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# Embodied cognition, narrative, and the self

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**Abstract** *The purpose of the paper is to outline a way to approach the narrative constructing of the self from the view of embodied cognition theory. Narrative is an indispensable element to live our lives because the self is a product of embodied narrative. I draw a theoretical route to embodied narrative self by showing how the theory of embodied cognition can contribute theoretically to secure the notion of the narrative self. The paper proceeds as follows. In chapter two, I introduce a No-self argument, the Astonishing hypothesis, from neuroscience and examine its problems. In chapter three, I consider the theory of embodied theory as a candidate that gives an alternative prospect of the self. In chapter four, I consider two theories of narrative self: theories of J. Bruner and A. MacIntyre. After examining the theories, in chapter five, I examine the frame of G. Lakoff that shows the structure of narrative.*

**Keywords** *narrative, no-self argument, Astonishing hypothesis, enactivism, narrative self, sense making, frame*

## 1. Introduction

What is the self? There are many theories that aim to give its own

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answer to the question and, as a result, there are considerable disputes among those answers. Contemporary scientific community has been split into the two camps concerning the scientific legitimacy of the notion of self: the realist camp and anti-realist camp. The realist camp contends that the self has an experiential reality and the anti-realist camp argues that it is nothing but a theoretical entity or even illusion. For example, Damasio as a realist argues that the sense of self is an integral part of consciousness, so it has to be taken into account in the ongoing search for the neural correlates of consciousness (153-155). Metzinger as an antirealist contends that it is not necessary to assume the existence of the self, since it is a theoretical entity that fulfills no indispensable explanatory function (303).

The situation is almost the same in philosophy. There is no consensus about what it means to be a self, so we find the proliferation of notions of the self, such as material self, social self, spiritual self, cognitive self, embodied self, fictional self, and narrative self, etc. In a sense, from the disparity we feel that there might be a route to combine various notions of the self, so it is necessary for us to take interdisciplinary approach to the self in order to understand it properly. It is a morale coming from the history of investigating the self.

The purpose of the paper is to outline a way to approach the narrative constructing of the self from the view of theory of embodied cognition. Narrative is an indispensable element for us to live our lives, for the self is a product of embodied narrative. I draw a theoretical route to embodied narrative by showing how the theory of embodied cognition can contribute theoretically to secure the notion of the narrative self.

The paper proceeds as follows. In chapter two, I introduce the No-self argument, the Astonishing hypothesis of F. Crick from neuroscience, and examine its main problems. In chapter three, I consider the theory of embodied cognition as a candidate that gives an alternative prospect of the self. In chapter four, I consider two theories of narrative self: theories of J. Bruner and A. MacIntyre. After examining the theories, in chapter five, I examine the frame of G. Lakoff that shows the structure of narrative.

## 2. No-self argument

The self is a key notion in the fields that deal with human beings including philosophy and psychology. However, most contemporary neuroscientists armed with reductive physicalism contend that cognition is the behavior of the brain, so it can be explained by the interactions of nerve cells and the molecules associated with them and, especially, there is no neuroscientific evidence for the existence of the self. We can hear a voice that represents the neuroscientific claim in F. Crick's Astonishing hypothesis.

“You”, your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules. ... “You” are nothing but a pack of neurons. This hypothesis is so alien to the ideas of most people alive today that it can truly be called astonishing (Crick 3).

Why is the Astonishing hypothesis so surprising? Because, according to Crick, most people have the wrong understanding and thought, which has the three reasons (8). The first reason is our reluctance to accept the reductionist approach. The reductionist approach tries to explain the self by a most fundamental theory, neuroscience, but most people thinks that the self should be studied and explained in the upper level than neuroscience, such as psychology and philosophy. Crick defends his reductionism by arguing that it is ‘the main theoretical method that has driven the development of physics, chemistry, and molecular biology’ (Crick 7-10).

The second reason is our wrong understanding of consciousness that the nature of consciousness has very subjective property, so it cannot be explained by the reductionist approach. Qualia is a typical example. Chalmers discriminates the two problems of consciousness: easy problem and hard problem (200-202). The easy problem of consciousness is the problem that can be explained computationally or neuro-mechanically through the standard research methods of cognitive science. In contrast, the hard problem of consciousness cannot be explained by the standard research methods of cognitive science. According to Chalmers, the hardest problem is the problems about the

phenomenal consciousness, which are related to the subjective feeling that is experienced along with neuronal process when we experience something (201).

It is qualia or *something it is like* (Nagel, 1974). Crick's response to the criticism is that we can explain the subjective experience by discovering the neural correlate of the experience. That is, "you perceive red if and only if certain neurons (and/or molecules) in your head behave in certain way" (9).

The third reason is our belief in free will. We feel that our will is free. About the criticism from free will, Crick considers the possibility that we can find neural correlate of free will. If it is not the case, then it will be strong evidence that the free will does not exist. Even if it is, it does not guarantee that the will is free, because there is a possibility that free will is not a reality but just an appearance. Crick could have cited a stronger experimental result such as B. Libet's experiment to show that there is no free will.

Since it is not the purpose of this paper to criticize Crick's Astonishing hypothesis itself, let me briefly point out the fundamental problems of his arguments. First, the reductionist approach that Crick advocates is the methodological reductionism. There are three kinds of reductionism. (a) The ontological reductionism that the whole of reality consists of many parts, (b) the methodological reductionism that we should give explanation of a reality in terms of its parts, and (c) the theory reductionism that an older theory should be reduced to a newer theory in forms of translation, derivation, and explanation. Now, it is clear that the truth of methodological reductionism largely depends upon the truth of ontological reductionism. If the whole of reality is not composed a minimal number of parts, then the Crick's reductionist approach does not make sense.

Though Crick argues that methodological reductionism is the main theoretical method in science, it might be true only in physical science, or there is strong evidence that his reductive approach cannot hold in biological and life science. For example, Campbell criticized ontological reductionism and argued that we need non-reductive principles in order to explain the biological system in the evolutionary perspective (180).

He suggested two principles: emergentist principle and downward causation. *The emergentist principle* holds that biological evolution in its meandering exploration of segments of the universe encounters laws, operating as selective systems, which are not described by the laws of physics and inorganic chemistry, and which will not be described by the future substitutes for the present approximations of physics and inorganic chemistry. Principle of *Downward causation* says that where natural selection operates through life and death at a higher level of organisation, the laws of the higher-level selective system determine in part the distribution of lower-level events and substances. Description of an intermediate-level phenomenon is not completed by describing its possibility and implementation in lower-level terms. Its presence, prevalence or distribution will often require reference to laws at a higher level of organisation as well.

The non-reductionist approach of Campbell strongly conflicts with the reductionist one of Crick that “the study of consciousness is a scientific problem” (257). I examine another reason that Crick’s approach is not appropriate by considering the theory of embodied cognition in the next chapter.

Second, Crick suggested the neural correlate theory as an intermediate theory for achieving the goal of discovering causation in neural states or events. Neural correlates were found in the 40-Hertz oscillations in the cerebral cortex (Crick and Koch 270-271). However, Crick abandoned the theory and argued that the main function of synchronization is not combining the perceived properties of a thing, but helping the combination in the competition for being consciousness (Crick and Koch 122). Now, it is evident that a strong theoretical basis to support Crick’s reductionist approach has disappeared. Of course, reductionists can develop another theoretical basis for backing up their approach, but it is not clear how they can do it.<sup>1</sup>

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<sup>1</sup> They can adopt eliminative materialism by Paul M. Churchland (1989) and Patricia S. Churchland (1986). Still, it is not clear in the case how to explain the self that is experienced phenomenologically.

### 3. Embodied cognition

The theory of embodied cognition understands the mind, cognition, and consciousness in relation of the body, the brain, and the environment. Cognitive science has been dominated by cognitivism since its inception in 1970s. According to cognitivism, cognition is computation over inner symbolic representations. It has been turned out that cognitivism has some fundamental problems and limitations as a theory of cognition. For example, one problem is that the physical symbol system cannot process the meaning of symbols manipulated computationally. The system processes the symbol syntactically but not semantically, so the symbols are not grounded semantically in physical world (Searle 417-419). Another problem is that cognitive system consists of module systems as well as central system. The problem is that the latter does not work in a modular way, so the upper level of cognition such as thought and inference does not have the modular characteristic, which means that the cognitive science depends upon the modularity thesis cannot explain the cognition properly (Fodor, *The Modularity of Mind* ; Fodor, *The Mind Doesn't Work That Way: The Scope and Limits of Computational Psychology*)

In this situation, cognitive neuroscience emerges a research program of cognitive science since 1990s. A characteristic of cognitive neuroscience is the neuro-centralism that the brain is the center or the main organ for cognition, so we can explain cognition only by studying the neural system including the brain. The reductionist approach of Crick is a typical example of the neuro-centralism. Cognitivism and cognitive neuroscience share a common postulate that cognition works in, or within, the brain, so there is no need to consider the body or environment in which the body lies.

The theory of embodied cognition started from the recognition that cognition is not a computational process and that it is not confined in the brain. So, the theory in essence prefer to meaning externalism. The theory of embodied cognition is another research program in cognitive science since 1990s. According to the theory, cognition is process or event emergent from the dynamic relation among the brain, the body, and environment. Currently, the theory of embodied cognition covers

various theories: It compasses the 4Es(embodied cognition, embedded cognition, extended cognition, enactive cognition) as well as situated cognition, distributed cognition, and the dynamic theory.<sup>2</sup>

The argument that the cognition is embodied has to be understood ontologically and epistemologically. Ontologically, it means that cognition is made in the biological base of the brain and the nervous system. Epistemologically, it says that the body's function has to be considered in order to fully understand the cognition. Because of this characteristic, the theory of embodied cognition contrasts with substance dualism that strictly separates the body and mind, or physicalism that considers the two as equal. The theory of embodied cognition emphasizes the role of environment where the mind and the body co-work and interact. If the body plays an important role in the process of cognition, then it is natural to think that the environment in which the body lies and works also plays an important role. Human as a biological being has evolved by dispersing the information processing process because it has limited cognitive capability. A primary function of the human nervous system is to process perception and kinetics and most of cognitive activities have evolved from immediate interaction with environment. The theory of embodied cognition focuses on how the sensory movement capability successfully interacts with the environment and explains how the brain, the body, and environment interact and mutually affect each other and increase the adjustment as life forms.

Now, let me consider enactivism (or the theory of enactive cognition) as a proper candidate that furnishes a basis for the narrative self. A main feature of enactivism is that it understands cognition in terms with action. The theory starts from F. Varela's research and has established itself as a cognitive theory through the monumental co-work of F. Varela, E. Thompson, and E. Rosch (1981). Enactivism criticizes the two key pillars of cognitivism, computation and representation, and argues to see cognition as *embodied action*. There are three theories of enactivism: autopoietic enactivism, sensory-motor enactivism, and

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<sup>2</sup> M. Rowland's work (2010) is a good introduction to the theory of embodied cognition. For the conceptual map of theories covered by the embodied cognition, see Young E. Thee (2021), pp. 123-172.

radical enactivism. Let me examine the autopoietic enactivism because of the space limitation.

The meaning of the embodied action is well illustrated in the following quotation:

By using the term embodied we mean to highlight two points: first, that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context. By using the term action we mean to emphasize once again that sensory and motor processes, perception and action, are fundamentally inseparable in lived cognition. (Varela, Thompson, and Rosch, 172-173)

As is seen in the expression of ‘mind in life’ (Thompson 128-164), autopoietic enactivism emphasizes the relation between the mind and life. The notion of autopoiesis is a key notion of autopoietic enactivism, which originally was devised to answer the questions such as what the organizational principle of living systems is or how the principle determines the phenomenality of organisms including reproduction and evolution. A typical example of autopoietic system is a living cell. Autopoietic system is autonomous and homeostatic system that has the autopoietic principle as a fundamental factor that maintains self-identity.

Now, we can summarize the enactive system as follows. (a) organisms are autonomous agents that actively generate and maintain their identities, (b) the nervous systems are autonomous system, and (c) cognitive structures emerge from the recurrent sensorimotor couplings of body, nervous system, and environment.

Recently, some enactivists have argued that the basic nature of life is sense making. For example, de Haan defines sense making as an organism’s evaluative interaction with its environment. “Sense-making is an activity, a temporally extended process that cannot be understood in static terms. It is an environmentally and temporally situated process that is a) essential to life, b) implies values, and c) is affective” (De Haan, *An Enactive Approach to Psychiatry, Philosophy, Psychiatry, &*



*Psychology* 7). De Haan emphasizes that living requires sense-making and discriminates two types of sense making: basic sense making and existential sense making (8). The basic sense making is an activity for maintaining autopoietic systems such as exchanging matter and energy with their environment and distinguishing what supports and what thwarts their existence as well as some sense of their own biological needs. The existential sense-making is the explicit reflexive sense-making of oneself, one's situation, or others for a good life. According to de Haan, the status of life can be transformed from the being in organism-environment to the being in person-world interactions by pursuing the sense making, that is, by taking existential stance for a good life (9). The notion of sense making suggested by de Haan is a bridge that connects the embodied self with the notion of the narrative self as the outcomes of narrative process of meaning construction, which will be discussed in the next chapter.<sup>3</sup>

#### 4. Narrative self

From the enactivist point of view, the main functions of the self are:

- To maintain one's identities
- To guide one's actions
- To make efficient couplings of nervous system, body, and environment

As Niles (1999) nicely express, humans are *Homo Narrans*. Humans enjoy oral narratives and they, in a sense, eat them and live with them. There are many theorists who have acknowledged the importance of narrative for humans. Typical example are MacIntyre (1981) and Ricoeur (1984) in philosophy, Brunner(2002, 2004) in psychology, D. Dennett(1986), M. Johnson(1993), G. Lakoff in cognitive science, and A. Damasio(1999, 2010) in neuroscience. Let me examine the two

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<sup>3</sup> The notion of sense making can be applied to psychiatry and mental disorders. De Haan defines the mental disorder as disorder of sense making. But her theory of enactive psychiatry(2002a) does not give explanation to its causal mechanism that is needed for therapeutic use and downward causation. For the matter, see Young E. Rhee (2022).

theories, the theory of Brunner and the theory of MacIntyre.

#### 4.1 Brunner

Narrative refers to a form of discourse in our lives, in which we organize, account for, give meaning to, and understand our lives. It gives a structure and coherence, to the circumstances and events in our lives, to the fragments of our experiences, and to our self-identities, for and with ourselves and others.

For Brunner, narrative is more than storytelling: it is a reflexive two-way discursive process, because it constructs our experiences and, in turn, is used to understand our experiences. Narratives are created, experienced, shared, and consumed by people in conversation and action with one another and with the self. Hence, they are the ways we relate to others and ourselves through it.

Bruner suggests that children learn at an early age to organize their experiences narratively through the stories they hear and learn to tell. According to him, “it[narrative] mediates between the canonical world of culture and the more idiosyncratic world of beliefs, desires, and hopes” (*Acts of Meaning* 52). Brunner thinks that narratives play an important role in creating our understanding of ourselves and of the community. In other words, constructing meaning is the fundamental characteristic of our mind. Bruner defines his approach to narrative as *the constructivist approach*: “a view that takes as its central premise that ‘world making’ is the principal function of mind, whether in the sciences or in the arts”. (*Life as Narrative* 691).

Narratives link our current status to past events and future actions. There are two types of narrative. One type of narrative is autobiography, which is a story about oneself. Another one is the narratives about others. As we organize other’s actions in stories, we construct theories of their minds, of why they do what they do. The theory is called as folk psychology in philosophy or theory of mind in psychology. According to Brunner, folk psychology is a basis of narrating others. Hence, narratives are, inevitably, subjective in that they internalize reality and interpret reality from the vintage point of the self (*Acts of Meaning* 113-114).

Bruner discriminates three properties of narrative (*Acts of Meaning* 43-50). The first property is its sequentiality that a narrative is composed of a unique sequence of constituents such as events, mental states, and happenings. The important thing is that the meaning of those constituents is not given by their own, but by its plot that specifies their place in the overall sequence. The second one is its indifference to extralinguistic reality that a narrative can be real or imaginary for it is the sequence that determines the its plot. The third one is its uniquely managing departure from the canonical, which gives an account of the exceptional and extraordinary in a manner that mitigates, makes possible, or at least comprehensible, a deviation from a standard cultural pattern.

Narrative self has cultural characteristic as follows:

Selves are not isolated nuclei of consciousness locked in the head, but are “distributed” interpersonally. Nor do Selves arise rootlessly in response only to the present; they take meaning as well from the historical circumstances that gave shape to the culture of which they are an expression” (*Bruner, Acts of Meaning* 138).

In sum, narratives of the self and other determine who we are or who we or others think we are. Selves are the outcomes of narrative process of meaning construction.

## 4.2 MacIntyre

MacIntyre contends that our utterances are not really understandable unless we can place them in narrative contexts and that personal identities must have a narrative structure. Our actions are episodes in stories, not least in our own personal stories. Every action cannot be given an identity unless it is placed within an agent’s biography. Further, even if we can theoretically doubt the unity of our personality, other people do not doubt this unity. For we can for instance be held responsible for actions we did a decade ago. This can only happen because others regard us as having a narrative totality.

MacIntyre describes the narrative context of our self-understanding and our action as follows:

Man is in his actions and practice, as well as in his fictions, essentially a story-telling animal. he is not essentially, but becomes through his history, a teller of stories that aspire to truth. But the key question for men is not about their own authority; I can only answer the question 'What am I to do?' if I can answer the prior question 'Of what story or stories do I find myself a part?' We enter human society that is, with one or more imputed characters - roles into which we have been drafted - and we have to learn what we are in order to be able to understand how others respond to us and how our responses to them are apt to be construed (MacIntyre 216).

MacIntyre uses an example inspired by A. Dumas' famous novel *The Count of Monte Christo* (217-218). Its protagonist is in a certain context described as 'the prisoner of Château d'If' and in another context 'the Count of Monte Christo'. To understand that we are talking about the same person means that we can recount a story about how this person can be characterized in two completely different ways under different circumstances. In this fashion, a person's identity is precisely the same type of identity presupposed of a character in a novel or a play. This unity is in turn a function of the unity of the narrative. Thus, persons are abstractions from narratives.

MacIntyre regards a moral agent as a character in, and coauthor of, an enacted experimental narrative. An agent is born into a web of narratives, and he must define his own end(*telos*) by means of a narrative quest. Hence, the ultimate human end is this kind of activity of questioning for narrative unity, and thereby pursuing some notion of good. Actions, in turn, can have identity and meaning only within the context of such socially constructed narrative complexes.

MacIntyre also emphasizes the central importance of narrative as the fundamental form for the fullest explanation of an action. He argues that actions presuppose setting, settings have histories, and history is irreducibly narrative.

We cannot, that is to say, characterize behavior independently of intentions, and we cannot characterize intentions independently of the settings which make those intentions intelligible both to agents themselves and to others. I use the word 'setting' here as

a relatively inclusive term. A social setting may be an institution ... But it is central to the notion of a setting ... that a setting has a history, a history within which the histories of individual agents not only are, but have to be, situated, just because without the setting and its changes through time the history of the individual agent and his changes through time will be unintelligible (MacIntyre 206-207).

Narratives are fundamental in making our actions, motives, and thoughts intelligible. Hence, we need narrative explanation in order to give explanation of the historical character of actions and their settings.

## 5. Structure of narrative

So far, I have argued why it is necessary to start from the theory of embodied cognition in order to understand the self and the self is the outcome of our narrative as meaning construction. What has become clearer from the previous discussion is that without considering the narrative we cannot understand properly the self and the related subjects such as our identity and actions.

Now let me consider the structure of narrative. Classical narrative structure is composed of exposition, climax, and resolution. There are many theories on the structure of narrative, which are not my concern here. Rather, I want to explore more interdisciplinary theories that fit to the previous discussion.

Lakoff contends that there are two kinds of narratives, simple narrative and complex narrative and that the structure of complex ones is frames or scripts.

Complex narratives - the kind we find in anyone's life story, as well as in fairy tales, novels, and dramas - are made up of smaller narratives with very simple structures. Those structures are called "frames" or "scripts" (Lakoff 22).

Frame is a cognitive structure that we think with. For example, when we hear a tragic news, there is a typical frame with various kinds of characters and a scenario about the course of the tragic accident. Lakoff

describes how neural circuitry of the brain creates frames structures.

Simple narratives have the form of frame-based scenarios, but with extra structure. There is a Protagonist, the person whose point of view is being taken. The events are good and bad things that happen. And there are appropriate emotions that fit certain kinds of events in the scenarios (Lakoff 23).

Narrative is a special case of frame. In order to see how we can parse the meaning according to its function in several narratives, consider the case of tax relief (Lakoff 234-235).

(a) Rescue narrative

Semantic roles

Victim (helpless, innocent), Villain (evil), Villainous Act (harmful), Hero (good)

Scenario

(Start a) Villain harms Victim;

(Central a) Hero struggle against Villain;

(Finish a) Hero defeats Villain;

(Final State a) Victim is Rescued, Hero Rewarded, and Villain Punished.

(b) Affliction narrative

Semantic roles

Affliction (Negative State), Afflicted Party, Affliction-Cause,

Reliever, Relief (Positive State)

Scenario

(Start b) Affliction-Cause causes Affliction to Afflicted Party;

(Central b) Reliever works against Affliction-Cause;

(Finish b) Reliever relieves Affliction for Afflicted Party;

(Final State b) Afflicted Party gets Relief, Reliever is Praised,  
Affliction-Cause is Thwarted.

(c) The Bindings for Rescue-from-Affliction

Victim = Afflicted Party, Villain = Affliction-Cause;

Villainous Action = Causing Affliction; Hero = Reliever, Rescue = Relief;

Reward = Praise for Relieving Affliction; Punishment = Affliction-Cause is Thwarted;

Start a = Start b; Central a = Central b; Finish a = Finish b;

Final State a = Final State b.

Here we can see that the word ‘relief’ is defined relative to a complex frame made up of two parts and a neural binding linking them into a single whole. According to Lakoff, ‘Rescue’, ‘Affliction’, ‘Narrative’, and ‘Rescue-from-Affliction’ are all names for some neural circuits controlling the activation of those frames.

## 6. Concluding remarks

I have explored how the theory of embodied cognition, especially enactivism, contributes to understand the narrative self by showing that the self is creative construction of narratives as meaning construction or sense making and that the narrative selves have fame as their common structure. Narrative provides the most comprehensive route for understanding the temporal dimension of selfhood and action, which is capable of explained in the point of embodied and enactive cognition. If it is true that enactivist approach to the narrative self is theoretically well-grounded, then we can apply it in understanding the mental disorders, which is a case a disorder of meaning construction or sense making.

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