Construction of Irreality
An Enactive-Constructivist Stance on Counterfactuals

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> Context • Linguists and philosophers, as well as psychologists, have not yet offered a coherent explanation of the logic behind the intricate grammar of counterfactuals, the meaning of irreality and the role of this concept in human life. **> Problem** • I investigate the role and mechanisms of irreality as a special form of experience. **> Method** • Based upon the results of the philosophical analysis, I introduce the principles of experiential methodology grounded on the open-ended reflective approach to human experience proposed by Varela, Thompson and Rosch. **> Results** • I show that counterfactuals are the experiencer's non-linear counterbalancing of the intentional and attentional directions of her perceptual activity. Counterfactuals occur in and through the reflected abstractions from the bodily movement in which one attentional object follows another. Reflecting upon the sequence of attentional objects, the experiencer reorganizes the sequence and experiences the difference as a relational change. As a result, new experience is constructed out of the changed value of the lived past. **> Implications** • The epistemological insight into counterfactual ways of acting helps reconsider many semantic, particularly grammatical, problems of counterfactuals in terms of the subjunctive and the so-called "irrealis." Besides, the findings of the research have implications for psychological studies of communicative behavior. **> Constructivist content** • To explore the problem of irreality, I offer a detailed philosophical analysis of key constructivist and enactive concepts such as reality, experience, languaging, scientific method and others. **> Key words** • Experiential analysis, time reversibility, counterbalancing reality, reflected abstraction, languaging, reference, attentional direction.

Introduction: The epistemological paradox of irreality

« 1 » What do we refer to when we say "If only I were more powerful now, I would make everyone happy tomorrow"? If it is our present "now" and future "tomorrow," why is the verb not in the present tense? If it is something impossible, why not say "I am not powerful and I will not make everyone happy"?

« 2 » Linguists do not seem to give any definitive answer to these questions. Instead, they describe the grammatical meaning of the verb form. The verb form is typologically termed as "irrealis" (in English grammars, the subjunctive or conditional mood) while its meaning is called irreality, i.e., "an unreal activity, merely potential or contrary to fact" (Sapir 1930: 168). Nelson Goodman (1947: 113) defined statements contradicting facts as counterfactuals and approached them methodologically, as a logical tool of con-

firmation and for establishing laws. David Lewis (1973) went further and developed the theory of possible worlds created in (or better, out of) the semantics of counterfactuals. Heather Ferguson and James Cane (2015) claim that imagining the impossible through counterfactuals is effortful. However, it is a common practice in our everyday life as we engage in alternative thinking to explore the world and emotionally adapt to it (Roese 2005).

« 3 » The problem of counterfactuals, as I see it, is far from a solution, because whichever of the above approaches we choose, we are likely to face contradictions. On the one hand, irreality is defined as an abstract concept referring to whatever is impossible or non-existent or contradictory to facts. On the other hand, concepts cannot be abstracted from nothing, abstracting itself is an operation that takes place inside one's mind-body; inexistence of things must "exist" somewhere, otherwise we would be unaware of it. Contradiction is an intellec-

tual product of logical thinking that results from comparing and measuring something, but we cannot compare and measure "non-facts," i.e., something that has not yet happened or does not exist for us. If counterfactuals create possible worlds, what world do we belong to when we are using counterfactuals? This brief logical analysis reveals a paradox in our traditional philosophical and linguistic interpretation of irreality, counterfactuals and subjunctives.

« 4 » In this article, I suggest a solution to this logical and epistemological paradox by viewing irreality from the constructivist and enactive perspectives. I will assume that irreality is a form of experience that is actively constructed in the course of our perceptual activity. To prove this, I will use theoretical findings of enactive studies and reconsider some empirical methods of observational research. I will begin by analyzing the key concepts related to the topic, then describe and explain the principles of my research and discuss the obtained results.

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Reality and its construction

« 5 » The word *reality* derives from the Latin *res* ("property, thing, goods, affair") which traces back to a Pro-Indo-European root **Hreh-i-* "wealth, goods."[1] The etymology of the word itself suggests a relative rather than an ontological nature of reality: any material things in general, as well as wealth and goods in particular, need to be recognized and evaluated as such by our body, or better, in the experiences of the latter. This experiential view of reality as opposed to Cartesian absolutism was succinctly formulated by Humberto Maturana & Gerda Verden-Zöller (2008: 154): "reality is an explanatory assumption, an imagined domain of independent entities that we use to give a universal validity to our explanations of our experiences." In other words, "objective reality" is nothing but our experiential world, or *experiential reality* (Glasersfeld 1995: 118), which "should be taken bodily and integrally, in exactly the perceptual shape in which it comes" (James 1979: 53).

« 6 » However, what is experience then? According to Maturana (2008: 13): "[E]xperience is something which we distinguish as happening to us and in us." In this section, I will make more explicit the meaning of
- "something"
- that "we distinguish"
- "happening"
- "to and in us."

"Something" in reality: From quantities to qualities

« 7 » As the entry on the word "reality" in the *Longman Dictionary of Contemporary English* suggests, "reality is what is actual or true, not imagined or thought."[2] This naive understanding of reality divorces truth from imagining (and even thinking) and presupposes that we physically receive or objectively reflect reality from the outside. One of the most obvious reasons for such a way of thinking may be the computer metaphor instilled in our scientific consciousness since

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1| Online Etymology Dictionary, https://www.etymonline.com/word/reality

2| Longman Dictionary of Contemporary English Online, https://www.ldoceonline.com/dictionary/reality

the early era of cognitivism (Gardner 1985): the human brain is seen as a computer receiving, storing, manipulating and sending representations of "true" information.

« 8 » However, computers do not send or receive signals; computers *generate* them. A digital signal is nothing but a pulse wave generated by a metal-oxide-semiconductor field-effect transistor switch. To become a signal, the pulsation of waves must be sampled in a specific way as regulated by the program, or rather, programmer. The sampling is carried out in two stages. The first stage is discretization when the pulsation becomes valuable, detectable with its variables divided into time intervals with separate, distinct measurement amplitudes. The second stage is quantization when each amplitude measurement (in a continuous set) is approximated by a value from a finite set, i.e., a countable number of elements. Then digits "occur" that can be converted into another physical quantity (i.e., voltage or pressure) to produce something that is perceivable to us humans.

« 9 » It follows that computers are devices that deal with quantities generated by other quantities. It is hardly a novelty: if something is wrong with electric power or the speed of Internet connection goes down, we will have problems seeing or hearing what we call "information." Computer and human ways of processing signals do have much in common: both depend on quantities, variable productive energy. However, what has often been ignored in cognitive psychology is that humans, unlike computers, are able to produce *qualities (e.g., knowledge, information, concepts) out of quantities.*

« 10 » Heinz von Foerster was the first to articulate how exactly the production of qualities happens in a human. His principle of undifferentiated encoding says "[e]ncoded is only 'this much at this part of my body' but not 'what'" (Foerster 2003: 215). The response of a nerve cell does not encode the nature of *what* caused this response but *how much* it was. A nerve cell may only activate other cells and get engaged in a network of feedback processes the intensity of which will create some meaning for the neural system. In this scenario, qualities such as information and knowledge emerge from quantities reciprocating other

quantities ($\rightleftarrows$). The system comes to know something when:
- a physical stimulus triggers neuronal fluctuations on one (local) level of activity;
- these neuronal fluctuations trigger neuronal fluctuations on another (global) level of activity;
- the activities on both levels are matched at some point and engender a new state of the system that helps it to effectively adapt to the physical stimulus (Freeman 1999). In such a way, the feedback neurodynamic activity produces a change that becomes a new sensory perturbation remembered by the system through a specific neuronal assembly, the complexity of which depends on the biological capacity.

Distinguishing objects as "real"

« 11 » In dualism, objects are seen as parts of the material world we represent or copy with the help of language, whose essence is also considered ontological. In the enactive paradigm, objects arise in the respective acts of distinguishing.

« 12 » Jean Piaget claims that "knowing an object does not mean copying it – it means acting upon it" (Piaget 1971b: 15), or "incorporating it in an action scheme" (Piaget 1971a: 17). In his studies of children's cognitive development, he found that objects, in all their aspects of appearance, are constructed in and through perceptual activity based on the model of a balancing feedback loop rather than a simple stimulus-response principle. Ernst von Glasersfeld developed this idea and presented a model of a perceptual action scheme: perceived situation/stimulus $\rightarrow$ activity $\rightarrow$ beneficial or expected result (Glasersfeld 1995: 65). To make it clear what "result" means in this scheme of enaction, I will reformulate this component and show how it makes the whole scheme open-ended:

$$\text{situation (stimulus)} \rightarrow \text{action} \rightarrow \text{feedback (value)}$$

« 13 » Situation, or stimulus, is what serves as a sensory perturbation (Maturana 2000: 461) for the organism to start interacting with the world. It is part of the physico-chemical environment that perturbs the sensorimotor balance of the or-

ganism and causes it to act with the aim of achieving cognitive equilibrium and reach the expected state of satisfaction. The initiated perceptual activity goes on until it is interrupted by some response from sensory receptors. This response is a point at which the activity stops for a while as this "stop signal" means to the living system that the action has produced some result in such a way that the system has become sensitive to something that has never been felt (perceived) before. The organism evaluates how intense the sensitivity is, localizes it and decides how to act "back" – whether to change this new state "locally" (the negative value) or change *in* this new state "globally" (positive value).

« 14 » Feedback is crucial as it makes the whole scheme work in circular ways. Feedback allows the system to evaluate the perceptual action, which means that this value serves as

- a situation, a stimulus for new actions that build on the value of the previously performed actions;
- material for establishing similarities, connections and regularities between new sensory stimuli and those that have already triggered activity in the past making it possible to refocus attention on previous action schemes and become aware of their result and value without repeating the whole schemes from start to finish.

« 15 » Thus, the resulting value of a perceptual action becomes a distinction by which the organism recognizes the performed action and its stimulus (situation) without performing the whole action again. However, at each point of recognition, the organism is already in a new experiential situation, affected by new triggers of perturbations. Therefore, every new situation is already embedded in the value of the previous action scheme; that is why, to recognize the previous action scheme, the organism has only to adequately detect the new situation the organism is in:

… value ⇄ situation → action → value ⇄ situation → action → …

« 16 » Perceptual distinctions are thus quantities of our sensorium made into qualities through the evaluation of reciprocal processes caused by every action of

ours. They are feedback signals we "have made sense of" and can now act upon to make our further activity more orderly and predictable. They are more or less stable and viable experiential items upon which we rely in this world of "blooming, buzzing confusion" (James 1890). Being stable and viable, they become independent for us as we name them. Yet, as such, they are neither independent entities nor independent words, they exist neither in a language system, nor in the outer world. They emerge *within our nervous system as sensory signals that "kick back" when our attention focuses on them or whichever signals are reciprocally connected with them.*

Reality in its happening: From separate distinctions to distinctions in the flux

« 17 » Our perceptual distinctions make no sense if not taken in totality. Distinguishing between unitary sensory signals, i.e., recognizing them as separate objects, involves some kind of bodily motion through which we constitute "a sense" of change and that of permanence. Varela, Thompson & Rosch (1993: 121) proposed that this continuity of our perceptual world, or rather, our structural integrity in a series of transitions from one state to another, is maintained by attention, an omnipresent mental factor that "moves" our body towards specific features.

« 18 » William James (1920) may not have used the terms "structural change" and "structural integrity," but he developed a theory of consciousness as a pulse-like activity in which the minimal feelings (sensory signals) are related through attention and form a continuous procession of later and earlier moments. This pulsation is referred to as *knowing-together* and constitutes a "fundamental fact of experience" (James 1920: 373, 378): according to James, objects never exist separately in the world, they "take place" inside the experiencer through her ways of attending to things, choosing out of several simultaneously possible states the one that relates to her selective interests so that it can be lived "here and now": "[E] ach of us literally chooses, by his ways of attending to things, what sort of a universe he shall appear to himself to inhabit" (James 1890: 401). In simple terms, the logic of

James's philosophy is the following: objects do not exist without me, they exist as "objects-plus-me"; I am the living being who chooses what interests me more; as I choose I act upon this choice further, i.e., I change my further choosing; it means that objects exist in the unending process of *choosing* and *changing* and make no sense outside of this "ever-changing perceptual flux that as such means nothing, but is what it immediately is" (James 1979: 32).

« 19 » The idea of pulsation recurred later in the works of Silvio Ceccato & Bruna Zonta (1980) and von Glasersfeld (1995) to explain how human attention works. They argued that attention organizes thought and stands behind the temporality of our experiential world. For this aim, they specify such attentional factors as focalizations and refocalizations. Attentional focalization is a movement of attention from one sensory signal to another, with the neurodynamic possibility for attention in this act of movement to retain a specific quantity of prior sensory signals as its other, "standby" objects. In these movements, immediately available sensorial signals (objects of focalizations) become related to those available "back then" (objects of refocalizations). Thus, our attention shifts from one object to another, retaining some of them as recognizable ("refocusable") and others as spotlighted at one and the same point of time, or better still, within one act of perception.

« 20 » The argumentation so far makes attention a dynamic factor in our reality construction. The attentional flow of experience makes our moving body and the perceptual field where this movement occurs coherent. This coherence is both

- temporal in the sense that we become aware of some objects of refocused attention; and
- spatial in the sense that we recognize the objects of attentional refocalizations as existing *somewhere* – to be more exact, "out there," or else, in an objective or external world.

However, experientially, space and time are neither external nor pre-given; they develop *from* and *in* the motion of the experiencer as well as in that of her percepts (Piaget 1954). Time and space are "grounded on nothing but the sequential succession of moments of

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attention" (Glasersfeld & Ackermann 2011: 200).

To and in: Experience across two domains of doings

« 21 » Above, I have discussed three factors explaining where reality comes from, or what the material of experience is. Yet *how* exactly is our reality constructed, what is the way we find to refer to reality? The answer I am going to suggest is paradoxical: reference is a way, itself.

« 22 » Reality cannot exist without being recognized as such, and this recognition is done in language (Druzhinin 2021). However, language is, again, an experiential entity: it is first and foremost a "perceptually grounded orientational activity" (Kravchenko 2011: 357), which is why linguistic meanings cannot be external. The content of what we say is our saying, the same as the content of what we do is our doing (Maturana 1980: xviii)). Although we do distinguish between the former and the latter, we can do it only in language, with the help of language and based on language, or, as Maturana (1980: xiii) put it, through *self-reference* – a special operation of correlating distinctions with each other by distinguishing ourselves as a ground for this correlation. This means that we must be aware of ourselves to be aware of something existing somewhere, and this self-awareness must be permanent, for otherwise the existence of something does not make sense. The permanence is maintained only through stable (self-)reference in the form of a name:

66 We speak as if a name were something abstract, external to us, and do not realize that the name refers to our feelings in the experience that we are living. Calling a person 'John' or a color 'blue' refers to what is happening in oneself, not an entity supposed to be out there. So, when I name something, I am referring to what is happening to me, to an internal dynamics of my nervous system. 99 (Maturana 2012: 159)

« 23 » Such a process of correlating, i.e., relating relations, was termed by Maturana (1988: 46f) as *coordinations of coordinations of actions* and defined as *languaging*. To put it simply, what I coordinate within myself must be compatible with what other language speakers coordinate within themselves, i.e., to enter the domain of linguistic interactions (or else, to communicate) means to equilibrate your experiences on two levels, an individual (inner-subjective) and a socio-cultural (inter-subjective) level, with the aim of reaching a consensus and stability in operational totality. As emphasized by Alexander Kravchenko,
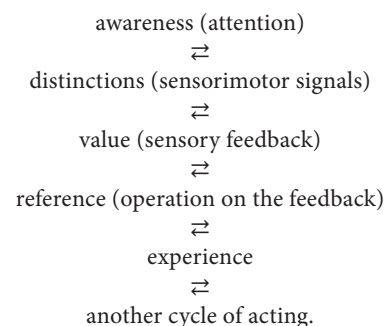
66 we construe reality in the domain of our linguistic behavior (languaging) as the dynamic environment that, as part of the organism-environment system, constrains our interactive behavior as cognitive systems in a consensual domain. 99 (Kravchenko 2020: 124)

« 24 » To further illustrate this, let us imagine that we are on a bus and listening to music in our headphones. The sensory signals our nervous system generates are experienced as music, and our attention focuses on them in the flow of our perceptual activity (listening while riding on the bus) so that we can fully enjoy the sounds. Yet, at the same time, we are aware of what is happening beyond the domain of music sounds: people on the bus are sitting, talking with each other, some of them are standing ready to get off. Our attention does not focus on the people, but still keeps them in a "stand-by attentional position," so to speak, to make it possible to refocus on them if something salient happens. In such a way, we are operating in a double domain of interactions: we are listening to music but we perceive it as sounding only for us and do not expect the other people on the bus to dance or sing. We are able to abstract ourselves from the passengers on the bus and enjoy our music, but it does not stop us from acting as one of these passengers, *we are both inside ourselves and together with others*. It means that we coordinate our perception with the perception of others, we establish relations between our experiential items and those of others by means of abstraction and specific work of attention.

« 25 » I will use the term *reference* for any such acts of establishing relations (or relationships) between one item of experience and another. Reference is thus a circular manner of iteratively operating on items we distinguish in and through our bodily dynamics by isolating them from our body and looking at them as if they were independent. Piaget (1975) and von Glasersfeld (1995) put a strong emphasis on the cognitive procedure of reference. The operations that construct experience through reference are known as *abstraction* (isolation) and *reflection* (turning this isolation upon itself). Piaget took these terms to a new level of epistemological analysis and described empirical abstractions, reflective abstractions and reflected abstractions. Empirical abstractions are pre-reflective and do not involve re-combining experiential items: they enable a cognitive agent to isolate certain sensory properties of an experience and maintain them as repeatable combinations needed to recognize objects or activate motor patterns. Reflective abstractions are a more complex case. A reflective abstraction always involves two inseparable features: the projection of something borrowed from a preceding level onto a higher one, and a (more or less conscious) cognitive reconstruction or reorganization of what has been transferred (Piaget 1975: 41). Reflected abstractions occur when a cognitive agent begins to reflect upon her reflection and finds a special name for this. In such a way we may speak of linguistic references as this or that type of reflection or abstraction. For example, *past time* (as in "I made") is cognitively a reflective abstraction, while *the past* (as in "I'm running away from the past") may be called a reflected abstraction.

« 26 » Thus, reality is an open-ended, circular dynamic activity of experience construction:

awareness (attention)
⇄
distinctions (sensorimotor signals)
⇄
value (sensory feedback)
⇄
reference (operation on the feedback)
⇄
experience
⇄
another cycle of acting.

Irreality and methods of its investigation

« 27 » My enactive-constructivist understanding of irreality should be grounded on what I have previously said in §5: anything we call "real" is part of our experiential world, that is why irreality is nothing but a special form of reality, i.e., of our own experience. Such an enactive stance is not new. Already Protagoras of Abdera maintained that "[o]f all things the measure is Man, of the things that are, that they are, and of *the things that are not, that they are not*" (DK80b1, emphasis added). In other words, irreality is enacted as any other type of experience and to investigate irreality means to investigate experience in its open-ended construction (enactment), i.e., to analyze the circularity of attention, perceptual distinctions, value, and reference.

« 28 » How do we go about this investigation methodologically? There are three aspects of enactive (or experiential) methodology that I propose in this article.

« 29 » Firstly, I want to draw attention to the etymology of the term "method" (deriving from Greek *meta* "in pursuit of" and *hodos* "path, track"), which suggests that method can be interpreted as "a path laid down in walking" (Varela, Thompson & Rosch 1993: 241): every time we investigate something, we investigate our experience building up in the process of investigation. That is why the scientific method operates and produces its results in the experiential domain of us observers (Glasersfeld 1995: 117).

« 30 » Secondly, it follows that the scientific method is based on what experience is based on: observation and logical organization. We must observe something to track changes in our experiential reality, then we must propose an explanatory mechanism (a construal, in George Kelly's terms) from which we deduce a prediction about similar changes that have not been observed yet. Thus, we always logically organize what we observe, and if we eliminate observation from the scientific investigation, we will end up investigating something that is unavailable or irrelevant to our sensory perception.

« 31 » Thirdly, we need an object of investigation, as all scientists do. However, speaking of an "object," here, does not mean that we will deal with "objective reality" and describe this object per se. Rather, it means that we will set out to explain where this object comes from in our experiential domain. To put it differently, a revised version of the scientific method should be grounded in reciprocal causality, which does not treat the *product* (object) and *producing* in isolation of each other but as two explanatory (generative) domains for each other. For example, if we try to scientifically explain a drinking bird as a toy, we should look at its "drinking" across the two domains: the inside and outside. On the inside of the toy we will observe a kinesthetic mechanism, at the outside we will observe falls and rises. Only by taking this encompassing double-domain perspective will we scientifically explain the toy as an object of research. Importantly, confining our research to one domain exclusively is misleading, because from the inside the toy is not a toy, it is some mechanism; from the outside, the toy is a toy but its "toying" is not scientifically explained (Maturana 2012).

« 32 » Counterfactuals (e.g., "If it had happened otherwise, I would have acted differently") seem to be the only accessible shape in which irreality comes to us. Does it mean that our investigation should be primarily linguistic? It depends on how we approach language. If we look at it as a way and result of experience construction (i.e., languaging), our investigation will go beyond traditional linguistic research to what I propose as experiential analysis.

« 33 » There are a few reasons why the mainstream methodology of text analysis and empirical experiments are insufficient for our purpose. Relying upon text analysis means excluding observation from our scientific investigation (§30 above). Texts are abstractions, they are decontextualized static products of logical thinking-through-writing (Linell 2005: 7). When reading a text, we are not dealing with immediate perception in any possible way, we can only deduce something about this perception based on what we have read. As early as in 1927, the founder of operational physics, Percy Bridgman, without being an authority on linguistics, noted that the "meaning of a term is to be found by observing what a man *does with it*, not by what a man says about it" (Bridgman 1958: 7, emphasis added). It was not long before Leo Vygotsky, not being a linguistic either, in 1934, reiterated that traditional methods of verbal definition, by which he evidently meant describing things, are totally "inadequate for studying concepts […] as they overlook the dynamics and the development of the process of concept formation" (Vygotsky 1962: 96). The second methodology at hand would be experimental methodology. It is more reliable, as it allows for observation. However, what exactly can we observe if we conduct experiments with counterfactuals? At best, we observe only some aspects of the subjects' behavior stimulated *by* counterfactual situations (or rather, counterfactual statements). We will be still unable to fully observe the subjects *in* counterfactual situations when a counterfactual becomes an embodied behavior, i.e., the subjects naturally and volitionally feel, and act upon, something "happening otherwise." Is it possible to make people feel it through an experiment? I believe not, because we cannot make sure that a person wants something we want her to want; instead, we can only make sure the person responds to something we want her to respond to. Thus, such linguistic or psychological experiments are indirect and help us observe only one domain of doings: behavioral and inter-subjective, but we can only make deductive judgments about the inner-subjective domain (e.g., the thought and attentional processes).

« 34 » Unlike mainstream experimental methodology, experiential methodology, as I suggest here, implies the togetherness of the observer and the observed (Gasparyan 2020). This methodology is not a self-analysis or self-observation, rather, it seeks to make analysis and observation embodied and inclusive as we become aware of who is analyzing and observing and of the reciprocal relationship between the observer and the observed, the analyzer and the analyzed. We engage in the so-called "open-ended reflection," the goal of which is to be "mindful of the mind as it takes its own course" (Varela, Thompson & Rosch 1993: 31). Linguists, in plain terms, are accustomed to analyzing language as an organized system whose regularities are to be discovered at the end of the investigation. In experiential methodology, we become aware that we are the system that is always organizing and is yet to be organized in language; the language we analyze is what makes the analysis pos-

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Box 1: List of motion pictures for evidential base

Counterfactual Story through Induction

▪ *The Curious Case of Benjamin Button* (2008) has an *if-it-had-happened-otherwise* theme depicted from within the reflections of the main character upon the "what-if" reality.

▪ *Desperate Housewives*, Season 6, Episode 11: *If...* (2010) is an *if-it-had-happened-otherwise* story told from within the reflections of the main characters upon their "what-if" realities depicted as imagined life paths with the help of transitions back to the main story.

Counterfactual Story through Deduction

▪ *Run Lola Run* (1998) is an *I-would-have-done-it-differently* story about the alternative realities the main character goes (or rather, runs) through in pursuit of better ways out of a crisis, as she has to meet the deadline and find the money to save her boyfriend from being killed. The film shows several non-intersecting circumstantial alternatives for the main characters to make the "right" choices.

▪ *Sliding Doors* (1998) is an *if-it-had-happened-otherwise* story about the circumstantial alternative that split the life of the main character, Helen, into two realities: the reality of catching the train and the reality of missing the train. The film shows the two Helens living two alternative lives, which intersect on several occasions.

▪ *Atonement* (2007) is an *if-only-I-had-done-it-differently* story about the alternative reality the main character creates for herself to undo and make up for the damage she once caused to the lives of people close to her. It is not revealed that the damage was irreparable and the real life turned out tragically until the very end of the story, when the main character admits that she was unable to put things right.

sible, words are not only the end, but also the start for our investigation (if we knew absolutely nothing about the words under analysis, how could we start our analysis?), there is some form of experience already constructed behind the words we set out to explore. That is why the conclusions I aim at here are not the definition of regularities in word structure but the explanation of how we build up experience in and through these words (or better, connotations). Inspired by Maturana's (2006: 95) methodological question I would describe this task of this research as follows:

If I want to talk about that which I connote when I talk of counterfactuals, I will not ask what is irreality, but I will ask, "what should I see in the operation of a person so that I can claim that I see that that person is behaving counterfactually?"

« 35 » Indeed, our investigation has to be based on genuine observation in ad-

dition to logic. In our case, we need to observe others "behaving counterfactually," or experiencing what we understand as irreality. As stated above, such an observation is theoretically impossible in simple linguistic analysis and practically impossible in experiments. The solution I propose is observing and analyzing people's behavior in motion pictures.

« 36 » The most obvious reason for making this seemingly surprising choice of evidential base for our research is that in feature films we can observe other people's experiences: we can see what people do and what people think, how they do it and how they think it. These "how" and "what" become observable.

« 37 » Critics may say that films are fiction and not reliable at all. However, fiction is another type of fact, not only because these two words share one root (from Indo European **dhe-*), but because fiction heavily depends on the same perceptual material as fact does: we rely upon our perceptual experience to make up stories however fictional they might be, we cannot imagine things out of nowhere. From this follows another point: films can be a reliable source of evidence for our experiential analysis, because the way perceptual material is organized into a fictional story is commonsensical. When we watch a film, we understand the coherence of what we see, one way or another. Otherwise, we would be unable to watch the disorderly pictures or such films would not be produced at all. In simple words, any film, however fantastic it may be, must be in some way relatable to us, to our ways of organizing the world. We seem to feel the same as people (characters) on the screen, we seem to engage in the same thinking processes, perceptual activities and other bodily behaviors as shown on the screen. Thus, experientially, films provide fiction compatible with fact.[3]

« 38 » There are two criteria for how films are selected as the evidential base for my research.

▪ The selection criteria should be formal and definable, which means they should be grounded in some formal ways of constructing irreality, i.e., counterfactual statements. With this in mind, we need a sample of those motion pictures that deal with a counterfactual story as interpreted both through inductive and deductive reasoning. In the context of films, induction means that counterfactual statements are the starting point for the story to develop in explicitly counterfactual terms (it is made clear in a verbal way from the very beginning that the characters are creating "if-would" realities). Deduction means that counterfactuals are the inference made from the story already developed, this inference having been negotiated and agreed upon by all other people (film critics and viewers).

3| Experimenting on rats in medicine is a good example to show how differently organized (biological) structures, a human body and that of a rat, are still compared to produce valid results. The reason is that methodologically it is not important that rats are not humans or humans are not rats on the face of it – it is more important that there are some common principles of how humans and rats *function* on the level of a system.

▪ I chose those films in which irreality is shown in dynamics, in the process of its construction rather than as a ready product of imagination. This second criterion is crucial for my research, because in order to be able to hypothesize anything about irreality, we need to observe how it changes the experiencer, and to be able to observe such changes, we need to look at how, where and when irreality is distinguished from reality in the observed doings of the experiencer on the screen.[4]

« 39 » Not many films can provide us with such material for observation. Box 1 presents a sample of a few well-known motion pictures that can meet these two criteria.

The experiential analysis of irreality

« 40 » In this section, I will present the results of my analysis and empirical observation of what can be referred to as a counterfactual behavior or irreality. Taking an enactive-constructivist perspective, I will attempt to explain how irreality is constructed as experience, in the circularity of perceptual distinctions, movement of attention, reference and value.

Perceptual distinctions

« 41 » What kind of perceptual distinctions initiate in a cognitive agent the process of constructing irreality? What sensorimotor perturbations drive the agent to organize her world in counterfactual terms? To answer these questions, let us examine where our common sense works and where it fails to, in our efforts to distinguish irreality from reality, or rather, one experience from another. Consider the following statements from which S1 and S2 are grammatically "real," while S3 and S4 are grammatically "irreal":

4| Even if there are a number of science-fiction films based on the theme of alternative history or alternative worlds, they cannot meet the criteria above as long as they deal with counterfactual/alternative realities without showing the process of experiential changes.

S1. My son with whom she is pregnant will eat fruit.
S2. Vegetarians eat fruit.
S3. (?) My son with whom she is pregnant would eat fruit.
S4. (?) If only vegetarians ate fruit.

« 42 » Reference to irreality in statements S3 and S4 is nonsensical; that is why there is something wrong with the circumstances under which irreality is constructed here, or better, there is something wrong with my perception of such circumstances. The way I am perturbed by sensorimotor signals (perceptual distinctions) does not result in constructing a counterfactual experience, which is why some of them are incompatible with irreality. To imagine my son and vegetarians relating to fruit in irreality, I need to interact with my son and vegetarians in a special way now, for example:

S5. My (present) son would eat fruit.
S6. If only vegetarians did not eat fruit.

« 43 » My son needs to be somebody beyond just an embryo, he needs to be a born child in my perception of his tastes and food preferences; vegetarians need to be somebody beyond fruit eaters only, they need to be eaters of something else or non-eaters of fruit altogether. It means that my perception of the way vegetarians and my son relate to fruit creates a counterfactual experience only if I *compare* their *old* relation to fruit *against some new* relation "here and now." There are some experiential circumstances that upset my cognitive balance and cause a kind of disagreement in my mind between what I knew and what I am learning now about my son and vegetarians as fruit eaters. These circumstances are unusual, they trigger some sensorimotor "crisis" in my body: I cannot deal with (other people's) eating habits now the way I used to, but I have to *move on* in and with this inability anyway; I cannot stop, I need to go further despite this strange knowledge gap.

« 44 » Motion pictures may provide a more illustrative base to show what kind of crisis can trigger the construction of counterfactual experience. In almost all the films selected for my analysis, the crisis is shown as an exciting plot twist for the viewers, which is a dramatic condition, a disjunc-

tive point for the main characters. At this point the characters have to activate some new ways of understanding, knowing, and decision-making because their old, habitual and more comfortable patterns of action do not "*make it*" any longer, or else, are not factual any more (cf. *fact* from Latin *facere* "make, create"). For example, in the game-like film, *Run Lola Run*, the main character reaches several points of no return (she or her boyfriend dies) that drive her to replay the "game of life" and make some changes to arrive at a better future. In the *Curious Case*, the disjunctive point is perceived as a tragic accident when the main character, Daisy, is hit by a car and her ballet dancing career is ended. By the same token, only at a moment of crisis do the characters of *Desperate Housewives* imagine the realities in which they have made other choices than those they are dealing with at present. The drama of the moment at which the realities emerge is lived by the women in a hospital through awaiting matter-of-life-and-death news about their ex-husband and unborn children who are being or are going to be operated on. It turns out that the latter did not survive in the end.

Attentional direction

« 45 » As I said above in §18, there are two important aspects of attention as an omnipresent mental factor: choosing and changing. These aspects account both for our attending to things and intending things to happen. Let us examine how these two forms of attentional activity work in irreality.

« 46 » Intentionally, the direction in which our body moves is always linear, i.e., towards "a better future," which is what Edmund Husserl called "a living towards" (quoted in Gallagher 2017: 97). It means that every doing of ours is anticipatory, goal-oriented in such a way that it seeks to achieve a better condition for the organism, a state of the least experiential unbalance. Therefore, our attention chooses its objects of both focalizations and refocalizations in a linear fashion and this is the case with any possible form of experience.

« 47 » However, it does not mean that *how* it chooses always agrees with *what* it chooses: each successive object of attention does not necessarily have to be a new one. In

some cases, the linearity of attentional continuity can be broken as we may attend to things not the way we intend them to happen. I will demonstrate how such discontinuity between intentional and attentional directions occurs in counterfactual experiences.

« 48 » Let us assume that our friend whom we have invited for dinner is sitting in the kitchen talking with us. At some point, when we are not engaged in the conversation and are busy serving tea, we notice her looking at the wall steadily. The first thing we do is look at the same wall to check if there is something wrong with it. We do not see anything attention-worthy on the wall and ask our friend "Do you like my wall so much?" but she says, "I was just thinking about my father." It appears that our kitchen did not attract her attention although she is physically there, it is her father that got her suddenly thinking, or rather, *distracted* from our kitchen. Was she looking at the wall? Yes and no. Was she looking at her father? Yes and no.

« 49 » The example above demonstrates that we can focus and refocus our attention on things with different degrees of intensity. Our friend did not focus on objects in the perceptual field (i.e., in the kitchen) as hard as she refocused on experiential items beyond the perceptual field (her father). The objects of attentional refocalization were more important because our friend was worried about her father and, for example, his having been sad the day before – she was not as interested in our kitchen. She might have thought to herself:

S7. My father was sad yesterday. He didn't talk to me.

« 50 » It follows that there are two sequences of attentional objects, one created by refocalizations (in relation to the father who is "there and then"), the other coinciding with the bodily movement in the immediate perceptual field (of the kitchen "here and now"). Indeed, we cannot say that the two sequences are intentionally different as they are directed at one and the same point "towards": our attention moves the way we live and predict our living, i.e., every succeeding moment of attentional (re)focalization is "physically" new to us

compared to every preceding moment. In other words, we are building up our experiences incrementally: the volume of what we see in the kitchen and what we experienced yesterday with our father grows every time we focus on the respective attentional objects. One sequence of attentional objects is compatible with the other in its direction and these sequences are comparable in value, which is the degree of importance, or relevance.

« 51 » However, everything is different in:

S8. If my father hadn't been sad yesterday, he would have talked to me.

Here we have more than two sequences of attentional objects, and we cannot say that they all are compatible with one another. In S8, we can be sitting in the same kitchen aware of what is happening there but, in contrast with S7, there are two other sequences of objects we build up with the help of our attention. The first is a succession of attentional moments through which we recognize that our father was sad and did not talk to us. This kind of information is like a heavy burden we are carrying with us, which makes us feel uncomfortable. The second succession turns out to be composed of the same attentional objects as in S7, but through this succession we do not construct the experience as stated in S7, we construct a new experience. It appears that our attention works differently with these objects in case S8. There is only one possible way for our attention to create a different sequence of similar objects: by moving in the opposite direction.

« 52 » In example S8, our attentional refocalizations create two pairs of sequences that are not compatible with each other. We cannot say which one is more relevant, we cannot say that they are comparable in value at all, but we can safely assume that our attention focuses on two sequences of the same objects. It happens because it moves to and fro across the same objects of refocalizations, changing their sequence. The resulting sequences have the opposite attentional direction and counterbalance each other because one of them (S7) builds up an experience incrementally, while the other (S8) reverses it, which goes against the principle of linearity and predictive living.

« 53 » The assumption that irreality is constructed by the reversal movement of our attention, or by the counterbalancing directions of the attentional flow, can be proved by observing the way irreality as experience is enacted in motion pictures. One mechanism used for this purpose can be called *flashback reversion,* which is a replay of some prior scene in the reverse order so that the old shots form a new story by means of rearranging their order. Flashback reversion as a basic tool of movie making represents a reverse motion of the mind and shows how the action is undone. Undoing in this sense does not mean returning to some earlier moments of the story, the technique commonly practiced in visualizing memories. Undoing, here, is going back to what was before, thereby producing a change, a new meaning, something that has, as yet, never been before. In other words, flashback reversion represents a changing through "un-changing."

« 54 » Let me illustrate these findings by the data collected from the motion pictures. In the *Curious Case,* Benjamin hesitates for a moment to accept Daisy's ruined physical health, and thus the reality of her drama remains unobservable. At this point, the linear narrative is interrupted by the storyteller's (the lead character's) reflections upon the circumstantial concatenation before and during the accident that heavily injured her. In and through these reflections we follow a series of events as they happened before Daisy went outside to cross the street. I will quote the movie script[5] and mark those events that are later refocused on by the experiencer as 1–7:

A woman in Paris was on her way to go shopping, but (1) she had forgotten her coat – went back to get it […]Now a taxi driver had dropped off a fare earlier and (2) had stopped to get a cup of coffee […] The taxi had to stop for a man crossing the street, who had left for work five minutes later than he normally did, because (3) he forgot to set off his alarm […] And while Daisy was showering, the taxi was waiting outside a boutique for the woman to pick up a package, which

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5 | Quote taken from *The Curious Case of Benjamin Button Screenplay* by Eric Roth, https://www.goodreads.com/quotes/291367

hadn't been wrapped yet, because the girl who was supposed to wrap it (4) had broken up with her boyfriend the night before, and forgot […] When (5) the package was wrapped, the woman, who was back in the cab, was blocked by a delivery truck, all the while Daisy was getting dressed. (6) The delivery truck pulled away and the taxi was able to move, while Daisy, the last to be dressed, waited for one of her friends, (7) who had broken a shoelace […]"

Then the attention of the storyteller is refocused on the same experiential items in the reverse order (the events are marked in consistence with the previous numbering):

"And if only one thing had happened differently: if (7) that shoelace hadn't broken; or (6) that delivery truck had moved moments earlier; or (5) that package had been wrapped and ready, because (4) the girl hadn't broken up with her boyfriend; or (3) that man had set his alarm and got up five minutes earlier; or (2) that taxi driver hadn't stopped for a cup of coffee; or (1) that woman had remembered her coat […]"

« 55 » As we can *visually* observe (not just logically infer), the counterfactual experience of the tragic accident builds up two attentional directions of the same experiential flow. A similar process of reversion leading to irreality construction is observed in *Sliding Doors*: the experience of taking the train is made salient and attentionally prominent through the flashback replay. A series of several actions that happened to Helen prior to her taking the train is "re-lived" in the reverse order with only one alteration: Helen bumped into a girl blocking her way to the platform and that is why she missed the train.

« 56 » In *Atonement,* the film director uses the same technique to portray Briony's experience. In particular, the farewell scene of Briony's sister (Cecilia) parting from her (Cecilia's) boyfriend at the doorstep of her mansion at the beginning of the film is shown in reverse order in the middle of the film to highlight the relational change which has happened in Briony's mind. It is recognized that a fatal mistake was made because Cecilia's boyfriend was innocent and was not meant to part from her. It all increases a sense of regret on the part of Briony.

Change of value

« 57 » To understand how the process of valuing works in counterfactual experiences, let me review once again the principles of balancing feedback in perceptual activity. Our living is the process of cognitive equilibration, which, at each later moment of our structural changing, happens in achieving a state of balance, or neutrality. This state of balance has yet to be achieved by reaching a satisfying result of actions, which has not been reached. A satisfying result needs to be some kind of new value that balances the old one in the continuous flow of structural changes to make our living more predictable. For example, if the result was (unexpectedly) positive, it needs to be made more predictable by our reaching it repeatedly on a more complex level of doings through which this result will no longer be valued as positive, but will turn into a neutral one. If the result was (unexpectedly) negative, it needs to be made positive in later correctional doings through which the negative value will become neutralized, as well.

« 58 » If our attention moves back to its previous objects and earlier moments, as in S7, it means that we still do not get the feedback from these objects necessary for achieving a state of neutrality, which is quite normal. What is not normal is for this achievement not to come at all. Again, let us contrast the two statements:

S7. My father was sad yesterday. He didn't talk to me.
S8. If my father hadn't been sad yesterday, he would have talked to me.

« 59 » Does our relation change in S8? It definitely does, otherwise what would be the point of the statement? Does it mean that the value becomes neutral and we find satisfaction, as in S7, where we give a necessary explanation for our state of nervousness and accept it neutrally? Definitely not, because the state of balance and satisfaction is not achieved (we still regret).

« 60 » Let us assume that in/through counterfactuals we change the value of our doings from negative to positive or vice versa, which allows us to go on further with our usual ways of predictive living. Constructing irreality, we do not change the experience that has taken place, but we change its value, which helps us later achieve a state of neutrality and deal with the consequences of this experience that are too strong and perturbing. In other words, we do not simply act upon the lived past, *we change the value of the lived past and act upon this change at the same time*. If, for example, somebody's death is too much for us to deal and put up with, the first thing we do is construct a change of value as a new experience in which this person's death did not happen and something else happened differently. This positively changed value is not satisfying, though, as it needs to become compatible with our later doings, which normally does not happen. Nevertheless, in some cases, people may go so far with such changes of value that the repeated counterfactual experiences they construct may replace all their later doings and, as a result, neutralize the value of the earlier actions and become satisfying. In such cases, people may pathologically "deny reality," or fail to coordinate their inner-subjective with inter-subjective experiences.

« 61 » One of the most telling examples of change of value, through which irreality is constructed and taken to extremes in the later doings of the cognitive agent, is the film *Atonement*, where half of the story is told in counterfactual terms. The lives of the main characters are largely shown through the perspective of the narrator's (Briony's) relational change, but we do not become aware of this until her final confession. At the end of the film, we see older Briony, who has just finished the novel *Atonement* about Cecilia and Robbie, whom she had betrayed. She says that her sister and Robbie reunited only in the book, in reality they died and Briony never met them to claim forgiveness after what happened when she was a mindless teenager. Briony's confession is shown to us as two sequences of moving images, one a negative reality of Robbie and Cecilia dying in the war, the other a positive, desired reality of Robbie and Cecilia enjoying their holiday by the seaside together.

« 62 » The observation of how older Briony's mind "moves" in her reflections on the past, as shown by the director in the last scene, suggests that the different "realities" constructed are not of the "more true" or "less true" kind, they are not possible or impossible worlds, they belong to one and the same level of actuality of the storyline:

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they both are objects of Briony's attention. Both the death and the happy life of her sister are depicted sequentially. Their counterfactual status emerges as a change of value Briony experiences in relation to her objects of attention. It appears that Briony lived a "counterfactual life" throughout the second half of the story and it became, for her, a way of dealing with her sense of guilt, with the world that tragically changed for her the moment she made a life-changing decision to testify against her sister's boyfriend.

« 63 » Another type of cognitive outcome of counterfactual experiences can be observed in *Desperate Housewives*. Susan is long divorced from her first husband and has been quite happy with this state of affairs until she finds herself in a hospital waiting for the news about his life-or-death condition. She begins to question her decision to divorce him. Reflecting upon what has been happening in her life without him, she imagines an alternative reality by re-living the experience of his cheating on her through a change of value (she forgives him for this cheating). She does not stop here and continues to construct further experiences through this change of value (she imagines what her life with him would have become), which all leads her to a negative result. Susan comes to understand that she made the right choice to break up with him, which is why her present experience (her being divorced) is satisfying for her.

Reference

« 64 » The last step in my analysis is to determine how counterfactuals build up conceptually in the thinking processes. In other words, we must define what the logic of constructing irreality is.

« 65 » It should not come as a surprise that both relating and referring literally mean "carrying back" (Latin *re-* "back" + *ferre* "to carry, bear," and *relatus* being the participle perfect passive of *referre*). Among others, Piaget (1975) expressed the idea that logic comes from our human ways of carrying things back, i.e., the operative nature of our organizing the world, which consists in our minds performing reversible operations, or "internalized actions with possibilities of return" (Glasersfeld & Ackermann 2011: 198). By such an operation Piaget means a kind of reconstructive action that is pos-

sible to perform in both directions (Piaget 1975: 14), i.e., doing something when we are aware of how this something can be undone because we can abstract ourselves from our doings and compare one alternative with the other in a particular frame of reference. In other words, we frame (name) our perceptions by displacing ourselves from them, remembering what was before these perceptions and recognizing this kind of change as a concept.

« 66 » Operationally, counterfactuals are abstractions from our bodily movement transformed in an act of reflection upon the difference this movement brings. In other words, we reflect upon the changes happening to us in the flow of experience and form a new understanding of these changes. We recognize that one experience followed another and cannot accept this sequence. Instead, we relate this sequence to our interests in a new way creating a new frame of reference and a new experience out of all this. Therefore, irreality is an experience of our flow of experience, it is a *reflected abstraction* based on the concept of time and time flow ("arrow of time").

« 67 » Let me elaborate upon the conceptual nature of irreality and its relation to the notion of time. The recognition of what is not "real" is always temporal as we need some earlier and later moments of our life to compare with each other and say that something is "contrary to fact." Conceptually, time emerges through reference to movements or speeds (Piaget 1971b), as we compare one movement (not the object) of attention to another and only then recognize them as independent perceptual objects. Time flow emerges when we experience a difference between these "objects," or rather, "our present perceptions and our present memory of past perceptions" (Deutsch 1997: 263). When we begin to deal with the world counterfactually, we are not satisfied with the way time flows and reconstruct its flow (thinking about things in terms of the past, as "facts," or things that happened) to change things that happened in our relations to them (thinking about the return possibilities of these "facts"). It all means that we reverse the past time, or rather, our lived experiences, to relationally counterbalance what we are living in the present. In other words, irreality builds on the concept of time reversibility.

« 68 » Summing up, counterfactual experience is a cognitive act of

- abstracting from the direction of our "living towards," or intentional direction (this abstraction known as time directionality or arrow of time);
- reflecting upon this abstraction and projecting certain coordinations borrowed from this abstraction onto its opposite (known as time reversibility); and
- operating from within this reflected abstraction towards a satisfactory result.

Conclusion

« 69 » There are no dead ends as long as there is a lived beginning. If you are not sure as to where or how to go on, go back to the start. There are plenty of new turns to take on the way. You missed them then, but they can be chosen now. In this going, you will reinvent the whole route for yourself with no dead end in sight.

« 70 » That is how I can briefly summarize the philosophical and psychological nature of counterfactuals viewed as a human's meaningful experience. From the epistemological perspective, it can be added that this "going" happens in and through reflected abstractions the experiencer acts upon when she cannot organize and cohere new experiences the way in which they direct her sensorimotor living. To be more exact, the experiencer finds no satisfaction in anticipating further living, the value she gives to the experience is "too" negative or positive to predict anything else, so the experiencer isolates the direction ("further") from the living and turns it upon itself in an act of reflection as a result of which her living is experienced apart from its natural direction. Mental reversion occurs in refocusing the attention on earlier experiences and on their direction, though re-organizing both. This mental reversion is lived as a new meaningful experience, makes new sense, and produces structural changes in the experiencer. This form of experience construction we could describe as *non-linear counterbalancing* that occurs when *our attentional direction counterbalances our intentional direction in experience construction.*

« 71 » Thus, I have approached irreality on the very same cognitive level as reality: as

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a dynamic phenomenon of our life that does not take place without our interacting in language, i.e., attentionally driven abstractions from, and reflections upon, the sensorimotor functioning of our body. By constructing irreality, we do not simply make a counterfactual statement by cohering linguistic abstractions grammatically, we create a new experience by cohering perceptual distinctions and focusing our attention on them in a special way. We may conclude that irreality is the same form of enacting the world as reality but involving special attentional work and a higher level of abstraction.

« 72 » This allows me to suggest that any further linguistic analysis of counterfactuals could be done in terms of experiential methodology, which will probably mark the beginning of *experiential linguistics*, a new discipline across enactivism and constructivism to be concerned with language patterns as experiences happening to and in us through our changing relations.[6]

Acknowledgement

6| Cf. the analysis of euphemisms and dysphemisms as purely relational phenomena which, when treated in isolation, outside their experiential context, do not make much sense (Fomina 2020).

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