Recommendations as Imperative Propositions in the Operation of Abductive Reasoning: Peirce and Beyond

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Abstract:

Peirce’s explicit directive that abductions must “recommend a course of action” (1909: MS 637: 12) is in line with his increasing pragmatic emphasis. This recommendation is not generated consequent to extensive deliberation; rather it arises spontaneously (CP 5.181). This spontaneous reasoning emerges in a “flash” to preclude any contrivance from infecting the recommendation.
The present account proposes that it is recommendations for courses of action as imperatives which drive abductive reasoning: finding/recommending best practices, rather than engaging in interrogative strategies alone. It highlights how children’s event judgments acquire an action-based, social force, recommending a course of action for another. Diverse participation in social role-taking provides the instinct to correctly guess the conduct and thoughts of the participant-holders. Abductive endeavors require proposing retroductions of participant’s past habits (preferences/conduct). The insight to propose a recommendation for a viable course of action ultimately derives from self-participation as well as anticipation of others’ epistemic complexions toward expected event involvement.

Keywords: Recommendation of courses of action, Event structure, Instinct, Abduction, Social Role-taking, Guessing

Introduction

This account demonstrates (both by means of corroborated findings and constructivist models) how recommendations for courses of action constitute quintessential abductions, and how such recommendations are grounded in social and logical imperatives. The present account asserts that what drives abductive reasoning is an imperative to find and recommend best practices, rather than engaging in interrogative strategies alone. Abductive reasoning emerges once habits of event profiles inform participant roles, and once they are explicitly framed as directives to reproduce a previously unexplained consequence. Essentially, the “habitation of events” provides the forum for: the creation, suitability, dismissal, and revision of abductions. In other words, the anatomy of events and readiness to express them as linguistic directives, (in line with Peirce’s and Vygotsky’s models) provides the impetus for proposing course of action recommendations, consequent to attempts to stabilize representations as patterns despite divergent context/orientations/knowledge-base end states. Abduction here is incomplete without an action-based component (behavioral, linguistic). In short,

primary to proposing novel courses of action is the impulse to express integral knowledge of “event morphology”—instinctual guessing of the complexion and conduct (epistemic, deontic) of the participant-holders. Abductive endeavors require proposing retroductions of participant’s past habits (preferences/conduct). These factors determine the recommendation or suggested strategy for action in the face of unanticipated happenings; and their issuance via language imperatives serves to facilitate reaching the goal.

This account offers an alternative approach to best explanation rationality – it posits that anticipatory social logic and an imperative to act (how discrete persons should behave within event profiles) has its source in competencies (not in-born capacities) to guess correctly (Tschaepe, 2014), and is inscribed upon ontological, more objective eco-based knowledge, for novel plausible proposals to be formulated and articulated at any point in the inquiry process. At certain junctures in the inquiry – impelled by “forced choice” (Burton, 2000, p.154), the function of abductions as imperatives surfaces – suggestions are proffered to improve another’s approach to a problem. As Woods (2013) intimates, the suggestions are subjunctively informed, in that they are constructed upon an appreciation for the legitimacy of individual perspectives, despite their uniqueness or lack of similarity to those of the abducer. Ontologically, forced choice relies upon a natural unfolding of potential causes and effects associated with events, particularly the unexpected consequence, in light of the imposition of distinctive physical and psychological phenomena for different event participants/observers.

These emerging, encapsulated recommendations are imperatives, materializing in a flash, resulting in retroductions – consolidations of past event memories and anticipatory propensities of participants and their roles. Retroductions which integrate how event morphology and social factors inform each other illustrate more than rudimentary, originary abductions; rather, they offer a novel avenue to inform others how to legitimately solve problems within Peirce’s continua. Recommendations constitute an all-at-once suggestion (imperative) for future conduct for another, to be entertained and perhaps discarded in favor of a more fitting paradigm – ordinarily bearing some ultimate kernel of truth. Consonant with Magnani’s (2009, pp. 353-357) revisionary model of abduction, modifications to proffered hypotheses are effectuated consequent to salient but often tacit factors particular to each eco-cognitive framework, and may not represent the best strategy or explanation. In fact, “a best explanation” may never exist. The very existence of best explanations appears to violate Peirce’s notion of the Final Interpretant, because best explanations already offer the ultimate

operation, vitiating any need for a Final Interpretant. Under the best explanation paradigm, each abduction already represents the Final Interpretant – any further inquiry is tossed to the wind. The best explanation approach to abduction actually blocks the way of inquiry and the way to pragmatic relevance, which Peirce adamantly cautions against.

This account illustrates how abductions (spontaneous, plausible projections – revisionary in nature) are not best explanations, but the creative kind to which Magnani (2005, pp. 267-268; 2015, p. 28) refers. Findings which demonstrate the implicit nature of children’s constructions of event profiles and their management of systems of subjunctive rationality will be examined to trace the ontogeny of abductive reasoning.

The Emergence of Course of Action Rationality

The merit of this approach lies in its establishment of on-line proposals for discrete strategies within causative events and their sequence – to advance to the unanticipated consequence. The approach satisfies Peirce’s Pragmatic Maxims, so as to make necessary action-base sequences to recreate the C event. It capitalizes on: the purpose for the recommended course of action, the means (via sequenced steps) to invoke the original surprising consequence. At the same time, recommending a course of action clarifies the problem-solving direction for the abducer, while providing increased resolve for those implementing the strategy, to follow the suggested course.

To successfully propose courses of action which lead diverse others to reproduce the unexpected consequence, children must rely upon subjunctive competencies, such that reactions of distinct participants are anticipated to certain event types. Creative inferencing relies supremely upon two realizations: that events have different profiles/slots for participants which define social roles, and that a consequence of the same event affects others in different ways. In human ontogeny, recommendations for courses of action are prompted by subjective considerations; afterward they rely upon objective perceptual judgments – how a reasonable person in the respective culture would react, or how a known unreasonable person might respond. Here Peirce informs us as to the ultimate purpose for propositions – the explanation for their existence – to “recommend a course of action” (1909, MS 637: 12) functional to set the stage and trigger the C event. The recommendation is just that – a plausible recommendation, not an ultimate suggestion for another’s conduct.

Course of Action Recommendations

Peirce’s characterization of abductions as “recommending a course of action” makes plain their dependence on perceptual judgments. Perceptual judgments entail inferences which qualify as abductions, in view of their propositional and classificatory nature. As such, inferences following from a host of embodied experiences culminate in a conclusion not from any single experience found in a percept/percipuum, but from a judgment which recognizes commonalities/differences across similar experiences/phenomena. As such, the influence of each contributing factor to the end-state is weighed; and a novel, adequate strategy is proposed, excluding immaterial factors and embracing factors according to their degree of influence on the event. Moreover, the relevance of spontaneity and insight in recommending a course of action likewise reasserts itself. Peirce recounts a particularly poignant family incident in which his brother, Herbert, in a “flash” of “insight” made a determination to instantaneously cover a woman’s burning dress with a rug to smother the flames, saving her from peril (c. 1902: CP 5.538; c.1906: CP 5.487 n1). Herbert needed to settle upon the best course of action to salvage the person and dress after little opportunity to consider the effect of each factor in isolation. Possible competing but less effective remedies include: pushing the enflamed person onto the carpet, dousing her with water, removing her dress, etc. Although the judgment need not amount to the best explanation or the best course of action, it must represent a plausible remedy. The explanation needs to convincingly evince a successful result given the surprising event (the igniting of the dress). The judgment (quickly covering the ignited item with a rug) qualifies as a viable abduction, likewise because it is not an outgrowth of extensive empirical support/ deliberation (albeit fallible). Despite its fallibility, the premise qualifies as an abduction, given the likely success of its intervention for virtually any agent: “It is an act of insight, although of extremely fallible insight” (1903: CP 5.181). The upshot is that abductions are subject to alteration/reformulation, given the potential of fallibility – they constitute abductions despite their incompleteness/overextension provided that they rest upon sound/plausible logic.

Without superseding elements of haecceity, inexperienced abducers would be hard pressed to generate abductions – to transcend self-participatory memories, and to (by virtue of their own impulses) go beyond and perhaps ignore irrelevant factors materializing in the context. Many irrelevant factors (which may not appear to be inconsequential from the outset) distract and mislead children; they constitute events which simply happen to co-occur in the context with the unanticipated event (which strikes children’s notice). These event distractors are but one illustration of how

elements of haecceity infect logic-building prior to 7;0 (Piaget & Inhelder 1948/1967, p. 364). It is just this reliance upon contextual exigencies that interferes with the semiosis of abductive reasoning.

Peirce’s explicit directive that abductions must “recommend a course of action” (1909: MS 637: 12), although late in his attempts to communicate his concept of abduction, nonetheless is in line with his increasing pragmatic emphasis. “It will be remarked that the result of both Practical and Scientific Retroduction is to recommend a course of action,” (1909: MS 637: 12). This recommendation is not generated consequent to extensive deliberation; rather it arises spontaneously (CP 5.181). This spontaneous reasoning emerges in a “flash” to preclude any contrivance from infecting the recommendation: “The abductive suggestion comes to us like a flash. It is an act of insight…”

There exists a double-tiered propositional scheme determining the recommendation for another based upon the eco-cognitive contexts which propel certain responses. This provides an ignorance preserving character for the originator of the abduction – each reactor and each context actuates distinctive modes of action which include integration of affective, social, and logical factors relevant to an innovative action-centered proposal. These proposals are quintessential illustrations of how ignorance is preserved because how another will respond in the same context as another and how the same individual will react in a different context remains undetermined. In these cases, abductions are integrative hypotheses to an ignorance problem—how a given unresolved issue is to be remedied.

Likewise paramount in recommending a course of action is subjunctive appreciation – a convincing suggestion which is functional for a known other or for an unknown, objective other (a reasonable person standard). Lakoff & Johnson’s (1999, pp. 34-35) stage theory, especially their characterization that “bodily projections” are necessary to more advanced applications of lived experience becomes particularly relevant to proposing plausible courses of action. This is so given that to propose behavior sequences capable of being successful, the abducer initially needs to insert self into the place of the other – measuring the combinatorial effect of all of the other’s attributes. Without projecting one’s self into the place of another, an outgrowth of lived experience, courses of action for potential experiencers are unlikely to be effectual. Later in development, once perspective-taking skills are substantially advanced and the reciprocal event roles are in place (West, 2013, 2014), the self need not be substituted for another; simply projecting the other into the new situation via imaginative skills

suffices to predict that individual’s response and to propose a recommendation accordingly. In short, projecting one’s self into the situation links individual epistemological and deontic issues to social ones, perpetuating interpsychological and intrapsychological advances. Recommending a useful course of action particular to another (a remedy which is likely to function for another), requires metacognitive competencies – to presuppose what others know, viz. the idiosyncratic emotional and informational-base of another.

Nevertheless, such expectations of another’s affective and/or cognitive reactions give rise to creative, affirmative forces – capable of keeping others from harm. Essentially, well-formed expectations, predicated upon believable and well-founded retroductions, stimulate individual cognitive/epistemic growth (EP 2:192), and perhaps scientific advances, as well. This growth demonstrates a primary advance in intrapsychological reasoning, in that it materializes in the sudden synthesis of heretofore unforeseen connections/relations, to offer a novel rendition of or a projective account of events driven by instantiations of Firstness and unconventional Thirdness, without being subject to taboo or cultural sanctions. In fact, affect (which is an artifact of experience) is so crucial to epistemic development that, absent its influence, the inception of novel propositions which inhabit Peirce’s sense of abduction are unlikely to come to fruition.

The Abductive Imperative

In keeping with Peirce’s repeated claim that abductions derive from natural instinctual hunches, this approach characterizes them (particularly in their initial phase) as having a distinctly imperative function. Unlike the present model, abductions are characterized by Hintikka (1998, p. 523) and Hookway (2005, p. 110), as question-answer steps, not as imperatives in an inferential process. Hintikka characterizes abductions as a series of perpetual inquiries (questions), and indicates that the sequence of interrogative steps is critical to reach success and to arrive at conclusions from surprising events. Although the order of questions within the inquiry is critical to assert a plausible explanation for the unexpected event as Hintikka contends, what impels the questions in the first place, is ultimately responsible for the form and effectiveness of the proposal, namely, the imperatives that impel issuance of recommendations. In short, it is not merely the sequence of the inquiry that determines the adequacy of explanations, but the process of determining when question-asking is enough to evoke a workable hypothesis. This process constitutes a departure from Woods’ (2013) ignorance preservation paradigm, in that the imperative precludes hasty assumptions from inclusion in the

recommendation, since they do not issue until retrospections are adequately integrated into a retroduction. In fact, continuing to inquire can contribute to question perseveration, or a failure to ever alter pre-existing schema/propositions, or to alight upon/select the most viable hypothesis at the abducer’s disposal. Failing to select from among the explanatory proposals is likely to result in perpetual ignorance preservation, and can neglect the pivotal influence of Peirce’s Firstness and Secondness in the bargain. Without question, the need to choose a favored epistemic path (brought about by imperative, Firstness-based impositions) is paramount. In short, bolstering inquiry via forced choice at intervals in the inquiry process, and not blocking the way of inquiry by employing interrogative endeavors alone, is of supreme import. It is not an overstatement to conclude that abductions are unlikely to surface (blocking the road to inquiry), absent a triggering device within the system which evokes an adequate explanatory proposal for an unanticipated consequence.

Furthermore, Hintikka’s characterization of what constitutes abductions (unlike the imperative model proposed herein) overlooks another primary component of Peirce’s paradigm – recommending a course of action. The force within the abducer to inform others how their habits of conduct are to increase the likelihood of the C event, is short circuited if the effect of proposing adequate strategies/approaches is unrecognized. Although Hintikka’s contention has merit – that abductions are not truth-preserving in that they cannot provide even probabilistic support for their output (1998, p. 505) – it lacks adequacy to account for semiosis in the abductive process. His model fails to address dynamic change (advances) within the question-asking process (which the imperative function supplies), critical to determine Peirce’s Final Interpretant. It neglects the necessary eventuality of working toward refinement of abductions, to craft an hypothesis which can reliably (after intervals of inquiry and periodic invitations to express novel propositions) elicit the C event. Developing a series of revisionary hypotheses would be truncated, so too would be the semiosis of hunches, were abducers not induced to frame the proposal at each stage in the inquiry.

In fact, Vygotsky (1934/1962) is adamant that articulating proposed methods to ascertain an outcome is a major determinant in problem-solving success. Hintikka’s model falls short of articulating the method; it merely validates judgments via particular sets of strategic principles. Hintikka’s point is legitimate – that piecemeal “move by move rules” are not sufficiently systematized to lead to viable proposals (1998, p. 513); but it ignores the impetus for continued inquiry. Despite the adequacy of Hintikka’s claim to certain, often more advanced stages of abduction, it fails to recognize

abductions which glean insight from their implementation – the process of revising hypotheses after framing versions of the original proposal. This process can materialize via language or simply by means of what Vygotsky (1934/1962, pp. 16-17) refers to as “egocentric speech” and “inner speech.” The latter is a more advanced form of articulated speech; it constitutes an internal form of proposition development which transcends the need to self-regulate via external, audible directives (cf. West, 2010, pp. 4-6, for an extended discussion). As applied to the issue of abduction, self-regulation and that of others’ conduct is essential to abduction, in that recommending courses of action are predicated upon articulated strategies impelling the enactment of interventions in problem-solving scenarios. Vygotsky’s approach is consonant with that of Peirce, in that enactment, together with linguistic modes of directing remedial action represent the proposed courses of action, the essence of abductive rationality. In short, the power of spontaneous propositional pointers mapped onto the behaviors which embody them constitutes a powerful tool to effectively propose a course of action, while revising strategies along the way. In this way, abductions are not piece-meal or fabricated sets of strategies, but hypothesis up-dates able to be orchestrated on-line, in the stream of commerce. Commerce/action streams may consist of conscious or unconscious organized bundles of goal-driven behaviors which coelas to bring about an unexpected event. Although both conscious and unconscious strategy-making are deliberate, only the former is accounted for in Hintikka’s model. This is so since to qualify as pre-formulated strategies (steps developed prior to exercising imperative enactments and language directives, require generation of the set of steps before proceeding to reproduce the C event. Conversely, abductions derived from unconscious strategy-making often begin implementation before their combinatorial effect materializes. This unconscious kind typically consists of the operation of forced guessing – representing the type of operations characteristic of children’s problem-solving endeavors.

While Hintikka characterizes those abductions whose steps are all-inclusive – ordinarily emerging at later stages in human ontogeny (already conceived of sequences of conduct toward a goal) – he leaves fallow those abductions not derived from concerted planning or from consolidated retrospective memories of experience. As such, Hintikka’s approach takes for granted the inception of abductions – inducers which perpetuate inquiry in the first place; and the issue of how deontic factors (preferences, reception to imposed suggestions for future conduct) trigger epistemic-based inquiry remain unaddressed. Although the sequence of questions posed within an inquiry are paramount, so too are the intermediate, regulatory steps in the process of remedying the unexpected consequence.

Peirce’s Constructivistic Approach

For Peirce, the abductive suggestion “is the idea of putting together what we had never before dreamed of putting together” (1903: CP 5.181). While Peirce is silent as to the procedure employed to “put together” what we “never dreamed of putting together, he implies that the process is constructive, while at the same time, instinctual – generated in a flash.” It is constructive, in that it is not an invention out of nothing, but is predicated upon forced selection of discrete elements never previously related logically; yet, connections are conceived of utilizing capacities (naturally predisposed to individual discovery techniques) which develop into creative competencies.

Rather than advancing a purely innatist model, Peirce posits a more constructivist account of the ontogeny of logical rationality – contending that while capacities are propensities common to the species, competencies are the skills developed consequent to the degree of capacity innately given. In other words, hunches which are grounded in in-born capacities, although universal, nevertheless are refined consequent to constructive endeavors/competencies – they (capacities) are provided in different measure to each individual; and absent the operation of “putting together” pieces of implicit knowledge, via effort (competencies) in Secondness, propositions could never acquire sufficient novelty to qualify as abductions. If all abductions were required to be sequences of moves, already fabricated prior to engaging in the conduct which leads to the C event (as Hintikka indicates), many abductive moments would be overlooked, since the possibility of accounting for the impulses/capacities (internal, external) which initiate them would be excluded. Instead, Peirce’s model of abduction incorporates opportunities to modify the sequence of behavioral advances, as well as to reject the initial form of the hunch in favor of a more workable hypothesis. In this context, the imperative is at work – taking advantage of the feel of enactments to charge the abducer with additional “what ifs.” In Peirce’s constructivistic account, abductive reasoning is, unquestionably, an active process of stops and starts toward eventually hitting the target – the C event. This process toward hitting the target is demonstrated by Labra-Sproehnle (2014, p. 10) active, on-line reformation and dismissal of viable guesses is the substance of generating abductions. He describes an experiment in which subjects (ages beyond 7;0) play the game “Battleship,” where the objective is to be the first to sink any of four ships given a set number of tries. Gleaning location information after each attempt is crucial for success; in fact, generating a strategy of moves prior to play enactment (according to Hintikka’s model) might well contribute to inferior performance. Of supreme import is the order in which each move is orchestrated with

respect to the results of previous attempts to strike the battleship: “…it is assumed that the nature of the problem-solving behavior is connected intimately with the dynamic configuration of the continuum of results of the active thinking processes performed to solve the game.”

Actively putting together fibers to solve previously baffling consequences (as Labra-Sproehnle illustrates) is consonant with Peirce’s later approach. Although Peirce initially gave significant place to interrogative pursuits before 1900, thereafter he indicates that it is the active guessing instinct which actually completes the abductive paradigm. In 1903, Peirce comments that abduction “merely suggests something that may be” (1903: CP 5.171-172); and in 1908 Peirce asserts that interrogative ventures are necessary but insufficient to abductions: “Yet every plank of [science’s] advance is laid by Retroduction alone…” (EP 2:443). It is obvious that retroductions (gathering and consolidating previously unrelated memories of past events) supersede the operation of simple inquiry – they convert single pieces of implicit knowledge (individual memories with their semantically laden associations) into a never-before-created fabric – an impulsively assembled mosaic, never before dreamed of according to Peirce. The imperative again rears its head by exacting delivery of individual retrospections from extinction. Their contribution to abduction constructs novel schemes informed by binding past event memories into a purposive consolidation (Cf. Baddeley, 2007, for a more complete account of binding). This account of retroduction illustrates Peirce’s insistence that tychism (that every process has a purpose) is pervasive, even into the fabric of abductive logic; it entails combining individual retrospections into retroductions – creating a mosaic of increasing relevance of each retrospection to the others. In short, the process of retroduction (abduction) creates a kind of natural affinity between binding event memories and the means to guess correctly (the guessing instinct, as Peirce puts it).

Some additional clarity regarding Peirce’s concept of instinct is in order, since he directly associates it with abduction, and since he uses the term to qualify guesses (abductions) as compulsive potentialities. Peirce is explicit that abductive reasoning is predicated upon triggering the flow of plausible hunches; and it is guessing which serves as the active manifestation that an imperative to articulate a proposition is about to surface. Essentially, guessing serves as the linguistic prompt from Vygotsky’s perspective to comply with the command that retrospections are ready to intelligibly be bound with other retrospections into a retroduction (an abduction). In short, the guessing instinct represents a behavioral index that the imperative indeed has made its mark, indicating the point when the process of inquiry has reached

momentary sufficiency.

Although Paavola (2005, pp. 150-152) recognizes the primary role of instinct in the abductive process, he fails to recognize the regenerative impact of instinctual guessing upon abduction revision – failing to account for the transition from inquiry to imperative and the reverse. He characterizes Peirce's instinct chiefly as an inherent competency, but never defines competence. In failing to define competence, Paavola does not recognize that abduction, as an instinct, derives from the kind of skill which can be regulated or constructed by the abducer. To tightly frame the part which instinct plays in establishing and modifying explanatory hunches, competency needs to be differentiated from capacity. This differentiation is especially crucial because the kind of instinct belonging to initial hypothesis-making cannot be of the latter type. Rather, in the Peircean sense instinct (as imperative) must operate to produce constructive logical processes—to percolate the known cognitive system toward generating retroductions. Hence, instinct is derivative from foundational affective and cognitive competencies, which represent one of three constructions: revised retroductions (consonant with Piaget's concept of accommodation), establishment of new propositions through the process of uniting unassociated retrospections, or simply a consequence of Firstness-based inventions, dreams or imaginings. In short, it appears obvious that Peirce did not confound competency with capacity; without question, his use of instinct refers to competencies – supremely developmental and constructivist in nature. Nevertheless, Peirce's intent was not to disregard the necessity for universal capacities, while emphasizing the role of the constructivistic process for abduction. But, the latter process is more characteristic of novel logical assemblages. It entails gathering retrospections and reforming them into a significant, new pathway via the process of retroduction. Peirce's concept of instinct nicely incorporates the immediacy (response to an imperative) of the conjecture with the creative – capitalizing on regenerativity, while recognizing that instinctual guesses are likewise grounded in natural, perhaps unconscious propensities. In short, as a competency, original abductions rise to immediate productions of retroductions; and the less originary brand of abductions warrant a more deliberative process—application of a more dynamic, sequential system of constructive strategy-making.

Application to Peirce's Categories

Especially with respect to originary hypotheses, Peirce introduces the issue of insight — sudden propositions developed in a flash[1]. This sudden aha-based instinct appears to be

more in line with idiosyncratic compulsivity than are instincts grounded in physiological capacities (which are universal in nature). The former are Originary hypotheses rooted in the convergence of Firstness and Secondness, the intersection of possibility and brute force. Since, for Peirce, abduction is “the spontaneous conjecture of instinctive reason” (1908: CP 6.475), it necessarily goes beyond a physiological impetus—incorporating idiosyncratic percepts and discoveries derived from unique events in Secondness. The guessing instinct, which might better be named the guessing imperative (by which abductions are created), has its root in affective Firstness and Secondness; any selective or dimissory imperatives are rooted in logic.

Originary hypotheses can likewise be prompted by Thirdness-based imperatives. The impulse of doubt is just one of these, though without the ordinary face of Thirdness. Doubt can often dispel conventional propositions (elements defining Thirdness), as in suspicions that a particular theory/algorithm no longer leads to the presumed end nor captures elements which later have augmented the original concept. Even young children display a propensity for this Thirdness-based imperative to take hold, e.g., in joint attentional linguistic exchanges – a child of 2;2 refers to a pencil as a hammer (Wolf, 1982, pp. 319). In fact, in the naming process, children regularly overextend the use of both nouns (Markman, 1987; Markman & Wachtel, 1988; Markman & Hutchinson, 1984; Soja, Carey & Spelke, 1991, 1992) and verbs (Tomasello & Brandt, 2009) to incorporate unconventional members of the event type; and still later, they increase the number of slots within events to create event types (Tomasello, 1999, pp. 151-152), e.g., from “go,” to “put” to “give.”[2] “Go” encodes two slots (one for an animate self-start, migratory participant, the other for a spatial destination point); “put” accounts for three slots: an animate manually dexterous participant capable of intentionality, an inhabitable location with a surface, and a patient (ordinarily an object) typically incapable of self-start skills. “Give” invites still additional slots: ordinarily two manually dexterous participants with intentionality, a destination point (most often the location of one of the participants, and a transferable (tangible/intangible) commodity. The latter verb type profiles the dynamic, transcendent and reciprocal process of imposing goods or an attribute upon another – consonant with Gibson’s (1966, p. 31, 1964/1982, pp. 164-165) process of reafferent flow: “The living animal is stimulated not only from sources in the environment but also by itself.…Action-produced stimulation is obtained, not imposed—that is, obtained by the individual not imposed on him” (Gibson, 1966, p. 31). Both afferent and efferent processes represent the character of the reafferent and on-line (instantaneously up-dated) perceptual account of a potential abducer: “Instead of entering the nervous system through receptors it re-enters. The

input is not merely afferent, in the terminology of the neurologist, but re-afferent—that is, contingent on efferent output" (Gibson, 1966, p. 31). Tracing the perceptual account can uncover the beginnings and development of perceptual judgments, in that it monitors dynamic changes in fields of output and reception within a system: "It is intrinsic to the flow of activity, not extrinsic to it; dependent on it, not independent of it" (Gibson, 1966, p. 31). See West (2014, 2015a) for further discussion of the semiosis of abductive reasoning and event profiles.

These extensions and overextensions constitute abductions impelled by Thirdness, accept that the imperative in Thirdness (to expand the original, conventional category) is not, in fact, conventional as Thirdness ordinarily is. Rather, it extends and alters conventional means/uses – reaching abductive status by virtue of new offerings: application to different movement valencies, participant attribute modifications (adding/deleting characteristics such as animacy/self-start), or simply by diversifying slot possibilities. Similarly, Thirdness is obviated in change of belief processes, which (although latent) constitute subjunctive advances, integral to the semiosis of generating novel event profiles. Augmenting subjunctivity in event profiles motivates increased comprehension (albeit tacit) of degrees of certainty as to the likelihood of events to transpire, the likelihood of certain someones to take an active/passive slot in events, etc. To illustrate the issue of event certainty, doubt constitutes whether the other contributory events have materialized, whether the flow of contemporaneous events is sufficient to prompt other contingent events, or simply whether outlying participants/objects can fit into the original event profile – in view of the number and kinds of slots attributed to it. Hence, doubt can be assuaged (within the mind of the abducer or via the abduction itself) by inclusion of what may appear, at first glance, to be anomalous with respect to previously established propositional assumptions. As such, these extensions act in compliance with the imperative – to amplify original profiles. This form of revision represents a departure from Woods' treatment of "ignorance preservation," since the emergence of doubt and the introduction of new experience matrices, together with instantaneous reflection on them initiated by recommendation-based imperatives, result in significant affirmative changes to propositional logic. Such affirmative changes entail reorganization of mental schemes to accommodate novel, but not hasty assertions.

The influence of imperatives unquestionably energizes the semiosis of abductive reasoning – from their beginning in Firstness as prescinded elements of Secondness, to propositional reorganization in Thirdness. Accordingly, Peirce makes plane that

abductions are frequently instigated by factors beyond Firstness and Secondness, despite his early misuse of “induction” (testing hypotheses) to define the process. In 1898, Peirce represents the operation of abduction as follows: “…[Induction] to be valid must be prompted by a definite doubt or at least an interrogation; and what is such an interrogation but first, a sense that we do not know something; second a desire to know it; and third an effort – implying a willingness to labor for the sake of seeing how the truth may really be” (1898: RLT 171, 1890: W6: 385-386). Peirce’s characterization of abduction here certainly reaches beyond posing questions and ignorance preservation to directives to produce novel templates. Since production of novel templates results (according to Peirce) in course of action recommendations, imperative based inducements are far from inconsequential.

As evidenced above, knowledge seeking is intrinsic to imperative directives which refine event structure. This is especially credible in view of Peirce’s claim (1883: W4:447) that the propensity for “guessing right” (triggered by the imperative to investigate and codify kinds of events) is a universal capacity, even in some non-primate species. Nonetheless, what is particularly noteworthy in the latter passage is his accentuation of the effect of Secondness upon the operation of abductions in Thirdness. His use of “interrogative” and “effort and …willingness to labor for the truth,” unequivocally demonstrate the relevance of Secondness to abductive processes in Thirdness; and the effort expended, coupled with a “willingness” supports Peirce’s constructivist account. It is through the expenditure of energy via effort in Secondness (imposed by the imperative to notice particular components of experience in Secondness), together with the affect (in Firstness) which triggers the willingness to create and recreate novel hypotheses.

Hasty Assertions and Originary Abductions

Peirce makes emphatic the originary nature of abductive reasoning – its idiosyncratic beginnings, out of the substance of assertions absent planning and deliberation. Despite the revisionary character of abductions (modified or dismissed) consequent to additional knowledge from anomalous C events, the instantaneous emergence of originary hypotheses should not be underestimated. In line with Tschaepe’s (2014, p. 129) position, abductions would never materialize were potential abducers to engage in inquiry (interrogative processes) alone, without exacting some impulsive, truly insightful hunch flowing from the inner core of the individual abducer. In a word, the originary nature of abductions distinguishes them from interrogative phases; and the fact that

Peirce brands them as originary unquestionably demonstrates both the influence of Firstness in the bargain, as well as the element of Secondness in constructing/fashioning explanatorily adequate guesses – the persistent labor which may be required to guard against hasty assertions. In fact, it is the imperative phase of abductions which precludes abducers from making hasty assertions when they are permitted to intervene to determine that the set of premises offered as a potential abduction has sufficient validity – that they are not hasty. The imperative serves as an index of the degree of accuracy present in the originary strategy. It communicates when the hypothesis is sufficiently well-formed to offer a viable course of action for the involved players. The imperative then has a regulatory function – indicating to the abducer whether the hypothesis is ready to be articulated. This regulative device limits defective judgments, whose premises were issued outside of our good guessing instinct or absent abeyance to the natural acumen of the guessing instinct (the imperative modual). In short, with this imperative device (hastening guessing by determining when best to guess), fewer revisions are necessary, which lends economy, systematicity, and reliability to originary hunches in Thirdness.

It is as part of the system of originary guessing that Firstness “bridges the logical with the psychological,” as Tschaepe (2014, p. 129) intimates. Firstness likewise encroaches upon Thirdness, bridging the phenomenological with the ontological, and the affective with the cognitive; new renditions are primarily fueled by Firstness, rejuvenating propositions and retroductions in Thirdness. Additionally, to reiterate: the influence of Secondness upon the semiosis of abduction is unparalleled – the impulsivity of imperatives, together with the expenditure of labor in repackaging retrospections into retroductions represents a quintessential illustration of its relevance. Peirce’s concept of guessing (as originary hypothesis-making) is not founded upon flimsy assertions, independent of a search for the Final Interpretant; rather concerted effort to offer a viable, innovative protocol elevates productivity and work product. The purpose which drives the effort consists in elements of Firstness and Secondness – such that percussiveness gives rise to personalized output overlaying components of the stream of ever-flowing context. Here the confluence of Firstness and Secondness generates and regenerates “works of art” which often serve non-subjective ends. As such, guessing entails a deliberate process of choice and chance, typically without lengthy planning. This supports Tschaepe’s (2014) claim: “guessing is the initial deliberate originary activity of creating, selecting, and dismissing potential solutions…” (Tschaepe, 2014, p. 117). Paavola (2005, p. 152) aptly describes the guessing instinct (development of originary hypotheses) as unconscious instances of problem solving. It appears obvious

that although some intent to pursue the truth via our own competencies is operational and some awareness of how retrospections become retroductions, consciousness is ordinarily not inherent to this initial process. Accordingly, because of the lack of conscious intervention, abducers are often unable to reproduce/rearticulate the action-based recommendation; and even their effects (Interpretants) may evade notice. This evidences the fact that knowledge upon which abductions rest is often tacit in nature as Magnani (2001) suggests. As such, originary abductions are frequently deliberate but unconscious primarily because they represent abductions in their initial stages. What Peirce explicitly attributes to an originary abduction is a primary or elementary novel set of premises holding together logically. It constitutes: “the simpler Hypothesis in the sense of the more facile and natural, the one that instinct suggests, that must be preferred” (1908: CP 6.477).

Originary Hypothesis-making

Tschaepe seems to conflate deliberate with conscious, as an abduction can be both unconscious and deliberate. More conscious abductions appear not to be as originary, but “revisionary,” in Magnani’s sense of the term. Peirce’s later model further supports this distinction: between originary hypotheses (those generated out of sudden, unconscious insight); and those emergent from more regenerative, constructive and conscious effort. “Abduction moves from uncontrolled [automatic and originary] to controlled [conscious] (Tschaepe, 2014, p. 122). The former kind of guessing (unconscious, instinct) translates into a habit of such proportion that it is realized in conduct which is less able to be regulated – propositions derived from these abductions are so automatic that they are tantamount to instincts. The more dynamic kind of abduction emenates from dynamic, deliberate and revisionary propositions, often conscious and less constrained by automatic processes.

The originary kind of guessing illustrates Peirce’s assertion that we have a propensity to guess correctly: it is tantamount to Firstness-based proposals intrinsic to perceptual judgments and formulated in the course of knee-jerk imperative responses; the remaining kinds of perceptual judgments are conscious, and require greater workmanship on the part of the inventer, which may likewise be guided by the imperative to guess right. According to Peirce, this “ability of guessing right is neither blind nor infallible, but is an *instinctive* ability, similar to the animal instinct of flying or nest-building of ordinary birds” (1908: CP 6.476).
Application to Peirce’s categories:

Peirce characterizes reasoning from a pure Secondness perspective as “compulsive” (1903: EP2: 268). In fact, Peirce explicitly makes compulsivity a necessary component of action based and scientific discovery: “But how is it that all this truth has ever been lit up by a process in which there is no compulsiveness nor tendency toward compulsiveness” (CP 5.172)?

He articulates this same element, compulsivity to be a primary characteristic of all kinds of abduction, those effecting individual and collective ends. This compulsivity takes flight from the appearance on the scene of unexpected consequences. Part of the unexpected consequence is likewise spontaneous reactions which unforeseen circumstances impose. For Nubiola (2005:), abducers must resolve the doubt intrinsic to surprising events, such that they “regularize a surprising phenomenon to make the surprise disappear through the creation of a new habit” (2005, p. 124). Hence, Peirce’s component of surprise, i.e., the surprising event, becomes a foundational imperative factor in the abductive turn. Orienting action within events for different players (inherent in recommending a course of action) demonstrates an obvious and sustained influence of Secondness upon hypothesis formation (1885: CP 8.41). “…[volition] does involve the sense of action and reaction, resistance, externality, otherness, pair-edness.” Pure Secondness does not merely result in reaction to stimuli, but surfaces as “volition”, having their foundation in Firstness – self initiated action. “Volition” here illustrates the import of imperative operations in abductive reasoning, in that volition provides the impetus to determine which responses from interrogative endeavors will be adopted and incorporated into retroductions and course of action recommendations.

To formulate a recommendation suitable to the particular complexion of the other in the specific context, children must ultimately supersede Secondness, and create an internal, virtual reality. They must assume event roles other than those which they have experienced and must apprehend the diverse nature of each event profile, e.g., agent, instrument, receiver, and the like (cf. West, 2013, p. 127; 2014, pp. 164-165). Nonetheless, Secondness is accorded a pivotal role in the operation of abductive reasoning, particularly when it is infused with an imperative – the volitional force driven by Firstness. Peirce accords direct experience a pivotal role in the emergence of higher reasoning skills (1903: CP 8.266): “The practical exigencies of life render Secondness the most prominent of the three. This is not a conception, nor is it a peculiar quality. It is an experience.” The exigencies pregnant in experiences (both internal volitional and external ones intrinsic to the experience itself) provide the raw material upon which percepts and perceptual judgments are grounded. Hence, Secondness constitutes the

rudimentary foundation for later decisions of what to attend to and how to direct others; attention.

The Percept and the Perceptual Judgement

According to Peirce, “percepts come with beliefs, preconceptions, and prejudices leading to perceptual judgments; thus there is no hard and fast line of demarcation between perception, conception, interpretation and knowledge” (1903: CP 5.184). Likewise, while perceptual judgments are subject to criticism, percepts are not (Short, 2000, p. 512). This is so since the latter is beyond an agent’s control, agents of abductions can control the former. Although percepts may be far less subject to human control/intervention, they are not impervious to such agency. Because percepts are grounded in first impressions of sense (Short, 2000, p. 511) and are grounded in Secondness, they cannot qualify as abductions. Even when percepts rise to the level of interpretations – noticing similarities/differences with already experienced events, they fall short of abductive status, since they lack any explanatory adequacy inherent in abductions (Short, 2000, p. 517). Elements of Secondness actively impinge upon perceptual judgements, suggesting the effort imposed by the agent in the abduction. Percepts can emerge consequent to deliberate attentional effort, contrary to Short’s (2000, p. 518) claim, that perceptual judgments are made involuntarily, not requiring justification, insofar as they are predicated on a “look” (CP 7.627). Since, according to Peirce, judgments are instinctual, they are not subject to justification since they are based on a priori knowledge (1896: CP 1.118). In fact, Short (2000, p. 520) capitalizes on two kinds of propensities which particularly represent instinctual judgments: “original knowledge in two instincts – the instinct of *feeding*, which brought with it elementary knowledge of mechanical forces, space, etc., and the instinct of *breeding*, which brought with it elementary knowledge of psychical motives, of time, etc.”(CP 1.118). This appears to dovetail with Hintikka’s claim that abductions do not provide probabilistic support. In fact, an object/feature can be noticed as a result of particular preferences/salience for individual agents, or percepts may be couched in unconscious/automatic surveillance of certain arrays in particular ways. In fact, the simple attentional act of looking toward a particular stimulus need not be involuntary as Short asserts.

Conclusion

Were these interrogative imperatives to stop there, the way to inquiry would be blocked,

because conclusions and revised explanations would be thwarted. As such, inquiry might continue *ad infinitum* – without any impulse/compulsion to encapsulate new/surprising events into perceptual judgments, and to fold them into recommendations for future conduct. Despite the need for question-posing (perpetual knowledge-seeking) in the operation of abductive reasoning, it is insufficient to qualify as abductions, because the questioner must be impelled to feel that an information threshold has been reached upon which plausible hypotheses and suggestions for behavioral interventions can be drawn. Hence, imperatives surface to facilitate transcendence from interrogative processes to the formulation and expression of novel states of affairs from which recommendations for courses of action can issue. It is obvious then that abductive reasoning requires both interrogative and imperative operations. The latter is obviated by the fact that establishing foundations for courses of action for self or others entails a purposive boost – a reason for providing explanatory rationale and for designing action schemes to make pragmatic the outcome.

Nubiola's (2005, p. 125) position implicitly supports the need for an imperative module to restore well-formed guessing – to provide the push (affective and cognitive) necessary to have abducers readily share creative propositions with potential event participants. According to Nubiola, surprise within a surprising event is just that element; it "forces us to seek an abduction which converts the surprising phenomenon into a reasonable one" (2005, p. 125). This surprise, coupled with the feeling of readiness to repackage events into behavioral strategies, together comprise the imperative module.

An imperative, rather than an interrogative triggers initial abductions because questions can be posed *ad infinitum* – perhaps without generating, selecting or settling upon a suitable premise. This imperative basis for abductions is constructed upon Peirce's requirement that abductions be spontaneous, such that they qualify as "forced guesses/decisions" (c.1907: MS 687). The element of "force" upon which Burton (2000) relies serves a managing function – that of expressing propositions which otherwise would remain hidden, never expressed, and ultimately lost.

Accordingly, this inquiry has identified affective, cognitive, and linguistic evidence that, in point of fact, imperatives are responsible for the truly originary hypotheses driven by clear insight. This account demonstrates how such beckons generation of proposition-making – recommending a course of action for self or other. This proposal has uncovered how children's event judgments acquire an action-based, social force – recommending a course of action for another. It is obvious that children's imperative-making demonstrates the power to frame recommendations for future modes of conduct

(West, 2014, pp. 165-172). Such includes: internalizing “pure” secondness and arriving at percepts, translating them to perceptual judgments, and finally suggesting an entirely novel remediating path (West, 2013, 2014).

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Notes

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1. “The abductive suggestion comes to us like a flash. It is an act of insight…” (CP 5.181) ↩
2. For further discussion, cf. West (2015b, In press). ↩