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ARTICLE

# Iterative Phenomenology

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This paper argues that a renewed classical phenomenology can complement postphenomenology in exploring the overwhelming influence of contemporary media saturation on the constitution of today's lifeworlds and the subjects inhabiting them. To make this argument, I interrogate two fundamental concepts of classical phenomenology – lifeworld and intention – and the changes to which these have been subject in the age of ubiquitous electronic illumination. I conclude that an analysis of phenomenological intentionality, combined with an analysis of the codes governing its everyday implementation in applications, such as Whatsapp, Instagram, Fitbit and GPS, can accurately assess the luminous spectrality of today's lifeworlds.

**Keywords:** Code analysis; Intentional analysis; Iterative analysis; Lifeworld; Phenomenology; Postphenomenology

## Introduction

This paper aims to show that classical phenomenology continues to provide fertile ground for ongoing revision and actualization. To this end, I interrogate key phenomenology concepts – particularly those of "intention" and "lifeworld" – as conceived by Edmund Husserl. As originally conceived, phenomenology is a "project designed to produce a fundamental description of the phenomena that present themselves to the human consciousness."[1] While such phenomena are certainly situated here and now in a spatiotemporal world, they also have a perceptual essence which can be described in a methodical way.[2] The "here and now" is encapsulated terminologically as a lifeworld, while the act of distilling a phenomenon out of the former is contained in the notion of an intention.

This paper diverges from postphenomenology by taking up the concepts of classical phenomenology amid contemporary media saturation. In postphenomenology, the main argument for mobilizing phenomenology to study technology is that phenomenology provides approaches beyond mathematical positivism and toward a socially embedded nature of technology.[3] While I concur with such an approach, this paper proposes an alternative framework that focuses on the question of what "being-given" means in a world saturated by media. I thus focus less on technoscientific exploration and more on encoding as an ontological act.[4] If "number series, blueprints, and diagrams never turn back into writing, only into machines,"[5] classical phenomenological approaches can complement postphenomenology by redescribing experiences implemented, rather than mediated, by code.

To make this argument, I proceed in three steps. In the first two sections, I discuss the central conceptual tools for classical phenomenology: the notions of a lifeworld (section 2) and of intention (section 3). A lifeworld, the "here-and-now" from which phenomena occur to observers, is today bathed in a constant frazzled luminosity which demands ongoing attention without ever attaining the clarity needed for phenomenological reflection. Nevertheless, classical phenomenology can be reintroduced because phenomena persist in the encoded luminosities of contemporary applications.

The third section of this paper discusses how phenomena persist. I argue that encoding implements intention in today's computer-saturated world. Once again, *prima facie* thwarting classical phenomenological analysis, encoded implementation is an irreducible opacity which nevertheless remains at the core of all phenomenal intelligibility. Its codes are intelligible in ways that reinforce and reconstitute classical phenomenology. It is therefore possible to study how lifeworlds and intentions are encoded in the layers of computing systems, from the device's zeroes and ones to its operating systems and application programs. In the fourth section of this paper, I use contemporary examples, such as Whatsapp and Instagram, Fitbit, and GPS navigation to show that a renewed classical phenomenology can iterate through these layers and describe how intention performs code and code implements intention.

## Fragmented Pseudo-Lifeworlds

Phenomenology begins in the lifeworld and with the unquestioned everyday intuitions of its inhabitants. Here,

> there are various individual things of experience at any given time; I focus on one of them. To perceive it, even if it is perceived as remaining completely unchanged, is something very complex: to see it, to touch it, to smell it, to hear it, etc.; and in each case I have something different. What is seen in seeing is in and for itself other than what is touched in touching. But in spite of this I say: it is the same thing; it is only the manners of its sensible exhibition, of course, that are different.[6]

Throughout ongoing streams of observations, things are perceived in relatively stable ways. This is the case due to what phenomenological research calls "directionality" of perception: "in the perceptions, in the experiences of consciousness themselves, that of which we are conscious is included as such…the perception is in itself a perception of something, of 'this tree.'"[7] For the observer, this directionality takes the form of an intuition forming "a sometimes continuous and sometimes discrete synthesis of identification or, better, of unification."[8]

Phenomenology thus rests on two fundamental pillars: an ongoing stream of sense-perceptions and the focus provided by an intention governing the way in which these sense-perceptions form one and the same object. In turn, the intuition constituting a discrete object out of the stream of sense-perceptions remains surrounded by "a whole horizon of nonactive [*nichtaktuelle*] and yet confunctioning manners of appearance and syntheses of validity."[9] This horizon is the lifeworld; "life naively, straightforwardly directed at the world, the world being always in a certain sense consciously present as a universal horizon, without, however, being thematic as such."[10] This universal horizon is socially shared and intersubjectively constituted.[11] Members of an interpretative community – including the phenomenological researcher – can draw on its unquestioned validity.[12]

Out of this realm of sense-perceptions forming an unquestioned horizon, the phenomenological researcher makes the first steps towards deeper analyses of what constitutes phenomena. Phenomenology asks how continuity is constituted given perceptions with different senses,[13] and more broadly how continuity can come about as space and time correlate in an observer's world.[14] Likewise, given different angles in which objects can occur to observers, or in different lights, moods, times, etc., phenomenology may ask how spatiotemporal coherence is constituted amid such various angles, light effects, spatial ensembles, and deceptive appearances.[15] Throughout all of these constellations and distortions, the intention provides coherence: "every actual concrete experience brings about, from this total multiplicity [of experiences], a harmonious flow of manners of givenness which continuously fulfills the experiencing intention."[16] Phenomenology can thus be characterized as an analysis of how intentions bring about meaningful and coherent objects, given the chaotic complexity of sense-perception in the observer's lifeworld.

None of the fundamental concepts of phenomenology, intention, or lifeworld seem to be fully valid amid today's technologically-saturated landscape. A contemporary lifeworld may still appear to constitute what it did for Husserl, that is, a straightforward and naive life out of whose stream of sense-perceptions objects can be constituted in a coherent series.[17] Indeed, the saturation of everyday life with fake news and clickbait has – if anything – strengthened the tendency of everyday lives being lived naively in "the world always pregiven as that which exists."[18] It has also, however, changed the structure of such naivete to the point where the phenomenological concept of the lifeworld is seriously threatened.

The lifeworld of Husserl's phenomenology had been constituted as a universal horizon accompanying each individual sense-perception in a continuous totality. Against this continuous backdrop, individual perceptions stood out. Today, by contrast, lifeworlds present themselves as fragmented kaleidoscopes of unrelated impressions, each of dubious origin, validity, and status. Disciplined by fragmented spaces, the observer constantly shifts between incarnations of itself, refracted along axes, such as public/private, see/seen, hypersexualized/taboo, and so forth.[19] Lifeworlds disrupted by such constant mimicry are further determined by equally disjunctive physical spaces – overcrowded subways, sterile, oversexed malls, fleetingly anonymous event-spaces. Under such conditions, no universal background can emerge, and individual sense-perceptions no longer arise out of coherent backgrounds, but from a series of disjointed shifts.[20] Consequently, individual sense-perceptions are indistinguishable from one another. If all perceptions differ wildly, it becomes very difficult to discern individual sense-perceptions. Nor can a shared understanding be reached between the observers inhabiting such fragmented universes. Even where physically proximate, no intersubjectivity is constituted by the monads in a shopping center aisle. Only ads are common, but these, in turn, are tuned to the individual observer alone.[21]

This is particularly the case since no one lives in just one space at a time. Constantly used gadgets penetrate and saturate physical space. "Reality no longer has the time to take on the appearance of reality…The cool universe of digitality has absorbed the world of metaphor and metonymy. The principle of simulation wins out over the reality principle."[22] The final escalation of this logic is the creation of a fake universality. As botnets and "fair and balanced reporting" conspire to generate the unease necessary to obliterate what is left of universal background validity, clickbait in cyberspace and "social experiments" in social space destabilize lived background and thematic experience alike. Here, too, only advertisements are common, and no intersubjectivity arises beyond the paranoid walls of an echo chamber inhabited, ultimately, only by the individual observer.

By the same token, today's lifeworlds are never not fully thematized. Each individual sense-perception is embedded in a fragmented, attention-seeking background. This

background itself does not cease to vie for attention, competing with phenomena upon which the observer might focus. In a maelstrom of advertisements, there is no "horizon" left to dwell upon due to the constant demand for attention. Each fragmented experience demands total attention as lived spaces and advertisements merge.[23] The result is an economy of hyperattention where "the limitless growth in the supply of information conflicts with a limited human demand," resulting in a "panic-depressive syndrome called infostress" that produces private, political, or social anxieties, as well as skyrocketing sales of medication, and even suicide.[24] As each experience demands full hyperattention, no background repose can remain. The screen is fully present all at once. As contemporary streams of perceptions approach the everlasting lucidity of the screen, the possibility of a lifeworld vanishes.[25]

## Layered Encoding and Intentional Analysis

For the same reason, the disappearance of lifeworlds in the classical phenomenological sense does not come with a richer or even sharper focus on individual perceptions. On the contrary, ubiquitous streams of technologically-mediated perceptions pervade the fragmented naivete of everyday life. These streams place "users" in precarious pseudo-proximity (while maintaining vicarious pseudo-distance) to the farthest reaches of Earth.[26] Telematic presence is a ubiquitous empirical fact.[27] To a significant extent, one's view out of car windows, offices, and homes is a dependent variable for what is on the screens with which daily data allowances are earned.[28] Assessing contemporary perceptions for phenomenological research will thus, just as postphenomenology argues, require an analysis of computational givenness.[29]

Yet what is it that governs contemporary perceptions? Postphenomenological research may ask whether a smartphone or TV mediates intentions.[30] I argue classical phenomenological intentions govern contemporary phenomenality, and these intentions are not mediated by technology, but implemented by it. That is, they are implemented as sources, such as blueprints, codes, numbers, series, and diagrams which "never turn back into writing, only into machines."[31] Thus, that which appears on the screens of today's gadgetry are fully positive phenomena whose intentions are always already filled, but whose appearance on the screen is dependent upon hiding the processes by which they are generated. Therefore, Husserlian intentional analysis, sensitized to code, can explore the way these intentions come to be always-already fulfilled without postphenomenology's detour through technoscientific inquiry.

The resulting research would not replace postphenomenology but complement it. By putting emphasis on implementation rather than on mediation, it highlights the ways in which appearance has changed with the introduction of today's screens. The code governing today's intentionality remains hidden, and it governs intentions because it is hidden. Even perfect transparency would only produce code on screens if it were told to do so by a hidden command doubling up the code. For example:

```
10 dimension e(3,5)
20 PRINT 'dimension e(3,5)'
30 integer f(6,8,2)
40 PRINT 'integer f(6,8,2)'
50 PRINT e
```

As a result of such commands,

```
dimension e(3,5)
integer f(6,8,2)
3,5
```

would appear on the screen. Nevertheless, the operations to produce this appearance remain necessarily hidden. The array of code defined in line 10 is not as such phenomenal, because it arises merely as an expression created – and hence an impression projected onto the screen – by line 50. By contrast, what is expressed as a result of line 20 is unrelated to line 10. It only adds transparency if the code is already printed. However, printed code does nothing as it is not implemented. An intentional analysis of printed code is not an analysis of what appears on the screen.

Perceptions appearing on the screen, by contrast, are given in a radically different way. It is entirely evident since the code implements nothing but what it literally states. At the same time, coded appearance is entirely opaque as implementation itself necessarily escapes perception. It is all too easy to give in to the temptation of seeing in a smartphone an analogon to glasses or contact lenses.[32] Indeed, this would be a postphenomenological way of seeing such an object. To be sure, the eye's mediation by the telescope does give rise to a new celestial world, as postphenomenology would have it.[33] Yet this world remains inhabited by the same stars the unmediated eye had seen. Their perception would differ, but their intention would not. Sense perceptions derived from a phone screen would likewise only fulfill the intention of an object on the screen. After all, "the perception is in itself a perception of something, of 'this tree.'"[34] The intention of a tree appearing on a screen would, postphenomenologically, be the tree displayed. In this sense, the phenomenon of code is usually only encountered in a lifeworld when a screen of death occurs.[35]

In contrast, the phenomenological attempts sketched out here encapsulate the active role played by code in constituting intentions. I argue that intention is code – encoding and decoding – and that intentional analysis as prescribed by classical phenomenology can analyze such code.[36] While this renewed intentional analysis does ask questions akin to postphenomenological study of technological mediation, its lines of inquiry are rather more in line with Husserl's own than those of postphenomenology. Does the displayed "tree's" intention change with the encoding of screen resolution and frame rate? Is the intention of a football player on

a 2048 KB screen resolution the same as the intention of a pixeled blob on a 256 KB screen – even if the streaming service assures the observer these are the same? In what sense is the blob a football player? In what sense is the high-resolution image of the player identical to, or removed from, the intention of the player on the field?

Of course, code is itself structured in the layered systems of computing devices.[37] To this extent, postphenomenological analysis and the efforts described above overlap. The first step in such an analysis is to accept the computer as a "three-tiered synergistic sandwich: effective procedures (the idea of the program) based upon binary arithmetic, based upon the physical stop-go traffic of electrons through semiconductors."[38] Indeed, a phenomenological research program to re-embed classical intentional analysis into computerized encodings and decodings must recognize a significant degree of computational complexity, such as:

- "the device level" whose "behavior…is best described in the language of semiconductor physics and materials science";
- "the circuit level" where "behavior…is measured in terms of voltage, current, and magnetic flux," and where the discrete states of the previous level give way to "continuous behavior through time";
- "the switching circuit or logic level…the point at which digital technology diverges from electrical engineering" in that now, discrete values zero and one "perform logic functions called AND, OR, NAND, NOR, and NOT;"[39]
- "the register transfer (RT) level," where "the system undergoes discrete operations, whereby the values of various registers are combined according to some rule and then stored (transferred) to another register,"[40] and where these operations can be expressed in code, "the list of instructions or orders, arithmetic or otherwise, which it is possible to make the machine obey"[41] – that is, to implant in the switching circuitry, circuitry, and device levels; and finally,
- "the processor-memory-switch (PMS) level," which represents the system as a whole including its peripherals, "processing a medium, information, which can be measured in bits (or digits, characters, word, etc.)."[42]

Could layers of intentional analysis parallel or perhaps directly correspond to these structural layers? One could argue with postphenomenology that these are functional layers, and that therefore a functional analysis might render them intelligible such that each "higher" level can be expressed in a "lower" syntax and thus each layer can be assessed with regard to its role in mediating the observer and her world or perceptions. Each application-level program, such as the word processor on which this is written for instance, must be functionally reducible to be implemented.[43] First, it will invoke operating system components. Furthermore, its implementation must invoke an assembly program transposing it to the RT level. From there, its individual operations must be transposed to the logic level, ultimately to be implemented in the circuit and device levels.

It is thus entirely possible to argue that the tree is rendered onto the screen by an application program, and hence an operating system component, a compiler, and circuits transmitting electric differentials. This does not, however, mean that the screen on which "the tree" appears is a mediation between the observer and a tree which would in some sense be "out there." To be sure, the observer's intention is directed at the screen, not at a tree. Classical intentional analysis thus asks whether intention is that of the screen or the application program, or of the rendering algorithm. Further down the line, it might also be an intention directed to the compiler's microcode, or the patterns of electric flux and differentiation underlying it.

My position that intentional analysis can focus directly on encodings and decodings is further corroborated by emergent perceptions. The first issue here is with the rendering mechanism. What is rendered onto a screen is not perceptually identical with its rendering algorithms or their repetition at the prevailing frame rate. It seems to be "of the tree." Nevertheless, its intention is of the algorithms rendering it, and of the ever-renewing screen. Just as Husserl's phenomenology distinguished between everyday perceptions and their underlying intentional content,[44] this renewed intentional analysis counters the idea that the screen rendering is "of a tree," and thus directed at a reality beyond the screen. Further examples for such emergent phenomena on different layers range from machine-language interpreters connecting the logic and RT levels, elementary programs operating largely on the RT level, and to operating systems and applications firmly situated at or above the PMS level – and indeed to "the computer" itself.[45]

Turning these observations into a research program will likewise run into emergent problems. In particular, the sociological differentiation between end-users, developers (with hierarchical differentiations between front end and full stack), support staff (likewise with hierarchical differentiations, here between tech support and customer service), programmers, marketing, and so forth will pose problems.[46] These are at once practical and philosophical.

To be sure, source codes are open to scrutiny almost everywhere. Even at the level of microcoding, the benefits of open source development render arcane secrecy largely a matter of the past.[47] Nevertheless, as Theodore Roszak points out, only "those who design and build computers know exactly how the machines are working down in the hidden depths of their semiconductors."[48] Thus, while "Computers can be taken apart, scrutinized, and put back together," their "activities can be tracked, analyzed, measured, and thus clearly understood" only by a minority.[49] An inability to read code is thus a practical problem hampering renewed classical phenomenological research.

Returning to a more fundamental level, what layers of intentional analysis could illuminate the intelligibility of computing systems? How could a phenomenology account

for the simultaneity of radical program reducibility and emergent perceptions? Moreover, how is implementation, this opaque act at the origin of both readability and emergence, to be analyzed? Classically, an intention is an intersubjectively accessible structure governing sense-perceptions. How can this be thought together with implementation, "the execution of an instruction labeled by the current state of the control unit," which "places the automaton in a new configuration"?[50] No human intention, in any case, seems present in this act. How could renewed intentional analysis account for this?

## Phenomenology as Iteration

Phenomenology must take both fragmentation and luminescence seriously, given the lack of coherence of lifeworlds, absence of universal horizons, and the pervasive hyperattention for devices. At the same time, phenomenology must accept that Husserlian intentional analysis merges with the analysis of a code that is differentiated, and this differentiation structures perception before all recognition. On the one hand, only a process exploring the fragmented luminescence of dispersed quasi-horizons at face value – and thus without claim to universal validity while preserving the notion of a horizon – may at all be capable of preserving truth claims. On the other hand, such a process benefits from the fact that intentional analysis, when reconstituted as the analysis of encodings and decodings, does not require an exploration of obscure mental or apperceptive processes. It may well be capable of distilling phenomena in more or less full lucidity.

The method of such renewed phenomenology must be iterative. While attempting to distill phenomena, iterative phenomenology asks how they are encoded, and to what extent they can be decoded. A good first example for such an analysis would be the graphic interface of a popular application, such as Whatsapp, Instagram, or Twitter. Phenomenally, the clear delineation of individual speech acts is just as obviously meeting the eye as their unique association with individual speakers. Speech bubble arrangements make both clear. Likewise, the demarcation of the observer's vantage point is seamlessly implemented graphically by marking the phone owner's speech in a different color and position.[51]

So, too, are the teleological elements of each manifestation of speech in these apps. Each is arranged towards production and reception of individual messages: from differentiating whether a message has been "sent" or "seen" by an individual, or "seen" by a group, to the possibility of reacting to messages in writing with emojis or by endorsing, reacting, tagging, etc. The sender-receiver structure clearly governs the conversation's objects, individual chunks of text.

Speech, individuality, ego positions, reality coefficients, and emotions thus come to be encoded in speech bubble structures, "sent"/"seen" differentials, colored screen bits, photo filters, and emojis, respectively. Sociologically, the commercial character of these encodings offers a rich field of exploration – one must only think of the Emoji Movie, or else of paid content, ubiquitous advertising within the application, and of course, the commercial characteristics of the application itself, from premium areas to the continuous gathering of "user" information. However, these aspects are all encoded and manifest in code: access gating for paid content; pixelated rendering for emojis; TCP/IP negotiations for informational transfer; SQL queries for its usage.

Likewise, renewed intentional analysis can also contribute to answering the open question whether there is a reduction of the social aspects of speech in social media, as some argue.[52] Certainly, acoustic, physical, and to some extent, affective qualities are missing. Yet intentional analysis can describe *how* these qualities are missing – for their absence is likewise encoded. Primarily, it is encoded negatively, as the application's traditional privileging of ocular data implicitly differentiates non-privileged data.[53] Tagging and descriptive metadata likewise allow non-ocular data to emerge. Moreover, both Instagram and, in a very different way, Pokemon Go are very eager to restore material reality to their application's users as thoroughly as possible.

Considerations of ocular privilege thus lead to analyses of the application's phenomenality in other respects. More classical phenomenologically, intentional analysis lays bare that the phone itself is by no means just a mediating element, as postphenomenology would have it. As a three-dimensional object in spacetime, it initially presents itself to its beholder in various ways: visually from various angles and at various degrees of illumination with tactile swipes and touches, in language and autocorrect settings, and so forth. Each of these points to a horizon in which the total object appears: the phone's intention as an object in its own right.[54] This intention itself is by no means empty. Nevertheless, it changes entirely once the phone's applications come into play.

Nor are human interactions beyond the ocular realm merely mediated or implemented negatively. For example, the finger's touch and skin's warmth are totally transposed to the motility of the swipe, which in turn is encoded as an extrapolated word, including autocorrect. Both swipe and word are implemented intentions in macro- and micro-coding. On a macro level, language settings determine keyboard shapes and arrangements. Likewise, autocorrect is set to languages, idiosyncratic vocabularies, synched with urban dictionary and Reddit, and the speaker's own idiom, accumulated over time and either stored in remote servers or lost when switching phones. Moreover, it is a phenomenon in itself that there is a virtual keyboard at all, and not pure voice recognition, pointing back to historical precedent that determines the SAVE icon is the image of a floppy disk.

All of these macro-encodings are in turn, projected, in all their seemingly luminous clarity, by microcoded processes invisible to the observer, yet intentional in their own right. Above all, none of the above macro-encodings would be possible without the screen refreshing at a frame rate set by the phone's processing speed. Likewise, screen appearances,

whether visual, tactile or audible, depend on the phone's operating system. The operating system is differentiated from operating systems of tablets and laptops, and perhaps mainframe computers, and is thus intimately caught up with the ubiquity of portable screens in today's pseudo-lifeworlds – the luminosity behind which all non-thematic horizons disappear.[55] In any case, each time a screen movement occurs, hundreds of microcoded processes, from apps to compilers to electronic pulses, take place. Whether trees or Charizards are rendered, in neither case is an intention simply there: it is refracted in myriad ways.

Another example to which an iterative phenomenology is applicable is in the notion of embodiment. As is well known, classical phenomenologial inquiry had long taken seriously the embodiment of cognition.[56] Postphenomenology, too, has one of its core interests here.[57] In the luminescent pseudo-lifeworlds of today, intention and world are encoded in rhythmic discipline. The Fitbit, a device worn on one's wrist and monitoring one's movements, encodes the deviation of one's body from an ideal average, thereby projecting a regulatory ideal to which everyday physical intentionality must endlessly strive to conform. Phenomenally, this projects, first, the world as a virtual obstacle and series of challenges – as continued opportunity to improve and as resistance to be overcome.[58] Secondly, the body becomes a project to be worked on, worked up, and worked out – a prison, in which intention forever continues to miss its regulatory target.[59] The Fitbit thus pervades all perceptions, as its unity with the body encodes body and world as malleable flesh, always hostile and already overcome.[60] Contrary to postphenomenological approaches, however, an iterative phenomenology does not regard the Fitbit as the mediator between intention, body, and world, but rather views encoding as the act of implementing intention.[61] There is not a hermeneutics of distance running, as in the case of a watch,[62] but a continuous to-and-fro of micro- and macro-encodings.

This is corroborated by another example. While the Fitbit turns the world into a series of challenges, its companion piece, on the contrary, renders it a place less wild, more tamed, and more habitable than it actually is. Thus, GPS devices on phones, watches, and mainframe computers make worlds accessible, vastly enlarging individual pseudo-lifeworlds (if the means to travel are present). Here, too, body and world are constituted simultaneously, and both are encoded. The world becomes a grid extending at all sides into the known unknown. The body, in turn, is shrunk to a point, but remains at the grid's center, a cell-like individuality travelling along the grid's lines but never straying off them.[63] This is not a mediation of body and world through GPS, however. Rather, GPS code lines implement the world as a grid and the body as its center, while intention is encoded in departure and arrival rituals, distance projections, time tables, and directional advice.[64] The device does not mediate intention, body, and world, as a technoscientific point of view would have it, but encoding constitutes all three in an ontological amalgamation. For example, the JSON response: {"response": "200", "lat": "48.8583701", "long": "2.2944813"}[65] anchors the center of a map encoded by latitudinal and longitudinal numerics and server response metrics. This fully encapsulates the body and world: they are nothing but the implementation of these code lines, and their presence in spacetime is nothing but the JSON response. There is, strictly speaking, no GPS device, only a completely reconstituted intentional structure.

With these examples, and others like Trello or Mindly, where time or moral improvement are spatially organized in to-do lists, an iterative phenomenology can sufficiently explore the radical simultaneity of encoded intentionality and intentionally enacted encodings. Distances and time, directions and space, moral and physical attainment, social interaction, all aspects of what a lifeworld was, now lie in the luminosity of a code whose lines are implemented materially in "bodies" and "worlds." Iterating through these, a phenomenology can illuminate how a distance run morally augments the physical reward received by the grid's center occupant. The "runner's high" is encoded within a reward structure governed by the topological performance of the neighborhood as a running track.

The results gained in code analysis thus differ from those gathered in Husserl's classical intentional analysis. The latter nevertheless remains an excellent starting point. For Husserl, intuitive meaning was emergent in phenomenology. Husserl claimed only in the fullness of intuitive view could phenomena be illuminated in their essence.[66] Intentional analysis, for Husserl, is thus the analysis of intuition, where "anything straightforwardly experienced as a 'this-here,' as a thing, is an index of its manners of appearing, which become intuitable (or experienceable, in their own peculiar way) when our gaze is reflectively turned."[67] Postphenomenology maintains this notion of a constitutive intuition, but sees it mediated through technological artifacts. Its "cyborg intentionality" remains fundamentally based on human perception.[68]

By contrast, meaning emerges here in the iterative study of encodings and decodings as a stochastically distributed pattern. In turn, these patterns present themselves as speech bubbles only after the swipe has been rendered intelligible by extrapolation and autocorrect. They are thus themselves iterative: "sequences of letters" which "form sentences and have the statistical structure of, say, English."[69] Above all, extrapolations are about distribution: "The letter E occurs more frequently than Q, the sequence TH more frequently than XP, etc."[70] What is being said in the individual speech bubble, then, are neither individual letters, nor is there immediate or intuitive "meaning." Rather, iterative phenomenology faces discrete sequences of morphemes whose extrapolation and recognition can only be expressed in an iterative process because, ultimately, this encoded recognition is all of the intention there is.[71] Intention emerges only once these patterns are sent and received, as statistically relevant regularities. Thus, IN NO IST LAT WHEY CRATICT is babbling nonsense, but REPRESENTING AND SPEEDILY IS

AN GOOD APT may well be an autocorrect failure.[72] Both of these emerge from the same iterative process.

This is ultimately why iterative phenomenology is based on a critical appropriation of classical phenomenology rather than postphenomenological concepts. Coded/decoded meaning coincides with intention as directionality. In phone-based applications, seemingly transparent intentions of a sender are implemented by the codings of appearance, generating speech bubbles and emojis, and allowing retweets and "sent"/"seen" differentiation. This projection of transparency is all there is. To be sure, as the desperate hermeneutics of love-struck teenagers clearly demonstrate, text bubbles ostensibly convey none of the information body language does. Yet the constitution of encoded intentional transparency is aided by an army of simulacra, from idiomatic slang through emojis to likes, reaction gifs, and Instagram filters. Here, as in the other applications considered above, intention is not directed to anything beyond the phone, but to the code itself: the message, sender and receiver, and their enactments of sending and receiving, reacting and differentiating, and projecting sender, addressee, and message.

Moreover, code and intention are both constituted as patterns.[73] Thus, the intuitive mode of phenomenological analysis merges with the iterative mode of analyzing coded quasi-intentionality. The presence of a hidden, but governing code is part of the intuition by which phenomena come to be constituted in the Whatsapp, Twitter, and Fitbit universes. Pattern recognition is the constitutive mode of intuiting a social interaction on Whatsapp: "sent"/"seen," text coloring, emojis all encode social relations whose presence is read intuitively, all at once.

Thus, legibility of intentional analysis is guaranteed. For the code does exactly as specified, nothing more or less. For example:

```
jsonObj = json.loads(messageContent);
except ValueError, e:
if messageContent != "":
hmacValidation = HmacSha256(self.loginInfo
  ["key"]["macKey"], messageContent[32:]);
if hmacValidation != messageContent[:32]:
raise ValueError("Hmac mismatch");
decryptedMessage = AESDecrypt(self.loginInfo
  ["key"]["encKey"], messageContent[32:])[74]
```

The above triggers only this specific error handler and, if it does not apply, *this* message – nothing else. At the same time, however, this error handler is the intention at hand; in this case, application access and its denial. Code is thus open to intentional analysis, just as intention is open to code analysis. Technoscientific gadget analysis can certainly augment this type of inquiry but is not in itself needed for it.

Likewise, an Instagram picture is not a phenomenal representation. It is the phenomenon at hand and is intuited as such. The selfie is the person; the snapshot is the moment and its scenery. In this way, the Instagram snapshot is identical to the moment and doesn't just represent it. That the aural, tactile, and olfactory elements of that moment remain outside of the snapshot does not affect the analysis. These aspects of what the medium "snapshot" cannot transmit are encoded as absence – and hence nevertheless intuited. Pattern recognition is here again intuition and code at once. The same holds for the movements of the central point – the runner's body – in the spatiotemporal, moral, and physical grids projected by Google Maps, Fitbit metrics, and runner's high.

Iterating through layers of present-day phenomena, an iterative phenomenology can explore intuition and coding all at the same time, thus allowing explorations of the modes of givenness of present-day phenomena. It seems that most elements of classical phenomenology can be reconstituted in this way. Intuitive analysis is maintained as the fullness of phenomena remains a matter of grasping their shadowings all at once, just as it was for classical phenomenology – and as such, remains equally elusive. There are elements to the Instagram snapshot, tweet, and Fitbit metric performance that cannot fully be encoded – yet what these are, and how they are excluded from code, depends on the code. Thus, code analysis merges with intuitive analysis, and present-day iterative phenomenology can rightfully claim to renew Husserl's method where the observer:

> systematically uncover[s the phenomenon and thus] the world as it is for us becomes understandable as a structure of meaning formed out of elementary intentionalities. The being of these intentionalities themselves is nothing but one meaning-formation operating together with another, 'constituting' new meaning through synthesis. And meaning is never anything but meaning in modes of validity, that is, as related to intending ego-subjects which effect validity.[75]

## Conclusion

It may well be that pessimism regarding the intelligibility of today's world is overstated. To be sure, the fragmented luminosity displacing the lifeworld seems to leave little opportunity to distill meaning out of the "vertigo of interpretation" prevailing everywhere.[76] Likewise, the overdetermination of intentionality with coded direction is, at least in part, also an overdetermination with the opacity resulting from internal criss-crossings within computing devices.

At the same time, however, the luminous progression of fragments replacing lifeworlds is also open to code analysis, because intentionality is now implemented in code lines. Space and spatial intuition are now structured by topological encodings, whose inner workings, from GPS satellites to map refreshing frame rates, are open to scrutiny. Just the same, Fitbit metrics are in principle controlled by whomever wears the device. Social and romantic gestures are more

readable than ever as they are encoded in the language of applications.[77] Provided the phenomenological researcher reads code – and this might be a big "if" – the legibility of intentions and that of code become one in renewed intentional analysis.

Such analyses of intentionality in encoded luminosity by no means puts iterative phenomenology in opposition to postphenomenological approaches. Particularly with regards to bodily discipline, intentionality is in broad daylight for iterative and postphenomenology alike as it is metrically encoded for tracking and targeting. In both approaches, the world becomes fully transparent, projecting itself towards its full capture in gadget metrics and their encoded implementation. Where postphenomenology prioritizes mediation and asks about bodies, worlds, and hermeneutics, iterative phenomenology renews the notion of intention as coded legibility. In tandem, these two phenomenologies can do substantial research now that the flesh of world and body, and its rhythms, are illuminated in total encoding.

## Notes

[1] David Marcey, *The Penguin Dictionary of Critical Theory* (New York: Penguin, 2001), 298.

[2] Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology* (Evanston: Northwestern University Press, 1970), 132–135.

[3] Don Ihde, "Preface: Positioning Postphenomenology," in *Postphenomenological Investigations: Essays on Human-Technology Relations*, edited by Robert Rosenberger and Peter-Paul Verbeek, pp. 143–158. Lanham, MD: Lexington Books, 2015), viii.

[4] Robert Contra Rosenberger and Peter-Paul Verbeek, "A Field Guide to Postphenomenology," in *Postphenomenological Investigations: Essays on Human-Technology Relations*, edited by Robert Rosenberger and Peter-Paul Verbeek, 143–158. (Lanham, MD: Lexington Books, 2015), 9.

[5] Friedrich Kittler, *Gramophone Film Typewriter* (Stanford: Stanford University Press, 1999), xl.

[6] Husserl, *Crisis*, 157.

[7] Ibid., 85.

[8] Ibid., 158.

[9] Ibid., 159. German-language annotation in the original.

[10] Ibid., 281.

[11] Jürgen Habermas, *Theorie des kommunikativen Handelns, Vol I: Handlungsrationalität und gesellschaftliche Rationalisierung* (Frankfurt: Suhrkamp, 1995), 119.

[12] Ibid., 123.

[13] Husserl, Crisis, 161.

[14] Ibid., 162–163.

[15] Ibid., 164.

[16] Ibid., 166.

[17] Ibid., 145.

[18] Ibid.

[19] See, for example, David Harvey, "Neo-Liberalism as Creative Destruction," *Geographical Annals* 88B (2006): 145–158, and Bob Jessop, "Liberalism, Neoliberalism, and Urban Governance: A State-Theoretical Perspective," *Antipode* 34 (2002): 452–472.

[20] Michael Serres, *Times of Crisis* (New York: Bloomsbury, 2013), 22–23.

[21] See Claudia Clemens, *Post-Industrial Cities in Transition* (Göttingen: Sierke Verlag, 2010), 75.

[22] Jean Baudrillard, *Simulation* (Los Angeles: Semiotext(e), 1983), 152.

[23] Manuel Castells, *The Rise of the Network Society* (Malden: Blackwell, 2010), 415.

[24] Christian Marazzi, *Capital and Language: From the New Economy to the War Economy* (Los Angeles: Semiotext(e), 2008), 64–65.

[25] Scott Bukatman, *Terminal Identity: The Virtual Subject in Postmodern Science Fiction* (Durham and London: Duke University Press, 1993), 72–73.

[26] Friedrich Kittler, *Die Wahrheit der technischen Welt* (Frankfurt: Suhrkamp, 2014), 386–387.

[27] Don Ihde, *Technology and the Lifeworld: From Garden to Earth* (Bloomington: Indiana University Press, 1990), 164–177, discusses this phenomenon as 'pluriculturality', the simultaneous presence of multiple cultural foci at once.

[28] Bukatman, *Terminal Identity*, 28–30.

[29] Don Ihde, *Technics and Praxis* (London: D. Reidel Publishing, 1979), 53–66.

[30] For a discussion of smartphone tracking techniques in this context, see Yoni Van Den Eede, "Tracing the Tracker. A Postphenomenological Inquiry into Self-Tracking Technologies," in *Postphenomenological Investigations: Essays on Human-Technology Relations*, edited by Robert Rosenberger and Peter-Paul Verbeek, 143–158. (Lanham, MD: Lexington Books, 2015), 143–158.

[31] Kittler, *Gramophone Film Typewriter*, xl.

[32] Rosenberger and Verbeek, "A Field Guide," 14.

[33] Ihde, "Preface," xii.

[34] Husserl, *Crisis*, 85.

[35] And even this was a gesture of courtesy on the part of the Microsoft corporation, which it has since given up: computers now just freeze, shut down, or refuse to boot up.

[36] Husserl, *Crisis*, 166.

[37] Günter Ropohl, *Allgemeine Technologie. Eine Systemtheorie der Technik* (Karlsruhe: Universitätsverlag Karlsruhe, 2009), 54–57.

[38] Theodore Roszak, *The Cult of Information* (Berkeley: University of California Press, 1994), 121.

[39] C. G. Bell, J. C. Mudge, and J. E. McNamara, "Seven Views of Computer Systems," in *Computer Engineering. A DEC View of Hardware Systems Design*, edited by C. G. Bell, J. C. Mudge, and J. E. McNamara (Maynard, MA: DEC Press, 1978), 2.

[40] Ibid., 3.

[41] Kathleen Booth and Andrew Booth, *Automatic Digital Calculators* (London: Butterworths, 1965), 181.

[42] Bell, Mudge, McNamara, "Seven Views," 3.
[43] Friedrich Kittler, *Draculas Vermächtnis. Technische Schriften* (Leipzig: Reclam, 1993), 225–229.
[44] Husserl, *Crisis*, 242.
[45] Bell, Mudge, McNamara, "Seven Views," 5. On the emergent quality of the 'computer' itself – its shape-shifting presence in contemporary advertising – see David Lyon, *The Information Society* (Cambridge: Polity Press, 1988).
[46] Bell, Mudge, McNamara, "Seven Views," 22–26. For a general discussion of how technological expertise and political positions result in technocratic power, see Jean Meynaud, *Technocracy* (London: Faber & Faber, 1968), 30–31.
[47] A recent example is the uproar Microsoft's purchase of the open source development platform Github caused. See, for example, Peter Bright, "Everyone complaining about Microsoft buying Github needs to offer a better solution," *Ars Technica*, June 5, 2018. Retrieved July 11, 2018, https://arstechnica.com/gadgets/2018/06/everyone-complaining-about-microsoft-buying-github-needs-to-offer-a-better-solution/.
[48] Roszak, *Cult of Information*, 15.
[49] Ibid.
[50] Peter Denning, Jack Dennis, and Joseph Qualitz, *Machines, Languages, and Computation* (Englewood Cliffs: Prentice-Hall, 1978), 229.
[51] Some applications, like Twitter, use Avatars for this; a form of ego encoding worthy of its own study.
[52] For a review of such arguments, see John Bargh and Katelyn Mckenna, "The Internet and Social Life," *Annual Review of Psychology* 55 (2004): 1–22.
[53] See Ihde, *Technics and Praxis*, 82–91, for a similar discussion of ocular privilege in the postphenomenological context.
[54] Husserl, *Crisis*, 167.
[55] See, for example, N. Katherine Hayles, "Hyper and Deep Attention: The Generational Divide in Cognitive Modes," *Profession* (2007): 187–199.
[56] In Husserl's work, this remained somewhat oblique, as the majority of his descriptions continued to privilege the ocular mode of cognition over its tactile, olfactory, and otherwise embodied counterparts. That gap came to be filled by the work of Maurice Merleau-Ponty.
[57] See Van Den Eede, "Tracing the Tracker."
[58] The theoretical gist of approaching one's body in this way is encapsulated most impressively in Ulrich Bröckling, "Jeder könnte, aber nicht alle können," *Mittelweg* 36 (11): 6–26. See also Luc Boltanski and Eve Chiapello, "The New Spirit of Capitalism," *International Journal of Politics, Society and Culture* 18 (2005): 161–188.
[59] On this, see Michel Foucault, *Discipline & Punish: The Birth of the Prison* (New York: Vintage Books, 1995).
[60] Van Den Eede, "Tracing the Tracker," 148.
[61] Ibid., 146.
[62] Rosenberger and Verbeek, "A Field Guide," 15.
[63] A phenomenology of such grid-oriented travel has been described somewhat rhapsodically in Jean Baudrillard *America* (London: Verso, 2010).
[64] See Marc Augé, *Non-Places: An Introduction to Supermodernity* (London: Verso, 2009).
[65] This simplified JSON body denotes a specific position in the standardized global laditudinal and longitudinal grid – in this case, the geographical position of the Eiffel tower – along with a server response of 200, which denotes that this server is operative as needed. In a GPS-based application, latitude and longitude will be dynamically received from the orbital satellite system and updated constantly. For an overview of how this works, see the description of a GPS signal's composition by the Penn State Department of Geography at https://www.e-education.psu.edu/geog862/node/1741 (accessed November 24, 2018).
[66] Husserl, *Ideen*, 141.
[67] Ibid., 171.
[68] Rosenberger and Verbeek, "A Field Guide," 22.
[69] Claude Shannon, "A Mathematical Theory of Communication," *The Bell System Technical Journal* 27, no. 3 (1948): 379–423.
[70] Ibid.
[71] Ibid., 386–387.
[72] Ibid., 388. These examples are taken from Shannon's third- and fourth-order approximations of English by stochastic processes, respectively.
[73] Kittler, *Draculas Vermächtnis*, 58–61.
[74] The actual source code of Whatsapp is, of course, not available as open source material. There is, however, a reverse-engineered version, lines 150 through 157 of which are quoted here from https://github.com/sigalor/whatsapp-web-reveng/blob/master/backend/whatsapp.py.
[75] Husserl, *Crisis*, 168.
[76] Baudrillard, *Simulations*, 31.
[77] Assuming that the current trend towards more open source-oriented development continues.

## Competing Interests

The author has no competing interests to declare.

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