

# Why folk-psychology is not about the mind

By Mathijs Geurts,4669355

Thesis for obtaining a “Master of arts” degree in philosophy

Supervised by Prof. Marc Slors

19-07-2023

*I hereby declare and assure that I, Mathijs Geurts, have drafted this thesis independently, that no other sources and/or means other than those mentioned have been used and that the passages of which the text content or meaning originates in other works - including electronic media - have been identified and the sources clearly stated.*

*Place: Utrecht*

*Date: 19-07-2023*

### **Abstract**

This paper defends the thesis that folk-psychological terms do not track private subjective experience. To this end, evidence is presented in support of the idea that people's everyday phenomenal experiences differ much more than public discourse about mental states suggests. Data can be gathered from studies that employ Descriptive Experience Sampling (DES), questionnaires and cases of extreme phenomenology. The fact that people with different phenomenological experience are similarly competent users of folk-psychological terms suggests that tracking subjective experience is not a function of mental state terms. This is especially relevant for terms that appear to describe phenomenal experience, such as 'imagination'. Phenomenal variation has consequences for various debates in philosophy of mind, such as the phenomenology of intentional states and social cognition.

## 1. Introduction

Before the advent of perceptual psychology it was a lot more difficult to make a person question their own sense of reality. Nowadays, there is a simple two-step procedure. The first step is to show them the famous Müller-Lyer illusion, where two lines of equal length appear to be different lengths because of the orientation of arrows at both ends. If you are lucky, and you have to be quite lucky these days, they will not have seen this visual illusion before and they will be surprised to know that their experience does not match physical reality. The real kicker comes at the second step, where you point out to them that the Müller-Lyer illusion is not a human universal. There are many examples of non-Western populations that are much less susceptible to this illusion than Westerners, possibly because they have been less exposed to geometric shapes in their environment (Pedersen & Wheeler, 1983; Davis & Carlson, 1970). Somehow, this second step makes the confusion worse. It is one thing to find out that your own sense of reality is distorted. It is quite another to find out that other people do not have the same distortion.

The phenomenon described above may seem like somewhat of a curiosity, but there are reasons to think that it is a lot more common than people might expect. There is evidence that suggests that there is a lot of variation in people's private experience (Lupyan et al., 2022; Kunzendorf & Wallace, 2000). Some people spend their day in a stream of visual imagery whereas others spend it in inner dialogue with themselves (Heavey & Hurlburt, 2008). Some people experience nothing of either sort and are unable to represent any sensory modality in their inner experience (Zeman et al., 2020). Importantly, this variation exists within cultures, which makes you wonder why we do not question our sense of reality every fifteen minutes.

If there exists a lot of variation in private experience, it is odd that this is not reflected in everyday talk about mental states. True, lay-people might describe themselves as a verbal thinker, implying that their inner experience is chiefly verbal in nature. However, these kinds of statements are not central to folk-psychological discourse. In saying that Lisa thinks  $p$ , it is not self-evident that this makes any appeal to a particular phenomenal experience. In this paper, I shall argue that this is the case for all folk-psychological terms. Accurate folk-psychological attributions may correlate with some type of phenomenal experience, but this need not be the case. The main argument for my thesis is that despite significant differences in private experience, people are still able to accurately use folk-psychological terms that imply some sort of experience. Thus, a person may say that he "was saying to himself" that he should clean the kitchen, while no overt or inner speech has actually taken place. According to my thesis, this is not an uncommon scenario. The

variation in inner experience is such that it cannot support the homogeneity we see in folk-psychological practices.

Some definitional issues. Before I argue that folk-psychology is not about the mind, I should say something about what I mean by 'folk-psychology' and by 'mind'. With 'folk-psychology', I mean specifically our public practices of describing people's mental states. This may include any number of terms for mental states and it is not, as is often the case in philosophy, restricted to terms that express propositional attitudes. Terms for emotions, sensory imagery, even mental disorder fall just as much within the scope of my argument as propositional attitudes. Though the ability to interpret and predict the behaviour also falls under the standard conception of folk-psychology (Stich & Ravenscroft, 1994), and though the two cannot be completely separated, the core part of my argument is aimed specifically at the linguistic practise of giving folk-psychological descriptions.

With 'mind', I do not mean the kinds of intelligent behaviour that are minded in some important sense, such as playing piano, scoring a penalty or writing a readable sentence. I also do not mean it to be brain structure or unconscious cognitive processes, though interesting things may be said about the relevance of my thesis for the latter. Rather, with 'mind' I mean the qualitative parts of our experience that are private in some sense. By calling it private, I do not mean to suggest that our knowledge of this experience is infallible or that we necessarily have privileged access to it. As will become clear in section 2, describing private experience means dealing with introspective failure and finding indirect means of mapping the variation. Ned Block (1995) first introduced the distinction between phenomenal consciousness and access consciousness, where the first concerns conscious experience itself and the second is the extent to which the content of that experience can be accessed and used for processing (e.g. reporting on your experience). Because it is only possible to say something about variation in private experience insofar it is possible to access that experience, it might be argued that my thesis only concerns access consciousness. However, it is generally agreed that our judgments about phenomenal consciousness can be accurate, which means that it cannot be separated completely from access consciousness. Therefore, my thesis pertains to phenomenal consciousness insofar the judgements of access consciousness are able to describe its properties.

Section 2 contains a discussion of various sources of evidence for variation in private experience, the main ones being Descriptive Experience Sampling (DES), survey research and cases of extreme phenomenology. Private experience is an elusive phenomenon, and the process of describing it is bound to involve some amount of triangulation. By considering evidence from a broad range of sources it becomes easier to make a strong case for the existence of phenomenal variation. In section 3, I shall present the evidence of this variation as an argument against the idea that folk-psychological terms track phenomenal experience.

A rival account, which argues for the existence of a cognitive phenomenology that could in theory be tracked by folk-psychological descriptions, is rejected for the reason that it is unable to provide an interpersonal criterion of identity for mental categories. Lastly, section 4 will consider some of the consequences of this view for debates on social cognition. While phenomenal variation is compatible with multiple positions, like theory-theory and mindshaping, simulation accounts struggle insofar they appeal to a phenomenological resemblance between the interpretative target state and the simulated state.

### *2.1 Descriptive Experience Sampling (DES)*

In this section, I will discuss three sources of evidence for variation in private experience: Descriptive Experience Sampling (DES), survey research and cases of extreme phenomenology. The first, DES is a method developed by Russell Hurlburt and colleagues, which aims to produce naturalistic descriptions of people's everyday phenomenal experience (Hurlburt & Heavey, 2006). To do so DES-participants wear ear-pieces that go 'beep' at random intervals. DES-participants wear this ear-piece for between four and eight days, and for a period of three hours at a time. During those three hour periods, a participant will hear six beeps and they are asked to take short notes on the experience they had just before the beep. At least in theory, this minimally retrospective approach should help to amend the so-called refrigerator light problem of introspection (Scheer, 2009). When you open the fridge the light is always on, and from that you might conclude that the light in the fridge is always on. Similarly, it is a mistake to make conclusions about your conscious experience in general based on what your experience is like when you are introspecting. By making people retrospect at random moments, DES aims to capture unattended experience. Moreover, the use of ear-pieces allows participants to go about their daily activities more or less as they normally would, which increases the likelihood that DES reflects a person's regular everyday experience.

In addition to the sampling, DES also includes an interview as part of its methodology. Within 24 hours after every sampling period, participants are interviewed extensively about their sampled experience. The aim of the interview, which is typically unstructured, is to critically examine a participant's report and to help them make relevant distinctions. Interviewers are extensively trained to avoid making presuppositions about what a subject is experiencing and wherever possible they use participant's own terms. This is to minimise the extent to which the interviewing process influences the participant's reports. Hurlburt & Heavey (2002) have found a high degree of interobserver reliability for DES interviews, which suggests some measure of objectivity. However, it is still possible to be sceptical, both about the participant's ability to retrospect accurately about their

experience and the unwitting influence of the interviewer. Eric Schwitzgebel, a notable sceptic on introspection who participated in DES both as an interviewer and an interviewee, discusses these issues for DES. He argues that we should be wary of elements of DES-reports that go beyond very general description (Hurlburt & Schwitzgebel, 2007, pp. 221-222). Luckily, the general descriptions are already interesting enough to get on with, and the following discussion mostly restricts itself to them.

The most important overall finding of DES is also an argument for the validity of the method, and that is the large degree of variation in people's quality of experience. If interviewers exert a strong influence on participants' reports or if general assumptions about conscious experience influence reporting, then you would expect reports to be biased in a particular direction. This is not the case. There exists a lot of interpersonal and intrapersonal variation in the general types of experience reported. For the purposes of broad categorisation, Hurlburt and colleagues use five categories: inner speaking, inner speaking, sensory awareness, unsymbolized thinking and feeling (Hurlburt & Heavy, 2006, pp. 230-231).<sup>1</sup> These categories are only employed by the interviewer, not by the participant, and the vast majority of sampled experiences match at least one of those descriptors. In many cases, a participant's experience includes more than one category. Of these categories, sensory awareness and unsymbolized thinking are theoretically somewhat underdescribed, so my discussion will only cover inner speech, visual imagery and feeling.

Hurlburt et al. (2013) survey various studies that employ random sampling and find that the occurrence of inner speech ranges from 94 to 0 percent. That is, some individuals never report inner speech, and some people report it almost always, with the mean being around 22 percent. Both studies focus on the experience of silently speaking words with some vocal characteristics, but without real external sound or motion. As they point out, this is much less frequent than some cognitive scientists assume. They quote the neuroscientist Bernard Baars who writes that "Human beings talk to themselves every moment of the waking day" (2003, p. 106) and the philosopher Don Ihde who states that "inner speech is an almost continuous aspect of self-presence" (2007, p. 134). Hurlburt et al. (2013) also found that the experience of inner hearing, which lacks the feeling that an utterance is self-produced, is much less common than inner speaking, and this true hearing their own voice as well as that of others. Nevertheless, this adds to the variety of linguistic experiences that people report. Typically, reports of inner speech show the same variety as overt speech, with inflected, context-sensitive and complete sentences that could equally

---

<sup>1</sup> According to Hurlburt & Heavey (2006), these five categories are not intended to be strict entities that are basic components of consciousness. The categories have emerged pragmatically during the research process as commonly identifiable features of experience.

well feature in outer speech. However, inner speech may be experienced at different paces, in a different bodily area (head or chest) and utterances may be wholly or partially unworded.

With an incidence of 34 percent, the most prevalent inner experience is some form of inner seeing (Heavey & Hurlburt, 2008). Individual prevalence ranges between 0 and 90 percent. Like with inner speaking, Hurlburt et al. prefer the verb 'inner seeing' to more common terms like 'visual mental imagery', because it suggests more heterogeneity and it creates less associations with the often criticised notion of a 'picture in the head' (Pylyshyn, 1973). Typically, participants report that inner seeing has the same characteristics as outer seeing, with no distinct borders to the image and a focus that becomes less clear at the peripheries (Heavey & Hurlburt, 2006, pp. 213-217). However, some people report images in black and white, and there is a range of differences in detail and clarity. Occasionally, participants will describe experiencing images that present impossible perspectives, such as viewing themselves from above or seeing things that should be at geographically distant locations without space in between (e.g. your house and the supermarket, but without the street that connects the two).

With regard to feeling, the experiential component of emotion, Heavey & Hurlburt (2008), found that 26 percent of samples include some kind of conscious emotional experience, with a within-subject incidence that ranges between 0 and 90 percent. Moreover, the exact nature of that emotional experience can differ significantly between individuals, even within the same broad category of emotion (e.g. fear). Heavey et al. (2012) found that some participants never reported bodily sensations as part of their emotional experience. Their experience of anger did not include an awareness of muscle tension, rising heart rate or any other bodily manifestation. Regardless, participants report having full knowledge of themselves being in a particular emotional state. In many cases, an emotional experience is accompanied by a certain bodily sensation, and this can vary with respect to its location and the kind of sensation. That is, people may report feeling a particular sensation in the head, in the chest somewhere near their heart or at the bottom of their stomach. Moreover, participants report that these sensations are distinct from awareness of any particular physiological process that might be part of emotional experience. With regard to the kind of sensation, subjects differ with regard to the level of specificity, with some people experiencing clearly defined emotions and others having a more diffuse emotional feeling (Hurlburt & Heavey, 2006, p. 242).

As I mentioned at the outset, the most important parts of this subsection concern the individual differences with regard to the incidence of inner speech, visual mental imagery and emotional experience. For all three categories, incidence in reports ranges between 0 and 90 percent or more. While scepticism may be justified with regard to some of the more detailed claims in DES-studies, this is a lot more fraught with judgements about the general

type of experience. The latter kind of scepticism comes dangerously close to claiming that we are incapable of accurately describing private experience at any level of detail. As far as I am aware, there is no philosopher who defends this position. In addition, I should stress that neither I nor Hurlburt argue that these reports necessarily tell us something about the causal mechanisms behind experience (Caracciolo & Hurlburt, 2016, p. 191). This echoes a point made by Dennett (2002), another notable critic of introspection, who argues that it is a mistake to infer the structure of mental content from how experience seems to us. Simply because our experience seems visual, this does not mean that it is cognitively represented as an image (Pylyshyn, 1973). However, this does not deny the seeing-like aspect of some private experiences, and that is what DES aims to capture.

## *2.2 Survey research*

Part of Hurlburt's motivation for developing DES is his scepticism about the accuracy of people's generalisations about their conscious experience. This is why he tends to disregard the survey data on people's phenomenal experience. He argues that in making a generalisation about what their experience is typically like, they will likely be influenced by generally held assumptions on what experience must be like (Hurlburt & Schwitzgebel, 2007, p. 127). For instance, Brouwers et al. (2018) and Schwitzgebel & Moore (2018) conducted sampling studies on the phenomenology of reading and found that, contrary to people's expectations, most reports were not of people silently speaking the text to themselves in their head. If the lay-psychological picture of reading is silent speaking of the text, this is bound to influence survey results. This underlines the importance of doing qualitative sampling studies and it should make us wary of questionnaires on conscious experience. Despite these worries, surveys on phenomenal experience do show large measures of variation and their results are instructive.

Most of the survey research on phenomenal experience concerns the nature of visual mental imagery. An early example is Galton (1880), who sent out questionnaires in which he asked people to imagine sitting at their table for breakfast. This is another difference with DES, because it means that the study exclusively focuses on voluntary production of visual mental imagery. However, his results were similar, with a lot of variation in reported detail, movement, brightness of colour and position of the image. More contemporary efforts commonly employ the Vividness of Visual Imagery Questionnaire (VVIQ) (Marks, 1973). Though less extreme than in Galton's original study, VVIQ studies generally also find a strong degree of variation in reports of vividness of imaging. Isaac & Marks (1994), who argue that vivid visual imagery is linked to skilled perceptual motor performance, cite positive correlations between VVIQ results and performance at incidental recall, picture



recall and picture comparison. McKelvie (1995), while still positive, offers a more tepid verdict in his meta-analysis of VVIQ studies and their relationship to cognitive performance. He finds that high VVIQ scores correlate strongly with hypnotic susceptibility and performance of gestalt closure of incomplete figures and somewhat with motor control and some (but not all) visual memory tasks. However, as Schwitzgebel (2002) points out, this is not enough to warrant a positive assessment. Schwitzgebel is critical of McKelvie's positive assessment, given the fact he reports no correlation between VVIQ scores and performance on mental rotation and folding tasks. These are tasks that you would expect people with vivid imagery to excel at. McKelvie also finds no general correlation with visual creativity, only for people with high IQ. LeBoutillier & Marks (2003) do find a general correlation, but it is only marginally significant. These inconclusive results are not what one would expect given the extreme differences in reporting of visual mental imagery.

There is also survey data on the experience of inner speech, though less extensive and rarely tested against specific cognitive performance. McCarthy-Jones & Fernyhough (2011) used their Varieties of Inner Speech Questionnaire (VSIQ) to examine variation in inner speech in adults. In general people show significant differences in their reports on inner speech. For instance, a significant percentage (4.7) of people report thinking that they don't experience inner speech that is self-evaluation or self-motivation, while the majority of people report at least some experience. Similar to DES results, they found that the majority of people report that they do not hear inner speech in voices other than their own, though a significant percentage (25.8) does to some extent. However, it is difficult to compare VSIQ and DES results, because VSIQ does not take frequency into account in their questioning. Some VSIQ results are also ambiguous. For instance, it is unclear what kind of dialogicality is measured by the questionnaire, because it is unclear whether the definition of dialogicality must include some back and forth, or that it is sufficient for inner speech to be experienced as other-directed. On the latter definition, results match those of Hurlburt et al. (2013), who do report other-directed experience but rarely include full-blown dialogue. Lastly, McCarthy-Jones & Fernyhough found a lot of variation in the condensation of inner speech (i.e. whether it consists of complete sentences). Hurlburt et al. found that inner speech is typically full worded, though they do cite instances where words are left out or utterances are restricted to single words or short utterances.

Some studies have been done that link inner speech to cognitive performance. Alexander & Nygaard (2008) found that people with high auditory imagery skills showed a higher propensity to match their reading speeds to the rate of speaking exhibited by the person they think wrote the text. Halpern (2015) and Roebuck & Lupyan (2020) find similarly subtle effects for differences in inner speech, with the latter finding that higher incidence is correlated with more accurate performance on some word-picture matching tasks, but with

slower overall performance. In a small study, Hurlburt et al. (2002) found that reports of longer and more complex inner speech utterances in DES were more common for individuals who had a higher rate of overt speech.

As Barrett et al. (2007) points out, research on emotion tends to overlook the experiential component of emotion, often equating experience with underlying mechanisms. Self-report of emotional experience is also hindered because people tend to conflate aspects of emotional experience with their behavioural correlates (Barrett, 2004). As a result, there is not much data on emotion experience that is separable from general emotion attribution. Lambie & Marcel (2002) and Frijda (2009) do discuss emotional experience specifically and propose various dimensions of variation, but they do not present survey data on individual differences in experience alone. In lieu of quantitative data, there is the casual observation that emotional categories (i.e. anger, fear, sadness) are often applied in a very broad range of circumstances, which makes it unlikely that individual instances of fear will always have a similar phenomenal quality. There are several philosophical and psychological theories that have incorporated this insight, and take emotions to be more akin to situational judgements than to causally generated experiences (e.g. Solomon, 1976; Barrett, 2006). These theories are supported by psychophysiological evidence that shows that self-attribution of emotion may occur in the complete absence of stereotypical physiological correlates of those emotions (e.g. raising blood-pressure when angry) (Mendes, 2016).

To summarise, the survey data on phenomenal experience is mixed, both as it links to DES results and to cognitive performance. Following Schwitzgebel's (2002) argument, these mixed results should make us more sceptical about people's introspective reports. Admittedly, it is also possible to conclude that phenomenal experience must be purely epiphenomenal, with no link to cognitive performance. However, given the known problems with introspection the first explanation to consider seriously. In the next subsection, I will offer an alternative explanation as to why the correlation between phenomenal experience and cognitive performance is weaker than you would expect based on the large differences in reports. For now, I just want to point out the delicate balancing act that my argument is trying to perform. The thesis of this paper is that people exhibit a lot more variation than is reflected in our folk-psychological vocabulary. The fact of this variation can be doubted on the ground that it is not evidenced by cognitive performance. That is, we should expect people with a lot of intense visual mental imagery to be better at tasks where we can assume this comes in handy. However, if phenomenal differences were very clearly linked cognitive performance, this would be observable in everyday interactions and hence likely reflected in our folk-psychological vocabulary. As we proceed across this tightrope, it is important to keep these conflicting goals in mind.

### 2.3 *Extreme phenomenologies*

Perhaps the best evidence on individual differences in phenomenology comes from extreme cases. In particular, it comes from cases of people whose phenomenology is extremely idiosyncratic, but whose daily functioning and well-being is unaffected. In cases of mental disorder, we are much more likely to accept that the phenomenology of these people will be rather different. However, if behaviour is unaffected by extreme phenomenology, this suggests that our folk-psychological vocabulary does not necessarily track subjective experience. In this subsection, I discuss synesthesia, visual aphantasia and to a lesser extent auditory aphantasia and hyperphantasia.

There are cases where we readily accept that people's phenomenal experiences will be very different from our own, namely in the case of mental disorder. However, in these cases it is the behavioural signs of mental illness that lead us to accept accounts of extreme phenomenology, even if the reports are only indirectly related to those behaviours. For instance, people with delusions often fail to act in congruence with the content of their delusions (Deamer & Wilkinson, 2021). But even in these cases there will be other behavioural abnormalities that will make it more believable that their reports actually track subjective experience. Many terms for mental disorders, such as 'autism' or 'ADHD', could actually be said to be part of our folk-psychological vocabulary, in the sense they are used in everyday explanations of behaviour. If we accept that people who suffer from mental illness can have strikingly different experiences compared to healthy individuals, it is not a big leap to suggest that there must be some continuity between clinical and non-clinical phenomenologies.

Nevertheless, it is difficult to build a case for the unimportance of phenomenology based on reports of the experience of mental disorders. Because of the accompanying behavioural abnormalities, there is no clear disambiguation of behaviour and experience in our folk-psychological vocabulary. Therefore, I will focus on non-clinical cases of phenomenal divergence, starting with the best-known one: synesthesia. Synesthesia is a condition where perception in one modality induces extra experience within that modality or from a different modality. The most common forms of synesthesia are association of colours with numbers or days of the week (Cytowic, 2018). About four percent of the population has some form of synesthesia, and the condition was first studied as a scientific phenomenon in the second half of the nineteenth century (Jewanski et al., 2020). People often discover quite late that they are different, because their behavioural correlates can easily go unnoticed (Cytowich, 2018). Synesthesia is associated with increased cognitive performance in several areas, such as memory, perception, numeracy and creativity (Ward,

2013). While there are indications that synesthesia can negatively affect attention and concentration for some people (Hubbard, 2007; Simner et al. 2006), these effects are only minor.

Aphantasia is the inability to form mental imagery, which can exist for any mental modality. The condition seems to affect a similar percentage of people as synesthesia, and has only recently received serious scientific attention (Zeman et al., 2020). Researchers disagree about whether aphantasia primarily involves a lack of voluntary visual imagery, but in any case this aspect of aphantasia has been the most studied (Blomkvist, 2023). The behavioural correlates of aphantasia are non-obvious, and the condition seems to have no effect on cognitive functioning or mental well-being (Monzel et al., 2022). This is somewhat surprising, as aphantasia does negatively affect episodic and autobiographical memory (Zeman et al., 2015). Aphantasia also has an experiential opposite in hyperphantasia, an abundance of mental imagery. Zeman et al. (2020) found that people with hyperphantasia were much more likely to work in creative industries, with aphantasia being overrepresented in scientific occupations. This confirms an original observation by Galton (1980), who hypothesised that this was related to the abstract nature of scientific thought. The Zeman et al. (2020) study also found that compared to aphantasia, people with hyperphantasia were 20 percent more likely to discover their condition before their twenties. Often upon discovering their aphantasia, people remark that they used to think that talk of “seeing something in your head” was purely metaphorical. Hurlburt describes a similar reaction in participants upon realising that their inner experience is in some way unusual (Caracciolo & Hurlburt, 2016, 358).

As with the survey studies, it is a worry that there does not seem to be a straightforward relationship between visual aphantasia and reduced performance on visual tasks. One solution to this problem could be that people with aphantasia employ different strategies than others in order to perform visual tasks. For instance, though people with aphantasia show reduced performance on ‘difficult’ visual working memory tasks (Jacobs et al, 2018), which depend on very fine-grained detailed images, they are able to perform just as well as controls on easier tasks (Keogh et al., 2021). In the latter study, the difference between aphantasiacs and non-aphantasiacs what strategies they report using, where the first group is much more likely to use labelling or specific types of information (i.e. angle of rotation) in order to remember images. There are also physiological signs such as a reduced pupillary response during visual tasks and lessened skin-conductivity when reading emotion provoking stories (Kay et al., 2022). In another study, people with visual aphantasia showed less interference from irrelevant visual input compared to controls (Keogh & Pearson, 2014), which suggests that their strategy is less reliant on remembering the image as a whole. The emerging picture of visual working memory is more one of a set of strategies

than as a single ability for visualisation. This could also address Schwitzgebel's (2002) point that vividness of visual imagery should always correlate with performance at visual imagery tasks. People with visual aphantasia might unwittingly learn to compensate for deficiencies they do not know they have.

There is little experimental work that focuses on auditory aphantasia, though it does seem to be separable from its visual counterpart. Scholz (2023) relates some cases of people with visual aphantasia who consciously use inner speech to compensate for their lack of visual imagery, though others report also being unable to generate auditory imagery of any kind. In a small-scale study, Zeman et al. (2015) found that about half of participants with aphantasia reported that it affected all sensory modalities. And Dawes et al. (2020) found that 26 percent of people reported a total absence of all mental imagery. Of course, studies only show that visual imagery deficits can exist without auditory imagery deficits but not the other way round. However, Blomkvist (2023) argues that these data might not reflect the true number of people with deficits in auditory imagery and inner speech, because research on aphantasia has focused mainly on lack of visual mental imagery. The main experimental instrument to test for aphantasia is the VSIQ, which is restricted to visual imagery vividness. Nedergaard & Lupyan (2023) found that people with deficits in inner speech performed worse on rhyme judgements, and word memory, but these differences disappeared when people reported using a talk-out-loud strategy to execute the task. This supports the idea that people with aphantasia can use strategies to compensate for imagery deficits.

The nice thing about the reports on extreme phenomenologies is that they are more clear-cut than the questionnaire results. Moreover, as we have seen with synesthesia and visual aphantasia, these conditions have testable behavioural correlates. Nevertheless, these correlates are not obviously linked to phenomenology, they do not have a clear negative impact on people's lives and as a result many people only find out about their abnormality relatively late in life. This suggests that there could be a lot more abnormalities out there that we don't know about and that have not been studied, the unknown unknowns of phenomenal experience. As Lupyan et al. (2022) point out, these unknown unknowns present an interesting challenge to experimental psychology. In addition to understudied differences that we know about (i.e. auditory imagery and emotional experience), there could be a whole world of difference out there, unknown to us because it is simply too obvious for us to notice. In the next section, I will use the data that we do have to argue that our folk-psychological terms do not track subjective experience.

### *3.1 Phenomenal variation and folk-psychological terms*

As I mentioned at the outset, the nature of my thesis demands that the evidence on phenomenal variation is in a large part indirect. As a result, the process of mapping phenomenal variation is one of triangulation, considering data from various imperfect sources and seeing how it all hangs together. Despite some methodological problems with sources of evidence that have been discussed, I do think that the tentative weight of evidence supports the hypothesis that there is a significant amount of phenomenal variation. Part of the reason that this variation has gone largely unnoticed is that people can compensate for their deficits by applying alternative strategies, often without being aware of doing so. This means that their cognitive performance and their quality of life are not necessarily affected by them being different.

So what are we to make of this with regard to our everyday use of folk-psychological terms? The main point is that people are often unaware of the fact of phenomenal variation. Both people with aphantasia and participants in DES-studies expressed a great deal of surprise in discovering their experiences were different from others (Hurlburt & Heavey, 2006, p. 61). I would like to add my own observations to this. In the course of researching this subject, I have talked to many people about examples of abnormal phenomenology, particularly about visual aphantasia. On several occasions, the people I talked to were surprised to discover that their lack of visual imagery was in fact not the norm. Often, their surprise was equal to that of other people in the conversation, who suddenly discovered that their experience of visual imagery was not a human universal. Their collective surprise tells us two things. First, it tells us that both apparently assumed that their everyday use of folk-psychological terms did track phenomenal experience. Second, it tells us that at least up to that point, they regarded themselves as perfectly competent users of folk-psychological terms. For instance, a person with visual aphantasia might take herself to understand the phrase "I can picture it in my head", despite not having any visual experience. In other words, they are perfectly competent users of folk-psychological terms that would seem to track subjective experience.

It might be argued that people with aphantasia might understand certain folk-psychological terms, but not in the same way as other people. Typically upon discovering that they have aphantasia, a person will say that they always thought that talk of picturing something in your head was purely metaphorical. This suggests that other people understand that phrase literally, which is strictly speaking not the case. It has long been understood that a large part of our language use is metaphorical (Lakoff & Johnson, 1980). Though somewhat tedious, it should be pointed out that people without aphantasia also do not have literal pictures in their head. In both cases, our mode of description is indirect, the only difference being the extent of that indirectness. Therefore, it cannot be said that people

with aphantasia understand talk about picturing something in a fundamentally different way.

It is important to stress that the above argument does not entail that we are principally incapable of describing our phenomenal experiences. What it shows is that our folk-psychological terms can, and often do, function without reference to a particular type of phenomenal experience. It may be the case that talk about phenomenal experience is necessarily indirect, proceeding by means of example and analogy rather than by straightforward description.

### *3.2. Cognitive phenomenology*

The above account only works if mental states can only be identified on the basis of the sensory quality of experience. Some philosophers have argued that there exists some kind of non-sensory phenomenology of intentional thought (Horgan & Tienson, 2002; Kriegel, 2015; Lennon, 2020). If this is true, this would mean that contentfull mental states are identifiable based on that phenomenology, which would mean that folk-psychological terms do track some phenomenological aspect of experience. In order to support my thesis, this subsection discusses two accounts that make appeals to cognitive phenomenology. Starting with Horgan & Tienson (2002), their account is summarised in the following excerpt:

Consider, for example, an occurrent thought about something that is not perceptually presented, e.g., a thought that rabbits have tails. Quine notwithstanding, it seems plainly false- and false for phenomenological reasons- that there is indeterminacy as to whether one is having a thought that rabbits have tails or whether one is instead having a thought that (say) collections of undetached rabbit parts have tail subsets. It is false because there is something that is like to have the occurrent thought that rabbits have tails, and what it is like is different from what it would be like to have the occurrence thought that collections of undetached rabbit parts have tail-subsets. The overall phenomenology of these kinds of intentional states involves abstractable aspects which themselves are distinctively phenomenological. For example, if one contrasts wondering whether rabbits have tails with thinking that rabbits have tails, one realises that there is something common phenomenologically something that remains the same in consciousness when one passes from, say, believing that rabbits have tails to wondering whether rabbits have tails, or vice versa. (Horgan & Tienson, 2002, p. 522)

Personally, I have serious doubts about this phenomenal rabbitness that can be abstracted from individual bouts of thinking. However, to argue this would only amount to an

introspective stalemate<sup>2</sup>. Instead, I will point out that even if there is something common phenomenologically to a person A's wondering about rabbits and their beliefs about rabbits, this does not tell us anything about phenomenal commonalities of person A and person B. Even if, as Horgan & Tienson argue, my belief-state can be constitutively determined on the basis of phenomenal experience alone, this does not tell me anything about why my belief state is similar to someone else's. Consider the case of Peter described in Hurlburt et al. (1994). The authors interpret Peter's reports, who is diagnosed with autism, as containing no description of inner experience (e.g. inner speech, visual imagery, feelings etc.). This is an extreme case of an experience described elsewhere by Hurlburt & Heavey (2006, pp. 227-229) as 'just doing'. Similar things have been reported by people (without clinical diagnoses) whose other samples do contain descriptions of experience. However, Peter's example is instructive because it shows that he still tends to use the language of inner experience to describe his actions:

[A]t the moment of sample no. 4 Peter had just got up from his chair at the table, where was having porridge, to go into the kitchen. He was already standing but had not yet begun to walk. He said during the discussion of this sample that he 'he was thinking about going to the kitchen', but careful questioning convinced us that he was not actually 'thinking' about it in any of the senses that we have used that term: he was not saying to himself in inner speech anything like: 'I must go into the kitchen'; he did not have any visual image of himself entering the kitchen; He did not have an unsymbolized thought about going to the kitchen, etc. Instead, he apparently used the word 'thinking' to mean that he was engaged in a behaviour that was in progress and not yet complete, and therefore he 'must have been thinking about it'. (Hurlburt et al., 1994, p.391)

Peter maintains that he is able to experience visual mental imagery, but that he happened not to experience anything at the times he was sampled. Nevertheless, he is perfectly able to use the language of inner experience to describe his actions. Now it may be argued that these cases of non-experience, assuming they are real, should be excluded on the basis that there is no real thinking going on. Just because there are cases in which people mistakenly describe themselves as thinking, that does not mean that our use of the term 'thinking' does not normally track some kind of cognitive phenomenology. Lennon (2020) makes a case for such a kind of cognitive phenomenology based on reports of aphantasia and DES reports on 'unsymbolised thought' (Hurlburt & Akther, 2008). He argues that people with aphantasia are able to report on their thoughts, and that this is best explained as them having direct access through some kind of cognitive phenomenology. According to this

---

<sup>2</sup> For a discussion see: Tye & Wright (2011).



account, the experience of visual imagery would essentially be a gloss on our cognitive experience, sometimes useful but not all that important.

I agree with Lennon that people with aphantasia are able to know what they are thinking. However, it does not follow from this that there has to exist some kind of cognitive phenomenology in order to explain this fact. According to Lennon, there must be a purely cognitive experience that accompanies all sensory experience, be it real or simulated. He suggests that people with particularly vivid mental imagery might be unable to appreciate the phenomenal aspects of experience that are purely cognitive. However, this need not be the case. Consider the following example: two philosophers working in the same office, and just before their planned coffee break they hear the sound of a garbage truck outside. One philosopher has an image of a garbage truck driving past the office, the other philosopher saying to herself “that must be the garbage truck”. On my account, both philosophers could say that they recognise the garbage truck and both would be right, even if their consciousness does not include any separate cognitive experience of ‘thinking about a garbage truck’.

Lennon’s reason for rejecting the above scenario is the fact that people with aphantasia claim that they directly know what they are thinking about, without making an inference. But to deny that their knowledge is non-inferential is not to say that they lack introspective knowledge that people with very vivid imagery do have. It might be the case that in the case of the garbage truck, both philosophers infer on the basis of their phenomenal experience. If the criteria for falling under a certain folk-psychological description are behavioural, then people with aphantasia have just as much access to those criteria as people without aphantasia. This does not mean that to fit that mental description, for a member of either group, could not have a particular phenomenal feel. In that case, this person could have non-inferential knowledge of that mental state, much like you could have non-inferential knowledge that that bird over there is a gull. This is perfectly compatible with the claim that the criterion of identity cannot be phenomenological.

To summarise, the fact that despite significant variation in phenomenal experience, people are still able to use folk-psychological terms correctly supports the view that these terms do not track subjective experience. A rival explanation, that of a distinctive cognitive phenomenology, fails because it cannot show on what grounds the cognitively phenomenal state of person A can belong to the same type as that of person B. It might be possible to infer the correct folk-psychological category from your phenomenal experience, but the correctness of that experience is not determined by inner experience. In the next section, we will consider some consequences of this thesis for theoretical accounts of social cognition.

#### 4. *Phenomenal variation and social cognition*

Though perhaps a bit unintuitive, the thesis that folk-psychological terms do not track subjective experience is not at odds with its original conception as a philosophical explanandum. The historical roots of the debate on folk-psychology go back to Sellars' (1956) attack on the myth of the given. Sellars rejects the idea that there are non-inferential immediate experiences that can serve as the foundation for knowledge. However, this leaves him with a problem. If no such immediate experiences exist, then how are we to make sense of the fact that there are these folk-psychological terms for these private sensations? Sellars' answer is that, though short of being theoretical descriptions of behaviour, our language for private sensations is semantically dependent on publicly observable behaviour. Thus, even in its original conception, the idea of folk-psychology was proposed with the express purpose of accounting for private mental events without reference to private experience.

In current philosophical debates on social cognition, Sellars is usually associated with so-called theory-theory accounts (Parsell, 2011). According to these accounts, our ability to think about mental states is best characterised in terms of theoretical understanding. Depending on which theory-theorist you ask, this understanding might be explicit, tacit or even subpersonal (Stich & Ravenscroft, 1994). Regardless of which version you pick, this theoretical ability supposedly allows us to explain and predict the behaviour of others. However, this is not necessarily all that is going on here. The account of phenomenal variation in section 2 also suggests a strong non-descriptive function for folk-psychological terms, namely prescription. The reason why people with aphantasia can go through life without ever noticing that they are different is that they are able to meet certain normative behavioural standards. To say that someone is 'picturing something in their head' is not just to describe the things they are apt to do, but also to prescribe the things they should be able to do. For instance, if people are picturing something in their head, they should be able to name certain physical features of the pictured object and describe their interrelations. How people with aphantasia actually manage to do this is up to them. The point is that there exist certain culturally specific behavioural standards that say what people should be able to do.

A recent account of folk-psychology that emphasises the prescriptive function of mental state attribution is the mindshaping framework (McGeer, 2007; Zawidzki, 2013). Proponents of mindshaping point to the fact that a lot of things that humans do are aimed at homogenising behaviour within a population, thus making their behaviour more readily interpretable to others. We constrain our own behaviour through imitating others and compliance with social norms, and we constrain other people's behaviour, through norm enforcement and pedagogy. Zawidzki (2013) calls these kinds of social practices mindshaping mechanisms. According to his evolutionary account, without these

mechanisms humans could never have acquired the ability to accurately attribute propositional attitudes to others. This means that mindshaping is ontogenetically prior to our ability to accurately ascribe mental states. This also means that folk-psychological terms are not purely descriptive, because competent human adults rely on normative societal constraints in order to correctly attribute them. This is why, when a person acts in a way that conflicts with their professed beliefs, we do not simply update the beliefs we attribute to them in order to fit the behaviour. The fact that we feel entitled to admonish that person shows a normative dimension to folk-psychological terms that cannot be explained by a purely descriptive account.

The idea that human behaviour is homogenised by means of certain normative expectations can help to explain why differences in phenomenal experience are not readily apparent in our everyday interactions. If folk-psychological terms were only ever used in a purely descriptive sense, then they could hypothetically track the behavioural niceties that correspond to differences in phenomenology. However, on a mindshaping account, there is no need for this level of sophistication. If human behaviour is constrained by mindshaping mechanisms, then there is no need for very fine grained descriptions of human behaviour. Rough-and-ready will do.

It should be pointed out that mindshaping accounts of social cognition do not necessarily contradict theory-theory accounts. Several philosophers have stressed the way in which mindshaping mechanisms and sophisticated folk-psychological explanations can support one another (McGeer, 2021; Peters, 2019). Most theory-theory accounts can integrate the ideas from the mindshaping framework in a way that is compatible with the existence of a large degree of phenomenal variation. However, other theories suffer more from this variation. In particular, many versions of simulation theory rely on the assumption that the cognitive processes involved in simulating an experience will be similar to those involved in having that experience (Hurley, 2008; Davies & Stone, 1995). This is because simulation theories are based on the idea that we predict other people's behaviour by simulating their experience in some way. This presents the simulation theorist with a problem. At first glance, it may seem as if the problem is epistemological. On what grounds do we know that the experience that we identify in ourselves is similar to that of another in similar circumstances? There is no reason to suppose this, given what we know about the variation in inner experience. However, the question is not of justification but of pragmatic success. It may be the case that my simulation experience is completely different from your actual experience, but that is not a problem as long as it helps me to correctly ascribe a mental state to you. The debate on social cognition is chiefly concerned with how people actually attribute mental states, not whether they are justified in doing so. A similar point is made by Goldman (2006), a prominent advocate for simulation theory. However, his account does suffer from a

different problem shared by many simulation theories, which is that higher-level simulation requires the use of cognitive mechanisms that are simply unavailable to some people with extreme phenomenologies.

Goldman (2006) offers a two-level account of social cognition, where both levels involve some simulation. Because the lower-level requires little or no conscious awareness, this part of his theory is unaffected by phenomenal variation. At first glance, it might seem as if the same is true for his higher-level account, because Goldman denies that there needs to be a phenomenological resemblance between the target of simulation and the simulated state (2006, pp. 150-151). Introspective claims are contentious in philosophy, and it is difficult to use them to prove that the target state and the simulated state actually resemble each other in relevant respects. However, in order to deserve the label ‘simulation-theory’, Goldman admits that there should be some kind of resemblance between the target mental state and the simulated mental state. Instead, Goldman argues that the resemblances should be functional and neural. This is what an act of higher-level simulation, or E-imagination, is supposed to accomplish. The problem is that he goes on to argue that in order to:

E-imagine Xing, where X is some kind of mental state, it does not in general suffice merely to suppose or hypothesise that Xing occurs in you. To actively imagine seeing something, you must “try” to undergo the seeing—or some aspects of the seeing—despite the fact that no appropriate visual stimulus is present. (Goldman, 2006, p. 151)

Two things can be said about this. First, it is difficult to see how it would be possible to non-phenomenologically “undergo the seeing”. Goldman seems to want something over and above the ability to simply report visual details, namely he requires that people generally have an experience of an object that is like seeing that object. This is a phenomenological requirement. Later on, Goldman suggests that while visual mental imagery might be less vivid and detailed than real perception, the imagery is still vivid and detailed enough to generate correct answers about the image. True, the ability to generate correct answers is a functional requirement, but for Goldman that ability seems to rely on a phenomenal resemblance between the image and the percept. Second, the ability to ‘undergo the seeing’ is precisely what people with visual aphantasia say they are unable to do. Insofar higher-level simulation requires this kind of enactive visual imagination, we should expect people with aphantasia to be impaired in their social cognitive abilities. At least if, as Goldman argues, social cognition predominantly involves simulation. While it is true that people with aphantasia score lower on empathy when presented with written verbal cues (Monzel et al., 2023), it is not the case that people with aphantasia have generally normal mindreading abilities (Monzel et al, 2022, Smith, 2016).

It seems to me that there is a good reason why Goldman makes implicit appeals to phenomenological resemblance. This is because purely functional resemblance runs the risk of being too weak to support simulation. If I look out the window at a tree swaying in the wind, I will be able to relate any number of visual facts about that tree. If the window was blocked off and I had an extensive list of written down visual facts about that tree, I could do the same. So at least under some description, these two actions are functionally equivalent. The problem is that the act of generating a list of features of a swaying tree seems like a thoroughly theoretical way of describing my mental state. Without appeal to some kind of experience, higher-level simulation seems hard to distinguish from theory-theoretical accounts of higher-level mental state attribution. Under a broad functional description, the visual-task performance of people with aphantasia may be equivalent to that of people who do experience imagery. However, it is unclear how this equivalence cannot be achieved by a theory-theory account. Under a more fine-grained functional description, we see that people with aphantasia report using different strategies to accomplish visual tasks. The phenomenological differences go along with functional differences, which poses problems for Goldman's resemblance requirement. So at least for people with aphantasia, Goldman's account of higher-level visual simulation is either wrong or it collapses into theory-theory.

All of this is not to say that simulation can play no role in the attribution of mental states. Goldman's account also proposes an unconscious low-level simulation that does not suffer from these problems. Moreover, it seems evident that sometimes people do engage in higher-level simulation in order in trying to ascribe certain mental states. The problem with Goldman's account is his claim that simulation plays a central role in higher-level attribution of mental states. This is because people with visual aphantasia evidently do not have the ability to engage in enactive imagination of the kind required by Goldman's definition. Given the fact that their social cognitive abilities do not seem to be generally impaired, this makes it unlikely that simulation plays the central role that Goldman attributes to it.

Though his thesis is unsupported by the current weight of evidence, it should be said that Goldman has not definitively been proven wrong. This is because there is a clear gap in the evidence that both Goldman and I have presented. Due to a paucity of evidence on other categories, Goldman defends his resemblance thesis for just two types of imagination: visual and motor imagery. There is some evidence on individual variation in motor imagery (Ruffino et al., 2017), though I am not aware of any complete absence in this modality<sup>3</sup>. Isaac & Marks (1994) argue that visual mental imagery ability is linked to motor performance, which suggests that motor imagery might suffer from the same problem. But even if Goldman's resemblance thesis holds for motor imagery, there are still a lot of mental states

---

<sup>3</sup> For a general discussion of motor imagery deficits, see: Di Rienzo et al. (2014).

that should be accounted for. It might be the case that visual aphantasia represents a knockdown argument for visual imagination, but that imagination of belief, desire and emotion do show this resemblance. It is beyond the scope of this paper to show that this is definitely not the case, but the breadth of phenomenal variation that we have seen up to this point suggests that it is unlikely. In any case, the burden of proof is on the simulation theorist to show that the resemblance requirement is met.

### *5. Conclusion*

Phenomenal variation offers an interesting perspective on human cognition. Most importantly, it has the effect of loosening the grip of consciousness on our general picture of the mind. As is suggested by our everyday interactions, phenomenal variation has little bearing on our folk-psychological vocabulary. Talk of beliefs, mental images and emotions can proceed without reference to strict underlying phenomenal categories. This throws doubt on philosophical appeals to cognitive phenomenology and short of refuting simulation theory in social cognition, it does limit the scope of simulation-based explanations.

Though the main thesis of this paper is negative, there are some positive points that can be drawn from it. The first is that folk-psychological terms seem to require some theory-like account of reference, at least insofar one accepts that these terms can be used to talk about things other than publicly observable behaviour. This does not, however, necessarily vindicate theory-theory, as mindshaping can also boast theory-like aspects. For instance, Zawidzki (2013) makes explicit appeals to models for matching behaviour in his definition of mindshaping mechanisms. To show that folk-psychological terms bear on behaviour is not enough to provide a complete account of how they function, and their functions could be multifold. A second positive point is that reports on phenomenal experience are relevant to functional explanations in cognitive science. Psychological orthodoxy has it that introspection is a poor tool for uncovering the causes of certain mental states (Nisbett & Wilson, 1977). This might be true in some cases, but reports of phenomenal experience can be valuable indicators of underlying functional processes.

More generally, the picture that emerges from this paper is of two notions of mind. A public notion of mind, as it functions in our everyday folk-psychological practices and a private notion of mind, that has only an indirect influence on our actions and interactions. Most of the details of this picture have not yet been filled in. This would involve looking for possible sources of variation, delineating the relationship between private experience and cognition and describing the social processes that obscure phenomenal diversity. There is an fascinating world of differences out there to be discovered, and though it may be difficult to talk about it directly, it may be possible to render it more visible.

## 6. Bibliography

- Alexander, J., Nygaard, L. (2008). "Reading voices and hearing text: Talker-specific auditory imagery in reading. *Journal of Experimental Psychology: Human Perception and Performance*. 34(2), pp. 446–459.
- Baars, B. (2003). "How brain reveals mind: Neural studies support the fundamental role of conscious experience". *Journal of Consciousness Studies*. 10, pp. 100-114.
- Barrett, L. (2004). "Feelings or words? Understanding the content in self-report ratings of experienced emotion". *Journal of personality and social psychology*. 87(2), pp. 266–281.
- Barrett, L. (2006). "Are emotions natural kinds?". *Perspectives on psychological science*. 1(1), pp. 28-58.
- Barrett, L., Mesquita, B., Ochsner, K., Gross, J. (2007). "The experience of emotion". *Annual Review of psychology*. 58, pp. 373–403.
- Block, N. (1995). "On a confusion about a function of consciousness". *Behavioural and Brain Sciences*, 18(2), pp. 227-247.
- Blomkvist, A. (2023). "Aphantasia: In search of a theory". *Mind & Language*. 38(3), pp. 866-888.
- Brouwers, V., Heavey, C., Lapping-Carr, L., Moynihan, S., Kelsey, J., Hurlburt, R. (2018). "Pristine inner experience while silent reading". *Journal of Consciousness Studies*. 25(4), pp. 29-54.
- Caracciolo, M., Hurlburt, R. (2016). *A Passion for Specificity: Confronting Inner Experience in Literature and Science*. Columbus: Ohio University state press.
- Cytowic, R. (2018). *Synesthesia*. Cambridge, Massachusetts. MIT press.
- Davies, M., & Stone, T. (1995). *Mental simulation: Evaluations and applications. Readings in mind and language (Vol. 4)*. Hoboken, New Jersey: John Wiley & Sons.
- Davis, C., Carlson, J. (1970). "A cross-cultural study of the strength of the Muller-Lyer illusion as a function of attentional factors". *Journal of Personality and Social Psychology*. 16(3), pp. 403–410.
- Dawes, A., Keogh, R., Andrillon, T. Pearson, J. (2020). "A Cognitive Profile of Multi-Sensory Imagery, Memory, and Dreaming in Aphantasia." *Scientific Reports*. 10 (1), pp.1-10.
- Deamer, F., Wilkinson, S. (2021). "Metaphorical Thinking and Delusions in Psychosis". In: Amblard, M., Musiol, M., Rebuschi, M. (eds). *(In)coherence of Discourse*. London: Springer, pp. 119-130.
- Dennett, D. (2002). "Does your brain use the images in it, and if so, how?". *Behavioral*

- and Brain Sciences*. 25(2), pp. 189-190.
- Di Rienzo, F., Collet, C., Hoyek, N., Guillot, A. (2014). "Impact of Neurologic Deficits on Motor Imagery: A Systematic Review of Clinical Evaluations". *Neuropsychology Review*. 24, pp. 116–147.
  - Frijda, N. (2009). "Emotion Experience and its Varieties". *Emotion Review*. 1(3), pp. 264–271.
  - Galton, F. (1880). "Statistics of mental imagery." *Mind*. 5, pp. 301-318.
  - Goldman, A. (2006). *Simulating minds: The philosophy, psychology, and neuroscience of mindreading*. Oxford University Press.
  - Halpern, A. (2015). "Differences in auditory imagery self-report predict neural and behavioural outcomes". *Psychomusicology: Music, Mind, and Brain*. 25(1), pp. 37–47.
  - Heavey, C., Hurlburt, R. (2008). "The phenomena of inner experience". *Consciousness and Cognition*. 17, pp. 798-810.
  - Heavey C., Hurlburt R., Lefforge, N. (2012). "Toward a phenomenology of feelings". *Emotion*. 12(4), pp. 763–777.
  - Horgan, T., Tienson, J. (2002). "The intentionality of phenomenology and the phenomenology of intentionality". In: Chalmers, D. (ed.). *Philosophy of Mind, Classical and Contemporary Readings*. Oxford university press, pp. 520-533.
  - Hubbard, E. (2007). Neurophysiology of synesthesia. *Current Psychiatry Reports*. 9(3), pp. 193-199.
  - Hurlburt, R., Happe, F., Frith, U. (1994). "Sampling the form of inner experience in three adults with Asperger syndrome". *Psychological Medicine*. 24, pp. 385-395.
  - Hurlburt, R., Koch, M., Heavey, C. (2002). "Descriptive Experience Sampling demonstrates the connection of thinking to externally observable behaviour". *Cognitive Therapy and Research*. 26, pp. 117-134.
  - Hurlburt, R., Heavey, C. (2006). *Exploring Inner Experience: the Descriptive Experience Sampling Method*. Amsterdam, John Benjamins.
  - Hurlburt, R. Schwitzgebel, E. (2007). *Describing inner experience? Proponent meets Sceptic*. Cambridge, Massachusetts. MIT Press.
  - Hurlburt, R. Akther, S. (2008). "Unsymbolised thinking". *Consciousness and Cognition*. 17, pp. 1364–1374.
  - Hurlburt, R., Heavey, C., Kelsey, J. (2013). "Toward a phenomenology of inner speaking". *Consciousness and Cognition*, 22, pp. 1477-1494.
  - Hurley, S. (2008). "Understanding Simulation". *Philosophy and Phenomenological Research*. 77(3), pp. 755–774
  - Ihde, D. (2007). *Listening and voice: Phenomenologies of Sound* (2nd ed.). Albany: State



University of New York Press.

- Isaac, A. Marks, D. (1994). "Individual differences in mental imagery experience: developmental changes and specialisation". *British Journal of Psychology*. 85(4), pp. 479-500.
- Jacobs, C., Schwarzkopf, D., Silvanto, J. (2018). "Visual working memory performance in aphantasia". *Cortex; a Journal Devoted To the Study of the Nervous System and Behavior*. 105, 61e73.
- Jewanski, J., Simner, J., Day, S., Rothen, N., Ward, J. (2020). "The evolution of the concept of synesthesia in the nineteenth century as revealed through the history of its name". *Journal of the History of the Neurosciences*. 29(3), pp. 259-285.
- Kay, L., Keogh, R., Andrillon, T., Pearson, J. (2022). "The pupillary light response as a physiological index of aphantasia, sensory and phenomenological imagery strength". *eLife*. 11, e72484.
- Keogh, R., Pearson, J. (2014). "The sensory strength of voluntary visual imagery predicts visual working memory capacity". *Journal of Vision*, 14(12).
- Keogh, R., Wicken, M., Pearson, J. (2021). "Visual working memory in aphantasia: Retained accuracy and capacity with a different strategy". *Cortex*. 143, pp. 237-253.
- Kriegel, U. (2015). *The varieties of consciousness*. Oxford University Press.
- Kundendorf, R. Wallace, B. (eds.). (2000). *Individual differences in conscious experience*. Amsterdam: John Benjamins.
- Lambie, J., Marcel, A. (2002). "Consciousness and the varieties of emotion experience: A theoretical framework". *Psychological Review*. 109(2), pp. 219-259.
- LeBoutillier, N., Marks, D. (2003). "Mental imagery and creativity: A meta-analytic review study". *British Journal of Psychology*. 94(1), pp. 29-44.
- Lennon, P. (2023). "Aphantasia and Conscious Thought". In: Kriegel, U. (ed.). *Oxford Studies in Philosophy of Mind Volume 3*. Oxford University Press, pp. 131-155.
- Lupyan, G., Uchiyama, R., Thompson, B., Casasanto, D. (2023). "Hidden Differences in Phenomenal Experience". *Cognitive science a multidisciplinary journal*. 47(1), e13239.
- McKelvie, S. (1995). "The VVIQ as a psychometric test of individual differences in visual imagery vividness: A critical quantitative review and plea for direction". *Journal of Mental Imagery*. 19, pp. 1-106.
- Marks, D. (1973). "Visual imagery differences in the recall of pictures". *British Journal of Psychology*. 64, pp. 17-24.
- McGeer, V. (2007). "The Regulative Dimension of Folk Psychology." In: *Folk Psychology Re-Assessed*. Hutto, D., Ratcliffe, M. (eds.). Dordrecht: Springer, pp. 137-156.

- McGeer, V. (2021). "Enculturating folk psychologists". *Synthese*. 199, pp. 1039-1063.
- Mendes, W. (2016). "Emotion and the Autonomic Nervous System". In: Barrett, L., Lewis, M., Haviland-Jones, J. (eds). *Handbook of emotions* (4th ed.). New York: Guilford. pp. 166–182.
- Monzel, M., Vetterlein, A., Reuter, M. (2022). "No general pathological significance of aphantasia: An evaluation based on criteria for mental disorders". *Scandinavian Journal of Psychology*. 64(3), pp. 314-324.
- Monzel, M., Keidel, K., Reuter, M. (2023). "Is it really empathy? The potentially confounding role of mental imagery in self-reports of empathy". *Journal of Research in Personality*. 103, 104354.
- Moore, A., Schwitzgebel, E. (2018). "The experience of reading". *Consciousness and cognition*. 62, pp. 57-68.
- Nedergaard, J., Lupyan, G. (2023). "Not Everyone Has an Inner Voice: Behavioural Consequences of Anendophasia". In: Goldwater, M., Anggoro, F., Hayes, B., Ong, D. (eds.) *Proceedings of the Annual Meeting of the Cognitive Science Society*. Pp. 617-624.
- Nisbett, R., Wilson, T. (1977). "Telling more than we can know: Verbal reports on mental processes". *Psychological Review*. 84(3), pp. 231-259.
- Parsell, M. (2011). "Sellars on thoughts and beliefs". *Phenomenology and the Cognitive Sciences*, 10(2), pp. 261-275.
- Pedersen, D. Wheeler, J. (1983). "The Müller-Lyer Illusion among Navajos". *The Journal of Social Psychology*. 121(1), pp. 3-6.
- Peters, U. (2019). "The complementarity of mindshaping and mindreading". *Phenomenology and The Cognitive Sciences*. 18, pp. 533–549.
- Pylyshyn, Z. (1973). "What the mind's eye tells the mind's brain: A critique of mental imagery". *Psychological bulletin*. 80(1), pp. 1–24.
- Roebuck H., Lupyan G. (2020) "The Internal Representations Questionnaire: Measuring modes of thinking". *Behavioural Research Methods*. 52(5), pp. 2053-2070.
- Ruffino, C., Papaxanthis, C., Lebon, F. (2017). "The influence of imagery capacity in motor performance improvement". *Experimental Brain Research*. 235(10), pp. 3049-3057.
- Scholz, C. (2023). *Imaginability as Representability: A Wittgensteinian Approach to Aphantasia*. [Master's thesis, University of Amsterdam]. PhilArchive. <https://philarchive.org/rec/SCHIAR-11>
- Schear, J. (2009). "Experience and self-consciousness". *Philosophical Studies*. 144, pp. 95-105.

- Schwitzgebel, E. (2002). "How well do we know our own conscious experience? The case of visual imagery". *Journal of Consciousness Studies*. 9(6), pp. 35-53.
- Solomon, R. (1976). *The Passions*. Garden City, New York: Doubleday Anchor.
- Simner, J., Mulvenna, C., Sagiv, N., Tsakanikos, E., Witherby, S., Fraser, C., Scott, K. (2006). Synaesthesia: The prevalence of atypical cross-modal experiences. *Perception*. 35(8), pp. 1024-1033.
- Stich, S., Ravenscroft, I. (1994). "What is folk psychology?". *Cognition*. 50(1-3), pp. 447-468.
- Tye, M., Wright, B. (2011). "Is there a phenomenology of thought?" in: Bayne, T. Montague, M. (eds.) *Cognitive Phenomenology*. Oxford University Press. pp. 326-344.
- Ward, J. (2013). Synesthesia. *Annual review of psychology*. 64, pp. 49-75.
- Wicken, M., Keogh, R., Pearson, J. (2021). "The critical role of mental imagery in human emotion: Insights from fear-based imagery and aphantasia". *Proceedings of the royal society B*, 288(1946).
- Wittgenstein, L. (1953). *Philosophical investigations* (4th edition). Anscombe, G., Hacker, P. Schulte, J. (trans.). Chichester, West Sussex: Wiley-Blackwell.
- Zawidzki, T. (2013). *Mindshaping, A New Framework for Understanding Human Social Cognition*. Cambridge, Massachusetts: MIT Press.
- Zeman, A., Dewar, M., Della Sala, S. (2015). "Lives without imagery—Congenital aphantasia". *Cortex*. 73, pp. 378-380.
- Zeman, A., Milton, F., Della Sala, S., Dewar, M., Frayling, T., Gaddum, J., Winlove, C. (2020). "Phantasia—the psychological significance of lifelong visual imagery vividness extremes". *Cortex*. 130, pp. 426-440.

## Research Proposal

**Project Title:** *Two notions of the mental: separating public mind from private experience.*

### Summary

Phenomenal variation is a largely understudied and unnoticed aspect of the human mind. Nevertheless, evidence from a wide range of methodological approaches suggests that individuals differ significantly with regard to their private experiences (i.e. inner speech, visual imagery, emotional feeling). The aim of this project is to give an account of how this variation can exist and can go largely unnoticed in cognitive science and everyday life. In addition to providing an extensive overview of existing dimensions of variation, this requires answering two questions. First, the practical question is why these differences do not affect cognitive functioning. At least part of the explanation seems to be that within experimental settings and everyday life, people unwittingly compensate for phenomenal deficits they are not aware of. To alleviate this practical problem for cognitive science, it is necessary to integrate data on phenomenal variation with existing first-person methodologies. Second, the social problem is why these differences are not noticeable in everyday folk-psychological practices. In order to explain this, the project aims to develop a theoretical account of the function of folk-psychological terms that can accommodate phenomenal variation.

**Keywords:** *folk-psychology, mental imagery, social cognition, inner speech, philosophy of mind and cognitive science, private experience.*

### Problems and research questions

The starting premise of this project is the idea that there exists a lot more difference in phenomenal experience between people than is commonly assumed (Lupyan et al., 2022; Hurlburt & Heavey, 2006; Kunzendorf & Wallace, 2000). That is, people's typical private experiences vary significantly in terms of incidence and quality. Some people spend all day talking to themselves, some people experience visual imagery and some people do neither of the two. As of yet, these differences have received little systematic attention, with limited knowledge of their scope as a result. Moreover, they give rise to two questions, one practical and the other social.

The practical question is why these differences do not affect cognitive functioning, both in an experimental and an everyday setting. For instance, if there are people who do not experience visual imagery, one would expect this to affect their performance on visual tasks. However, studies on visual ability have shown inconclusive links between self-report of

visual imagery and performance on tasks that are related to visual imagery (McKelvie, 1995). This has been taken as evidence that private experience is either unimportant or that self-report measures of visual imagery are unreliable (Schwitzgebel, 2002). Recent studies have presented a more nuanced picture, suggesting that people unwittingly learn to apply strategies in order to compensate for their phenomenological deficits (Nedergaard & Lupyan, 2023; Keogh et al. 2017). This has important implications for cognitive science, as it suggests a much more nuanced relationship between phenomenal experience and cognitive functioning than is commonly assumed. In order to answer the practical question, it is necessary to develop a framework for reliably integrating first-person reports with behavioural and neuroimaging research.

The social question is why these differences are not noticeable in everyday social interactions? In philosophy of mind and in cognitive science, it is often assumed that our everyday vocabulary for mental states, our folk-psychology, maps onto particular kinds of underlying experience and neural structure (e.g Goldman, 2006, p. 223-255, Noë & Thompson, 2004). However, this is difficult to maintain if experiences that are qualitatively very different fall under the same mental description (i.e. 'fear', 'belief', 'doubt'). Phenomenal variation calls for an account of social cognition that can accommodate these differences. Traditional accounts hold that the function of folk-psychological terms is descriptive, they are used in everyday descriptions and predictions of behaviour (Stich & Ravenscroft, 1992). However, if we assume that human folk-psychological practices are at all useful, this cannot be the complete story. Phenomenal variation does have behavioural correlates, and a maximally accurate folk-psychology would reflect that variation. Alternative accounts of social cognition have pointed out that folk-psychological terms also serve non-descriptive functions (McGeer, 2007; Zawidzki, 2013). This could play an important part in explaining how these terms paper over phenomenal variation. In addition, there is the question how folk-psychological terms function on an individual self-descriptive level. While it may be the case that folk-psychological terms do not track similar subjective experiences on a group level, this might still be true on an individual level. How does grasping a public concept for mental state description affect our private experience?

In the background of both the practical and the social question is the issue of the variation itself. What is the current evidence on phenomenal variation and what other kinds of variation exist that could be understood with the tools of cognitive science? Together, these issues form the three main questions of this research project:

1. What are the possible dimensions of phenomenal variation, and what are sources of evidence that can be used to map these dimensions?

2. How can first-person data on phenomenal variation be integrated with behavioural and neuroscientific research?
3. What theory of social cognition can best accommodate differences in phenomenal experience?

1. *Dimensions of phenomenal variation*

*Philosophical and scientific background*

As of yet, the evidence on phenomenal variation is incomplete and spread out across various sub-disciplines of psychology. However, there is evidence of variation with regard to inner speech, visual imagery, emotion, unsymbolised thinking, cross-modal experience (Nedergaard & Lupyan, 2023; Isaac & Marks, 1994; Heavey et al. 2012; Hurlburt & Akther, 2008; Ward, 2013). For instance, people differ in how often they experience an inner voice, in the vividness of their mental imagery and in how they experience a particular emotion. This is based on both clinical and non-clinical data, and the research methods include survey research, descriptive experience sampling (DES) and neuroimaging.

In addition to variation, some non-clinical conditions (synesthesia, aphantasia) show significant phenomenal idiosyncrasies without diminished well-being or cognitive functioning (Simmonds-Moore et al., 2019; Monzel et al., 2022). People with aphantasia have a total lack of voluntary inner experience in some sensory modality. For vision, this means that they are unable to have a seeing-like experience of an object in the absence of visual stimuli (Zeman et al. 2015). Based on current data, around 3-4 percent of people have some form of aphantasia, but these numbers are likely to underestimate the prevalence of aphantasia in all sensory modalities (Blomkvist, 2023). Aphantasia has only received serious scientific attention in the last ten years, which has focused predominantly on visual aphantasia. This means that not much is known about the effects of auditory or olfactory aphantasia. More generally, there is the question of variation that is unknown to cognitive science. There might be other sources of phenomenal variation that have gone unnoticed in our everyday interactions and therefore have escaped scientific scrutiny. Identifying these sources could open up interesting new areas of research.

*Aims and methods*

Mapping known sources of phenomenal variation will give an overview of the extent of variation, which serves as an evidence base for the rest of the project and which could be a basis for more extensive research. This will involve both extensive survey work on known sources of phenomenological variation and using disparate sources to identify understudied areas of phenomenal variation (e.g. Sacks, 1985). Existing research on mental disorders with

specific deficits such as alexithymia (emotion attribution) and prosopagnosia (facial recognition) could be a valuable source of understudied phenomenal variation (Hogeveen & Grafman, 2021; Diaz, 2008).

## 2. *Integrating phenomenal variation and cognitive science*

### *Philosophical and scientific background*

Most research in cognitive science focuses on behaviour and the brain, with private experience being mostly ignored (Hurlburt & Heavey, 2006). This is not without cause, as there are serious methodological problems associated with studying private experience (Schwitzgebel, 2008; Nisbett & Wilson, 1977). In general, first-person reports are seen as unreliable and experts often differ with regard to their judgements about experience (Bayne & Spener, 2010). This has led some researchers to eschew the use of first-person reports on experience altogether (Tsuchiya et al., 2015). However in recent decades, there has been an increased interest in the study of consciousness within cognitive science, with some advocating for more use of introspective methods alongside behavioural measures and neuroimaging (Jack & Roepstorff, 2002).

Even less studied than private experience itself is the variation in private experience (Barrett et al., 2007). Many behavioural studies in psychology mistakenly assume that participants will have similar private experience while performing a certain task (Keogh et al., 2017), which can lead to faulty conclusions. First-person reports of private experience can give valuable insight into the functional processes that underlie cognitive performance. For instance, they might indicate differences in the use of strategy that affect cognitive performance. More generally, a lack of introspective methods can lead to treating disparate mental phenomena as a single entity, with the resulting conclusion that cognitive performance is the result of a single cognitive mechanism. For example, Hurlburt et al. (2016) conducted a study using neuroimaging and introspective methods that found significant differences between spontaneous and elicited inner speech. This demonstrates the importance of introspective methods, especially because neuroimaging studies use elicited inner speech in order to make claims about inner speech in general.

Though some cognitive scientists have integrated first-person methodologies into their research (Lutz et al., 2002), the majority of those studies have not paid attention to the relevance of interpersonal variation for cognitive science. For instance, Gallagher & Sørensen (2006, p. 121) claim that first-person researchers should only be interested in private experiences “insofar as they are representative of common experiences”. While this is

still preferable to ignoring experience altogether, it seriously runs the risk of overgeneralization.

### *Aims and methods*

This project aims to supplement existing methodological framework for first-person research in cognitive science in order to be able to integrate it with data on first-person variation. Insights can be taken from various existing methodologies, such as neurophenomenology and descriptive experience sampling (Varela, 1996; Hurlburt & Heavey, 2006). The supplementation may affect construct validity, the way in which concepts are operationalised, the training of participants and the generalisation of results. Moreover, data on phenomenal variation could function as an indicator of cognitive variation, thus providing the basis for further study.

### 3. *Folk-psychology and private experience*

#### *Philosophical and scientific background*

The contemporary philosophical debate on folk-psychology originated with Wilfrid Sellars (1956), who was the first to propose that human understanding of other people's mental states is akin to a theoretical understanding. This idea has been developed by proponents of theory-theory, who argue that people apply a tacit theory in order to make predictions about what people will do in which circumstances as the result of some particular mental state (Stich & Ravenscroft, 1992). This theoretical approach to 'mindreading' has been challenged from various angles, a notable example being the mindshaping framework proposed by McGeer (2007) and Zawidzki (2013). According to this framework, complex social cognition is only possible because mindshaping practices (e.g. imitation, norm enforcement, pedagogy) ensure cognitive homogeneity. Whereas theory-theorists assume that humans are naturally skilled at predicting the behaviour of others, mindshaping theorists assume that humans are naturally adept at making one another's behaviour predictable. Our tendencies to teach, to imitate and to follow norms ensure that our behaviour falls within a cognitive tractable range of options for interpretation.

What both mindshaping and theory-theory have in common is their acceptance of some theoretical element in our understanding of other people's mental states. This in contrast to other frameworks that mostly eschew appeals to theory in their approach to social cognition (e.g. Gallagher, 2020; Goldman, 2006). If there exists a large degree of phenomenal variation, this suggests folk-psychological terms do not reflect strict mental categories with corresponding neural correlates. This means that a theoretical approach is better suited to explaining how folk-psychological terms function, given that our knowledge



is likely not based on direct knowledge. Several theorists have suggested that theory-theory and mindshaping accounts can be seen as complementary (McGeer, 2021; Peters, 2019).

#### *Aims and methods*

In order to answer the social question, it is necessary to develop an account of how folk-psychological terminology functions that can accommodate differences in private experience, using both the theory-theory and mindshaping framework. Because of its emphasis on meeting normative expectations, the mindshaping framework is especially suited to explaining the homogeneity in behaviour that coincides with phenomenal variation. However, mindshaping by and of itself is unable to explain the sophisticated explanatory practices that exist within cultures (McGeer, 2021). Moreover, the variation in phenomenal variation suggests that mindshaping practices only affect publicly observable behaviour, a position that current theoretical work on mindshaping is ambivalent about (Zawidzki, 2013, p. xiv). By presenting an integrated account of theory-theory and mindshaping accounts of social cognition, it will be possible to give a better account of how folk-psychological practice functions despite phenomenal variation.

#### *Scientific and social relevance*

- Phenomenal variation has wide ranging implications for research in cognitive science, including the way in which concepts are operationalised, the generalisation of results and explaining differences in cognitive performance. Moreover, phenomenal variation can be a valuable indicator of functional variation, thus opening new areas for behavioural research.
- Recent decades have seen a distinct rise of the neurodiversity movement, a political and scientific movement that seeks to reevaluate certain mental disorders (e.g. ADHD, autism) as the expression of normal cognitive variation (Chapman, 2020). Phenomenal variation, as an example of non-pathologized diversity, could function as a useful lens through which to examine neurodiversity. This is especially true for diagnoses such as autistic spectrum disorder, which likely coincide with abnormal phenomenal experiences (Hurlburt et al., 1994).
- While phenomenal idiosyncrasies do not necessarily have a negative impact on a person's well-being, people often describe finding out about them as explanatory and deeply meaningful (Scholz, 2023; Hurlburt & Schwitzgebel, 2007, p. 253).

- Many debates within philosophy of mind (implicitly) assume that people's private experience is similar (Fink, 2018). A substantive account of phenomenal variation could help to elucidate disputes in which philosophers make appeals to introspection.

## **Timetable**

### *Year 1*

The first year will be focused on identifying and mapping the dimensions of phenomenal variation, which will result in a survey article intended as a primer for further empirical and theoretical research. Based on this accumulated evidence, a convincing case can be made for the thesis that folk-psychological terms do not track private experience. Both these efforts will result in a paper submitted to a journal (e.g. *Journal of Consciousness Studies, Consciousness and Cognition*).

### *Year 2*

The second year will be focused on delineating problems in cognitive scientific research that can be alleviated by taking phenomenal variation into account. In order to alleviate these problems, existing first-person methodologies will need to be supplemented in order to accommodate these problems. These issues will be the topic of one research paper.

### *Year 3*

In the third, the research will be aimed at developing an account of the functions of folk-psychological terms that can accommodate differences in phenomenal experience. This requires the integration of insights from theory-theory accounts and mindshaping accounts and will result in one paper.

### *Year 4*

The fourth year of the project will be used for writing a Phd thesis based on the collective results of the previous three years of research.

## **Summary for non-specialists**

Human private experience can take a lot of different forms, such as talking in an inner voice, forming mental images, bodily sensations and abstract patterns of thinking. Interpersonal variation in private experience is a largely understudied and unnoticed aspect of the human mind. Nevertheless, evidence from various different kinds of research suggests that individuals differ significantly with regard to these experiences. For example, some people

experience anger as a purely bodily sensation, whereas for others it is a purely cognitive state. The aim of this project is to give an account of how this variation can exist and can go largely unnoticed in cognitive science and everyday life. Intuitively, one would expect that these differences would show in everyday interactions between people with differing kinds of private experience and that psychological research on individual differences would have charted these differences, but this does not seem to be the case.

In addition to providing an extensive overview of existing dimensions of variation, giving an account of the variation requires answering two questions. First, the practical question is why these differences do not affect cognitive functioning. At least part of the explanation seems to be that within experimental settings and everyday life, people unwittingly compensate for deficits they are not aware of. This is a problem for research in various areas in cognitive sciences. To alleviate this practical problem for cognitive science, it is necessary to integrate data on variation in private experience with existing methodologies that take the first-person reports of experimental subjects into account. This will involve adjustments in how participants are trained and interviewed, results are interpreted and experiments are set up. Second, the social problem is why these differences are not noticeable in our everyday ways of talking about mental states and explaining behaviour. In order to explain this, the project aims to develop a theoretical account of the function of mental state terms that can accommodate variation in private experience. This can be achieved by integrating two existing accounts of social cognition, theory-theory and mindshaping.

## Bibliography

- Barrett, L., Mesquita, B., Ochsner, K., Gross, J. (2007). "The experience of emotion". *Annual Review of psychology*. 58, pp. 373–403.
- Bayne, T., Spener, M. (2010). "Introspective humility". *Philosophical issues*. 20(1), pp. 1-22.
- Chapman, R. (2020). "Defining neurodiversity for research and practice". In: Rosqvist, H., Chown, N., Stenning, A. (eds.). *Neurodiversity studies: A new critical paradigm*. Abingdon, Oxon: Routledge, pp. 218-220.
- Blomkvist, A. (2023). "Aphantasia: In search of a theory". *Mind & Language*. 38(3), pp. 866-888.
- Diaz, A. (2008). "Do I know you? A case study of prosopagnosia (face blindness)". *The Journal of School Nursing*. 24(5), pp. 284-289.
- Caracciolo, M., Hurlburt, R. (2016). *A Passion for Specificity: Confronting Inner Experience in Literature and Science*. Columbus: Ohio University state press.

- Fink, S. (2018). "Introspectionist disputes deflated: the case for phenomenal variation". *Philosophical Studies*. 175, pp. 3165-3194.
- Gallagher, S., Sørensen, J. (2006). "Experimenting with phenomenology". *Consciousness and cognition*. 15(1), pp. 119-134.
- Gallagher, S. (2020). *Action and interaction*. Oxford University Press.
- Goldman, A. (2006). *Simulating minds: The philosophy, psychology, and neuroscience of mindreading*. Oxford University Press.
- Heavey C., Hurlburt R., Lefforge, N. (2012). "Toward a phenomenology of feelings". *Emotion*. 12(4), pp. 763-777.
- Hogeveen, J., Grafman, J. (2021). "Alexithymia". In: Heilman, K., Nadeau, S. (eds.). *Handbook of clinical neurology*, 183. Amsterdam: Elsevier, pp. 47-62.
- Hurlburt, R., Happe, F., Frith, U. (1994). "Sampling the form of inner experience in three adults with Asperger syndrome". *Psychological Medicine*. 24, pp. 385-395.
- Hurlburt, R., Akhter, S. (2008). "Unsymbolized thinking". *Consciousness and Cognition*. 17(4), pp. 1364-1374.
- Hurlburt, R. Schwitzgebel, E. (2007). *Describing inner experience? Proponent meets sceptic*. Cambridge, Massachusetts: MIT Press.
- Hurlburt, R., Heavey, C. (2006). *Exploring Inner Experience: the Descriptive Experience Sampling Method*. Amsterdam, John Benjamins.
- Hurlburt, R., Alderson-Day, B., Kühn, S., Fernyhough, C. (2016). "Exploring the ecological validity of thinking on demand: neural correlates of elicited vs. spontaneously occurring inner speech". *PLoS one*. 11(2), e0147932.
- Isaac, A. Marks, D. (1994). "Individual differences in mental imagery experience: developmental changes and specialisation". *British Journal of Psychology*. 85(4), pp. 479-500.
- Jack, A., Roepstorff, A. (2002). "Introspection and cognitive brain mapping: from stimulus-response to script-report". *Trends in cognitive sciences*. 6(8), pp. 333-339.
- Keogh, R., Wicken, M., Pearson, J. (2021). "Visual working memory in aphantasia: Retained accuracy and capacity with a different strategy". *Cortex*. 143, pp. 237-253.
- Kunzendorf, R. Wallace, B. (eds.). (2000). *Individual differences in conscious experience*. Amsterdam: John Benjamins.
- Lupyan, G., Uchiyama, R., Thompson, B., Casasanto, D. (2023). "Hidden Differences in Phenomenal Experience". *Cognitive science a multidisciplinary journal*. 47(1), e13239.
- Lutz, A., Lachaux, J., Martinerie, J., Varela, F. (2002). "Guiding the study of brain

dynamics by using first-person data: Synchrony patterns correlate with ongoing conscious states during a simple visual task”. *Proceedings of the national academy of sciences*. 99(3), pp. 1586-1591.

- McGeer, V. (2007). “The Regulative Dimension of Folk Psychology.” In: *Folk Psychology Re-Assessed*. Hutto, D., Ratcliffe, M. (eds.). Dordrecht: Springer, pp. 137–156.
- McGeer, V. (2021). “Enculturating folk psychologists”. *Synthese*. 199, pp. 1039-1063.
- Peters, U. (2019). “The complementarity of mindshaping and mindreading”. *Phenomenology and The Cognitive Sciences*. 18, pp. 533–549.
- McKelvie, S. (1995). “The VVIQ as a psychometric test of individual differences in visual imagery vividness: A critical quantitative review and plea for direction”. *Journal of Mental Imagery*. 19, pp. 1–106.
- Monzel, M., Vetterlein, A., Reuter, M. (2022). “No general pathological significance of aphantasia: An evaluation based on criteria for mental disorders”. *Scandinavian Journal of Psychology*. 64(3), pp. 314-324.
- Nedergaard, J., Lupyan, G. (2023). “Not Everyone Has an Inner Voice: Behavioural Consequences of Anendophasia”. In: Goldwater, M., Anggoro, F., Hayes, B., Ong, D. (eds.) *Proceedings of the Annual Meeting of the Cognitive Science Society*. Pp. 617-624.
- Nisbett, R., Wilson, T. (1977). “Telling more than we can know: Verbal reports on mental processes”. *Psychological Review*. 84(3), pp. 231-259.
- Noë, A., Thompson, E. (2004). “Are there neural correlates of consciousness?” *Journal of Consciousness Studies*. 11(1), pp. 3-28.
- Sacks, O. (1985). *The Man Who Mistook His Wife for a Hat*. New York: Harper Collins.
- Schwitzgebel, E. (2002). “How well do we know our own conscious experience? The case of visual imagery”. *Journal of Consciousness Studies*. 9(6), pp. 35-53.
- Schwitzgebel, E. (2008). “The Unreliability of Naive Introspection”. *The Philosophical Review*. 117(2), pp. 245–273.
- Sellars, W. (1956). “Empiricism and the Philosophy of Mind”. *Minnesota studies in the philosophy of science*. 1(19), pp. 253-329.
- Simmonds-Moore, C., Alvarado, C., Zingrone, N. (2019). “A survey exploring synesthetic experiences: Exceptional experiences, schizotypy, and psychological well-being”. *Psychology of Consciousness: Theory, Research, and Practice*. 6(1), pp. 99-121.
- Stich, S., Ravenscroft, I. (1994). “What is folk psychology?”. *Cognition*. 50(1-3), pp. 447-468.
- Tsuchiya, N., Wilke, M., Frässle, S., Lamme, V. (2015). “No-report paradigms:

extracting the true neural correlates of consciousness". *Trends in cognitive sciences*. 19(12), pp. 757-770.

- Varela, F. J. (1996). "Neurophenomenology: A methodological remedy to the hard problem". *Journal of Consciousness Studies*. 3, pp. 330–350.
- Ward, J. (2013). Synesthesia. *Annual review of psychology*. 64, pp. 49-75.
- Zawidzki, T. (2013). *Mindshaping, A New Framework for Understanding Human Social Cognition*. Cambridge, Massachusetts: MIT Press.
- Zeman, A., Dewar, M., Della Sala, S. (2015). "Lives without imagery–Congenital aphantasia". *Cortex*. 73, pp. 378-380.

# Curriculum Vitae - Mathijs Geurts

## 1 Personal Information

- Name and initials: Mathijs L. J. P. Geurts
- Born: 17-02-1999
- Nationality: Dutch
- Language skills: Dutch (native), English (fluent), German (intermediate), Italian (beginner)
- Place of residence: Utrecht, The Netherlands
- Adress: Troelstralaan 63-1
- Email: mathijs.geurts@gmail.com



## 2 Studies

Finished education:

- Highschool pre-university education (VWO) - Stedelijk Gymnasium Arnhem - 2011 to 2017
- Liberal Arts and Sciences, Bachelor - Utrecht University-  
Major: Philosophy, 2017 to 2021

Current education:

- Philosophy of Mind, Research Master - Radboud University Nijmegen  
- February 2021 to now

### **3 Relevant work experience**

- Corrector - Development Factory - February 2016 to August 2018
- Speaker - Mensen Zeggen Dingen - December 2016 to now
- Columnist - university paper DUB - January 2019 to February 2020
- Seminar lecturer - Philosophy of Management Sciences - April 2022 to Juli 2023
- Teaching assistant - Metaphysics - Juli 2022 tot August 2022
- Seminar lecturer - Philosophy of Mind, Brain and Behaviour - April 2023 to Juli 2023

### **4 Conferences**

- Speaker - Summer School: Inner Speech and its Connection to Thought (online) - University of Tubbingen - July 2021
- Speaker - SOPHia conference - University of Salzburg - September 2021
- Speaker - Consciousness and Reality graduate conference (online) - University of Bucharest - June 2022
- Attendee - Workshop: The Normativity of Joint Action - University of Milan - June 2023
- Speaker - Open Minds XVI graduate conference - University of Manchester - June 2023

### **5 Additional relevant activities**

- Editor - School paper Iris Tacheia - September 2015 to Augustus 2017
- Winner - Kunstbende Gelderland (Spoken word / Language) April 2017
- Winner - Campus Column competition DUB - January 2019
- Internship - International School for Philosophy (ISVW) - September 2021 to January 2022
- Editorial staff - Magazine iFilosofie - October 2021 to August 2023
- Organiser - Moving Humanities Conference 2022 - March 2022 to November 2022
- Coordinator - Anoiksis (society for the psychosis sensitive) - April 2023 to now