

INTERDISCIPLINARY DESCRIPTION OF COMPLEX SYSTEMS

Scientific Journal

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LIST OF REFEREES

The following scholars, listed in alphabetic order, refereed manuscripts for the journal INDECS in period from November 2016 to December 2017:

Tomaž Brajljih	Igor Pihir
Chayan Chakrabarti	Kornelije Rabuzin
Jelena Ćosić Lesičar	Janos Simon
Nikša Dubreta	Božo Skoko
Florian Klauser	Toma Strle
Mira Krpan	Dániel Tokody
Olga Markič	Bogdan Valentan
Gyula Mester	Violeta Vidaček Hainš
Irena Palić	Jovana Zoroja
Mirjana Pejić Bach	

Their contribution to the quality of the Journal's content is acknowledged.

Zagreb, 27th December 2017

Josip Stepanić

INDECS AWARD

Dear authors of articles published in Vol. 14 of the journal INDECS,

the contest for the INDECS award, INDE7CSA 2017, choosing of the best article published in INDECS during 2017, i.e. in Vol. 15, is opened.

You, the authors of articles published in INDECS Vol. 14, i.e. in 2016, and the members of the INDECS' Editorial Board, are the voters. Each and every one of you contributes with one vote.

Propositions for the INDECSA are available from the web site of INDECSA, <http://indec.eu/index.php?s=indec>.

I would like to ask you to give your vote to the article which you consider to be the best among the articles published in the year 2016.

The votes will be collected till 31st January 2018 and the results will be presented in INDECS 16(1).

Cordially,

Zagreb, 27th December 2017

Josip Stepanić

EDITORIAL THEMATIC ISSUE *REFLECTIONS ON CONSCIOUSNESS*

The present thematic issue of INDECS is dedicated to cognitive science, especially to the rapidly growing field of consciousness research. Some of the contributions were presented in shorter version at the International multiconference Information Society (2017 and 2016), that is traditionally held in October in Ljubljana, Slovenia.

The authors of the selected articles tackle some of the many different aspects of the scientific study and understanding of consciousness. In the first article, Jamnik and Žvelc study whether and how changes in assuming power poses influence the perceived power hierarchy. The next two articles are concerned with empirical phenomenology and first- person approaches, exploring the phenomenology of belief (Klauser) and the phenomenological richness of pre-reflective awareness (Lipič and Kordeš). Lozar addresses the negative judgements of Edmund Husserl and Martin Heidegger, two founding fathers of phenomenology, on natural science. In the last article, Markič explores two ways of active externalism and discusses the hypothesis of extended cognition based on the complementary principle.

The articles in this issue exemplify many approaches one can take when tackling the question of consciousness, and we hope they serve both to broaden horizons and deepen understanding.

Ljubljana, 27th December, 2017

Editors

Florian Klauser

Urban Kordeš



THE EMBODIMENT OF POWER AND VISUAL DOMINANCE BEHAVIOUR

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ABSTRACT

The objective of this study was to identify whether the changes in assuming power poses during a conversation between a pair of individuals, who were previously familiar with each other, influence the hierarchy of power, changes in it, as well as maintenance and adoption of different roles in the hierarchy. We assumed changes in roles of power on the basis of changes in visual dominance behaviour, which proved to be a reliable indicator of the social power of the individual in previous researches. Each pair conversed on predefined topics three times for three minutes. By placing individuals in a neutral or expansive posture, the purpose of which was covered by the use of a cover story, we created a difference in nonverbal expression of power between the two individuals. In the first conversation, both individuals adopted a neutral pose. In the second conversation, one individual adopted an expansive posture, while the other remained in a neutral one, and vice versa in the third conversation. Interactions were filmed with two cameras, which enabled us to analyse nonverbal behaviour. The results show that the differences in displays of power with expansive body postures between individuals are not associated with changes in visual dominance behaviour of individuals. From this we conclude that in the relations in which the social hierarchy of power is already established, the use of power poses does not help increase the power of the individual who adopts the posture.

KEY WORDS

social power, embodiment, visual dominance behaviour

CLASSIFICATION

JEL: C79, C90

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INTRODUCTION

Hierarchy in its various forms is one of the most fundamental characteristics of social relations. Even when different models of organisation minimize the hierarchy, it is never completely absent. It inevitably occurs between and within groups and it is always possible to determine the position of a particular person in the social hierarchy with respect to the remaining persons in the group [1, 2]. Hierarchical differentiation is the process of establishing a hierarchical form of social relations. On the one hand, hierarchy may be the result of participating in formal systems with certain hierarchical positions, but different roles may also form in informal interactions spontaneously, by either individuals or groups [2].

The impression or assessment of the power and status that an observer or participant of a particular interaction gets about the power of other individual(s) may be based on their knowledge, for example, of the person's position in the hierarchy, their status, personality or competence. In cases when a relationship is not defined with a formal hierarchy, perceived power may be based on the observed behaviour of the partner within the interaction [3]. The latter forms the basis of informal hierarchy. Observed behaviour, both nonverbal as well as verbal, and the characteristics of appearance, such as for example the formality of one's clothing, are especially important for creating an impression when people meet for the first time and do not know each-other [3].

Some symbols of power and status are evident and easy to notice, however, the hierarchy may also be expressed more subtly. One of the important channels of communication in social hierarchy is the nonverbal channel that serves to communicate and maintain hierarchy, often at the unconscious level [4]. People can accurately assess the differences in power and status between individuals based on nonverbal behaviour [5]. People enter into relationships with the unconscious desire for hierarchical differentiation [6, 7]. Tiedens and Fragale [7] argue that the establishment of a hierarchy in a relationship takes place automatically; people are often unaware of the process.

In interactions, a pattern of complementarity can be seen between dominant and submissive nonverbal behaviour or states. When one member of the interaction displays a dominant posture and takes up more space, the other person generally responds with a submissive, constricted posture without even realising it and vice versa. Thus, dominance invites submissiveness and submissiveness invites dominance. The participants in the interaction feel more comfortable when they take on complementary roles and perceive the partners as more pleasing than when the poses are mirrored [7].

The described behaviour occurs automatically without individuals being aware that they responded to the partner's posture. Similarly, adopting dominant and submissive postures influences the feelings about the partner and the interaction subconsciously. These patterns show how rapidly people experience feelings and behave in a way that supports and maintains status differentiation within a relationship [7]. In a recent study, Holland, Wolf, Looser, and Cuddy [8] presented subjects with static photographs of individuals in dominant and submissive positions. Participants looked at faces and upper parts of the bodies of individuals displaying dominant positions for shorter periods and less frequently compared to photos of individuals who displayed submissive positions. The results suggest that the complementarity of behaviour may also occur in terms of visual attention. The results of the study are limited, as the observation of static photographs is difficult to compare with a genuine personal interaction. Nonverbal behaviour, which research consistently shows as linked to social power, is represented by the visual dominance ratio (VDR) [9]. VDR is the ratio between the percentage of the time an individual looks at their communication partner

during listening and when talking. The formula, used by Exline et al. [9] to calculate the ratio of visual dominance, features the percentage of a person's looking time while listening in the numerator, and the percentage of looking time while speaking in the denominator, which makes the more dominant visual behaviour appear in a low ratio. Subsequent authors [10, 11] set the nominator and denominator the other way around, associating a higher ratio with more dominant behaviour. Our study follows the formula of later authors.

$$\frac{\frac{\text{time of looking while speaking}}{\text{total speaking time}} \times 100}{\frac{\text{time of looking while listening}}{\text{total listening time}} \times 100} = \frac{\% \text{ of time looking while speaking}}{\% \text{ of time looking while listening}}$$

Figure 1. Formula for calculation of the visual dominance ratio [11; p.6].

Differences in visual dominant behaviour correlate to several important traits: differences in dominance as a personality trait [9, 12], differences in military rank [9], perceived status of the other person [12], expertise [13], gender-related knowledge of the subject [14] and status in teams [11]. Dovidio and Ellyson [10] found that individuals interpret patterns of visual dominance with high reliability. In the study in question, both male and female subjects interpreted different patterns of visual dominance during interaction captured on videos as individuals having different social power. By increasing the time of looking at the conversation partner while speaking, the estimated power of the speaker increases, while looking at the conversation partner more while listening leads to a lower estimated power of the speaker. Dominant visual behaviour is complex and can result from differences in direct looks during speech, while listening, or both [12].

Nonverbal behaviour is not only a reflection of an individual's inner state, but can also have a significant effect on the formation and maintenance of inner states. Research has shown that emotional behaviour may at times be enough for feelings to occur [15-20]. In addition to emotions, non-verbal behaviour can also reflect a number of internal states or characteristics of an individual. One of the characteristics exhibited nonverbally in the form of so-called power poses or open, expanded body postures, is power. Carney, Cuddy and Yap [21] found that taking two power poses and holding each for a minute led to an increase in testosterone levels in contrast to low-power postures that lowered the levels of testosterone. Power poses lowered cortisol levels, while cortisol increased in case of low-power postures. Individuals who adopted expanded power poses in the afore-mentioned research reported feeling more powerful and displayed more risk-taking behaviour in gambling tasks. Expanded poses thus led to the subjects becoming more alike to powerful individuals at the hormonal level as well as the psychological and behavioural level. Carney et al. [21] argue that in certain situations when power is needed, people have the ability to pretend until they achieve it, or in other words *fake it till they make it*. In time, such minimal changes in posture and related changes may potentially improve overall health and well-being. Authors emphasize the importance of potential benefits for individuals who feel a chronic lack of power either due to lack of resources, low hierarchical position in organizations, or because they belong to low-status social groups. Cuddy, Wilmuth, Yap and Carney [22] find that adopting an expanded pose signalling power in comparison to adopting a submissive pose before a job interview affects the increase in the assessment of nonverbal presence during the interview. Nonverbal presence was assessed by the following variables: confident, enthusiastic, captivating and awkward (reverse-scored). Adopting an expansive or power pose before the interview, however, did not lead to adopting the pose during the conversation. Because of the latter finding and due to the fact that the assessment of nonverbal presence during the interview in the afore-mentioned study was defined as a sum of different, broad concepts, the research failed to provide a link between specific nonverbal behaviours and the adoption of expanded body postures.

More recent research calls into question the robustness of the effects of power poses. Ranehill et al. [23] tried to replicate the results of Carney et al. [21] and found that the participants who adopted power poses reported a higher sense of power compared to participants who adopted submissive poses, while there were no statistically significant differences in testosterone, cortisol, and financial risk between groups. There were some significant differences between the two studies: thus, for example, participants in the study by Ranehill et al. [23] received instructions for taking a power pose on a computer, they were informed about the purpose of the research and did not observe face images while displaying a power pose. With regard to the latter conditions, the study by Ronay, Tybur, van Huijsteevin at Morssinkhof [24] was the same as the study by Carney et al. [21], and found that there were no statistically significant differences in perceived power among individuals who adopted a power pose or those in a submissive posture. Moreover, there were no differences in risk-taking or levels of testosterone and cortisol. Davis et al. [25] found that adopting a power pose did not result in an increase in testosterone levels, reduced cortisol, or the reduction in the subjective sense of fear during exposure in individuals with social anxiety. Keller, Johnson and Harder [26] study, on the other hand, investigated how the participants' awareness of the purpose of adopting power poses affected study results. They found no differences in perceived power, risk-taking, or improved performance/hireability in a job interview, between individuals who adopted submissive vs. power poses, irrespective of the awareness of their purpose. In their study, Garrison, Tang and Schmeichel [27], even found that individuals who adopted power poses felt less powerful than those in poses that were more submissive. The latter study did not find any significant correlations between the display of power poses and risk-taking in a gambling task.

Previous research has not yet dealt with the question of whether displaying poses of power affects specific nonverbal behaviour. Another unanswered question that remains is whether power poses could result in increased power within the relationship. Some authors [21, 28] claim power poses to have a direct impact on psychological aspects of power, regardless of the actual role that an individual occupies within a relationship, which Cesario and McDonald [29] contradict. Regardless of their findings, the existing studies created the interpersonal context in which dominance and submissiveness takes place in a way that is quite distant from daily reality, i.e. by looking at images of faces, or by remembering or thinking about different events.

RESEARCH AIM AND HYPOTHESES

The main aim of our study was to broaden the understanding of the embodiment of power and shed light on the process of hierarchical differentiation within pairs. We wanted to observe the impact of power poses in real-life situations, i.e. a conversation between two individuals. Our aim was to answer two interrelated questions by manipulating the poses of individuals engaged in a conversation and by analysing nonverbal behaviour at the micro level. The first question was whether the adoption of expansive poses as nonverbal expressions of power influenced visually dominant behaviour. The second question was whether individuals could change the already established hierarchical differentiation by adopting power poses. According to previous studies, visual dominance behaviour can be seen as a robust indicator of power; we thus interpreted any changes in visual dominance behaviour as changes in the structure of power in the relationship. Schmid Mast [30] found that dominance in the relationship related to more speech in the relationship. Therefore, we also checked whether open, expansive body postures or power poses influenced the changes in the amount of speech.

H1: In neutral condition, with both participants adopting a neutral body pose, there would be no important differences in VDR.

Subjects in pairs were either acquaintances or friends of the same gender and approximately the same age. In neutral condition both subjects adopted a neutral body posture. Consequently, we hypothesized that the status differentiation would not be big enough for it to be reflected in changes in VDR between the two subjects.

H2: Subjects would exhibit higher VDR when adopting a power pose in comparison to a neutral pose.

We hypothesized that the adoption of power poses would lead to more visual dominance behaviour.

H3: Participants who adopted a power pose first would exhibit a higher VDR than their partners who would adopt a neutral pose at the time.

We hypothesized that adopting a power pose would hold a communicative role and influence the power relation within the relationship. Our hypothesis was that individuals displaying power poses would exhibit more dominant behaviour than their conversation partners in neutral poses.

H4: Participants in a neutral posture would exhibit a lower VDR when the conversation partner would adopt an expansive body posture (power pose) than when the partner adopted a neutral posture.

According to research findings, e.g. in the study by Tiedens and Fragale [7], dominant behaviour is characterized by complementarity. We anticipated that when subjects adopted power poses, their conversation partners in neutral poses would respond with less dominant behaviour that complemented the pose, and in our case result in less dominant visual behaviour.

H5: Subjects would exhibit a higher VDR when a neutral body posture was preceded by an expansive body posture (power pose)

Carney et al. [21] found that participants who adopted a power pose for 2 minutes exhibited a decrease in the level of cortisol and an increased level of testosterone 17 minutes after adopting a power pose. We hypothesized that the display of a power pose from the previous condition would still bear an influence on the participants when they returned to a neutral body posture as there would only be 2 minutes' difference between the two conditions.

METHOD

PARTICIPANTS

The study involved 22 people (14 men and 8 women). The average age of the participants was $M = 24,75$ year (with standard deviation $SD = 4,68$ year), the age ranged from 18,33 years to 40,25 years. We divided participants of the study into 11 pairs. Pairs were of the same sex, as gender affects the power distribution in relationships [31]. Among the first (with median $Mdn = 23,17$ year) and the second participants in pairs (with $Mdn = 25,08$ year), there were no statistically significant differences with regard to their age, $Z = -0,222$, $p = 0,824$, $r = 0,67$. Individuals in pairs were acquaintances, friends or classmates, as we were interested in potential changes in the already established power hierarchy. Each participant received a consent form for voluntary participation in the study as well as to be filmed during the study, where recordings would later be used for research purposes.

PROCEDURE

Cover story about the purpose of the study

In order to avoid bias due to the participants being aware of the research hypothesis, i.e. in order to avoid the manipulation of the independent variable (posture) in the study, we used a cover story about the measurement of psychophysiology similar to that used by Carney et al. [21]. We only pretended to be using instruments for measuring galvanic skin response, however, the participants were not aware of the fact during our experiment.

The purpose of the research was explained to the participants in the following words:

“I am examining the psychophysiological responses during dialogues. I am interested in the information exchange during the process and the psychophysiological changes that take place in the process. I am going to define the topic of your conversation. It is your task to try and develop as broad a discussion as possible about my statements. The statements I will make do not have a right or wrong answer; therefore, rather than trying to find a single answer, focus on the broadest possible reflection on the topic. Because of the generality of the statements, you are both equivalent partners. If you run out of topics for the conversation, you can talk about possible reasons why you ran out of topics. Since we only have one instrument for measuring skin conductivity available, we will conduct three consecutive series of dialogues. The first dialogue is going to take place without measurement, the other two with measurement. The dialogue without measurement is just as important, since it will allow us to eliminate disruptive factors in the subsequent analysis of the data. In order for psychophysiological measurements to be accurate, the arms need to be in line with the heart during measurement (as the sensor is going to be attached to the finger on one of your arms). Therefore, the arms of the person with the sensor on their finger will rest on the backrests of the empty seats next to them during measurements. In a few moments, you are going to move to the table where the dialogue is to take place. We will start with the condition without psychophysiological measurements. Due to the standardization of the procedure, both of you will sit with your hands in your lap. I will move behind the table with a barrier and after some time, I will announce the topic of the conversation. I am going to ring a bell to mark the beginning of your 3-minute dialogue. Your conversation lasts until the bell sounds again. We are going to record your conversation with two cameras so that we can link the information to the right person subsequently.”

Manipulation of body posture

By manipulating the postures that were either neutral or dominant (Figure 1), we established three conditions. The first condition was neutral-neutral (N-N), where both participants were sitting on a chair, their hands relaxed in their laps. In the condition of high-neutral (H-N), one person changed their posture into an expansive or dominant posture, under the pretext of psychophysiological measurements – the hands of the person were laid on the backrests of chairs next to them. In a neutral condition, the participants remained in the same posture as during the previous discussion, sitting straight on a chair with arms in their lap. In the third condition, participants' body postures were neutral-high (N-H) with regard to power, with the first and second participant changing positions. A person who was previously in a condition of high power was now in a neutral position, while the other participant switched from a neutral to high power body pose.

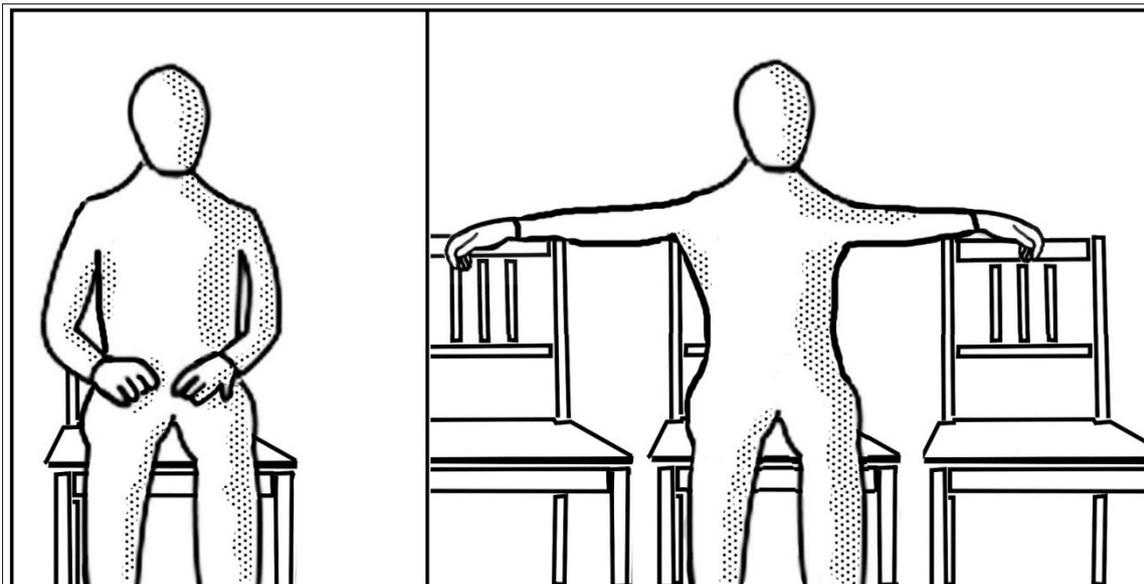


Figure 2. A sketch of a neutral body posture (left) and a sketch of a dominant posture (right).

The participants sat on chairs facing each other at a distance of about 1 meter. First, they were placed in a neutral condition (N-N). Each condition lasted about 5 minutes: two minutes of preparation followed by a three-minute discussion. According to research, two minutes should already lead to psychological and physiological changes due to a change in posture [21]. We gained those two minutes by taking the time to place participants in appropriate positions before the interaction started. After manipulating the posture, the researcher retreated to a table behind a barrier. After two minutes of manipulation, the participants were acquainted with the topic of the conversation and the researcher rang a bell to announce the beginning of the conversation. A three-minute discussion on topics followed. The topics allowed a broad discussion and had no predetermined right or wrong answer. The researcher asked the participants to try to develop as wide a discussion as possible based on the statements or questions. The researcher orally presented the following topics: “What does one need to feel happy?”, “Sometimes it is better to lie than tell the truth.”, “Internet brings people closer together.” The topics were given in the written order, one for each condition. We assumed that the open nature of the discussion would prevent one of the individuals to have more knowledge of the topic, which, according to studies, influences VDR [13, 14].

After three minutes of dialogue, the researcher rang the bell again and announced the end of the dialogue. The other two conditions (H-N) and (N-H) followed in a random sequence, and the participants’ body posture was manipulated in line with the assigned condition. Participants therefore started a dialogue in neutral positions, and in the conditions that followed one of the participants adopted an expansive posture followed a neutral posture, while the other participant adopted a neutral posture followed by an expansive posture.

The face of each individual in a pair was recorded with a camera during a 3-minute conversation. We produced three video clips for each of the participants, one for each condition. Video clips were imported into Adobe Premiere Pro CS3. For each condition, we synchronized the footage of the two participants and marked the beginning and the end of the interaction determined by the sound of the bell, which we used for this purpose during the study. In order to obtain relevant data for calculating the visual dominance ratio, we first divided each clip into three parts. The three parts consisted of: a) the period when the recorded participant was talking, b) the period when the recorded person listened to their conversation partner and c) the period of mutual silence during the conversation. We next

divided parts where participants were either speaking or listening according to whether they were looking at their conversation partner or not.

By adding and combining the times of the relevant parts of video clips, we obtained the following data for each person: the time each participant was speaking, the time the participant was looking at their conversation partner during speech, the time of listening to the partner, and the entire time of looking at the conversation partner while listening. The obtained results were then used to calculate the VDR for each condition.

To examine the potential effect of body poses on the proportion of speaking time, we calculated the speaking ratio for each of the participants in every condition. By combining the time the first and the second participant was speaking, we calculated the entire speaking time of the participant in the condition. We could thus calculate the proportion of the speaking time of the participant relative to the entire speaking time – speaking ratio.

RESULTS

Table 1. Basic descriptive statistic and paired t-tests of variables for our hypotheses. In all conditions $N = 11$. H stands for hypothesis, Con for condition, Pax for person. Poses are N (neutral pose) or H (power pose), and VDR means visual dominance ratio.

H	Con	Pax	Pose	Variable	M	SD	T	df	p	D
H1	1	1	N	VDR	0,636	0,265	-0,062	10	0,952	0,019
	1	2	N		0,643	0,233				
H2	1	1	N	VDR	0,636	0,265	1,072	10	0,155	0,323
	2	1	H		0,568	0,222				
H2	2	2	N	VDR	0,643	0,233	-0,666	10	0,264	0,198
	3	2	H		0,682	0,278				
H3	2	1	H	VDR	0,568	0,222	0,370	10	0,36	0,11
	2	2	N		0,604	0,192				
H3	3	1	N	VDR	0,622	0,279	0,217	10	0,416	0,065
	3	2	H		0,591	0,277				
H4	1	2	N	VDR	0,643	0,233	1,082	10	0,15	0,33
	2	2	N		0,604	0,192				
H5	1	1	N	VDR	0,636	0,265	0,280	10	0,382	0,084
	3	1	N		0,622	0,279				

Table 1. shows that there were no statistically significant differences in participants' VDR in any condition. We can thus conclude that the adoption of expanded poses did not lead to changes in visual dominance behaviour of participants in the power poses and their conversation partners.

To compare the speaking ratio of the first participant in the first (N), second (H) and third (N) condition, we used one-way analysis of variance for repeated measurements. Results show that there were no statistically significant differences in the ratio of speaking time $F(2, 20) = 0,011, p = 0,989$. To compare the ratio of speaking time of the second participant in the first (N), second (N) and third (H) condition, we used Friedman's test. The test revealed no statistically significant differences in speaking ratio between conditions $\chi^2(2) = 0,545, p = 0,761$. We were further interested in whether adopting power poses while speaking would lead to complementary behaviour. Pair t-test showed no significant differences in the first condition between the first ($M = 52,594, SD = 11,232$) and the second participant ($M = 47,043, SD = 11,284$) with regard to speaking time $t(10) = 0,819, p = 0,432, d = 0,247$. Similarly, there were no significant differences between the first ($M = 52,935,$

SD = 12,468) and second participant ($M = 47,064$, $SD = 12,467$) in the second condition $t(10) = 0,761$, $p = 0,453$, $d = 0,235$. For the statistical analysis of the third condition, we used Wilcoxon's signed-ranks test as the distribution of data about the other person's speaking ratio was not normal. In third condition, results showed no statistical differences between the first (Mdn = 55,170) and second participant (Mdn = 48,760) $Z = -0,356$, $p = 0,722$, $r = 0,107$.

DISCUSSION

Results of our study reveal four key findings: (1) in the condition with both participants in neutral poses, there were no statistically significant differences in the visual dominance ratio (VDR); (2) adoption of power poses did not affect changes in visual dominance behaviour of the participants in the posture; (3) displaying a power pose did not lead to complementary visual dominance behaviour of the other individual in the pair; (4) power pose did not lead to changes in the ratio of speaking time within the pair.

The study only confirmed the first hypothesis that predicted the absence of differences in VDR between two individuals when both adopted neutral postures. We deliberately included matching couples by age and gender in the research procedure. Discussion topics were general, which reduced the likelihood of one of the conversation partners having more knowledge about the topic. We related the latter aim to participants when giving instructions. Moreover, as the participants were instructed to adopt a neutral posture, the possibility of having large spontaneous differences in nonverbal expression of power was reduced. The results show that the first condition of the experiment enabled the establishment of equivalence in the power hierarchy between participants. There were no differences in visual dominance behaviour and the speaking ratio in the first condition. Thus, the first condition was an appropriate control for the following two conditions, where participants adopted expansive body postures (power poses).

Nonverbal communication is an interconnected system with changes in one dimension affecting other dimensions. A change in a single behavioural component in an individual may lead to compensatory behaviour of another individual, in either the same or another area [32]. The latter may explain why there were no changes at the individual level and at the level of the diad, contrary to our expectations in the second, third and fourth hypothesis. It is possible that power poses led to the participant's compensatory behaviour or such behaviour of their conversation partner in areas that we did not observe. The present study only observed visual behaviour and speaking ratio. Tiedens and Fragale [7] found that expansive body postures of participants invited the other participants to constrict the posture. In our study, there could have been some complementary response at the level of posture, however, the latter was not part of our examination. Additionally, power could have been expressed through other forms of behaviour, for example through specific facial expressions and speech characteristics that can be associated with an individual's dominance [33, 34].

Since there was no increase in visual dominance behaviour during the display of power poses in our study, we cannot confirm the fifth hypothesis related to the prolonged effect of power poses on visual dominance behaviour. We formed the hypothesis based on a study by Carney et al. [21], in which they found that a 2-minute adoption of a power pose led to a decreased level of cortisol and increased testosterone levels 17 minutes after taking the pose. Our results suggest that power poses do not lead to an increase in visual dominance behaviour, either during or after its display.

Ellyson et al. [12] found that a belief about a higher or lower status of an individual affects changes in VDR. Results of our research suggest that changes in body posture of participants do not correlate with changes in VDR of their conversation partner. It can therefore be

assumed that the mere expansion of the body posture is not enough for an increase in power status within the pair. Considering that we have studied changes in status differentiation in pairs where individuals knew each other, the finding seems reasonable.

In our study, the display of power postures was placed in an interpersonal context, which is one of the necessary conditions for influencing psychological processes [29]. At some level, people interpret their own and other people's behaviour depending on the context in which it occurs [35]. We should therefore also examine the context in our research. If a person spontaneously displayed an expansive body posture in everyday life, a possible interpretation of another person would be: "My conversation partner is dominant." However, when a participant in our study displayed a power pose, one of the possible interpretations would be "My conversation partner was ordered to display an expansive body posture." Such interpretation prevents the understanding of expansive body poses as power poses, as well as their ability to influence the structure of power within the relationship. In a study by Tiedens and Fragale [7], in which the complementarity of behaviour occurred, conversation partners of the study participants were in fact assistants who helped in the study. Participants of the study could interpret the assistants' deliberate display of expansive poses as spontaneous expansions of posture, while it is possible that the participants in our study did not interpret the poses the same way.

The simplest and most conspicuous interpretation of the absence of expansive postures' effect on the visual behaviour of participants is that expansive postures do not lead to an increase in power behaviours. Similarly, Cuddy's study [22] does not prove that adopting expansive body postures before an interview leads to an increase in nonverbal presence during the interview. In the study, Cuddy et al. [22] formed two groups of participants, a group that adopted a dominant/expansive posture, and a group that adopted a submissive/constricted posture. Differences in nonverbal presence and performance at a job interview between the groups do not prove expansive (power) poses' effect on nonverbal presence and greater success in the interview. Similarly, a recent study by Keller et al. [26] failed to confirm the display of power poses leading to better assessments of performance and employability. There is a growing body of research indicating that the adoption of power poses is not associated with changes in the level of hormones, subjective feelings and behaviour [23-25].

In addition to the aforementioned limitations of our study, it is worth noting our sample of participants was admittedly small and there were two additional potential limitations, the inclusion of a neutral pose and the behaviour of the experimenter. As pointed out by Cuddy et al. [22], studies of expansive body postures or power poses require a neutral condition. Neutral condition or neutral postures included in our study may be either a limitation or an advantage of our study. Cuddy et al. [22] state that it is theoretically and practically unclear how to establish a condition without power, i.e. a neutral condition. Bohns and Wiltermouth [36] thus reported finding no statistically significant differences between neutral and submissive postures when investigating the correlation between pain threshold and physical posture. Therefore, we cannot claim that neutral postures included in our study truly represented a neutral condition. It is possible that adopting a neutral posture with a conversation partner in an expansive posture, in itself, implies submissive behaviour. In case of the latter, our hypothesis about expansive body postures of one individual leading to a complementary behaviour of the participant in a neutral pose was based on false grounds, as a neutral pose in itself would have already satisfied the need for complementarity.

When considering the results, the role of the experimenter in the study should also be taken into account. The experimenter provided the instructions and the topics of conversations, determined participants' physical postures in different conditions, announced the end of the

conversation, etc. The experimenter's role could be seen to reflect characteristics of individuals with power. We need to ask ourselves whether an expansive posture can at all be interpreted as a power pose if the individuals display it instructed by another and in a certain way obey them. On the other hand, in the study by Carney et al. [21], the experimenter posed the participants in dominant and submissive postures through physical touch, and also gave the necessary instructions. Their study, however, found an effect of expansive postures on increasing the psychological and biological aspects of power, for example changes in risk taking behaviour and changes in testosterone and cortisol levels.

Our study results could contribute to a more critical questioning of the popular concept of the so-called *power posing* [21] that assumes a direct link between expansive body postures and acquisition of power within the relationship. With more than 43 000 000 views of the lecture by Amy Cuddy [37] on the TED webpage, the concept in question discussed in the lecture is currently one of the most popular concepts in nonverbal communication. Our study emphasizes the importance of context in which expanded poses are adopted; context may be the difference in the hierarchy of power, the behaviour of partners, intentional or spontaneous adoption of expanded body postures etc. Ignoring the difference between spontaneous and intentional adoption of power poses is one of the major points of our criticism directed at past studies [21, 22].

CONCLUSION

Our study examined the effect of adopting expansive postures on changes in the structure of power in existing relationships. Results of our study found no significant correlation between the changes in the adoption of power poses and changes in visual dominance behaviour. Moreover, the individual in the pair adopting power poses did not result in complementary visual behaviour of the other study participant. Based on our results, it can be concluded that adopting a power pose in relationships with an already established hierarchy of social power does not result in the change of power. Research examining the physical aspect of power is still in its early days, admittedly, and the existing body of literature is still scarce, hence it is still too soon to reach clear conclusions about the value and possible practical aspects of the phenomenon.

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BELIEF WITHOUT REPRESENTATION

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ABSTRACT

In this article, I set off to explore the question “What is belief?” from a first-person perspective. Finding the explanations in analytical philosophy insufficient, I delve into the phenomenological tradition – starting with Edmund Husserl’s concept of the horizon. In doing so, I find that the phenomenological tradition seems to contradict the presupposition of beliefs as representations. Directing my attention to finding an alternative explanation, I present Hubert Dreyfus’ explanation of learning without representations, but show that (by Dreyfus’ own admission) he does not truly take a decisive step away from representationalism. I present the idea of enaction as a proper alternative to representations. Within this new framework, I present the idea of sense-making as a potential direction towards an answer to the question at hand.

KEY WORDS

belief, representation, phenomenology, enaction

CLASSIFICATION

APA: 2340, 2380

JEL: D83, D84, Z19

INTRODUCTION

We tend to judge ourselves by our intent, we tend to judge others by their behavior.

Stephen M.R. Covey

Contemporary analytic philosophy understands belief as a propositional attitude – a mental state of having a certain attitude towards a proposition or the state of affairs described by the proposition, specifically, the attitude of regarding the proposition (or state of affairs) to be true. Beliefs are assumed to play a causal role in the production of behaviour. Indeed, many branches of analytic philosophy of belief deal primarily with behaviour (such as dispositionalism, interpretationalism and functionalism) and the criteria required in order to attribute belief to a behaving being [1] (most notable example of this being [2]).

The stance of analytic philosophy on belief (before behaviour) is varied, but what is commonly accepted is the representationalist assumption that in a believing being's head or mind there are representations with the same (propositional) content as the belief.

Accounts quickly diverge regarding what these representations look like. Beliefs (and their representations) are sometimes regarded as occurring in the form of sentences in an internal language of thought [2], but this proves problematic when considering the sheer number of beliefs (i.e. sentences) that would need to be stored within the mind [1]. To borrow Eric Schwitzgebel's [1] example: if I believe that our solar system has 8 planets, then I should also believe that it has less than 9 planets, and less than 10 planets and so on ad infinitum. This (easily generalizable) example alone would amount to an infinite number of sentences taking up an infinite amount of space in the believing mind. This problem is solved by introducing the term implicit belief, that is, a belief that is not explicitly represented in the mind, but can be swiftly derived from other beliefs [1]. It is sometimes suggested that beliefs are not linguistic at all, but instead take on a map-like structure [1]. This way, if I had simply a "map" of the solar system in mind, I need only look at that to determine there are 8 planets, and that there are less than 9, and less than 10, etc.

But is this map now a representation of a belief, or is it something else from which beliefs are formed? Is it fair to say that I've always had the belief that our solar system has less than 329 planets, despite this being the first time I have thought about this particular number? Is this belief represented somewhere in my mind or does it form only when I take this particular proposition into consideration? Seeing how these questions pertain to belief prior to any behaviour it (supposedly) spurs, it seems sensible to look within a working mind – not by analysing the behaviour of somebody else's but the intentions of our own. In order to try and find an answer, I turn towards the first-person perspective on belief, towards the phenomenological tradition.

In this article I very roughly sketch out some ideas from the field of phenomenology that might provide an account of, or at least some clues towards, what it is like to have beliefs. In order to home in towards an answer, this investigation touches upon many phenomena related to beliefs, such as knowledge, expectation, meaning, learning and others. However, quite early in this examination of a phenomenology of belief a problem with our presuppositions arises. Phenomenological accounts (most notably that of Edmund Husserl, on whose work almost all of phenomenology stands) presented in this article seem to suggest that the idea of perceiving belief as represented (or itself a representation) is incompatible with the first-person perspective. What is perhaps needed, then, before delving more seriously into the phenomenology of belief, is a different way of thinking about beliefs. As it happens, one such way arises from phenomenology itself.

HORIZON OF IMPLICIT BELIEFS

To begin with, let us look at an example of a phenomenological explanation of belief and its related phenomena. For this purpose, I present Husserl's concept of the horizon – a very broad concept that could not possibly be exhaustively explained in such a short article. I will therefore only attempt to provide a rough sketch that should communicate the gist of Husserl's idea.

Husserl usually describes the horizon in the context of experiencing a certain object. This experience of the object is “partly surrounded by a dimly conscious horizon of undetermined reality” [3; p.49]. The horizon, in this sense, is what we are co-conscious¹ of besides our experience of an object. As I² am writing this, my attention is on the screen and the letters appearing there as I type, but somewhere on the periphery of my attention (the horizon) is an awareness of my body, an awareness of the table and wall behind the screen, an awareness of the room behind me, etc.

In a somewhat similar sense, the horizon appears in Husserl's analysis of time consciousness. Gallagher and Zahavi [3] summarise Husserl's argumentation that experiencing is not made up of a series of consecutive discrete experiences. In order to experience temporal continuity, we need to in every moment be aware of moment before (what Husserl calls retention), as well as have some sort of anticipation of what might occur next (protention). This co-awareness cannot be, as Gallagher and Zahavi [3] stress, simply remembering what was or imagining what will be. Remembering and imagining are activities unto themselves and we do not perform them every waking moment. Gallagher and Zahavi [3] provide the example of hearing a melody. It does not occur so that I hear a note, that note completely vanishes from my conscious experience and then the experience of a new note appears. “Rather, consciousness retains the sense of the first note as I hear the second note, a hearing that is also enriched by an anticipation of the next note” [3; p.84]. My experience of the note E flat by itself is very different than when it is preceded by the note G three times (as they together make for the distinctive four-note motif of Beethoven's 5th Symphony). Upon hearing the E flat, I do not remember what it was like to hear the three Gs, rather, their experience still lingers as E flat rings. This co-experiencing of the passing shadow of the just past and an inkling of what is coming is what could also be understood as the horizon.

Furthermore, the importance of expectations in the horizon surpasses the scope of time consciousness. When experiencing an object, we have tacit expectations regarding further possible experiences connected with that object. For example, as I move to pick up a rock, I expect the rock to feel cold, to have a certain weight, a certain texture, etc. “When things go as expected, our current experiences ‘fulfill’ (erfüllen) our previous expectations When things do not go as expected, our experiences ‘frustrate’ (enttäuschen) our previous ‘expectations’ (Erwartungen)” [5; p.124]. If, when we do eventually pick up the rock, it turns out to be hot, or to be very light, or to be sticky, our expectations are frustrated – we feel surprise.

Our expectations of an object are tied to our knowledge – or “preknowledge” as Jeffrey Yoshimi [5] translates the German “Vorwissen” – of that object. Horizon expectations are thus based on type information [5]. What we expect of an object depends on our preknowledge of the type this objects belongs to. Oft quoted is Husserl's example of encountering a dog:

“When we see a dog, we immediately anticipate its additional modes of behavior: its typical way of eating, playing, running, jumping, and so on. We do not actually see its teeth; but we know in advance how its teeth will look – not in their individual determination but according to type, inasmuch as we have already had previous and frequent experience of ‘similar’ animals, of ‘dogs,’ that they have such things as ‘teeth’ and of this typical kind” [6; p.288].

Of course, type knowledge does not provide us with specific, discrete expectations about an object [5]. Picking up a rock, I do not expect it to weigh exactly 0,963 kilograms and have a surface temperature of 14,1 °C, rather my horizon expectations correspond to a range of possibilities. “Metaphorically, our tacit understandings are structured into what Husserl calls ‘leeways’ or ‘latitudes’ (Spielräume) of possibilities, which we can think of as ranges of possible further experience” [5; p.125]. My expectations are then that this particular rock will be about as heavy as rocks that size usually get and coldish to the touch. Only when our actual experience falls outside the range of expectations do we feel surprise – e.g. when the rock turns out to be feather-light or warm to the touch.

However, these ranges of horizon expectations are not set in stone. They change and adjust through the flow of new experiences – “the horizon is dynamic” [5; p.125]. If the rock does turn out to be lighter than expected, rougher than expected, warmer than expected, I adjust my perception of it (rather than staying paralyzed in continuous awe). It might turn out to be a piece of withered wood, so my horizon expectations adjust accordingly.

When my expectations are “frustrated” and I feel surprise, I usually consciously attend to whatever surprised me. This conscious turning towards has then consequences in the form of a horizon change. To quote Yoshimi [5]: “... this changes the way the object is for us. Our attentive activity leaves a ‘precipitate’ or ‘sediment’ (both are translations of Niederschlag) that changes the way we experience the object in the future” [5; p.127]. This description is reminiscent of learning in the sense of adjusting existing beliefs or acquiring new ones.

Related to the dynamic nature of the horizon is its dependence on the body – on my own bodily movements [5]. Backing up on my example with the rock a little, when I observe it from afar, I perceive it in a certain way. When I move my body to the left, my perception of the stone changes in a specific way; when I move to the right, it changes in another specific way. Husserl uses more mathematical language to describe this, describing the appearance of the object as a dependent variable relative to the independent variable that is bodily movement [5].

This, hopefully, captures the gist of Husserl’s concept of the horizon – a dynamic range of preknowledge and expectations that tacitly reside on the edge of our awareness. The tacit nature of the horizon is often stressed: “horizon expectations or intentions are not explicit: they do not involve actively thinking ‘here is what I expect’” [5; p.124]. As such, it might be arguable that the horizon could be comparable (though certainly not equatable) to the idea of implicit belief – an unarticulated presupposition of how the world is and behaves.

Does Husserl, then, also provide an account of what might be, on the surface, juxtaposed with explicit belief? While there is talk of explication, and it is, in a way, contrasted with the horizon, a correlation with explicit beliefs seems rather daring. According to Yoshimi [5], Husserl used the word “explication” (Explikation), when something “becomes my object of thought” [5; p.127] – though it should be noted that this does not necessarily involve exhibiting behaviour that might be observable from the third person, such as articulating a proposition, or even forming a proposition in a language of thought, just becoming aware of that something³.

However, this explication does not mean that a pre-existing implicit belief (or horizon expectation) is brought to the forefront. The horizon is not a shadowy realm of properly formed beliefs and directing our attention there does not illuminate these beliefs for what they were from the beginning. Rather, explicating means “we marshal together constituents of the embodied horizon structure to construct new forms of experiential object” [5; p.127]. Yoshimi [5] elucidates this with an example of approaching a door and having a sense of its width: “There was no dim version of the explicit thought ‘it is less than 5 feet wide’ before

we had that thought, though we would have previously been surprised were a 6 foot wide object to have been pushed through it” [5; p.127].

The notion that explicating something does not mean illuminating something that was there before, but creating something new from what was there, warps the idea of representationalism, which perceives beliefs to be, roughly, propositions stored somewhere in the mind. Delving deeper into what that might look like from a first-person perspective, phenomenologists seem to propose that what is stored are not ready-made propositions, but gists, notions, and feelings from which propositions are formed ad hoc, if at all. Perhaps the idea of ready-made representations stored within the mind ought to be relinquished, as Gallagher and Zahavi remark [4; p.17]:

“if a subject is asked ‘Do you believe that p?’, the subject does not start searching in her mind for the belief that p. Rather, she straightforwardly considers whether p is or is not the case about the world. So too, in regard to perceiving the world, the perceiver does not have to introspect for perceptual representations in her mind; she can say what she perceives simply by consciously perceiving the world. If you were asked whether it is raining outside, you would look out the window rather than inside your mind”.

COPING WITHOUT REPRESENTATIONS

A move away from representations is also proposed by Hubert Dreyfus [7] in his explanation of skill acquisition, which he illustrates with examples of two hypothetical adults acquiring a skill through instructions, one learning to drive a car (a motor skill), the other learning to play chess (an intellectual skill). He divides the learning process into five stages, with the first stage (novice) still relying on representations such as the verbalized instruction “shift to second gear when the speedometer needle points to ten miles an hour” [7; p.368]. Novice drivers (and beginner chess players) are notoriously slow, as they have to constantly remember (recall the representations of) memorized rules for how to perform the corresponding tasks. In the descriptions of the following stages, Dreyfus [7] presents a slow departure from the dependence on propositional representations. He presents an example of an advanced beginner, in addition to looking at the speedometer, uses engine sounds (that cannot be simply articulated) to determine when to shift. At the third stage, there are simply too many rules for too many possible situations for the learner to remember. Thus, detached rule-following gives way to emotional involvement: a skilful response feels good, an unskilful one feels bad, so the learner tries to act in ways that feel good. At the fourth stage, intuitive behaviour starts to completely replace consciously and detachedly premeditated responses – “the learner simply sees what needs to be achieved” [7; p.371]. This is completely internalised at the fifth stage, when the expert acts completely intuitively and without prior reflection. When I, as a skilled driver, need to take a right turn, there is no conscious recollection and following of instructions to activate the turn signal, release the gas pedal, shift to a lower gear, and turn the steering wheel clockwise; I just go right. As Dreyfus himself succinctly puts it: “What must be done, simply is done” [7; p.372].

Dreyfus [7] leans heavily on Maurice Merleau-Ponty’s concept of the intentional arc: “... which projects round about us our past, our future, our human setting, our physical, ideological and moral situation, or rather which results in our being situated in all these respects” [8; p.157]. This idea is congruent with Husserl’s concept of the horizon – where our preknowledge, our inklings of our situation and setting, our immediate and long-term past and future are co-present. Dreyfus [7] perceives the intentional arc as “the tight connection between the agent and the world, viz. that, as the agent acquires skills, those skills are ‘stored’, not as representations in the mind, but as dispositions to respond to the solicitations

of situations in the world” [7; p.367]. To reiterate this in the context of the horizon: as we gain skills, those leave a ‘precipitate’ or ‘sediment’ on our horizon, which changes to accommodate new possibilities and expectations. In Dreyfus’ own words: “What one has learned appears in the way the world shows up; it is not represented in the mind and added on to the present experience ... but is presented to the learner as a more and more finely discriminated situation, which then solicits a more and more refined response” [7; p.373].

Dreyfus takes a very cautious and conservative step away from representationalism, which is further cemented in his reply to comments [9]. In his model, at the start of the process of skill acquisition, beliefs are still represented in the mind, while the intentional arc only becomes relevant in the later stages. But this raises the question: am I not, since the very beginning of my learning process, entangled in the intentional arc, which shapes how I perceive and approach the world? Are the first elements of learning (the instructions) different from other experience in that they are represented as explicit propositional beliefs? For the proposition “shift to second gear when the speedometer needle points to ten miles an hour” to have meaning for me, I need to have a lot of implicit beliefs about, for example, what a gear is and how to shift, what a speedometer is and how to read it, and so on. Where is the line between the represented and the not represented?

Dreyfus seems to stand above a chasm. On the one side he clings to the idea that the mind forms representations of an outer world. Exploring the possibility of learning without representations, he swings to the other side, where the world is only a projection (representation) of the structure of the mind. Despite denying that he has again succumbed to representations, he concludes his denial with: “All past experience is projected back into the world. The best representation of the world is thus the world itself” [7; p.373].

ENACTIVISM

A more consequent distancing from representations and a daring plunge into the chasm is done by Francisco Varela, Evan Thompson and Eleanor Rosch [10]. They present the two sides as objectivism – the world having pre-given properties that are discovered by the mind and represented within – and idealism – the world as a projection (or representation) of the structure of the mind. The middle path between these two positions is perceiving cognition as embodied action or enaction [10].

With the term embodied Varela, Thompson and Rosch emphasise that our perception of the world is shaped by “a body with various sensorimotor capacities, and ... these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context” [10; p.173] (cf. Merleau-Ponty’s intentional arc). With the term action they emphasise the inseparability of sensory and motor processes. From recurring sensory-motor patterns emerge cognitive structures that in turn enable sensory-motor processes [10]. How I perceive the world to be is thus neither a representation of how the world actually is, nor a representation of the structure of my mind, but rather a product of perceptually guided action [10].

An emphasis on the body and its actions (or possibilities for action), was already mentioned by Husserl [3, 6] and greatly expanded on by Merleau-Ponty [8], on whose work a lot of the ideas of enactivism are based. One such idea is the idea of sense-making (what Merleau-Ponty refers to as *Sinnggebung*), elaborated upon by Di Paolo, Rohde and De Jaegher [11]. The authors start from the argument that the interaction between an organism and its environment hold importance for the organism (with self-preservation as its goal). This creates a normative perspective on the world where some interactions or possibilities are more important than others [11]. Thus, organisms (or their cognitive systems) “cast a web of

significance on their world ... and this is the definitional property of a cognitive system: the creation and appreciation of meaning or sense-making, in short” [11; p.39] (see also [12, 13]).

Di Paolo, Rohde and De Jaegher [11] emphasise that the organism is not just a passive recipient of information from the environment, which is then translated into internal representations and evaluated: “cognitive systems are simply not in the business of accessing their world in order to build accurate pictures of it” [11: 39]. Meaning is not an attribute of the environment that is discovered or attained by the organism, and neither is it something from within the organism that is reflected onto the world. It is the result of an on-going dialogue between the environment and the organism’s embodied action (cf. [10]). The difference is highlighted by this quote from Heinz von Foerster [14; p.214]:

“ ‘out there’ there is no light and no color, there are only electro-magnetic waves; ‘out there’ there is no sound and no music, there are only periodic variations of the air pressure; ‘out there’ there is no heat and no cold, there are only moving molecules with more or less mean kinetic energy, and so on”.

ENACTING BELIEFS

As has been shown from the example of Husserl, the phenomenological tradition suggests that the first-person perspective of beliefs is far from as simple as recalling a certain proposition that acts as a representation of the world. Enactivism (building on phenomenology) provides a framework for explaining beliefs without relying on representations. What is unfortunately lost with renouncing representations (and a third person perspective) is a relatively clear notion of what a belief is – the answer to the question: “What is it like to take something to be true?”

If Husserl’s concept of the horizon is to be interpreted as being comprised of beliefs (as continuous and ineffable as they might be), and if an organism’s sense-making could be interpreted as the organism constructing beliefs about the world, belief is everywhere (and closer resembling an uncountable belief-substance than a set of discrete beliefs) – indeed, being conscious of something would mean believing it⁴. This nigh-synonymity would call to question how much sense it makes to speak of belief from a first-person perspective at all. Or, perhaps, belief should be perceived as something more active like the product of what Husserl calls explication. But, again, what does this process look like? Does it involve an internal language of thought or maps or something else entirely? And, in reference to phenomenology and enactivism’s focus on the importance of the body, is there a difference between believing there to be a room behind me as I am sitting behind my desk and believing that our solar system has less than 10 planets?

It is clear that we need to draw new lines in the sand, but also that we need to take a closer look at the sand itself – not by looking at other people’s behaviour but by examining our own experience. Recently, experience research has been on the rise – both in the strictly philosophical sense and in a more empirically oriented sense, so called empirical phenomenology [15]. With the development of techniques for tapping into the resource that is human experience (e.g. [16-18]), there is hope that we might soon find some answers and perhaps uncover questions yet unimagined.

REMARKS

¹I use the terms *to be aware of*, *to be conscious of* and *to experience* interchangeably.

²Regarding the use of first or third person, singular or plural in examples, there is great variety in the literature. Husserl [3], for example, uses the first person singular, Yoshimi [5] the first person plural and Dreyfus [7] the third person singular. I myself prefer using the

first person singular, so as not to presume that my experience is the same as everybody else's, and much less to assume what a third person experiences. Though, by quoting other authors, a constant switching between these styles is unavoidable.

³My previous examples regarding the horizon were not examples of genuinely experiencing the horizon, but rather examples of explicating certain properties of the horizon. This is similar to providing »our solar system has less than 329 planets« as an example of implicit belief, even though by reflecting on it, it is no longer implicit.

⁴An idea defended by Baruch Spinoza and later Daniel Gilbert [19] – sometimes referred to under the name of credulism.

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WHAT DWELLS ON THE FRINGE OF AWARENESS

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ABSTRACT

Researchers in the field of empirical phenomenology often base their understanding on the theories of philosophical phenomenology, particularly favouring Husserl in their discussions and explaining obtained results in terms of pre-reflective and reflective experience. In this article we first outline various authors' intuitions on the phenomenological tradition, before going on to examine certain assumptions of the empirical phenomenological tradition. In the second part we present preliminary results of our empirical phenomenological research in the attempt to point to the enormous phenomenological richness of pre-reflective awareness. To an extent we attempt to contribute to the understanding of the techniques of modern empirical phenomenological research by discussing the presuppositions of its relevant authors.

KEY WORDS

experience, phenomenological inquiry, first-person perspective, elicitation interview, pre-reflective consciousness

CLASSIFICATION

JEL: D83, D84, Z19

INTRODUCTION

*Whether you can observe a thing or not depends on the theory which you use.
It is the theory which decides what can be observed.*

Albert Einstein

In the discussion about the possibilities of first-person research, Froese, Gould and Seth [1] distinguish between two conceptions of consciousness¹, referring to them as *shallow* and *deep*. They say that in some research traditions (such as the higher-order thought theories of consciousness; e. g. Rosenthal [2]), the term *conscious* refers to phenomena that have been directly experienced by a subject and can also be reported verbally (reflective phenomena), “while everything else is referred to as unconscious” [1; p.51]. They refer to this conceptualisation of consciousness as a shallow view.

In contrast, the deep conceptualisations of consciousness are much more inclusive. They contain the phenomena falling into the shallow conception (experiences which are reflectively lived through and thus can be verbally articulated) as well as pre-reflective² experiences, which are “experiences that are lived but without the person being focally or thematically aware of them” [1; p.52]. Pre-reflective experiences can be reflected on and become reflected experiences. The deep conception of consciousness looks on the phenomena of interest to the shallow conception as merely a particular way of experiencing: an explicit awareness of lived experience.

Researchers in the field of empirical phenomenology (e.g. [3, 4]), often base their understanding of experience on theories of philosophical phenomenology, which usually employ a deep conceptualisation of consciousness (in the sense that pre-reflective experience can be reflected). For this reason, we begin by turning towards some of the basic assumptions and intuitions of the phenomenological lineage. We start with William James, then delve into phenomenological philosophy, where we will briefly consider the views of Edmund Husserl and Jean-Paul Sartre. Following that, our main focus will be on empirical phenomenological researchers and their presuppositions about experience and the pre-reflective dimension of consciousness. Lastly, we turn to an illustration of one such phenomenon which resides on the fringe of awareness.

This article is not a comprehensive examination of the above mentioned points, but solely a preliminary outline with the aim to further inspire considerations and research in this direction.

A BRIEF OVERVIEW OF THE PHENOMENOLOGICAL LINEAGE

According to William James [5], consciousness consists of more than the experiences we are currently focusing on. Every conscious experience also has various transitional experiences on the fringe of awareness, which he characterizes as having a fleeting or transient quality. James describes these experiences on the fringe as vague feelings of context which is consciously experienced and important for the content we are attending at a given moment. Nonetheless, it is not an experience that can be consciously available [5].

Similarly, Edmund Husserl [6] argues that every experience is initially lived through and is not an object of consciousness. Thus, according to Husserl, the consciousness that is present at the moment we experience something must not be understood in terms of reflection or introspection. Rather, an act of reflection is the direction of attention towards something that has already been experienced without being taken into view: “When I say ‘I,’ I grasp myself in a simple reflection. But this self-experience [Selbsterfahrung] is like every experience [Erfahrung], and in particular every perception, a mere directing myself towards something

that was already there for me, that was already conscious, but not thematically experienced, not noticed.” ([7], quoting [8; pp.492-493]).

Our everyday experiences are always available to us, always conscious (pre-reflective or reflective). Only by the act of turning towards (the act of reflection) something that has already been there for us, we come to perceive and know its subject matter. This reflective experience is by itself a new type of experience, or as Husserl puts it, the reflective experience “is not merely added to the previous life, to the respective experience or experiential thinking, rather it transforms it in a specific manner” ([9; p.184], quoting [10; p.89]).

In line with the aforementioned deep conceptualisation of consciousness, Jean-Paul Sartre [11] divides consciousness into reflective and pre-reflective, stressing that any consciousness of something is always pre-reflective, and that pre-reflective consciousness is a necessary precondition for reflective consciousness. Sartre’s division is also widely used in modern phenomenological philosophy, especially in the works of Shaun Gallagher and Dan Zahavi [7].

A BRIEF OVERVIEW OF EMPIRICAL PHENOMENOLOGY

Pierre Vermersch distinguishes between three dimensions of consciousness: an active unconscious mode³, a lived (pre-reflective) consciousness and a reflective consciousness mode of lived experience [3]. He suggests that becoming reflectively aware of an experience requires a “transition from a pre-reflective consciousness of the lived experience to a reflective consciousness of the same lived experience” [3; p.13]. This transition is the activity of reflection, which “enables the perception of lived experiences, and particularly of lived experiences which were not ‘viewed’ and which can [be] viewed after the fact” [3, p.16].

In his view, experiences we are not aware of at a particular moment always continue to be available. These lived experiences inhabit the mode of non-reflective consciousness and retain the possibility of being reflected upon. In Vermersch’s own words “I am fully conscious of it without at the same time being conscious of the way in which I do it. I perceive or I do *x*, without necessarily keeping in the view of my consciousness the way in which I organise my perceptive activity” [3; p.17]. Such lived experiences can be awakened using different introspective techniques, such as the elicitation interview. This interview method helps the trained practitioner to become aware of her lived subjective experience, leading to accurate and careful articulation.

Complementary considerations can also be found in the works of Claire Petitmengin and Michel Bitbol [12], who propose that we are not aware of most of our current lived experience, because, in the process of experiencing, our attention is very narrowly focused and fast changing the focus from one relevant object to another. They explain that a lot of experienced content is left aside, but this content nevertheless remains in the background in the form of a passive memory. Referring to Vermersch [13], who says that the content we are not aware of (pre-reflective experience) can be retrospectively accessed during elicitation interviews, they claim that pre-reflective experience is important for our understanding of reflection, emphasizing that they understand reflection not as a signifier of a conscious perception of a previously unconscious event, but rather a renewal of contact with experience, an experiencing and a redirection of attention.

EMPIRICAL PHENOMENOLOGY AND THE EXPLORATION OF EXPERIENCE

The elicitation interview⁴ is in line with the phenomenological work of Husserl. It is a technique used for the examination of conscious experience, particularly for becoming aware of pre-reflective experiences, which are considered to be hidden on the fringe of awareness [4].

In the process of carrying out the elicitation interview, the trained researcher guides the attention of the interviewee and extends her focus from the explicitly reflective, to the implicit, pre-reflective dimension of experience. The goal of this type of interview is to “help subjects redirect their attention from the content of the experience towards the mode and dynamics of appearance of this content, and to describe it precisely” [14; p.30].

To achieve this, an *evocation* of experience is required, enabling contact with the experience. The moment set forth to examine in the interview is *evoked* when the interviewee’s “past situation becomes more present for her than the present situation is” [14; p.30]. This process of evocation of experience is described as “the capacity of the subjects to enrich progressively their exploration and their description of experience, each re-enactment calling forth new elements and generating new descriptemes” [15; p.276].

What is intriguing in this approach is that this method enables the examination of both currently present and long past, forgotten experiences. Froese, Gould and Barrett [16] summarize the assumptions of this claim, saying that a shift in attention enables some parts of a previously pre-reflective experience to enter consciousness. By recalling this past experience, the elicitation interview technique helps evoke the just past pre-reflective experience in the present experience. Whereas the claim that a long past pre-reflective experience could be re-lived and made into a present experience is in their view more controversial.

But does the accessibility of the pre-reflective dimension of experience apply to all kinds of experience? Can any type of experiencing become reflective and therefore available to verbal report?

It is our view that the retrospective intervention of taking into view a chosen part of experience does something significantly different in certain types of phenomena. These are the phenomena that normally reside on the fringe of awareness and cannot be transformed from the pre-reflective to reflective conscious experience. This would be contrary to the presuppositions of the elicitation interview, that it is possible to observe any present or past experience by a (guided) shift and expansion of attention. In the following chapter, we demonstrate some aspects of such an elusive phenomenological quality with the help of an example.

THE EXPERIENTIAL ASPECT: AN EXAMPLE OF GIST

Some examples of experiential dynamics that change when reflected on are the sense of agency [17], existential feelings [18] and the experience of gist [19]. Kordeš and Demšar [20] define gist as the feeling that we have knowledge of a particular thing/concept available or the feeling of an essence of the answer that follows the question, but this answer is not yet clearly defined in consciousness. If we try to reflect upon gist, it changes, expanding into content. The original, pre-reflective feeling (i.e. gist) is thereby replaced by another phenomenological quality altogether. Furthermore, Kordeš and Demšar [20] compare the experience of gist with descriptions of Tichener’s analyses related to imageless thought, the “vague and elusive processes, which carry as if in a nutshell the entire meaning of a situation” ([20], quoting [21, p.188]).

Below we present an excerpt from an interview, where the co-researcher⁵ reports his feeling of gist unfolding into content throughout the process of the interview. In this part of the interview, the co-researcher attempts to remember the names of the seven characters from a book, but has difficulty naming the seventh character. During the interview, the researcher (R) guides and facilitates the opening of space for the co-researchers’ (CO-R) observation of his experience.

CO-R: *The visual presentation has disappeared in between.*

R: *But the content was still there?*

CO-R: *Yes. But I could not, for example, look and see under each number each specific character.*

R: *You said you knew what he was like. You knew his characteristics. In what way?*

CO-R: *As if I was once again playing a movie of these scenes, at the time they were all there. And then there was a scene, when he was gone.*

R: *So you were looking for something? In a way, you went back trying to remember scenes from a movie. Well, try to recall this visual part of your experiencing, what do you remember here?*

CO-R: *Most of all, I remember that he had a big hammer.*

R: *But how did the knowledge that he is the bastard son of the previous king come to you?*

CO-R: *His hammer, a face, a place he was in, his face again... and with this the whole story about what happened to him before manifests. As in one package, as a whole package, as if this just opens ...*

R: *Yes, how? Try to remember. You were browsing through the scenes...*

CO-R: *It was not quite a visual scene, but somehow from the ideas, approximations of the scene ... somehow it became visible out of this space, the hammer kind of shone through.*

R: *What do you mean by “approximations of the scene”?*

CO-R: *That it was not a clear reconstruction, but just an outline of someone with a huge hammer.*

R: *So there was something visual? Would it be possible that this was just knowledge? Was there knowledge of who is already in the package? But only this new one with the hammer was visual?*

CO-R: *Yes, yes.*

R: *So, here we have gist, that past knowing was the gist, but when you went back, if you thought of someone else, he would again show himself visually. So, somehow you looked at these scenes, found this hammer and when you saw the hammer, you already knew who it was?*

CO-R: *Yes. Then I got the face and with this face it went into almost like approximations of scenes and through this the story where he was.*

R: *All the places where this bastard son has been?*

CO-R: *I mean, there were a lot of different scenes and a lot of different places. And it happened all at once.*

R: *Let us look at this. So, you suddenly and all at once feel a lot of information, memories of the events.*

CO-R: *Although, there is more of a felt potentiality of these memories and information. I know that they are there to be able to look at and if I looked at them they would develop into something more.*

R: *So that is gist. What you have just described is a typical gist. So, some kind of a felt potentiality of these scenes and you only looked at things which were relevant for what you needed?*

CO-R: *I mean, gist was only the result of seeing someone with a hammer and then it all came.*

R: *Yes, the gist of who he is.*

CO-R: *Yes.*

R: *Right. Well, my question is ... was the knowledge that he's the bastard son of the king already there at that time, or did you call it out/probe it out here and now? But the question is what was recalled then and what was in the felt potentiality then. If you remember? I am aware that this is very hard to remember ...*

CO-R: *Yes, I don't think it was recalled then ... it was mostly just some ... the visual image was recalled, but the rest of it was just something I vaguely knew about.*

R: *You cannot remember that any of these ... So you saw the hammer ... can you remember if any of his characteristics have been articulated in the moment when you also put him in your package?*

CO-R: *No, it was only visual.*

R: *Okay. Now try to remember that feeling of gist. The feeling of that, I am going to say cloud, where there were many packets of these events associated with him. Can you remember this feeling?*

CO-R: *No, because now when I try to remember, I open ... it only opens this package and there are only scenes there.*

R: *So you have already been doing this before, just that before you did not know how to describe this feeling? So you kept opening it and said it was at the castle and he did that and so on?*

CO-R: *Yes, yes.*

During the interview, the co-researcher attempts to probe and describe his feeling of gist many times, which leads to content creation and the explication of the experience of gist. This example shows that the attempt to reflect the gist, transforms it into content – the primary, pre-reflective experience of gist is transformed into a different phenomenological quality. The co-researcher compares the experience of gist of the answer to the felt potentiality of a certain kind of content (i.e. the answer to the question, or rather the task he has set for himself), which he feels resides in a certain kind of area, which is not entirely clear and can be clarified by more probing. In his own words: “although, there is more of a felt potentiality of these memories and information. I know that they are there to be able to look at and if I looked at them they would develop into something more”.

The co-researcher observes the possibility of being able to look at a certain kind of area of consciousness more sharply; he notices the ability to sharpen and clarify a chosen part of experience, which he feels is holding the answer. But his inquiring into this felt space does not show him anything more of it. The felt space rather moulds itself into content and visual presentations. Reflection “opens this package”, the experience changes and illustrates itself as it becomes the focus of reflective attention.

CONCLUSION

Gist presents a problem for the idea that it is possible to reflect upon any type of pre-reflective experience. It indicates that the transition from pre-reflective to reflective consciousness significantly changes certain phenomena. In other words, the reflection of a particular lived experience does not enable the perception of a pre-reflective consciousness of the same experience, but rather creates an entirely new experience.

So what does this tell us about consciousness and the pre-reflective experience empirical phenomenology is set out to explore? And more importantly, how do we study these experiences on the periphery of our awareness?

One hint to help us think in this direction could be found in quantum mechanics. It is our intuition that empirical phenomenology employs a similar hermeneutic to that found in some other sciences, particularly physics, where research results themselves pose doubt and put the presuppositions of the research method, on which they have been obtained, into question. Further deliberation on these phenomena will in part challenge us to think outside the box and go beyond the theories we have been using in order to better understand consciousness and the world of experience.

The theories and presuppositions of the elicitation interview we rely on determine and create what we later observe and interpret, but studying phenomena which dwell on the periphery of awareness put the assumptions we build upon into question, calling for a re-evaluation of our understanding and techniques.

REMARKS

¹Throughout this article we use the terms consciousness, awareness and self-consciousness interchangeably.

²The concept of pre-reflective self-consciousness originally comes from the work of Jean-Paul Sartre [11]. The more recent interpretation that reflective self-consciousness is dependent on a more fundamental, primary consciousness is often used in current phenomenological thought. Similar understanding of the notion of reflective consciousness can also be found in leading phenomenological figures such as Heidegger and Merleau-Ponty (for more details see [22]).

³He describes this mode of consciousness as a phenomenological unconscious, pointing out that it should not be confused or equated with unconsciousness as the description of processes not being available to introspective report. The existence of the active unconscious mode “does not presuppose a censorship mechanism, which could be termed the ‘normal’ or ‘usual’ unconscious, and which can only be studied by inference through a third-person viewpoint” [3; p.15].

⁴At first the term *entretient’explicitation* was translated into English as *explicitation interview*, which was several years later changed to *elicitation interview*. More recently, the word *microphenomenology* is employed by Claire Petitmengin to denote the same method of empirical phenomenological research of helping people become aware of the hidden, implicit parts of experience.

⁵In our research we use the term co-researcher to denote a participant who is genuinely interested in the research question and the study of his or her own experience to such an extent that the research question becomes their own research question [23].

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SUSPENSION OF PHENOMENOLOGICAL JUDGEMENT OF SCIENTIFIC NAIVETY

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ABSTRACT

The article addresses the negative judgements on natural sciences, however persistent and frequent they may be, found scattered in the philosophical texts of the two founding fathers of phenomenology, Edmund Husserl and Martin Heidegger. It first presents these harsh views and then, by assuming the phenomenological method, advocated by both philosophers, endeavours to suspend these judgements in favour of a phenomenologically more adequate description of the scientific comportment, trying to do justice to its non-philosophical excellence. The basic claim of the treatise is that Husserl's and Heidegger's criticisms should only be understood in the defensive sense of procuring a firm and safe ground for theoretical comportment, *bios theoretikos*. Such an approach, however, begs for a phenomenological description of the intrinsic excellence of science, which might be phenomenologically most accurately understood as most rigorous practical comportment, as *bios praktikos*.

KEY WORDS

phenomenology, science, Husserl, Heidegger, suspension

CLASSIFICATION

JEL: B29, C99

INTRODUCTION

Ever since Husserl's harsh criticism of science, and his strong admonitions against the crisis inherent in European sciences, phenomenology and phenomenologists have been more or less single-mindedly repeating and further deepening the insights into the erroneousness and potential danger of science for the fate of European culture. Martin Heidegger, one of the most promising, as well as subversive of Husserl's students and assistants, and the later main proponent of phenomenology, despite his decided philosophical departure from his teacher and mentor, sticks to the same line of argumentation.

Since then, phenomenology, despite its undeniable vivacity and growth of research, has shown surprisingly little interest in addressing at least the peculiarly strongly opinionated nature of these claims, let alone to suspend these judgements and try to go back to the "thing itself", *i.e.* the truth of natural sciences in their own specific openness to the world and its respective ontological status. To put it differently, despite principled commitment to the rigorous basic method of suspending all judgements, prejudices, truths acquired and handed down, phenomenology has by and large failed to do so in the case of supposed, or better presupposed, inherent erroneousness and naivety of natural science's objectivism and dualism. The reproach of dualism is based on Husserl's insight into the intrinsically mathematical character of science. Husserl based his criticism on the founder of modern sciences, Galilei, as the 10th and 11th chapter of his *Crisis* clearly show. He begins with the following criticism [8; p.60]:

"One can truly say that the idea of nature as a really self-enclosed world of bodies first emerges with Galileo. A consequence of this, along with mathematization, which was too quickly taken for granted, is [the idea of] a self-enclosed natural causality in which every occurrence is determined unequivocally and in advance. Clearly the way is thus prepared for dualism, which appears immediately afterward in Descartes.

In general we must realize that the conception of the new idea of 'nature' as an encapsulated, really and theoretically self-enclosed world of bodies soon brings about a complete transformation of the idea of the world in general".

So we see that the reproach of dualism rests on Husserl's premise that the main culprit for the dualistic approach of science is the mathematization of the world of (mathematically calculable) bodies. If the world is in advance understood *more geometrico*, according to geometrical laws, then the world of bodies to be explored is totally abstracted from the scientific subject, who remains irrelevant for the subject matter to be scientifically explored. In other words, if mathematical laws are invested into the world as its underlying truth, the scientist is fatefully and essentially separated from it, having no constitutive relation to this self-enclosed world of bodies. From here, the equation of objectivism of sciences with dualism becomes clearer. As it, likewise, becomes clearer why scientists of today do not accept this critical claim without any reservations.

Admittedly, it is not difficult to see the reasons why both Husserl and Heidegger strived so zealously to distance themselves from (natural) science. Firstly, ever since its beginnings, it has been the very nature of philosophy and philosopher to pay heed to the whole, to take care of everything, as the Greek saying *meleta to pan*, attributed to the ancient Periander (628-588 BC), seems to clearly intimate. This is how Heidegger appropriates this saying, using it to reveal the true nature of doing philosophy: "From the time when the essential configuration of Western history begins to unfold, a saying is handed down to us that goes *meleta to pan*, "Take into care beings as a whole" [*das Seiende im Ganzen*] – that means, consider that

everything depends upon the whole of beings. Always consider the essential, first and last, and assume the attitude that matures us for such reflection” [4; p.3]. At the very beginning of the book (collection of lectures), titled *Basic Concepts*, Heidegger explains what philosophy as the creator of basic concepts should mean: “‘Basic concepts’ means this: that it does not treat of particular regions of beings, nor of the corresponding sciences that investigate them individually” [4; p.1]. But it is not primarily the “regionality” issue, the question of the broadness of scope of investigation, that separates the two and brings the philosopher to a sceptic halt. A much more decisive factor for their negative and worriedly critical distance from natural sciences can be surmised from the cultural-historical fact that, from the 19th century onwards, Europe and European culture in general have witnessed an astoundingly growing prevalence, and success, of sciences, while the power and renown of philosophy has been progressively diminishing. The same fate, one might add, befell theology, which has – for the last couple of centuries – been pushed more and more to the fringes of cultural and scientific attention.

HUSSERL’S CRITICISM

It is primarily for these two reasons, one stemming from the intimate nature of philosophy itself, and the other from the victory of sciences on the competitive field of the socio-cultural arena, that Husserl and Heidegger viciously assault sciences. Now it is time to take a closer look at their criticisms. We shall start with Husserl and his purported detection of the crisis of European sciences. In his last great work (to have been published during his lifetime), *The Crisis of European Sciences and Transcendental Phenomenology*, we find quite an array of concepts critically unleashed upon science. The first one, already present in the title, is the supposed *crisis* of sciences, which gets attention in the very beginning: “A crisis of our sciences as such: can we seriously speak of it? Is not this talk, heard so often these days, an exaggeration” [8; p.3]? Indeed, the rhetorical question raised at the very beginning, is a rewarding one, begging the preliminarily tentative answer that Husserl’s detection of the crisis of sciences might very well be an exaggeration.

But before we delve into this issue, let us see what this crisis, according to Husserl, is all about. In Part II, titled “Clarification of the Origin of the Modern Opposition between Physicalistic Objectivism and Transcendental Subjectivism”, Husserl quite aptly discusses the modern-age struggle between Objectivism and Subjectivism as the main battlefield on the terrain of modern culture. The title of Chapter H, “The Life-World as the Forgotten Meaning-Fundament of Natural Science”, clearly intimates what the most obvious, and general, reason for this crisis of sciences is: “In geometrical and natural-scientific mathematization, in the open infinity of possible experiences, we measure the life-world – the world constantly given to us as actual in our concrete world-life – for a well-fitting garb of ideas, that of the so-called objectively scientific truths. [...] Mathematical science, as a garb of ideas, or the garb of symbols of the symbolic mathematical theories, encompasses everything which, for scientists and the educated generally, *represents* the life-world, *dresses it up* as “objectively actual and true” nature” [8; pp.51-52].

In failing to gain a proper entrance into the original phenomenal realm of the lifeworld, the highly acclaimed objectivity of science, which only sticks to its garb of ideas or mathematical theories, deserves a proper denigration of having nothing to do with the truth of reality, and becomes no more than a “so-called objectivity”, or an objectivity written in parentheses. In unsuccessfully endeavouring to reach for the actual and possible sensible plena of the concretely intuited shapes of the life-world, Husserl continues, “no one was ever made conscious of the radical problem of how this sort of naiveté actually became possible and is still possible as a living historical fact” [8; p.52].

Lifeworld, for Husserl, is a concept related to the primordial phenomenality of one's life in the world, a phenomenality that cannot be addressed properly without relating it to subjective experience, wherein the lifeworld comes to its proper delineation. Since the truth of the (primordial) lifeworld is subjective and experiential, it always necessarily evades the exactness of mathematical laws, especially because it is always pre-given. Mathematical truth of the world is thus always only an approximation to lifeworld. Thus, according to Husserl, science, despite its earnest of efforts, is *forgetful* of its own meaning-providing ground. Its objectivity or objective validity of truth is only a *purported* one, and by sticking to the method or garb of mathematical theories, which it throws over the lifeworld, betrays a hard-to-believe *naivety*. In short, the natural science's endeavour of determining the truth of nature is but a process of dressing (it) up.

Even though, every now and again, Husserl throws in a word of warm praise for science, the unseriousness and superficiality of science is even further aggravated by its relativity and non-rationality: "Mathematical natural science is a wonderful technique for making inductions with an efficiency, a degree of probability, a precision, and a computability that were simply unimaginable in earlier times. As an accomplishment, it is a triumph of the human spirit. As for the rationality of its methods and theories, however, it is a thoroughly relative one. It even presupposes a fundamental approach that is itself totally lacking in rationality [8; p.295]. The reproach of relativity and lack of rationality of natural science, one has to admit, are quite incomprehensible and impossible to corroborate. If we set aside the non-sensical reproach of lack of rationality: isn't the objectivism of sciences, with objectivity resting on mathematical laws, closer to the absolute rather than to the relative of subjective experience?"

And last but not least, the dualism, the psycho-physicality of its approach, which was, as unfortunate as this may be, inaugurated by the transcendental Descartes and his "non-transcendental" theory of the two substances (*res cogitans* and *res extensa*), also betrays a deafness to reason, if we stick to the etymology of the word absurdity: "But it was not merely in the inauguration of this idea that Descartes was the founding father of the modern period. It is highly remarkable at the same time that it was he, in his *Meditations* – and precisely in order to provide a radical foundation for the new rationalism and then *eo ipso* for dualism – who accomplished the primal establishment of ideas which were destined, through their own historical effects (as if following a hidden teleology of history), to explode this very rationalism by uncovering its hidden absurdity [8; p.74]."

Inherent crisis, forgetfulness, naivety, non-rationality, relativism, and even absurdity – the concepts applied here are all but respectful, and an exaggeration. An exaggeration, which calls for what Husserl himself would phrase as "absolute freedom from prejudice, [freedom] gained through the unsurpassable radicalism of the full transcendental epoche, that makes possible a true liberation from the traditional temptations" [8; p.263]. Indeed, in what follows, we shall try to stick to this absolute freedom from prejudice and liberation from traditional temptations in case of Husserl's harsh judgement on natural sciences' absurdity and irrational naivety. And there is a passage in Husserl's *Crisis* book, which opens a crack in Husserl's otherwise absolutely harsh treatise of sciences (131): "Is it not the case that this hypothesis, which in spite of the ideality of scientific theories has direct validity for the scientific subjects (the scientists as human beings), is but one among the many practical hypotheses and projects which make up the life of human beings in this life-world – which is at all times consciously pre-given to them as available? Do not all goals, whether they are 'practical' in some other, extrascientific sense or are practical under the title of 'theory', belong *eo ipso* to the unity of the life-world, if only we take the latter in its complete and full concreteness" [8; p.131]?"

Exactly so. Which is why accusations of naivety, relativity, absurdity and lack of rationality are – we might assume a bit harsher stance against Husserl here – misplaced. Let there be no room for doubt here: his criticism, levelled at objectivistic and dualistic *philosophy*, which brings about the absurdity of thinking human mind or psyche analogously to natural things, is surely entirely justified. The sciences are not intrinsically destructive. What is worthy of criticizing, is the uncritical acceptance of the universal validity/objectivity of scientific truths, even from other disciplines, philosophy included. Where Husserl's criticism becomes less justified or understandable, however, is his attack against the methodological rigour of natural or positive sciences in their own field of work.

It could very well be that the most probable and understandable reason for this awkwardness of Husserl's ambiguous, yet still prevalently negative approach to science could very well be found in his need to make philosophy the strictest, most rigorous of all sciences, attempting to exceed the rigorousness of mathematical natural sciences. In this, competitively understood sense, Husserl's criticism, although still being unviable, at least becomes understandable.

HEIDEGGER'S CRITICISM

With Heidegger, the phenomenological criticism of sciences, as we know, takes a different turn. He no longer sets himself a task of making philosophy the most rigorous of all sciences, but instead says that philosophy cannot, and must not be, considered science at all: "Philosophy is actually not a science, not even the purest and most rigorous. We can only say: [...] Philosophy is the *origin* [*Ursprung*] of science, and exactly because of this *not a science* – not even the original science" [6; p.18]. Still harsher is his judgement in the second part of the book, where he, in addressing the difference between science and philosophy, says: "The idea of a scientific philosophy is as senseless as the thought of a round cross" [6; p.221]. Heidegger's claim, in other words, is that philosophy studies that which sciences take for granted: the ontological truth of entities studied. The subject matter of sciences and of philosophy is thus to be distinguished by the ontological difference: the difference between entities (*Seienden*) and the being of entities (*Sein des Seienden*). Positive sciences study entities of various kinds, while philosophy studies the – scientifically forgotten – being of entities [6; p.223].

Yet despite the difference of approach, when compared to Husserl, Heidegger's charges against science are no less harsh. Despite his insistence on the non-scientific character of philosophy, he still assumes, and thus reassumes, the rigorous task of criticizing natural sciences. In his case, as his philosophical story goes, science doesn't think (1; pp.7-8): "For it is true that what was said so far, and the entire discussion that is to follow, have nothing to do with scientific knowledge, especially not if the discussion itself is to be a thinking. This situation is grounded in the fact that science itself does not think, and cannot think – which is its good fortune, here meaning the assurance of its own appointed course. Science does not think" [1; pp.7-8].

If we can defend this harshness by reminding ourselves that, for Heidegger, even philosophy and philosophers are yet to truly begin to think, our defence fails miserably when attempting to provide justification reasons for the judgements exposed in the following. In his *The Question Concerning Technology*, where no less than the fate of modern human kind is at stake, Heidegger says that "sciences, in exploring nature, man, history and language, cannot in this exploration represent the truth of their subject matters, and by doing so betray an impotence" [3; pp.175-176]. In *Schelling's Treatise on the Essence of Human Freedom*, where the scientific status of (Schelling's) philosophy is under scrutiny, and compared to the truth of the positive sciences, he writes the following: "The intention of scientific questioning

leads to what it already includes at its incipience *as a prejudice*" [5; p.138]. A page latter, where Heidegger addresses the issue of the scientific principle of mechanism, he discloses science as a *fundamental error* in that it uncritically assumes the principle of investigation, which "is already justified by one's getting somewhere with its aid. One always gets somewhere of necessity with the principle of mechanism, therefore it cannot be demonstrated specifically in its truth in this way. The truth of a principle can in general never be demonstrated by success" [5; p.138].

Science is, to continue this road down into the abysm, a failure, because of its "failure to recognize that every true beginning of principles of investigation must be [...] grounded in the essence of truth itself" [5; p.139]. And the final, if not ultimate judgement, to be found in the chapter "The Thing", where Heidegger undertakes the task of rescuing the long lost richness of things, caused by none other than the science's technological calculative and manipulative understanding of things as but exploitable disposables. Due to the un-reflected shift of the truth of being (enframing, *Gestell*), which holds its full sway in modern sciences, "science's knowledge, which is compelling within its own sphere, the sphere of objects, already *had annihilated things* as things long before the atom bomb exploded" [2; p.168].

To repeat what we have already intimated: is this alleged annihilation of things an exaggeration? An atom-bomb exaggeration? Despite his determined endeavours to separate the (ontological) domain of philosophy from the (ontical) domain of science, which he demands in many a text ever so adamantly, science is a domain of impotence, prejudice, fundamental erroneousness, failure and the ultimate danger of the annihilation of things. We might, and indeed should, ask ourselves why not rather stick to the claim that science does not think its own openness and its own manner of being within the world as strictly as the thinking of being does?

BACK TO NATURAL SCIENCES

In his *Crisis*, Husserl strikes against science and scientific investigation with his strongest weapon, drawing our attention to the total lack of rationality, or better yet, its obliviousness of the subjective realm: "It even presupposes a fundamental approach that is itself totally lacking in rationality. Since the intuitively given surrounding world, this merely subjective realm, is forgotten in scientific investigation, the working subject is himself forgotten; the scientist does not become a subject of investigation [8; p.295].

In a very similar fashion, in his *Origin of the Work of Art*, when thinking the truth of truth, Heidegger lists various happenings of truth (in art, religion, politics, philosophy etc.), yet science is not to be found among them, because (1971, 60) "[...] science is not an original happening of truth, but always the cultivation of a domain of truth already opened, specifically by apprehending and confirming that which shows itself to be possibly and necessarily correct within that field." Science, in other words, has not yet arrived at the essential truth or disclosure of what is.

It is high time we start going "back to the thing itself", which has witnessed such strong-minded critical scrutiny by both founding fathers of phenomenology, back to the positive elements of science. In both phenomenologists, science does not do what philosophy (proper) does: reflect on the manner of givenness of objectivity in the unavoidable correlation with the investigating subjectivity, or heedfully think the truth of being of objectivity, from out of the ontological truth of *Dasein*.

As we have already intimated earlier, there is an element in both Husserl and Heidegger, which might shed some (just) light on the positive character of science. Both Husserl and

Heidegger, each in their own context, bespeak a peculiar mode of givenness, and a peculiar comportment of consciousness/*Dasein*, in which what is given is always already pregiven, or given unthematically and prereflectively [9; p.26] and inconspicuously [7; p.71]. Could we not attribute this mode of being to the investigating scientist? Indeed we could. And this brings us closer to one of the stronger, and potentially dangerous contentions of this article: science is a practice rather than theory proper. This contention immediately begs the following question: are we not here doing the same as Husserl and Heidegger were doing? If Husserl says science is naively forgetful, and Heidegger that science does not think, is not our contention that positive science is not a theory – essentially the same, insulting, too harsh and lacking in heedfulness for the alterity of science? We surely hope not. The reason for our high hopes is the motivation for this judgement: by thinking the truth of science as highest possible (untheoretical, or better pre-theoretical) practice, might we not evade the fixated criticisms (such as Husserl's and Heidegger's) and concentrate on the most exquisite truth of positive science?

In classical phenomenology, the traditional definition of truth as correspondence of propositions and things, or as adequacy of thought and things, has witnessed severest possible criticism, both in Husserl and Heidegger. Yet, if we are to be true phenomenologists, the justification for this should not become solidified into a fixed self-evidence. The truth as correctness of correspondence of my "inner" representation with the thing "out there" should, and for a very good reason, remain a truth. Strikingly different from the truth of transcendently necessary correlativity and truth as unconcealment (*aletheia*), but still a viable truth. What kind of a truth then? In order to draw nearer the possibility of a positive character of correspondence theory of truth, we first have to exercise a phenomenological shift of directing attention back to ourselves and the truth of our own pre- or non-philosophical, practical comportment. After having done this, we can, from out of intuition, support the claim that the truth as correctness of correspondence of the subjective and the objective is *the practical* truth of our rational life. It is both the truth of our everyday, pre-scientific and pre-philosophical life, and the truth of positive scientific comportment, both situated in the practical rationality, *and which is not uprooted from the practicality of life, as is the theoretical rationality, swirled into the hermeneutic circle of reflexivity as its only form of practice.*

For practical comportment, be it everyday or scientific, things are always out there as either handy (practically rational) or unhandy (practically irrational or unreasonable). Practical rationality, in perfecting the practical goodness of life, seeks the best possible access to outer and inner goods by endeavouring to perfect, and thus make most efficient, the skill of handling and manipulating reality. This is how it – practically – reserves itself time to gather itself before it addresses the practical matters at stake. In taking its time, what awaits to be addressed and tackled, rests in itself out there. With a peace of mind of its own, by not paying attention to the mode of givenness of the explorer and of what is to be explored, it procures itself enough time and space, and peace and quiet, to perfect a hypothesis, which is expected to find its acceptance or rejection only later, after it has been tested on the outer, empirical reality.

Strictly speaking, in positive science, we cannot speak of theory and theories, but, more appropriately, of hypotheses. Why not? Theory is, and has been since its very beginnings in ancient Greece, a deviation from the normal practicality of life, a weird reflexive self-awareness with its own specific truth (as the truth of conditions of possibility of reality), markedly different from the truth of either positive scientific or prescientific comportment. The weirdness, or unusualness, of the philosophical comportment consists in philosophy's having little or no time for its own practical applicability. If it wants to produce its own theory in the fullest, it relates to previous theoretical results rather than to the practical import of its basic tenets, and remains in this manner wilfully caught in the circle of understanding

itself in relation to another theory, be it acceptable and calling for further elaboration, or unacceptable and calling for a revision. Likewise, though vice versa, science, as a cultural praxis, has little or no time for its own theoretical presuppositions. If it wants to produce efficient methodological tools for successful manipulation of reality, it needs to evaluate and examine previous hypotheses, formulate its own hypotheses, and strive for the confirmation of their efficiency, in relation to reality.

We now see more clearly that, although a theory cannot be applied directly to the outer reality, it still remains applicable to it, but through science: in providing the theoretical tools for science, the tools which positive science may, or may not, use in order to perfect its tools for the most proper, and positive, manipulation of its 'research material'. This might be the sole practicality of philosophy. And with this, an open realm becomes clearly visible, a realm where science and philosophy actually do, and should overlap, and develop their respective 'response-ability' for their import to the common grounds of the lifeworld.

Positive science need not be thrown into this mind-blowing reflexive circularity of thinking the thought through the thinker – or a long lineage of thinkers – because positive science is already moving in its own specific practical circularity of practical application of its reality-related hypotheses, which is why it holds on to pre-acquired and presupposed philosophical notions. This sentence could very well serve as a paraphrase for Heidegger's (hermeneutically circular) claim that, in its truth of being, *Dasein* always cares for being. This is the science's primary starting point and its ultimate point of return, its presupposed self-evidence. Are we, as phenomenologizing subjects, really justified to say no to such a presupposition? No, the path to a better life practice, to a more sovereign mastery of the world and life, to a more perfected well-being, the path of perfecting the usefulness of actual-practical and hypothetical-abstract tools is not a good path to take?! Of course, the path of fruitfully intertwining the rationality of positive science and philosophy has already been taken decades ago, as witnessed, for example, in many a study and research projects by cognitive scientists [9-12]. Cognitive science is thus a rewarding example of a successful intertwining of theory and practice, where the phenomenological, strictly theoretical insights are invested into the scientific manipulation of cognitive reality.

Whoever uses the science's pre-theoretical comportment as a grudge against science is either wrong about science – and oblivious of its actual ontological status – or demands too much from it. Still today, the practice of positive science enjoys an unusually negative reputation of being the one to blame for the potential world destruction. Yet, what can we actually have against the basic strife for better life practice, which is grounded in rational corroboration of the practicality of the life path? The culprit for potential disaster cannot be the 'dangerous' positivity of positive sciences. Especially if we are, in criticizing the perilous epistemological or ontological forgetfulness of science, at the same time hypocritically enjoying, as we all are, the numerous goodies and the wellbeing provided to humanity by none other than sciences.

It now becomes obvious why we need to distinguish between the truth of positive science and that of philosophy: the primary reason for (thinking) this distinction is that, with it, we bring the responsibility for the meaningfulness of the entirety of being back to where it has always belonged: to philosophy. The practical way of being, scientific or everyday life, is expected to (practically hermeneutically) expect from itself the best possible practical way of being; that it, at the right moment, states or does what corresponds most fittingly to the anticipated, recollected or presupposed practicality. If positive science is to acquire the best possible skills of practicality – and the same goes for our everyday life – the existence of things independent of ourselves, existing in themselves, should never really be openly questioned and undermined. Nor can it be, to be hermeneutically just to the situation in question, undermined

at all. Try undermining the independent existence of a wrench in a debate with your car mechanic, lying under your car and trying to unscrew the hardly reachable screw; try interfering in the same manner with a physicist who is trying desperately meticulously to perfect the equation for an efficient solution to the best possible energy efficiency of a material, try explaining to him that the ontological truth of his material is intimately related to the shift of understanding of nature at the beginning of modern age in Descartes, and you'll see how 'unfar' you'll get with it.

The traditional theory of truth as adequacy of proposition and thing, we now see clearly, stands meaningfully on the ground of the practical existence of the world, things and people. And this it does absolutely justifiably and legitimately. Obviously, this contention, introducing a certain inadequacy into the phenomenological tradition of the theory of truth, does come as quite a surprise. The evidence of this inadequacy stems from the very whirlwind of the circularity of the theoretical comportment of a philosopher. The truth as representation is the legitimate practical truth of the practical way of being, be it scientific or not, resting in the self-evident homeliness of the lifeworld. This is the truth of the representational rationality.

The prevalent acts of consciousness in practical rationality are representational recollection and anticipation: the most skilful preparation for a practical encounter with what lies ahead as a task, a task of bringing the impractical or less practical to practical and handy and usable – for living a better life. This is the truth of practicality: practical representation, *which is different from the truth of theoretical representation*. Yes, practical comportment has to do with constituted objectivity and is blind as regards the role of the constituting subjectivity in it. Husserl is right in this. Yet, this blindness is absolutely no obstacle for it. Quite the contrary: what constitutes a real obstacle for practical comportment or thinking is the very self-reflexivity of the cognizing subject, who thinks herself as essentially and constitutively correlated with the constituted object-pole of experience. For practical comportment, practical-scientific things, as well as the carrier of practice, are, and should be, inconspicuous, as Heidegger would put it. Practical science, if it is to pursue its practical goals most efficiently, need not think the truth of the scientist. Positive science, with its theory of representation, may rest on the ground of ontological dualism, as was clearly and compellingly explicated by Husserl, who then started levelling dire criticism of the so-called dualistic crisis of science. It may rest on this self-evident ground of the world because science is practical knowledge. And not only one type of practical knowledge among many others, but the most rigorous practical knowledge of them all. Husserl's and Heidegger's criticism are justifiable only in the sense that they both endeavour to secure the position of philosophy in its own panoramic truth-production. Position, which was actually threatened by poor empiricism as non-reflected, weak idealism, which had the unhealthy ambition of becoming the sole, and last philosophy.

The last couple of decades, however, have seen a drastic change in the science's philosophical "behaviour". Science seems to have clearly heard the critical voice of Husserl's phenomenology and started taking into account the methodological insights, which has resulted in the philosophical enrichment of science. As Varela has put it ingeniously: "Every good student of cognitive science must ... attain a level of mastery in phenomenological examination in order to work seriously with first-person accounts. But this can only happen when the entire community adjusts itself – with a corresponding change of attitude in relation to acceptable forms of argument ... To the long-standing tradition of objectivist science this sounds anathema, and it is. But this is not a betrayal of science: it is a necessary extension and complement. Science and experience constrain and modify each other as in a dance. This is where the potential for transformation lies" (13; pp.346-347). And we might only ask

ourselves here: would we not have been witness to an even richer mutual influence of phenomenology and science, had not both Husserl and Heidegger assumed such an over-exaggerated and overly oppositional stance against science?

CONCLUSION

Philosophy is all about *meleta to pan*, about caring for the entirety. Is it not high time, especially after such a long period of strong-minded criticism of sciences, that it starts to think natural sciences in their specific – different from philosophy – openness to the world, to think its specific excellence without resorting to its demonization and blaming it for all the sorrows of the world? This paper is a humble attempt at a reconciliation of philosophy and science. An engaged attempt at an affirmation of their irreducible differences, which is perhaps the only proper way of caring for everything: in the mutual inquisitive openness from out of the midst of it all, the original openness of *cosmos*, the beautifully ordered entirety, inviting us human beings to approach its infinite abundance from various angles. In the end, it turns out that the age-old, ancient and even pre-ancient, *i.e.* Pre-Platonic, cosmocentric cultural paradigm might prove the best possible future for us human beings, as intimated in the concluding rhetorical question: is not *the world* rich enough for the co-existence and mutual enrichment of philosophy and science?

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EXTENDED COGNITION: FEEDBACK LOOPS AND COUPLED SYSTEMS

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ABSTRACT

The article explores two waves of active externalism. I first introduce the distinction between passive and active externalism and analyse a proposal of active externalism based on the principle of parity proposed by Clark and Chalmers. There are two main obstacles, causal-constitution fallacy and cognitive bloat, that threaten the extended cognition hypothesis. The second wave of discussions based on the complementarity principle deals with cognitive systems with feedback loops between internal and external elements and is a more radical departure from functionalism and traditional thinking about cognition. I conclude with some remarks on potential ethical considerations of extended cognition.

KEY WORDS

extended mind, extended cognition, principle of complementarity, coupled systems

CLASSIFICATION

APA: 2340, 2380, 2630

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INTRODUCTION

Andy Clark and David Chalmers begin their famous article *The Extended mind* with the following question: “Where does the mind stop and the rest of the world begin?” [1; p.27]. Although it may seem that finding the right answer should be quite straightforward, it turns out that it is not. First, it tackles one of the basic problems in philosophy of mind, the mind-body problem. For example, if you are a dualist and follow the philosopher René Descartes [2], you will put the mind as a separate substance, *res cogitans*. According to his view the mind interacts with the body in the human brain, more specifically in the pineal gland and thus form a mind-body unity. The interactionist dualistic position has been criticized ever since it was proposed, mainly because it seems incompatible with requirements of natural science [3], although it has also contemporary advocates [4]. In this article we will leave aside dualism/monism debates in philosophy of mind and assume a naturalist position that rejects supernatural entities and takes mind and cognitive processing as natural phenomena. But, by accepting naturalism we open a plethora of further question. For example, is mind identical with brain and consciousness is a brain process [5] or does mental emerges from complex processes in the brain [6]? The main focus of this article will be on the distinction between internalism and externalism, particularly on the question if externalism (and which version) provides better approach to study cognition.

I will first briefly sketch Clark and Chalmers’ idea of the extended mind and extended cognition as proposed in their article [1]. I will then introduce the distinction between passive and active externalism and analyze the proposal of active externalism based on the principle of parity. I will argue that the difficulties such an approach faces, namely causal-constitution fallacy and cognitive bloat, threaten the plausibility of the extended cognition hypothesis. I will move to the second wave of discussions based on the complementarity principle that presents a more radical departure from functionalism. I will suggest that systems with feedback loops between internal and external elements provide a promising approach to how extended cognition can escape the before mentioned difficulties. I will conclude with some remarks on potential ethical considerations of extended cognition.

PASSIVE AND ACTIVE EXTERNALISM

The idea that the mind is not just in the head but can be extended to the world has forerunners in semantic externalism and externalism about mental content. Externalism with regard to mental content is the position that our contents depend in a constitutive manner on items in the external world, both natural and social world. So, “in order to have certain types of intentional mental states (e.g. beliefs), it is necessary to be related to the environment in the right way” [7]. *Internalism, on the other hand, is the position that denies this, our contents depend solely on our intrinsic properties, on properties of our bodies, such as our brains [7, 8].* The view of externalism is nicely summarized by one of the main proponents of semantic externalism, Hilary Putnam: “the content of sentences (and, derivatively, the content of beliefs and other language-dependent psychological conditions) is at least partly dependent on the determination of the reference in the particular context (in technical jargon, on the ‘extension’) of the terms used in the sentence or in the expression of belief, and that reference depends on factors that are external to the speaker’s body and brain. Whether, for example, a speaker means elm when she uses the word elm depends, inter alia, on whether her word refers to elm trees, and that depends in complex ways on both her relations to other speakers (in case the speaker, like so many of us, is unable to identify elm trees reliably on her own) and on what sort of trees are in fact in the environment of the speaker and of the experts on

whom the speaker relies. The speaker's neurological condition (or 'brain state') may not in principle suffice to determine whether a given speaker refers to elm trees or to beech trees when she uses the word elm." [9; p.119].

The long debate about semantic externalism has started with Putnam [10] and Burge [11]. Putnam presented a thought experiment about the Twin Earth. He imagines that somewhere there is a Twin Earth. People living on Earth and Twin Earth are exact physical duplicates and have the same behavioral histories, but there is one difference. The substance that we call water, on Twin Earth does not consist of H₂O, but of XYZ. He concludes that because natural kind terms like *water* refer to their *hidden structure* (to H₂O in the Earth and to XYZ in the Twin Earth), twins across planets, while they are in the same psychological state, mean different things when they say water. He thus concludes "Meaning just ain't in the head"[10; p.227].

Clark and Chalmers [1] suggest that one has to go further than semantic externalism and the thesis that meaning can not be reduced onto internal states. Here is their way of reasoning: "When I believe that water is wet and my twin believes that twin water is wet, the external features responsible for the difference in our beliefs are distal and historical, at the end of a lengthy causal chain. Features of the present are not relevant: if I happen to be surrounded by XYZ right now (maybe I have teleported to twin earth), my beliefs still concern standard water, because of my history. In these cases, the relevant external features are passive. Because of their distal nature, they play no role in driving the cognitive processes in the here-and-now. This is reflected by the fact that the actions performed by me and my twin are physically indistinguishable, despite our external differences." [1; p.29] In contrast to this weaker variant, called *passive externalism*, they advocate a stronger form they call *active externalism*, where "the relevant external features are active, playing a crucial role in the here-and-now" [1; p.29]. These relevant external features are coupled with the human organism and have a direct impact on the organism and on its behavior. They stress that "In these cases the relevant parts of the world are in the loop, not dangling at the other end of a long causal chain" [1; p.29]. Active externalism is thus more than merely causal thesis where external features in interaction with the organism causally influence cognitive processes. Clark and Chalmers point out that even if one accepts Putnam's and Burge's proposal about semantic externalism, it is not clear how external aspects play a causal or explanatory role in the generation of action. In the counterfactual cases when internal structure is held constant and only external features are changed, the behavior looks just the same and it seems that internal structure is doing the work. In contrast, active externalism they propose is not threatened by such problems, because "[t]he external features in a coupled system play an ineliminable role – if we retain internal structure but change the external features, behavior may change completely" [1; p.30]. According to their approach the external features are "just as causally relevant as typical internal features of the brain" [1; p.30].

THE EXTENDED MIND AND THE EXTENDED COGNITION HYPOTHESES

There are two related formulations of active externalism within contemporary philosophy of mind: the extended mind and the extended cognition (HEC) hypotheses. According to the latter the cognitive processing can literally extend to the agent's environment and features of the environment (e.g. pen and paper) are proper parts of the ongoing cognitive process. The extended mind thesis, instead of concentrating on cognitive processes, claims that mental states like experiences, beliefs and emotions get extended too. We can take this two hypotheses to differ in degree of radicalism [12]. I will start with the thought experiment that supports the extended mind, although I will later focus more on weaker HEC. In their thought experiment

Clark and Chalmers argue that beliefs can be constituted partly by features of the environment, “when those features play the right sort of role in driving cognitive processes” [1; p.33]. They introduce two persons, Inge and Otto, who are forming their beliefs about the Museum of Modern Art, each in her/his own way. Inge represents a normal case of a belief embedded in memory. She has heard from a friend that there is an exhibition at the Museum of Modern Art and decides to go there. After thinking for a moment she recalls that the Museum is on the 53rd Street. So, she walks there and enters the museum. The authors establish that Inge believes that the museum is on the 53rd Street and that she believes this even before she consulted her memory. The belief was somewhere in her memory and just waited to be accessed. The second person, Otto, suffers from Alzheimer’s disease. Like many similar patients he relies on information from the environment and so he always carries a notebook around with him. When he needs some old information, he just looks into his notebook, which for him plays a role of a memory. So, when he hears about the exhibition at the Museum of Modern Art and decides to go there, he just consults his notebook. It says that the Museum of Modern Art is on the 53rd Street. So, he walks there and enters the museum. Clark and Chalmers think that both cases are in relevant aspects analogues because the notebook plays for Otto the same role that memory plays for Inge. What counts is that information in the notebook functions just like information constituting an ordinary non-occurrent belief and it does not matter if this information lies beyond the skin. “The moral is that when it comes to belief, there is nothing sacred about skull and skin. What makes some information count as a belief is the role it plays, and there is no reason why the relevant role can be played only from inside the body.” [1; p.35].

It seems implausible that each notebook or perhaps even the whole Internet would count as part of my memory. But is it possible to prevent such excess? Clark and Chalmers pose a set of additional criteria to be met by non-biological candidates for inclusion into an individual’s cognitive system. They are summarized by Clark [13; p.46] in the following way:

- that the resource be reliably available and typically invoked (Otto always carries the notebook and will not answer that he “doesn’t know” until after he has consulted it),
- that any information thus retrieved be more or less automatically endorsed. It should not usually be subject to critical scrutiny (unlike the opinions of other people, for example). It should be deemed about as trustworthy as something retrieved clearly from biological memory,
- that information contained in the resource should be easily accessible as and when required.

In *The Extended Mind* article there is an additional fourth criterion that the information in the notebook has been consciously endorsed at some point in the past [1; p.38], but the authors subsequently drop it. They take these three requirements, called *glue and trust* criteria, as sufficient to rule out implausible candidates, as for example my shopping list.

Clark and Chalmers give another thought experiment which is more in line with HEC and involves three ways of playing the computer game Tetris [1; pp.27-28]. In Tetris, the player rotates falling blocks to form complete horizontal rows which are then eliminated. Imagine three cases:

Case 1: A person is sitting in front of a computer screen and must mentally rotate a block to align it with the sockets.

Case 2: A person is sitting in front of a computer screen and can choose either to mentally rotate a block as before or to physically rotate the image on screen by pressing a rotate button.

Case 3: A person is sitting in front of a computer screen and can choose to perform the rotation either by old-fashioned mental rotation or by using the neural implant that quickly performs the neural operation.

Clark and Chalmers suggest that all three cases are similar. First, Case 3 with the neural implant is just as much a cognitive process as Case 1. It seems there is no reason why an implant cannot count as cognitive just because it is artificial. And second, Case 2 is just as much a cognitive process as Case 3. One can imagine that Case 2 displays the same sort of computational structure as Case 3, although it is distributed across agent and computer instead of internalized within the agent. One cannot object that Case 2 is cognitive simply by pointing to the skin/skull boundary, since the legitimacy of that boundary is precisely what is at issue. So, if the rotation in Case 3 is cognitive, so is in Case 2.

This thought experiment suggests a kind of ‘offloading’ into the external environment. It can be an old fashioned pen and paper. For example, when we need to multiply high numbers, let say 455 and 678, we will use pen and paper and apply an algorithm we have learned in school. Or, we use computer technologies as for example brain-computer interfaces in order to access external databases, or to offload computationally-intensive processing.

They use this thought experiment as a springboard to offer a parity principle: “If, as we confront some task, a part of the world functions as a process which, were it done in the head, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world is (so we claim) part of the cognitive process.” [1; p.29]. Important are deep computational commonalities and not the way functions are materially implemented.

Nevertheless, it seems that the parity principle and the glue and trust criteria are much too liberal and insufficient to establish external elements as parts of one’s mind or cognitive system. As Palermos suggests, “if any external element that both satisfies the glue and trust criteria and causally affects one’s cognitive processes is to count as part of one’s cognitive system, we are going to be led to a ‘cognitive bloat’” [12; p.28].

COUPLING-CONSTITUTION FALLACY AND THE HYPOTHESIS OF EMBEDDED COGNITION

Adams and Aizawa criticize the argumentation that leads to HEC by pointing to the “coupling-constitution fallacy” [14-17], often also called causal-constitution fallacy [12]. The fallacy is committed when from the fact that some object or process is coupled in some way to cognitive agent, one slides to the conclusion that the object or process constitutes part of the agent’s cognitive apparatus or cognitive processing. They support the claim that coupling relations are distinct from constitutive relations by the following example: “The neurons leading into a neuromuscular junction are coupled to the muscles they innervate, but the neurons are not a part of the muscles they innervate. The release of neurotransmitters at the neuromuscular junction is coupled to the process of muscular contraction, but the process of releasing neurotransmitters at the neuromuscular junction is not part of the process of muscular contraction.” [15; p.68]. Or, giving a more general formulation, “we cannot assume that casually coupling a process X to a cognitive process Y is sufficient to make X a cognitive process” [14; p.93].

One possible way out is to weaken the thesis. Instead of arguing for the constitutive contribution of the external elements to one’s cognitive system, one should claim that cognition is many times merely dependent on external elements [12, 17]. This less radical hypothesis is called the hypothesis of embedded cognition (HEMC) and is defined by Rupert as “cognitive processes depend *very* heavily, in hitherto unexpected ways, on organismically

external props and devices and on the structure of the external environment in which cognition takes place” [17; p.393]. Although this hypothesis is close to HEC because it acknowledges that cognition is dependent on the external factors and the environment, it does not take these external factors as cognition’s proper (constitutive) parts. Cognition is restricted within the organism (brain or body, dependent on further theory) and cognitive mechanisms are internal, but explanations of the cognitive processes involve both internal and external factors. “According to HEMC, we can properly understand the traditional subject’s cognitive processes only by taking into account how the agent exploits the surrounding environment to carry out her cognitive work” [17; p.395]. In contrast, HEC implies that many times we should set aside our traditional subject because “the unit of analysis should be the organism and certain aspects of its environment treated together, as a single, unified system” [17; p.395].

So, HEMC is more conservative in retaining our common sense intuitions and it seems that it deals better with avoiding causal-constitution fallacy. HEMC maintains that cognitive processes causally depend on external tools and feature of the environment, while HEC maintains that cognitive processes constitutively depend on external tools and features of the environment [16; p.591].

Adams and Aizawa [14, 15] diagnose that Clark and Chalmers commit the fallacy because they do not specify what makes a process a cognitive process rather than a non cognitive process. They argue that if one takes any sort of information processing as cognition, it is likely that cognitive processing will be crossing the brain, body and environment. Because information is propagated through media, hard discs, televisions and telephones would be implausibly considered as cognition. They admit that processing information is plausibly construed as a necessary condition on cognition, but reject it as sufficient for cognition. Proponents of the HEC thus need a theory of the “mark of the cognitive”. But this is not an easy task and Adams and Aizawa themselves admit that there is no well-established theory of exactly what constitutes the cognitive. Based on what they see as the common praxis in cognitive psychology they provide two clues. First, cognition involves non-derived representations, representations that mean what they do independently of other representational or intentional capacities. Second, cognitive is to be individuated by specific kinds of information processing mechanism that is located in the brain [14; p.31].

It seems to me that claiming that cognitive processes are implemented in the brain, and, at the same time, only those processes that are implemented in the brain count as cognitive, is begging the question. This way the chances for extended cognition are ruled out without further consideration. But on the other hand, Adams and Aizawa rightly point out that the advocates of HEC need to specify what they take as the mark of the cognition. If they do not provide an alternative proposal I feel that HEMC is in a better position. I will show in the continuation, there is a promising suggestion how to escape cognitive bloat and avoid coupling-constitution fallacy. It is based on the principle of complementarity and suggests specific connectionist models and dynamical system theory approach.

TWO WAYS OF THINKING ABOUT HEC

I think a lot of uneasiness about extended cognition comes from the fact that the discussions revolve mostly around the principle of parity [1] – the idea, that cognitive processes extend into the environment when some relevant parts of the world function the same way as the cognitive processes in the head. John Sutton has called discussions related primarily to the principle of parity, as the first wave thinking about HEC [18; p.193]. The principle of parity

stresses functional isomorphism between inner and outer processes and states. His argues that if *exograms* act as *engrams*, then for explanatory purposes they can be treated as engrams and the difference in their location is entirely superficial. “Thus breaking down classical and individualist distinctions between brain, body, and world, we see that the object can be (part of) the subject, and that, as we’ve noted, things can have a cognitive life” [18; p.193].

The first wave discussions based on the principle of parity assume functionalism and multiple realizability. Thus, when the critics are concerned with the distinction between inner and outer, they are not really interested in the differences in material realization. Adams and Aizawa [14, 15] point out that *intracranial* and *transcranial* processes are different with respect to the form of representations and their dynamics.

But the HEC is not supported only by the principle of parity. Clark has already in his book *Being There: Putting Brain, Body, and World Together Again* [19] explored how to include outer elements in order to make the whole system more efficient. The idea leads to the *complementary principle* and according to Sutton [18] originates the second wave of discussion. According to this principle “external states and processes need not mimic or replicate the formats, dynamics, or functions of inner states and processes. Rather, different components of the overall (enduring or temporary) system can play quite different roles and have different properties while coupling in collective and complementary contributions to flexible thinking and acting. So ‘exograms’ can be radically unlike engrams even while co-opted for the same purposes, and these differences will often be the focus of complementarity-oriented explanations” [18; p.194].

These second wave discussions can avoid some intuitively implausible consequences. For example, one does not need to accept the claim that cognitive states and processes are attributed to the external elements of the environment which can exist independently of humans (e.g. notebook). Also, artifacts do not work necessarily only as substitute for the brain via employing the same processes. The idea of extended cognition is thus not based on the principle of parity, but considers that body, artifacts and other external structures together with the brain form cognitive system that is enabled to perform different cognitive tasks as remembering, perceiving, language communication, learning and reasoning.

PRINCIPLE OF COMPLEMENTARITY, CONNECTIONIST MODELS AND FEEDBACK LOOPS

The first examples of cognitive models based on the principle of complementarity were specific connectionist models. Imagine a network where one can not store isolated atomic representations that can be further combined according to the rules. The advocates of cognitivism and the classical symbolic paradigm argued that because such models do not employ symbolic system and thus the representations lack the compositional structure (i.e. combinatorial syntax and semantic as employed in the language of thought), they can not explain some obvious features of thought as is systematicity. In short, thought is systematic when someone who can produce and understand the sentence “Mary loves John.” is also able to produce and understand the sentence “John loves Mary.” For cognitivist the ability is explained by the internal structure of the sentence [20]. I think critics are right when they point out that it is not possible to model systematic behavior by simple networks. But simple models do not exhaust all possibilities and scientists eventually design more complicated models that were able to learn such task. The subsequent “systematicity debate” closely resembles the current debate about extended cognition. Namely, internalists argue that such networks, although showing the required behavior, do not fulfil the task because the

explanation is not based on the internal structure [20, 21]. In contrast, connectionists stress that the network is able to learn to complete the task only if taken together with the external symbol system [22]. Solving the explanatory task for this approach thus consists in the division of labor between external symbols with combinatorial syntax and semantics and a system that is sensitive to them [23].

Although proposed connectionist models were relatively simple they showed crucial characteristics of a coupled system. Palermos argues for the postulation of a coupled system with two distinct arguments. “First, the properties that arise out of the interaction of coupled systems cannot be attributed to any of the contributing systems alone, but to the coupled system as a whole. ... Second, in cases of ongoing feedback loops between coupled systems, there is a dense non-linear causal interdependence that disallows us to decompose systems in terms of distinct inputs and outputs from the one to the other” [12; p.33].

The most important feature of cognitive system being genuinely extended is thus continuous reciprocal causation (CRC). This feature was already mentioned by Clark [24], but it seems that for him it is only a sufficient condition on cognitive extension and so examples like shopping lists are not ruled out. I think that Palermos [12] requirement that CRC is a sufficient and necessary condition successfully blocks the cognitive bloat and causal-constituency fallacy. But at the same time it rises the bar high and it is not easy to satisfy it. We have to bear in mind that the system is individuated on the bases of the process one is interested in and would be intuitively called cognitive. Such system will be called extended, if the task will be accomplished on the basis of continuous mutual interactions between the agent and his artifact, and will be at most embedded if these kinds of interactions will not be present [12; p.34]. It remains open how to look at the example of Otto’s notebook. The answer depends on the context – how we imagine Otto is using it. If he is continuously interacting with it like one would with one’s own memory, then CTC criterion is satisfied. The reason why this may still seem strange is in the timescale. Most probably the real examples require feedback loops on much quicker scale. In a way, analogous processes happen in the brain where there are different feedback loops between different neural components.

CONCLUSION

I have explored the ideas that mind and cognition are not bound to the inner processes, most notably to the brain. At the beginning the idea of externalism appeared in the area of semantics and then spread to mental content and further to cognition and mind. Clark and Chalmers went further by arguing for active externalism and the extended mind. I have discussed the most common objections to this position. I suggest that there are better criteria than those originally proposed by Clark and Chalmers, namely continuous reciprocal causation and ongoing feedback loops. We are facing a quick development of artificial cognitive tools that have great impact on our cognitive performance. For example, we all feel that Google has changed how we look for information [25]. But it will take a detailed analysis of each concrete example to determine what can count as a cognitive system. If it will not be bound by the brain or maybe more liberal, to the skin, it will count as extended cognition. I am more sceptic, as were in fact also Clark and Chalmers, about qualitative experiences and feelings. I think we are still struggling to give them a proper treatment in naturalistic approaches [26-28]. Nevertheless I think that the hypothesis of extended cognition opens up the need for new interdisciplinary collaborations between biological, humanistic, social and technical approaches. “Thus, in seeing cognition as extended one is not merely making a terminological decision; it makes a significant difference to the methodology of scientific investigation. In effect, explanatory methods that might once have been thought appropriate

only for the analysis of ‘inner’ processes are now being adapted for the study of the outer, and there is promise that our understanding of cognition will become richer for it.” [1; p.30]. One such example is the investigation of the role of language as a tool in extending cognition [29].

Let me conclude the article with some remarks on potential ethical considerations of extended cognition. It is obvious that for many social and legal purposes, it is convenient to simply identify the agent with the core biological ensemble. “We imprison the body and brain, not the laptop!” [30; p.114]. But, as Clark [30] continues, also individual bits of neural circuitry, for example hippocampus, are themselves as incapable of being guilty as the laptop. It is the whole pattern of behavior that has itself emerged from a whole social and biotechnological matrix [30; p.114]. We know that treating the mind and self as machinery which is identical to the machinery of conscious reason leads to the conclusion that free will is an illusion and consequently question that human capability of taking moral responsibility [31, 32]. I see the extended cognition as a much more plausible naturalistic approach to these issues. As Dennett has put it: “Our free will, like all our other mental powers, has to be smeared out over time, not measured at instants. Once you distribute the work done ... in both space and time in the brain, you have to distribute the moral agency around as well. You are not out of the loop; you are the loop” [33; p.242].

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UTJELOVLJENJE SNAGE I VIZUALNE DOMINACIJE

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SAŽETAK

Cilj ovog rada je identificiranje utječu li promjene u položaju dijelova tijela, tijekom razgovora dvije osobe koje se od ranije međusobno znaju, na hijerarhiju moći i promjene u njoj, kao i na održavanje i zastupanje različitih uloga u hijerarhiji. Pretpostavili smo promjene u odnosima moći u obliku promjena ponašanja vizualne dominacije, koje su se u prethodnim istraživanjima pokazale kao pouzdani indikator socijalne moći neke osobe. Svaki par je razgovarao tri puta po tri minute o unaprijed zadanim temama. Stavljanjem osoba u neutralni ili ekspanzivni stav, što je bilo potkrijepljeno uvodnom pričom, stvorili smo razlike u neverbalnom izražavanju moći među osobama. U prvom razgovoru, obje osobe bile su u neutralnom stavu. U drugom razgovoru, prva je osoba bila u ekspanzivnom a druga u neutralnom stavu, dok je u trećem razgovoru bilo obratno. Interakcije su snimane dvjema kamerama što nam je omogućilo analiziranje neverbalnog ponašanja. Rezultati pokazuju kako razlike u pokazivanju moći pri ekspanzivnom stavu nisu vezane uz promjene ponašanja vizualne dominacije između osoba. Na temelju navedenoga zaključujemo kako u relacijama uspostavljene društvene hijerarhije moći, uporaba stavova moći ne doprinosi povećanju moći osobe koja te stavove zauzima.

KLJUČNE RIJEČI

društvena moć, utjelovljenje, vizualna dominacija

VJEROVANJE BEZ PREDSTAVLJANJA

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SAŽETAK

U ovom radu istražujem pitanje “Što je vjerovanje?” iz perspektive prvog lica. Nalazeći objašnjenja analitičke filozofije nedostatnima, ulazim u fenomenološku tradiciju – polazeći od koncepta obzora Edmunda Husserla. Pritom nalazim kako fenomenološka tradicija naizgled proturiječi pretpostavci vjerovanja kao predstavljanja. Usmjeravajući pažnju na nalaženje alternativnog objašnjenja, navodim H. Dreyfusovo objašnjenje o učenju bez predstavljanja, iako (prema vlastitom Dreyfusovom priznanu) on ne čini odlučni odmak od pristupa predstavljanja. Navodim deju ostvarenja kao ispravne alternative predstavljanju. U ovom novom okviru navodim ideju o smislu kao niti vodilji prema odgovoru na postavljena pitanja.

KLJUČNE RIJEČI

vjerovanje, reprezentacija, fenomenologija, ostvarenje

ŠTO PREBIVA NA RUBOVIMA SVIJESTI?

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SAŽETAK

Istraživači u polju empirijske fenomenologije često temelje svoje razumijevanje na teorijama filozofske fenomenologije, pritom posebno ističući Husserla u svojim diskusijama i objašnjenjima dobivenih rezultata pomoću pojmova pre-reflektivnog i reflektivnog iskustva. U ovom radu prvo navodimo različite stavove o fenomenološkoj tradiciji, nakon čega ispituje nekoliko pretpostavki tradicije empirijske fenomenologije. U drugom dijelu navodimo preliminarne rezultate naših istraživanja empirijske fenomenologije u pokušaju isticanja fenomenološki izrazito bogate pre-reflektivne svjesnosti. U određenoj mjeri pokušavamo doprinijeti razumijevanju tehnika modernih istraživanja u empirijskoj fenomenologiji tako što razmatramo pretpostavke koje su postavili značajni autori.

KLJUČNE RIJEČI

iskustvo, fenomenološko ispitivanje, perspektiva prvog lica, izamljeni intervju, pre-reflektivna svijest

POTISKIVANJE FENOMENOLOŠKE PROSUDBE ZNANSTVENE NAIVNOSTI

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SAŽETAK

Rad izdvaja negativne prosudbe prirodoslovnih znanosti, neovisno o tomu koliko su trajne i česte, a koje se nalaze u filozofskoj literaturi dvojice osnivača fenomenologije, Edmunda Husserla i Martina Heideggera. Rad prvo navodi te oštre poglede i zatim, po pretpostavci fenomenološke metode kako su je zastupala obojica filozofa, nastoji potisnuti te prosudbe u korist fenomenološki primjerenijeg opisa znanstvenog djelovanja, u skladu s njegovom nefilozofskom izvrsnošću. Osnovna tvrdnja rada je da se Husserlovu i Heideggerovu kritiku mora razmatrati u obrambenom smislu za postavljanje čvrstog i sigurnog temelja teorijskog djelovanja, *bios theoretikos*. Takav pristup, međutim, vapi za fenomenološkim opisom unutarnje izvrsnosti znanosti, što može fenomenološki najpreciznije biti shvaćeno kao strogo praktično djelovanje, kao *bios praktikos*.

KLJUČNE RIJEČI

fenomenologija, znanost, Husserl, Heidegger, potiskivanje

PROŠIRENA KOGNICIJA: POVRATNE VEZE I VEZANI SUSTAVI

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SAŽETAK

Rad istražuje dva niza aktivnog eksternalizma. Prvo uvodim razlikovanje između pasivnog i aktivnog eksternalizma te analiziram aktivni eksternalizam na temelju principa pariteta kojeg su predložili Clark i Chalmers. Dvije glavne prepreke, kauzano-konstitutivna pogreška i kognitivno napuhavanje, prijete hipotezi proširene kognicije. Drugi niz diskusija temelji se na principu komplementarnosti, bavi se kognitivnim sustavima s povratnim vezama između unutarnjih i vanjskih elemenata, te predstavlja radikalni odmak od funkcionalizma i tradicionalnog shvaćanja kognicije. Rad zaključujem napomenama o mogućim etičkim temama proširene kognicije.

KLJUČNE RIJEČI

prošireni um, proširena kognicija, princip komplementarnosti, vezani sustavi

MANUSCRIPT PREPARATION GUIDELINES

Manuscript sent should contain these elements in the following order: title, name(s) and surname(s) of author(s), affiliation(s), summary, key words, classification, manuscript text, references. Sections acknowledgments and remarks are optional. If present, position them right before the references.

ABSTRACT Concisely and clearly written, approx. 250 words.

KEY WORDS Not more than 5 key words, as accurate and precise as possible.

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TEXT Write using UK spelling of English. Preferred file format is Microsoft Word. Provide manuscripts in grey tone. For online version, manuscripts with coloured textual and graphic material are admissible. Consult editors for details.

Use Arial font for titles: 14pt bold capital letters for titles of sections, 12pt bold capitals for titles of subsections and 12pt bold letters for those of sub-subsections. Include 12pt space before these titles.

Include figures and tables in the preferred position in text. Alternatively, put them in different locations, but state where a particular figure or table should be included. Enumerate them separately using Arabic numerals, strictly following the order they are introduced in the text. Reference figures and tables completely, e.g., “as is shown in Figure 1, y depends on x ...”, or in shortened form using parentheses, e.g., “the y dependence on x shows (Fig. 1) that...”, or “... shows (Figs. 1-3) that ...”.

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