evolutionary explanation of American pragmatism (Gorlée 1993, Gorlée in press). In this moment of transition of thought, Peirce questioned his reasoning in “Deduction, Induction, and Hypothesis” (CP: 2.619–2.644, 1878). The inductive decision hangs in the balance between the habitual use of rule, case, and result through the energetic inference of induction (Secondness). In his words:

Induction infers a rule. Now, the belief of a rule is a habit. That a habit is a rule active in us, is evident. That every belief is of the nature of a habit, in so far as it is of a general character, has been shown ... Induction, therefore, is the logical formula which expresses the physiological process of formation of a habit. (CP: 2.643, 1878)

Instead of the physiological method of induction, Peirce seemed to prefer the psychological perspective of the method of hypothesis involving abduction (Esposito 1980: 95). In other words, instead of “the habitual element”, Peirce choose the “sensuous element” (CP: 2.643, 1878) bringing out the significant role of the habit-interpreter's feeling in the mode of reasoning. Hypothesis (abduction) sustained the vital role of the emotional interpretant (Firstness) to initiate the intuitive and instinctive form of reasoning, coming directly from the inquirer's good (or false) belief, without being indirectly treated.

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<sup>1</sup>For example, CP: 1.553–1.555, 1867, 1.339, 1895, 2.228–2.229, c.1897, 1.541–1.542, 1903, 8.332–8.333, 1904, 8.337–340, 1904, 8.343–8.344, 1908, 8.334–6.347, 1909, 8.177–8.185, 1909, 8.314–8.315, 1909.

In “On the Algebra of Logic” (CP: 3.154–3.215, 1880), Peirce approached once again habit as scientific ideal of a highly calculated and mental habit. Habits fall under the mathematical or statistical actions producing “geometrical” procedures of human conduct. The mental state of habit replaced the progressive development of the “spontaneous” beliefs to possibly achieve the “cerebral habit of the highest kind” (CP: 3.160, 1880) of human thought. Thus the notion of habit has transformed the intuitive and instinctive sense of the “inborn” habit of the inquirer to the strong “belief-habits” (CP: 3.161, 1880) of Peirce’s different habits, carrying new beliefs to give new information. The judicious mixture of uncertainty (suspense) and predictability (security), gives habits valid and invalid elements of the “purely cerebral activity” (CP: 3.158, 1880) of the mind.

Peirce’s idea of habit started with the “spontaneous development” of individual belief (Firstness). Then, the experimental action of the inquirer (Secondness) ended with the leading principle (belief). Now, the inquiry (doubt) of scientific cases gives the “*judgment*” (truth) (Thirdness) (CP: 3.160, 1880) of critical habits.

## Experiment, Experience, and Expertise (1880–1900)

Peirce’s inquiry is no longer guided by the vital processes of the individual and practical sensations as described during his early thought. From the 1880s (Brent 1993: 136–202), Peirce was fully guided by non-personal but scientific beliefs to trust experimentally-verifiable judgments of the cultural rule of conduct to achieve ultimate logical interpretants (truth). Peirce’s habitual conduct is realized through good habits by the truth of scientific experiments. In the pages of “A Guess at the Riddle” (CP: 1.354–1.416, 1887–1888), Peirce took the “strengthening habits” of “first, chance; second, law; and third, habit-taking” (CP: 1.409, 1887–1888). Peirce’s goal was to reach the good habits (final or logical interpretants) by asking critical questions. The logical method was exemplified by controlled experiments in several habits and beliefs. The habit with the motive and the conditions was still seen “as a verbal definition [which] is inferior to the real definition” (Savan 1987–1988: 65).

Moving from habits in ethics and economics toward physics and biology, Peirce told the story of the mutilated frog used as the agent (or patient) of habits (CP: 1.390, 1887–1888). The speculative story is the laboratory experiment (Gorrée 2007: 263–267) experimented with

... a frog whose cerebrum or brain has been removed, and whose hind leg has been irritated by putting a drop of acid upon it, after repeatedly rubbing the place with the other foot, as if to wipe off the acid, may at length be observed to give several hops, the first avenue of nervous discharge having become fatigued. (CP: 1.390, 1887–1888, later discussed in CP: 2.711, 1883; 6.286, 1893; 7.188, c. 1901) (Gorrée 2007: 263–267)

The inquirer, Peirce, notes that the poor frog makes some springy leaps. The animal has lost the excitability of the first nervous sensation of the habit. The

nervous systems of the brain have now become inert, or practically dead, when the stimulus ceases; but when the source of irritation returned, the frog must find a new way of the pain. Peirce wrote that: "This is the central principle of the habit; and the striking contrast of its modality to that of any mechanical law is most significant" (CP: 1.390, 1887–1888).

The frog's alarm reaction is the habit of action. Does the same procedure happen to the law of conduct in the human organism? The habit-taking was the dynamical action (energetic interpretant) to remove the irritation produced on the frog's organism. Peirce concluded that a habit is not a coded piece of furniture (logical interpretant) available for mental use. Instead, the habit is considered as an experiential test (energetic interpretant) of the victim (emotional interpretant) to actively resist the uncomfortable situation. The reaction moves from the creative uncodedness to the recodification of the critical situation to create a manageable and coded form of the frog's well-being. In Peirce's letter to his pupil, the logician Christine Ladd-Franklin, he wrote that he had developed his cosmology. The past is the chaos of the world, while the pure chance grows to the future in the rules of taking "hyperbolic habits" (CP: 8.317, 1891). Peirce's habit is "purely physical" (CP: 8.318, 1891) law of habit, generating some psychical ease and comfort, meaning that the decision can be a good habit, with respect to the internal feelings. Habit exists to solve or cure the person of the bad habits of external pain or internal suffering to reach the relative idea of good "health".

To solve the tell-tale sign of the frog, Peirce's inductive reasoning transforms the uncertainty of interrogation and doubt by arriving at the human certainty of law. The logical experiment with the frog can be true or false. Peirce ended "Mind and Matter" (CP: 6.272–286, c. 1893) with the inductive statement that:

A decapitated frog almost reasons. The habit that is in his cerebellum serves as a major premiss. The excitation of a drop of acid is his minor premiss. And his conclusion is the act of wiping it away. All that is of any value in the operation of ratiocination is there, except one thing. What he lacks is the power of *preparatory meditation*. (CP: 6.286, c. 1893, my emphasis; see Colapietro 1989: 109)

Of course, nonhuman animals cannot grasp the idea of the cognitive mind leading to rational uncertainty. In Peirce's experiment in "The Law of Mind" (CP: 6.102–6.163, 1892), the feeling mind of the decapitated frog takes the "power of exciting reactions" (CP: 6.145, 1892) as it comes. The frog's automatic habit of reaction to outside stimuli alleviates the immediate crisis; but Peirce emphasized that the unfortunate situation could be remedied by the human act of deciding and judging the misfortune with the frog's alarm cry (CP: 5.480, 1907). Peirce noticed that the logical reasoning of habit-taking had not (yet) become the general or universal habits of behavior in human words of alarm. The logical reasoning of habit-taking was "pretty vague on the mathematical side" (CP: 6.262, 1892), but Peirce attempted to develop the habits of conduct into the psychological aspects of belief and doubt.

In the following articles of "Man's Glassy Essence" (CP: 6.238–6.271, 1892) and "Evolutionary Love" (CP: 6.287–6.317, 1893), Peirce took an intuitive and

poetical vision of life. This field of research was more in harmony with Peirce's own life, which had taken a chaotic turn. Since he turned away from service in the U.S. Coast and Geodetic Survey, he could in his final years, hardly survive within the meager income of the reviews for *The Nation*. His spirit seemed to change from academic reason to something like a mystical quest (Brent 1993: 203–268). The paradox of his own fundamental opinions enabled him to leave the mechanical reasoning of induction and taking the unknown impulse of abduction (emotional habits) as reasoning method. Continuing the letter to Christine Ladd-Franklin about the cosmology of the world (CP: 8.317–8.318, 1891), the elasticity of habits tend to “spring back again [as] an apparent violation of the law of energy” (CP: 6.261, 1892). Peirce suggested the growth of intuitive knowledge through hypothesis to first guesses (abduction) in habits. Habits do not clarify hard truth, but rather produce from the “primal chaos” of the experiments the soft “reaction from the environment simply by virtue of some chance novelty [...]” (Esposito 1980: 166).

Habits “depend upon aggregations of trillions of molecules in one and the same condition and neighborhood; and it is by no means clear how they could have all been brought and left in the same place and state by any conservative force” (CP: 6.262, 1892). Habits must be “operative” signs of physical and psychological energy, from inside to outside; but “wherever actions take place under the established uniformity, there, so much feeling as there may be, takes the mode of a sense of reaction” (CP: 6.266, 1892) coming from the outside to the inside. Peirce asserted, “[g]eneralization is nothing but the spreading of feelings” (CP: 6.268, 1892) to the habits. Peirce now emphasized that the general ideas of habits involve habit-taking, but also habit-leaving (CP: 6.300, 1893). Habits can also be replaced by other habits with new information and feelings to perfect themselves to reason. “Chance actions” (CP: 6.269–6.270, 1892) work as weaker phenomena of Peirce's habits, learning what he described as the “action of love” (CP: 6.300, 1893). In Peirce's evolutionary philosophy, “[l]ove, recognizing germs of loveliness on the hateful, gradually warms it to life, and makes it lovely” (CP: 6.289, 1893). For Peirce, love and hate must be understood as marginal but opposite “synonyms”, working against different signs to “equivalent” habits. Growth takes changes and exchanges.

The double part of ordering habit-formation and disordering habit-leaving makes habits from automatic into non-automatic signs. Esposito (1980: 169) argued that habit-formation was later called negentropy, with complementary habit-breaking being the tendency of entropy. The biperspective view of nature and mind operates well in the growth of biological organisms. The human concept of habit has turned into “energetic projaulation” (CP: 6.300, 1893) of habits, afflicted by sane and insane types of equivalent habits. Habits are no longer regarded as “sundry thoughts into situations in which they are free to play” (CP: 6.301, 1893), but Peirce wrote that habits are lessons to learn from the new area, human psychology:

This new thought, however, follows pretty closely the model of parent conception; and thus a homogeneous development takes place. The parallel between this and the course of molecular occurrences is apparent. Patient attention will be able to trace all these elements in the transaction called learning. (CP: 6.301, 1893)

Peirce's knowledge about human psychology was, as he wrote to his friend, psychologist and philosopher William James, insufficient. Peirce sent him in a letter, hoping for a reply to his vexing questions:

The question is what passes in consciousness, especially what emotional and irritational states of feeling, in the course of forming a new belief. The man has some belief at the outset. This belief is [...] a habit of expectation. Some experience which this habit leads him to expect turns out differently; and the emotion of *surprise* suddenly appears. Under the influence of *fatigue* (is this right?) this emotion passes into an irritational feeling, which, for want of a better name, I may call *curiosity*. I should define it as a feeling causing a reaction which is directed to the invention of some *possible* account, or *possible* information, that might take away the astonishing and fragmentary character of the experience by rounding it out. [...] When such possible explanation is suggested, the idea of it instantly sets up a second peculiar emotion of "Gad! I shouldn't wonder!" Fatigue (?) again transforms this into a second irritational feeling which might perhaps be called *suspicion*. I should define it as a feeling causing a reaction directed toward unearthing the fault by which the original belief that encountered the surprise became erroneous in the respect in which it is now suspected to be erroneous. When this weak point in the process is discovered, it at once and suddenly causes an emotion of "Bah!" Fatigue (?) transforms this into the irritational feeling called *doubt*, i.e. [,] a feeling producing a reaction tending to the establishment of a new habit of expectation. This object attained, there is a new sudden emotion of "Eureka" passing on fatigue into a desire to find an occasion to try it. (CP: 8.270, 1902)

Peirce searched to rephrase the habit, belief, doubt, and other terms into the newer technical vocabulary, terminology, and phraseology of psychology. He attempted to place William James' emotional and energetic interpretants of religion into the cognitive frame of the logical interpretants. Yet Peirce's mathematical and scientific experiments did not persuade James' religious faith about the pragmatic habits of prayer, saintliness, and mysticism of *The Varieties of Religious Experience* ([1902]1997). Their common duties in pragmatism were not the universal theory of consciousness as a modern psychological thought for the new century. It seems that both scholars were afflicted with doubt and self-doubt to find expression in the truth and error of the new paradigm. To give a psychological name to the process of human habits, Peirce had come to a blind alley. Habits and certain topics of logic could at that time not be solved by new nomenclature of emerging psychology (CP: 3.571–3.577, c. 1903), which were by Peirce mathematically "translated" into the equally emerging, symbolic logic (CP: 3.578–3.608, c. 1903; see CP: 3.594, c. 1903). Unfortunately, Peirce's health situation around the turn-of-the-century also made further objective progress in the emerging psychology an impossible task.

Peirce lived in the same Darwin era as the Italian criminologist and physician, Cesare Lombroso. For Lombroso, "crazy" or "insane" criminals are atavistic individuals who have ceased to evolve progressively (CTN: 1: 143, 1892). Peirce hoped that the degenerate patient—designated by the pragmatic theologian William James as the "sick soul" ([1902]1997: 149–187)—could release prejudice and hope for God's grace for recovery. For Peirce, the degenerate patient could self-control the habitual conduct by managing the didactic course of rational processes, in the triadic course of semiotics (CP: 8.303–8.304, 1909). In concrete terms, Peirce meant that the passive brains of drunkards and criminals could through learning

(that is through correcting and self-correcting themselves) be transformed into active brains (CTN: 1: 143, 1892; 2:167, 1898). Peirce's understanding (or misunderstanding) of the evolution of criminality was also influenced by his religious belief. He believed in self-control, in which he responded in religious faith to all vices in order to create virtues. While "pursuing pleasure and avoiding pain", there was "a connection more or less complete between pleurability and wholesomeness, pain and harm" (CTN: 2: 111, 1895). By today, assumptions have changed several times over. Later in the 20th century, Western culture tended to orient patients to seek and treat bad habits in the self-analyzing "learning" of Freudian theory and practice of psychotherapy and psychoanalysis (discussed by Muller and Brent 2000), while now in the 21st century, assumptions and paradigms are again up in the air.

### **Habit, Habituality, and Habituescence (1900–1914)**

In the final years after the end-of-the-century crisis, Peirce suffered both poverty and declining health. He continued to work on the integration of logic with semiotic theory, associating the existential graphs with pragmatics (Roberts 1973). Peirce stated that the logic of good (and bad) forms of reasoning can be extended into a general theory of semiotic signs. His interests were no longer the truth of general habits (Thirdness), but rather the uncertainty of the psychological belief (Firstness as major premiss) guiding the certainty of the physical action (Secondness as minor premiss) (Colapietro 1989: 59–60).

Habits are lessons of practical inference transpired in the reality (or imagined reality) of approaching danger. Habits of pseudo-semiosis—Peirce's quasi-reality (CP: 2.305, 1901)—are captured by the central but imaginary principle of the interpreter's quasi-inference of *his* or *her* forms of reality. In a review of *The Nation*, Peirce wrote that,

To a man standing between the rails of a track on which a locomotive is approaching, it is successive sudden enlargements that he perceives. The sense of continuous change is an affair of quasi-inference. (CTN: 3: 189, 1904)

To protect himself, the man makes more or less spontaneous habits of reaction to the speedy action of the locomotive. The cry for help embodies Peirce's belief and conduct as to the victim's (interpreter's) truth of the urgent necessity of the immediate habit.

In this period, Peirce charged against fixed habits of Thirds to enter into the undertaking of quasi-certainty or pseudo-certainty to make new types of habits. In Peirce's words:

Belief is not a momentary mode of consciousness; it is a habit of mind essentially enduring for some time, and mostly (at least) unconscious; and like other habits, it is (until it meets with some surprise that begins its dissolution) perfectly satisfied. Doubt is of an altogether

contrary genus. It is not a habit, but the privation of a habit. Now a privation of a habit, in order to be anything at all, must be a condition of erratic activity that in some way must get superseded by a habit. (CP: 5.417, 1905)

Peirce argued against the major premiss of belief, which he had previously taken as a sign of honesty and credibility. Now he convinced that belief can also be the spontaneous and erroneous sign of habituality, changing from unconscious to fully conscious assent to the interpreter's identity. The volitional belief allows one to choose the good or bad conclusion of personal behavior. Doubt cannot be believed any more to lead to truth, because doubt creates suspense without valid conclusion of truth.

For Peirce, the knowledge of the opinions in the inquiry can never be genuinely believed, as it depends on the pragmatic inquirer's imagined situation, which can shift and change in pseudo-semiosis (sign-action) from dream to action. In the mechanism of the locomotive, the habit could be solved into performing the vague ideas of the sign-action (semiosis) in sign, object, and the interpretant. The "feeling of recognizing the sign as such" (emotional interpretant) "provokes efforts [...] against resistance, or of resisting a force [...] (energetic interpretants)" (MS 318: 36, 1907). Pseudo-semiosis gives the solution to the experimental action, which cannot at all times provide true habits, but can become good or bad imagined habits. In the process of critical "self-control" of the individual habits and beliefs, pseudo-semiosis centers on the "process of self-preparation" (CP: 5.418, 1905) to react to an action. Peirce meant to judge the validity of good and bad reactions in the "realism" of the agent's (or patient's) habits, seen as the good or bad basis for the personal conduct in habit-life (CP: 8.336, 1904).

Peirce's dilemma about the (un)certainly of habit interpreted the different roles of the three habit-interpretants in the famous MS 318 (1907; only part of the 368 pages with partial drafts has been published in CP: 5.11–5.13; 5.464–5.496; and EP: 2: 398–433, 1907). MS 318 was a highly complex document in alternative pages with different variants, with the primary aim to explain the method of pragmatism (or pragmaticism). MS 318 (1907) was the key to Peirce's logical semiotics, dealing with all kinds of semiotic visions. Peirce emphasized in MS 318 that the genuine habit from the inner feeling and effort (emotional and energetic interpretants) was transported to the outer activity of human "thought" (in Peirce's quotation marks). In Peirce's life history, he pointed out in MS 318 a path for the logical interpretants (MS 318: 80–81, 1907). He anticipated habit as law, moving law from Secondness to Thirdness. MS 318 has two stories of habit, as follows.

First, the habit was determined as logical interpretant to offer "mental fact" and "general reference" to the emotional and energetic interpretants. The logical interpretant was assigned to the conscious activity (sign-action) of, in Peirce's words, "some signs" (MS 318: 81, 1907). Peirce clarified habit, moving from a simple alarm cry (as argued before) up to the linguistic command of "Ground arms!" (MS 318: 150, 157; CP: 493, 475, 1907, repeated in CP: 8.178, 315, 1909). The habit of the military command "Ground arms!" obeys Peirce's triadic sign-action (semiosis) in that the officer of infantry gives the sign of command with

reference to the object. The action of the object, the muscular movements of the military sign, always speaks louder than words. The soldiers' habits are not the individual habits of their emotional interpretants, but rather collective habits giving the energetic interpretants. The soldiers are merely affirmative agents (inquirers, receivers), so that the positive effect (or negative effect) of the officer's words of command depends totally on obeying (or not) the collateral observation of the military situation involved. The imperative utterance concerns the technical effort to ground arms (energetic interpretant), but this usual kind of collective habits does not (yet) approach the mental area of the final logical interpretant.

Logical interpretants include "conceptions, desires (including hopes, fears, ...), expectations, and habits" (MS 318: 89; CP: 5.486, 1907). Through the energetic and emotional interpretants, the logical interpretant announces the not-conditional expectation of the interpreter to check (First), control (Second), and even to restrain (Third) the repetitions of the single habits into meaning with truth conditions. The interpreter centers the quality of the habit. Peirce's new definition of habits was a realistic dream of modern psychology at that time. In his words, the concept of Peirce's habit included:

*[...] reiterations in the inner world—fancied reiterations—if well-intensified by direct effort, produce habits, just as do reiterations in the outer world; and these habits will have power to influence actual behaviour in the outer world; especially, if each reiteration can be accompanied by a peculiar strong effect that is usually likened to issuing a command to one's future self. (MS 319: 94; CP: 5.487, 1907)*

After the voluntary "confession" to the reader, Peirce went back to the energetic effect of the word of command, followed by the introduction of the logical habit, which in his words came from his vague speculations. He was aware that the introduction of the logical interpretant was, at this point,

*[...] not a scientific result, but only a strong impression due to a life-long study of the nature of signs. My excuse for not answering the question scientifically is that I am, as far as I know, a pioneer, or rather a backwoodsman, in the work of clearing and opening up what I call *semiotic*, that is, the doctrine of the essential nature and fundamental varieties of possible semiosis; and I find the field too vast, the labor too great, for a first-comer. (MS 318: 96; CP: 5.488, 1907).*

Peirce wrote in MS 318 that "while I hold that all logical, or intellectual habits are habits, I by no means say that all habits are such interpretants", only "*self-controlled* habits that are so, and not all of them, either" (MS 318: 180, EP: 2: 431, 1907). Habits must be regarded by Peirce as psychological (that is, conscious and voluntary) interpretant-signs, embedded with some

*[...] critical feelings as to the result of inner and outer exercises stimulate to strong endeavors to repeat or to modify those effects [...] in the one case to reproduce or continue them, or as we say, "attractive" feelings, and in the other case to annul and avoid them, or, as we say, "repulsive" feelings. (MS 318: 182, EP: 2: 431–432, 1907)*

Peirce's doubts of habit as logical interpretant are self-controlled by himself (as the inquirer and agent of his own habits) to become social habits. Intellectually, Peirce thought of habit as logical interpretants giving general and universal signs to

break bad habits to form a good society? But are habit and logical interpretants also individual signs with an unconscious memory? (CP: 5.492–5.493, 1907). Peirce remembered in MS 318 a little incident of his childhood, which narrates the memory of his brother's real habit:

I well remember when I was a boy, and my brother Herbert, now our minister at Christiania, was scarce more than a child, 1 day, as the whole family were at table, some spirit from a "blazer", or "chafing-dish", dropped on the muslin dress of one of the ladies and was kindled; and how instantaneously he jumped up, and did the right thing, and how skillfully each motion was adapted to the purpose. I asked him afterward about it; and he told me that since Mrs. Longfellow's death, it was that he had often run over in imagination all the details of what ought to be done in such an emergency. It was a striking example of a real habit produced by exercises in the imagination. (MS 318: 95, CP: 5.488, 1907; see CP: 5.638, c. 1902)

Peirce was aware that in the living example of the brother's experiential habit, the "intellectual" Thirdness of his "higher" habit was mediated into the "lower" force of energetic and emotional interpretants (Secondness and Firstness). The judgment of the logical interpretant becomes easily degenerated into this realistic mixture of effort and belief through the force of energetic and emotional interpretants (Secondness and Firstness), as discussed before. But in MS 318 Peirce fully realized that the weakening process can be improved inversely by strengthening the "inward habit" (MS 318: 162; CP: 5.478, 1907) of feeling and the effort to grow into intellectual actions. In this habit-change, the logical interpretant remains the possible inferential element of the critical experiments of the habit.

Peirce questioned the logical interpretant, but adopted this as hypothesis characteristic for all "living" habits in the significative sign-action (semiosis). Within the pages of MS 318, Peirce wrote a rough note wrapping up the indefinable situation of the threeway idea of habit:

Habit. Involuntary habits are not meant, but voluntary habits, i.e., such as are subject (in some measure to self-control). Now under what conditions is a habit subject to self-control? Only if what has been done in one instance with the character, its consequences, and other circumstances, can have a triadic influence in strengthening or weakening the disposition to do the like on a new occasion. This is as much to say that voluntary habits is conscious habit. For what is consciousness? In the first place feeling is conscious. But what is a feeling, such as blue, whistling, sour, rose-scented? It is nothing but a quality, character, or predicate which involves no reference to any other predicate or other things than the subject in which it inheres, but yet positively is. [...] Our own feelings, if there were no memory of them for any fraction of a second, however small, if there were no triadic time-sense to testify with such assurance to their existence and varieties, would be equally unknown to us. Therefore, such a quality may be utterly unlike any feeling we are acquainted with, but it would have all that distinguish all our feelings from everything else. In the second place, effort is conscious. It is at once a sense of effort on the part of the being who wills and is a sense of resistance on the part of the object upon which the effort is exerted. But these two are one and the same consciousness. Otherwise, all that has been said of the feeling consciousness is true of the effort consciousness; and to say that this is veracious means less if possible than to say that a thing is whatever it may be.

There is, then, a triadic consciousness which does not supersede the lower order, but goes bail for them and enters bonds for their veracity.

Experiment upon inner world must teach inner nature of concepts as experiment on outer world must teach nature of outer things.

Meaning of a general physical predicate consists in the conception of the habit of its subject that it implies. And such must be the meaning of a psychical predicate.

The habits must be known by experience which however exhibits singulars only.

Our minds must generalize these. How is this to be done?

The intellectual part of the lessons of experimentation consists in the consciousness or purpose to act in certain ways (including motive) on certain conditions. (MS 318: 183–184, 1907; EP: 2: 549–550, 1907 [with punctuation corrections], not published in CP)

In the correspondence to Victoria Lady Welby, Peirce argued further about the degenerate varieties of the Thirdness of habit. He broadened the previous perspectives (CP: 8.332, 1904, CP: 8.335, 1904; 8.361–8.376, 1908) to discuss the informational (now called communicative) functions of the sign: “It appears to me that the essential functions of a sign is to render inefficient relations efficient,—not to set into action, but to establish a habit, or general rule whereby they will act on occasion” (CP: 8.332, 1904). The occurrence of different habits has a symbolic significance, in Peircean sense, denoting a “convention, a habit, or a natural disposition of its interpretant or of the field of its interpretant” (CP: 8.335, 1904).

Second, Peirce’s information or communication of the habit in the logical interpretants transforms dramatically the habit into the category of law. MS 318 emphasized that the habit must be logically determined for the future by the logical inference of the general law. Peirce insisted that the natural disposition of the logical interpretant must be understood as determining the “special Tendency” (CP: 8.381, 1908) of habit as a legal document, which “never expresses brute fact, but has some relation of an intellectual nature, being either constituted by the action of a mental kind or implying some general law” (MS 318: 19, 1907). Peirce demanded an appeal to Darwin’s idea of natural selection in the metaphoric biodiversity of habits; at the same time Peirce, as a Christian believer, also recognized the faith in God as an ingredient in healing from bad habits to take on good ones (Brent 1993: 4). Understanding the “neglected argument” of habit integrated into the three categories and logical pragmatism, the continuity of different habits in Peirce’s habituality is no longer a moral law defining right and wrong conduct in the category of Secondness, as argued before. Now, habit is generalized into the fixed law of nature (*Black’s Law Dictionary* 1999: 1025, 1049) as universalized Thirdness. The law of nature governs the habit-laws of gravitation, elasticity, electricity, and chemistry using technical reasons in Peirce’s logical interpretants (Thirdness) (Turley 1977: 31–33). As examples of the laws of nature, Peirce used the general viscosity of gases, explicable by natural law, as opposed to the elastic properties of crystals, observed not by attractions or repulsions between particles, but by force and chance (MS 318: 22, 1907).

In “A Neglected Argument for the Reality of God” (CP: 6.452–6.491, 1908), Peirce’s habit started as the “brute” compulsion, “whose immediate efficacy nowise consists in conformity with rule or reason” (CP: 6.454, 1908). Then, the irritation of

doubt can become a meaningful dialogue with God to enlighten our insight, clarifying how the divine truth can change our habits of conduct (CP: 6.481, 1908). The religious wisdom gives “not merely scientific belief, which is always provisional, but also a living, practical belief [...]” (CP: 6.485, 1908). The true vision of belief ends the real doubt, giving the habit-interpreter “a state of *satisfaction*, [which] is all that Truth, or the aim of inquiry, consists in” (CP: 6.484, 1908). Peirce's pragmatic order of habits applied to religious belief generates this “Super-order” coming from the “pure mind, as creative of thought” to create a “super-order” or a “super-habit” (CP: 6.490, 1908) as absolute Third (Turley 1977: 29–31).

Peirce meant the effect of the logical interpretant as habit or habit-change. Although he continued the previous problem of classifying the personal habits, in which “there must have been a tohu bohu of which nothing whatever affirmative or negative was true universally”, now he displayed the super-habits to show that the “tendency to take habits” has an “elasticity of volume”, which is bound to grow (CP: 6.490, 1908) from single feeling with individual action to the social habituality of different streams of habits (Turley 1977: 76–78). Peirce's cosmology seems to violate the law of energy to be adopted into the habitual modes of legal activities governed by the “simulated, or *quasi*, chance, such as Darwin calls into produce his fortuitous variations from strict heredity” (CP: 6.613, 1893). For Peirce, the Darwin-like continuance of evolution worked by the rule of,

[...] the law, or *quasi*-law, of growth [into] the law of habit, which is the principal, if not (as I hold it to be) the sole, law of mental action. Now, this law of habit seems to be quite radically different in its general form from [the earlier] mechanical law, inasmuch as it would at once cease to operate if it were rigidly obeyed: since in that case all habits would at once become so fixed as to give room for no further formation of habits. In this point of view, then, growth seems to indicate a positive violation of the law. (CP: 6.613, 1893)

Peirce argued here that the hypothesis of God and Darwin's evolution are the super-habit of law, growing into final habits. Substituting the argument about the abiding faith of religious wisdom and the reproductive success of Darwin's survival of the fittest, Peirce as experimentalist thinker solved the problems of evolution by using, as intelligent agent, the method of logical reasoning, the ability of Thirdness. The different ways of reasoning in habits clearly pointed out that belief and experience grounds the variety of actual habits. After Peirce's first definition of habit as in-betweenness of “*would-be*” (CP: 8.380, 1913) denoting real or unreal Third, signifying the conscious “*actually is*” (Second) as well as the unconscious “*may be*” (First) (CP: 5.171, 1903), habit has in 1909 turned into a kind of psychological and logical “inference by which we pass from belief in a surprising fact to giving some degree of credence to a pure hypothesis, whose truth would explain the fact and do away with its astonishing character” (MS 637: 2, 1909). This, in Peirce's words,

[...] involves a complexity of conditions, one of which is how much time can be allowed for coming to one's conclusion. A general who during a battle must instantly risk the existence of a nation either upon the truth of a certain hypothesis or else upon its falsity, must perforce go upon his judgment at the moment; and his doing so is in so far logical that

all reasoning is based upon a tacit assumption that Nature, in the sense of the aggregate of truth, is conformed, more or less, to something similar to the reasoner's Reason. [...] This will be subject to considerations of economy. (MS 637: 4–5, 1909)

The habit of the impulse gives active reasons to the general, but not necessarily the real truth. A habitual action without doubt, one can expect to be a good habit, but with doubt perhaps some bad course of habit. Peirce's somewhat bizarre example is that habitual associations are "often inconvertible, or irreversible, so that an ordinary Christian cannot say his *Pater noster* backwards, etc." (MS 637: 10, 1909). Habit has now been transformed by Peirce from the single habit into the reality of different beliefs in habituality dealing with different associations of practical truth. Habit has definitively moved from skilful hypothesis to give the pure logic of guessing right to explanatory or unreasonable conjectures based on impulse to guess wrong. Habit has become the "decision" of "thought to ourselves" phrased in different habits of soul and mind. The habit "needs the special science of psychology to discover" (MS 638: 5, 1909) the truth or untruth of the degrees of human performance for real or imaginary habits. Habit has not been determined larger as logical law, because all habits depend on the good or bad quality of the beliefs involved for the (re)action.

In Peirce's final struggle, he fortified his soul by announcing the law-like completeness of his logic and pragmatism. Peirce introduced an abstract term, "habituescence" (MS 930: 18, 1913) without explaining the term in this fragmentary and unpublished manuscript (West 2014). After habit and habituality (in missing pages of MS 930), the habituescence as Thirdness refers to the inter-group process of habits collectively, forming the tendency or capacity toward Peirce's natural action. Peirce stressed that the definition of habituescence into the "Third mode of Consciousness" must move away from "the formation of every acquired habit [...] as constraints" of "good habits" to show the great "*skill*" of "natural habits" (MS 930: 18, 1913). Natural habits are used in the mechanical actions of practical sciences, as the "think-tank" of the physician, the chemist, the lawyer, or the artist. Their knowledge was not only having the scientific or artistic talent, but their activity was to "think" naturally the knowledge in any or every aspect of the theoretical and actual practices of their trade. Peirce stated that "every belief and inclination toward belief is a Habit" and,

[...] not merely in acquiring a purely intellectual habit, but, as I have convinced myself by a long experimental inquiry, [there] is there the same peculiar kind of consciousness in acquiring any difficult dexterity, or the mastery of any art on language. It is the same interpretative consciousness in every case. It is the "twigging" of a new idea, and neither the "I will" of volition nor the mere feeling of pure sensation. (end of MS 930: 19, 1913)

Peirce moved the weakness and self-consciousness of habit as a basic factor to the analysis of the self-oriented monologue (First) and the dramatic dialogue of habituality (Second) to forcing the "new conception" (MS 681: 27, 1913) of habituescence (Third). Habituescence consists in the multilogue of natural reasoning showing itself in the routine of the mental procedure in professional habits (Third).

In his final years (from 1911 to his deathbed on 19 April 1914), Peirce was in ill health and hardly able to proceed further and render logical finesse of the unfinished concept of “our Feelings, our Energies, and our Thoughts” for the “science” of habit (MS 675, EP: 2: 459, c. 1911, in Peirce's quotation marks). For Peirce, the state of habit almost came full circle.

## Final Words

Moving from ethics and economics to physics and biology, Peirce's works about the interdisciplinary complexity of habit reveal no consolidation of “equivalent” or “same” meanings. Habits show clear signs of improvement during each year of Peirce's early work. The fragments about habit seem to zigzag through the volumes of the *Collected Papers*. The original word habit comes from Aristotle's right and wrong behavior, but transfigured by Peirce into the term of acquired (learned) habits as inferior sign to Thirdness. In Peirce's pragmatic period, habits tend toward real Thirdness. Real semiosis becomes pseudo-semiosis. The dyadic sign-object relation becomes Peirce's triadic series of sign-object-interpretant. Habit is a special type of “vague”, but “suggestive” and “ejaculative” variety of the special but alternative interpretant.

The single habit of the individual (personal) action is transformed into the habituality of general (social) conduct of habits. Now, habit-taking (of new habit) means habit-breaking (from old habit). Inductive reasoning becomes abductive reasoning. In psychology, moral law becomes the law of nature. Good habits become bad ones. Peirce's broad approach coincides with the interdisciplinary activities of Peirce's habituality. Habituality understands emotion and experience to understand (or misunderstand) the meaning of the habits. In Peirce's late terminology, habit, habituality, and habituescence show that habits take from belief (First) to form action (Second), but some habit could possibly grow into final logical habits (Third).

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