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The Naming Problem in the Recognition of Psi-Encoded Visual Information: Analysis and Implications

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HIGHLIGHTS

Research suggests that the difficulty in naming objects in psychic-type experiences occurs because psi-received visual information is processed at a low level, lacking the higher-level cognitive organization needed for object recognition.

ABSTRACT

A consistent finding in experiments involving telepathic and clairvoyance phenomena is the difficulty of a receiver of visual psi information to name objects and symbols in what they receive. This deficit has been called "the naming problem" by Russell Targ. To gain insight into this issue, the perceptual and cognitive process used by receivers of telepathic and clairvoyant information is examined. Introspective and behavioral data are included in the examination. Factors are identified which contribute to the naming problem. The perception process of a receiver of psi-encoded visual information can be viewed as a form of perception like that in visual imagery but without effective high-level cortical involvement. Psi-encoded information in visual telepathy and clairvoyance is hypothesized to contain information that is decoded into low-level visual features, while higher-level information that organizes sensory information into specific object names and meanings – information known by the sender, or "agent" in telepathy – is absent. The fact that the same naming problem and similar introspective reports about received visual impressions are found in both telepathy and clairvoyance suggests that the data structure of the psi-encoded information in both forms of psi phenomena is identical.

KEYWORDS

Clairvoyance, integrative agnosia, introspection, mental imagery, object recognition, consciousness, psi data structure, telepathy, visual perception.

INTRODUCTION

A consistent finding in visual telepathy and clairvoyance experiments is the inability of the percipient to name specific objects in the received information. Russell Targ referred to this as the *naming problem*: "An important fact – known by Rene Warcollier in the 1940s and by Buddhists twelve hundred years earlier ... is that *it is much harder to identify a symbol you already know by name than it is to describe something you have never seen*" (emphasis in original; Targ, 2012, p. 34). Noted American psychic Ingo Swann suggested, referring to the visual perception of psi-encoded data: "a great deal of distortion and misrepresentation can and does take place while the mind seeks to translate the basic images into words" (Swann, 1991/2017, p. 73). Recognizing this tendency, Swann developed a technique of drawing psychically received shapes and forms as an alternative to trying to verbal-

ly identify or name the received impressions, leading to improved performance. Swann called this difficulty in grouping local elements into recognized objects a *lack of fusion*: "All parts are correctly perceived, but will not connect to form a whole" (Swann, 1991/2017, p. 229). In training remote viewing, a form of psi perception without a telepathic sender, Lori Williams emphasizes "the biggest mistake psychics and remote viewers make is naming things with nouns." "Our biggest mantra is, *describe don't identify"* (Williams, 2020). Figure 1 illustrates the naming problem and lack of fusion.

In this paper, I discuss the naming problem observed in psi-encoded information processing in the context of telepathic and clairvoyant phenomena. Telepathy involves information sharing between a sender (or "agent") and a receiver (or "percipient"). Clairvoyance phenomena, in which the same naming problem occurs, does not involve a sender. Together, these are the major and readily testable forms of psi phenomena in which remote psi-encoded visual information can be acquired and perceived. Hypotheses will be proposed and evaluated regarding the information that is conveyed and its perception in telepathic and clairvoyance phenomena. The content of psi-encoded information and the perceptual process, which decodes that content, form a general framework in which to view psi phenomena.

For simplification, this paper will use the term "clairvoyance" in its broadest sense, referring to a psi phenomenon where no sender is involved, and the perceived mental impressions can apply to any sense, not just the visual sense. This broad definition, encompassing all sensory modalities, has a precedent in its use in the modern definition of remote viewing, which can be described as a practice of multi-sensory clairvoyance which follows a specific protocol (see Tressoldi & Katz, 2023).

In psychometry, a "link object" is used as a starting point for clairvoyantly acquiring psi information related to the object. Otto Reimann, a recognized Czech psychometrist, mentioned that his

> " ... information about the target did not come to him, he said, as one piece altogether, like a photograph. Instead, as metaphors of the process he preferred those of slowly building a mosaic from tiny pieces of stone or painting a portrait by repeated applications of pigment to a canvas" (Schmidt, 1930, as cited in Barrington et al., 2005, p. 157).

Warcollier (1948/2001, p. 3) mentioned, "A telepathic image resembles somewhat a chemical molecule. The original molecule, the target, decomposes into elements. Some of these elements are received and are recombined into a new molecular structure." It should be noted that although the "naming problem" typically occurs in the visual reception of psi information, it is not universal. With highly gifted psychics, and reported in spontaneous as opposed to experimental cases, recognition can be detailed, and correct naming of objects can occur. For example, in many documented cases regarding Gerard Croiset, a highly acclaimed Dutch psychic (1909–1980), objects are regularly named with accuracy. In a tape-recorded conversation typical of Croiset's style:

> "I see a factory along a canal. Opposite the factory, there is a semidetached house. Near this house, there must be something like a plank bridge. It also has steps leading down to the water. I also see a blue sign. It is about fifty meters from the plank bridge. Opposite that blue sign, I see a small tower. This is close to the canal. If you stand with your back toward the semidetached house, and face the plank bridge across the water, the child must lie there about ten meters from the bank."
>
> The following afternoon, the body of the missing child was found by two frogmen at the exact spot indicated by Croiset (Pollack, 1964, p. 131).

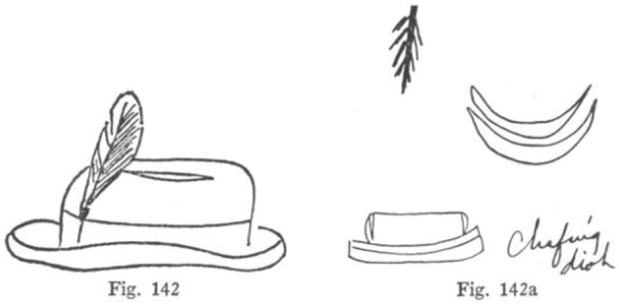

Figure 1. Illustrating the "Naming Problem" and "Lack of Fusion" in Telepathically Received Impressions of Visual Information. The impression drawn by a percipient on the right illustrates how some isolated parts of the drawing on the left were received telepathically, but they were not correctly organized into a specific object. Such "lack of fusion" is typical in visual telepathic and clairvoyant psi phenomena. A number of approximately correct "bits and pieces" are perceived, but they are not correctly integrated or named (Figure reproduced from Sinclair, 1930/2020, p.108).

In this paper, I will not discuss the evidence for the existence of the psi phenomena of telepathy and perception of distant scenes, referred to variously as clairvoyance, remote viewing, and psychometry, as relevant studies that do this are widely available. For meta-analyses, see Bem et al. (2016), Cardeña (2018), Mossbridge et al. (2012), Storm (2006a,b), Storm and Tressoldi (2023), and Utts (2018), all of which find significant experimental results. For credible accounts of cases of telepathic and clairvoyance phenomena, see Barrington et al. (2005), Mayer (2007), Pollack, (1964), Radin (2006), Talbot (1992), Targ (2012), and Wilkins & Sherman (1951/2004).

Why is it that receivers of psi-encoded information typically find it difficult to accurately name objects in the visual information they acquire? To better understand the naming problem, it will be instructive to examine other phenomena in which naming is problematic.

Integrative Agnosia

Lack of ability to identify visually perceived objects is found in patients with a neurological impairment called *integrative agnosia*:

> The patients ... are unable to recognize even familiar common objects presented to them in the visual modality. This object recognition deficit cannot be attributed to a problem in labeling the stimulus per se nor to a loss of semantics; presented with the same object in a different modality, either haptically or auditorily, they have no problem in naming it or providing detailed and rich descriptions of it. Visual agnosia refers to a specific failure to access the meaning of objects from the visual modality ... The 2 patients we studied are clearly able to extract some visual information from the display but apparently are unable to integrate all aspects into a meaningful whole (Behrmann & Kimichi, 2003, p. 21).

Integrative agnosia refers to a deficit in integrating visual information into known objects or percepts. This deficit is typically observed in patients with damage in the occipitotemporal cortex, a region of the brain involved in the integration of low-level visual features. Visual integrative agnosia may also result from a stroke or traumatic brain injury that affects higher-order pathways in the brain involved in visual integration. Neurologically intact perceivers unify and identify a multipart stimulus quickly. Figure 2 shows attempts to name line drawings of objects by R.N., an integrative agnosia patient. These responses could just as well have been made by a telepathic or remote viewer of these drawings.

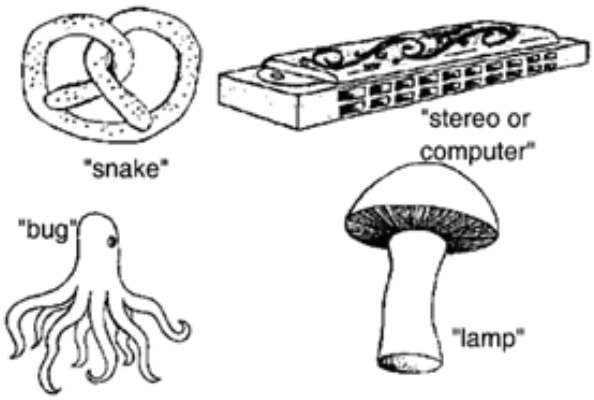

Figure 2. Examples of line drawings and responses of subject R.N. The subject who named the objects in the drawings above had visual integrative agnosia. Although such patients can discriminate low-level visual features, their challenge is to integrate the features they identify into a whole. In the drawings above, the target objects were incorrectly named. Patients with visual integrative agnosia can easily name objects that are put into their hands or described verbally, but not when they look at them. (Figure reproduced from Behrmann & Kimichi, 2003, p. 22; line drawings from the Boston Naming Test, 2nd ed.).

Perception is a Constructive Process

Visual perception and recognition of objects is understood to be an interactive process between higher and lower levels of neurological processing within a hierarchically structured visual and cognitive system. Visual perception acquires information from the pattern of photons which enter the eye. The photons can vary in wavelength and flux density, which are perceived as different colors and brightnesses. The earliest stages of visual processing extract low-level visual features from the raw sensory data impinging on the array of rod and cone cells of the retina. This process involves detecting and organizing the raw data into (1) oriented edges resulting from adjacent differences in brightness and color, which help delineate the shape of objects; (2) colors; (3) contrast which enhances edge detection and object differentiation; (4) movement; (5) binocular depth information; and (6) the identification of continuous surface areas with uniform textures. *Perceptual organization* is the process by which these low-level visual features in the early processing stages are organized into progressively more complex units, a process in which high-level information that comes from memories of previous experiences is

involved. This is the constructive, interactive process of "making sense," i.e., "deriving meaning" out of the available low-level visual sensory information (for further discussion regarding the mechanics of this process, see Clark, 2013; Graboi & Lisman, 2003; McClelland & Rumelhart, 1981).

The sensory-cognitive system normally assembles basic visual features into more complex units using a rapid series of neurologically based computational steps which involve both "bottom-up" and "top-down" processing. In visual integrative agnosia, there is an apparent disconnect in the process that normally and rapidly occurs between low-level "bottom-up" visual information and learned higher-level "top-down" information, resulting in performance that appears to duplicate the naming problem observed in the perception of received psi-encoded visual information.

Low-Level vs. High-Level Information

Shannon's information theory (Shannon & Weaver, 1949/1964) focuses on *quantifying information content* and intentionally avoids addressing its *meaning*. In this paper, the term *information* is concerned with meaning, not quantity. Specifically, meaning is separated into two major categories, "low-level meaning" and "high-level meaning." These categories are inspired by the structure of the human visual system. As discussed above, the lower hierarchical levels of the visual system (which include the primary visual cortex (V1) and other areas in the occipital lobe (V2, V3, V4, V5/MT), collectively referred to as the *visual cortex*) perform early visual processing. These regions process basic visual features such as edges, colors, motion, binocular disparity, and simple shapes, which are assigned to the "low-level meaning" category of visual information. Measurable physical characteristics of the information comprise "low-level meaning", but their stand-alone intrinsic meaning in the cognitive schema of the percipient in most contexts is insignificant.

High-level visual processing is performed in visual association areas of the brain. These include areas in the temporal and parietal lobes, such as the inferotemporal cortex (IT) and posterior parietal cortex (PPC). These regions are involved in associating visual information from lower levels of processing with memory and integrating the discovered high-level information with other sensory inputs. It is in these higher processing levels where the names and "high-level meaning" of integrated visual information are expressed in the consciousness of the percipient. When a visual image on the retina is perceived, neural processing activity occurs at all hierarchical levels, and the percipient can focus attention and become conscious of the information content on any desired level of integration. For example, you can focus attention on the lower loop of the 'g' in the word "integration" if you desire – a low-level unit of visual information – but while reading, the focus and consciousness remain at the high-level meaning of the integrated stream of characters made up of low-level visual features on the page.

While the low-level visual information contained in oriented edges, simple shapes, motion, and disparity is unambiguous and can be appreciated universally by all beings with visual perception, the high-level meaning of the visual information depends largely on the learned experience of an individual and is therefore different for different species and in many cases different for different individuals within a species. However, there are also high-level information constructs which are archetypal and transcend individuals and even species. For example, a large object moving rapidly and directly towards a perceiver has a universal high-level meaning of 'danger.'

Since telepathically received visual shape information can be drawn with some accuracy by percipients (Figure 1, right), telepathically communicated visual psi-encoded information must contain, at a minimum, a representation of low-level visual information. But can telepathically and clairvoyantly communicated psi-encoded information to humans also include high-level information related to what the information means, including its symbolic name? While low-level, raw visual information is unambiguous and without intrinsic meaning, the high-level meaning extracted from the integration of low-level information in some cases signifies different things for different percipients in different contexts, and in other cases signifies archetypal and universal meanings. These can be regarded as two subcategories of "high-level meaning."

The question of whether high-level meaning is present in the psi-encoded information received clairvoyantly, in which an active sending agent is not involved, does not have an obvious answer. When a clairvoyant remotely views, for example, a bush or shrub in a distant environment, it seems logical to assume that the name of the shrub would not be included as part of the raw psi-encoded information received by the clairvoyant. However, it can't be ruled out that information available in a collective unconscious repository is also accessed during that clairvoyant perception. In that case, the name of the shrub, as well as its ability to alleviate certain health conditions, might be part of the information content received by the clairvoyant. The same possibility applies to telepathic information access.

HYPOTHESES

Given our current state of knowledge, hypotheses can be proposed to account for the naming problem and lack of fusion observed in telepathic and clairvoyant perception experiments. Evidence from related perception research, case evidence, and introspective evidence can then be considered, leading to an assessment of the validity of the hypotheses.

Hypothesis 1

The fact that telepathic and clairvoyant percipients typically act like patients with integrative agnosia is consistent with the notion that *Hypothesis 1: Received psi information that enters the visuo-cognitive system of the brain does not include high-level information, including information about the integration of basic visual features into specific objects, symbols, and their names. The visual and cognitive system used to perceive psi-encoded information is responsible for organizing and assigning high-level organization and meaning to raw sensory features communicated by psi-encoded information.*

In telepathic experiments, high-level information – information about how low-level visual features are organized into specific named objects and their meanings – is certainly known by the sender, but it does not appear to be present in the information communicated to the percipient. The percipient appears to be dealing only with raw visual information and must organize that information into meaningful units using his or her visio-cognitive system which brings in their learned experience.

In normal vision, feature information is available from the lower levels of the visual system, and high-level semantic information is available from learned experience. But, it appears that while perceiving psi-encoded information, perceptual processing does not operate nearly as effectively as it does in normal visual perception. Perceived visual feature information often defies proper organization into integrated shapes that comprise known objects and symbols. For example, receivers of psi-encoded information are often unable to organize even the simple lines and curves of totally familiar letters, words, and numbers into recognized symbols. Many examples of drawings of telepathically received information may be found in Swann (1991/2017, Chap. 12) and Sinclair (1930/2020). By looking at them, it is clear in almost every case that *some visual information was telepathically received*, but "direct hits" with correct naming assigned to the received visual information are rare.

Even though the organization of simple visual features into recognized objects with names is well-defined information in the consciousness of a telepathic sender (e.g., Figure 1, left), the receiver's performance shows no awareness of this high-level information (e.g., a "hat"). Since some cases of psi perception include auditory or olfactory information, in general, it appears that *raw physical feature information* is what becomes telepathically as well as clairvoyantly available to a receiver of psi-encoded information – at least in experimental non-spontaneous contexts. Such information does not appear to have semantic content; it is assumed to be up to the percipient to process the received physical feature information into a meaningful high-level percept.

Hypothesis 2

The fact that telepathic receivers and remote viewers typically act like patients with integrative agnosia is consistent with the notion that, *Hypothesis 2: During the perception of psi-encoded visual information, the receptive apparatus in the brain that detects low-level visual features of psi-encoded information is to some extent functionally disconnected from the higher-order "top-down" processing that normally participates in the integration and recognition of these features*.

This hypothesis extends the first by positing that the perception process itself does not operate effectively the way it normally processes visual information. Specifically, the involvement of high-level cortex brought to bear in feature integration is impacted. Implicit in this hypothesis is the assumption that the same visual system that operates in normal vision also operates in a modified way during the perception of visual psi-encoded information.

Swann believed that the "ESP mind" operates separately from the conscious mind. "The ESP mind was not part of the conscious mind, and hence had never been truly touched through conscious intellectualizing and labels" (Swann, 1991/2017, p. 38). "We must also have a second consciousness that integrates with the second reality *and* with the physical as well" (Swann, 1991/2017, p. 51, emphasis in original). Swann called this second consciousness the "ESP core." "To our eyes, all objects are more or less familiar and easy to recognize. But the ESP core processes bits and pieces of information…" (Swann, 1991/2017, p. 123). If there is a separate psi information detection and processing system in the brain which is receptive to low-level psi-encoded information and which is not well-connected with the higher-level analytic processing of the brain used in normal vision, this could account for the behavior observed in connection with the naming problem. Hypothesis 2 discounts the notion of a separate processing system and considers failure to name as a functional deficit in the normal visual processing system used to process visually coded information.

Hypothesis 3

Since introspective reports and the behavioral evidence of the "naming problem" are essentially identical in both telepathic and clairvoyant psi perception, we have *Hypothesis 3: All visual psi-encoded information, whether sourced by visualization in a sender's mind or directly viewed by a sender, or whether its source is a passive environment with no active sender, whether the information source is in real-time or in the past or in the future, has the same general data structure.*

The idea that all psi-encoded information has the same general structure has been expressed by Marwaha and May (2016) and others, including Rhine (1945) (see Radin, 2019). This third hypothesis is based on the fact that whether there is an active agent involved in sourcing the psi-encoded information, which may be termed "telepathic encoding," or whether no active agent is involved in sourcing the information, which may be termed "clairvoyant encoding," the same perceptual issue of the naming problem is observed. This suggests that the information encoding in telepathic and clairvoyant communication is the same. At first glance, in the context of modern-day signal communication theory, this notion seems illogical. Although it is easy to conceive of a radio analogy where a signal is encoded at a remote transmitter and then decoded at a receiver (telepathy), where and how is any signal at all encoded in clairvoyance where there is no transmitter at the remote source of the information?

BACKGROUND RESEARCH AND CONTEXT

To gain deeper insight into the perceptual processes and psi-encoded data involved in telepathy and clairvoyance, these phenomena must be examined using as wide a net as possible. This section extends the body of research findings to include findings from tachistoscopic perception, case studies of high-clarity psi visual perception, instances of apparent high-level information transfer in psi phenomena, and introspective evidence.

Tachistoscopic Perception

Another mode of visual perception occurs when images are presented tachistoscopically (for very brief exposures) to subjects. In this experimental paradigm, the result is poor object recognition, which resembles that found in integrative agnosia and visual telepathic and clairvoyant perception and recognition. Donald Hebb summarized the performance of subjects who view tachistoscopically presented images:

> The subject's reports are such as "a triangle with the top cut off" or "a square with a crooked bottom" It is thus clear that the subject is not only responding to the diagram as a whole, he perceives its parts as separate entities ...
>
> A drawing or a report of what is seen tachistoscopically is not unlike a paleontologist's reconstruction of early man from a tooth and a rib. There is a clear effect of earlier experience, filling in gaps in the actual perception so that the end result is either something familiar or a combination of familiar things, a reconstruction on the basis of experience (Hebb, 1949, p. 47; see Neisser, 1967, p. 94 for reference to Hebb's paleontologist analogy).

In the case of perception, when brief tachistoscopic glimpses of images are presented to subjects, some low-level information is extracted, a few low-level features of one or more objects, but the extracted visual information is often insufficient to allow accurate object recognition and correct naming of objects or symbols fails. In tachistoscopic perception, this results from a very brief effective viewing time, leading to unattended (unexamined, unprocessed) low-level visual information. The tachistoscopic exposures use a "backward masking" stimulus to block any further extraction of sensory information after the exposure time due to visual sensory after-effects. For example, a checkerboard pattern is presented immediately after a brief presentation of the target.

Tachistoscopic perception experiments have shown that, up to a point, a speed-accuracy tradeoff (SAT) exists: the more time available to perceive a stimulus, the more accurate will be the resulting recognition (Wickelgren, 1977). Since visual perception is very rapid, this effect typically applies during the first several hundred milliseconds following exposure to the stimulus. The consensus is that the perceiver makes choices based on a sequential analysis of sensory evidence. "Faster responses entail less accumulated evidence, and hence less informed decisions" (Heitz, 2014, p. 7). In contrast to tachistoscopic experiments, the amount of time available for psi perception is typically on the order of a half-second to a few seconds (see Hubbard & Langford, 1986 for early data), and the perceived sensory information is typically "wispy," of very poor quality – percipients typically feel that there is not nearly enough time to confirm enough evidence for proper recognition. In a sense, then, perception of psi-encoded information can be considered a drawn-out form of tachistoscopic perception during which evidence accumulates slowly, and not enough evidence accumulates for accurate recognition.

Many have noted the reduced quality of perceptible

information integrated by a perceiver of psi information. Swann (1991/2017, p. 33) mentioned, "... what I was perceiving were bits of shapes, forms, and colors which in themselves were not clear." Hubbard and Langford (1986, pp. 6-7) mention, "Accomplished viewers appear to agree that correct RV [remote viewing] data is perceived as impressionistic and generally vague. ... correct visual impressions are largely indistinct in outline." "By subjective report, the "data access window" is approximately 0.5 to 1 second in duration" (Hubbard & Langford, 1986, p. 5).

Swann noted that psi visual data is "soft" (1991/2017, p. 134). "Soft" can be interpreted to mean "low resolution coupled with low contrast and low intensity." The fact that received psi-encoded visual data are of low resolution, low contrast, and low intensity suggests that perception and recognition are additionally impeded by these factors. In the language of signal communications, the data available for perception do not have high spatial frequency content and act as if they have been subjected to a low-pass filtering operation (see Piao & Katz, 2023).

Telepathic and clairvoyant perception and recognition are unlike perception and recognition in visual integrative agnosia since the percipients do not have lesions or other deficits in, for example, in the occipitotemporal cortex which is connected bidirectionally with higher-level cortical areas. Since percipients in psi experiments who do not have damage to the occipitotemporal cortex nevertheless experience the naming problem, the lesson to learn from visual agnosia is that if, for any reason, there is an effective impediment in the bidirectional information processing channel from high-level cortex to low-level visual sensory processing areas, a "naming problem" is likely to occur.

An Introspective Study

Out of the blue, my son asked me, "What am I thinking?" He had never asked me this before (and has not done so in the 3+ years since), and I immediately realized he could be thinking about anything. I immediately stopped paying attention to what I had been looking at and looked down, and, with my eyes remaining open, checked my "mind's eye" to see what might be there. To understand what is meant by checking your "mind's eye" with your eyes open, visualize the Eiffel Tower or an Egyptian pyramid (or anything else you care to visualize). You are doing this in your "mind's eye" (otherwise called your "visual imagination"). Eyes do not have to be closed. I saw in my imagination a wispy grayish-white-on-black rounded flat (2D) symbol of some kind, with something unclear in the middle of it and something unclear hanging down from its bottom. I knew this wispy visual shape was not coming from me, possibly in part because it was surprising and had nothing to do with what I was previously thinking about. I couldn't view the whole object as a single integrated object – I could only see parts of it at a time, which appeared to pop in and out of view. I could move my attention from one location in the image to another. You can do this by focusing attention at the top or at the bottom of your Eiffel Tower or pyramid. I was most reminded of the symbol for 'female' (Figure 3). I knew I was seeing a closed circular shape with something hanging out of the bottom of it, but I also knew there was something in the middle that I couldn't make out clearly. I knew it wasn't actually the symbol for 'female,' and that it was more complicated. But I could not see the whole wispy symbol at one time and could not get a clear view of all of its spatially organized details. When focusing my attention on a new location in the image, it was hard to remember what I had

Fig 3. Symbol for 'female'.

A B C D

Figure 4. Flavor of the successive observations of received telepathic visual information. When inspecting what I was receiving telepathically, I had the feeling of voluntarily moving the focus of my attention from one part of my visual field to another. This sequence of successive views on the "screen of visual imagination" (i.e., the "mind's eye") gives a flavor for my perception of the "bits and pieces" of the telepathically sent image. Parts of the entire image could be perceived in successive glimpses, but the entire figure as a whole never "came together" or "fused." The visual information had low contrast, resolution, and intensity, and it wasn't clear how the fragments in the successive voluntary changes of views of it fit together. Visual features in successive glimpses were not aligned with each other so as to show their spatial relationships. I felt that I didn't know what to expect when voluntarily moving my attention to the next location. Upon moving to the next location, I tended to forget what was at the previous location since what I had previously perceived did not have a recognizable shape that could easily be remembered (except for the "circle").

Figure 5. (A) Symbol for 'Toyota.' (B) symbol for 'female. The symbol for Toyota on the left (A) was what my son was visualizing. It is possible to appreciate the "bits and pieces" in this figure by looking first at the inner oval at the top, then the area below the inner top oval and above the outer oval. Then, focus on the area in the center where the lines cross, etc. This turns out to be a rather complex symbol when perceived in terms of disconnected "bits and pieces." It cannot be trivially recognized when it is appreciated as separate incomplete views. All the parts must be in plain view simultaneously to allow for their organization into an integrated single object or symbol. In typical telepathy experiments, this does not happen, and even a single capital letter often cannot typically be perceived as a whole telepathically. Gifted psychics do better at reading letters and naming objects. But even Ingo Swann, a highly gifted psychic, said, "[Alphabet letters are] targets that are (my experience can vouch for it) very, very difficult..." (Swann, 1991/2017, p.109).

seen in the previous location(s) since they were more or less arbitrary hard-to-remember shapes, except for what I thought was a "circle." I did not recognize what my son was visualizing, even though later it was obvious that under normal circumstances, I would have easily recognized it. I responded, "The symbol for female but that isn't what it is." My son was amazed that I knew he was thinking of a symbol. I was attempting to analyze its parts separately instead of taking in the image as a whole, which was not possible. Figure 4 gives a flavor for the step-by-step visual feature extraction process I had experienced during a period of approximately 3 seconds, after which the image faded.

If the reader had to construct what the whole image is from first considering Figure 4A, then Figure 4B, etc., one after the other, it would not be possible to recognize and name it. This was the feeling I had when trying to recognize the object from the separate disconnected glimpses of different locations in the received visual information which did not "fuse" together. It turned out that my son was visualizing the symbol for Toyota, whom he had been employed for over 3 years at the time – Figure 5A.

With hindsight, I may have had a problem making out what was in the middle of the Toyota symbol because, in my attempt to put a name to what I was perceiving (which experts warn not to try to do), believing it most like the symbol for 'female,' it should not have anything in the middle. Due to this bias, my cognitive system may have been "top-down" regarding the features in the middle as irrelevant and therefore inhibiting my ability to integrate them into the percept under construction. However, I would not say that the visual features I perceived at that time were "pure coincidence" – there was no doubt in my mind that *some telepathy* had occurred.

In normal visual perception, as currently understood in cognitive neuroscience, "the spotlight of visual attention" can be voluntarily moved covertly (the eye does not move) from one location in an internal representation of an image to another (Carrasco, 2011; Hopfinger et al., 2000, Kinchla, 1992).

For example, in reading, at each eye fixation, covert attention helps in processing and extracting information from the area surrounding the fixation point. Covert attention shifts to different visual features or words within the peripheral vision. Distinct visual features are paid attention to and integrated into the percept under construction. Once paid attention, even when the covert attention moves to another location, the previously discovered features do not disappear from the external view or from the internal representation under construction. Their spatial alignment is preserved. Before moving the eyes to a new fixation point, covert attention is used to plan the eye movement (saccade) to the most informative part of the text for the next fixation point (Engbert et al., 2005).

But in telepathic and clairvoyant perception, as covert visual attention is moved from one location in the internal sensory representation of the target to another, the memory trace of the visual information discovered in the previous covert attention fixation may fade – possibly being wiped out by examination of the next fragment of visual information. Mary Potter (1976) found that a memory trace produced by a briefly presented (113 ms) picture is vulnerable and can be wiped out if the subject must attend to another visio-cognitive task (e.g., comparing a new picture to a target). Potter called this effect "conceptual masking." But when enough time is allowed after a brief presentation of a picture or scene (~300 ms), the memory trace is not wiped out, and the subject remembers it.

Analogous to Potter's "conceptual masking," in the perception and recognition of visual psi-encoded information, a "visual information masking" effect may occur, in which the memory of previously examined visual information disappears from the internal sensory representation (i.e., visual memory), thereby preventing its integration ("fusion") into a properly growing perceptu-

al construct with spatially aligned features. This would result in a partial and unstable internal representation of visually received psi-encoded information. Instead of *persistent* specific visual features in their relative spatial locations in the internal sensory representation, in the perception of psi-encoded information, the same visual information may need to be re-acquired every time its relative location is paid attention. When attending to different low-contrast, low-resolution visual features at different locations in the internal representation of the field of view, one or a few distinct visual features might be perceived together, but they may fade from memory and view when not attended.

In normal vision with eyes open, and in mental imagery projected to the mind's eye, a representation of all the features tends to persist at some level of resolution, remaining "fused" into a complete sensory-cognitive percept which includes accurate higher-level information. This does not appear to happen in visual psi perception, where the starting point is low-level visual features of poor quality and spatial alignment.

Using cognitive effort in an attempt to put a name to fragmentary and unstable, poorly remembered fragments of visual evidence discovered tends to bring the receiver's biases and experience to bear. This interferes with the perception of the features actually present. By assuming the presence of features that aren't there and inhibiting attention to features actually present which do not make sense with current high-level cognitive assumptions about the target, the perception becomes colored by the receiver's experience. The effort of identification interferes with perceiving what is actually being received. Swann mentioned, "[When you can achieve] a detached poise, a sort of disinterest ... the core ESP processes will work their best (Swann, 1991/2017, p.124)."

Cases of High Clarity Image Reception

In reported spontaneous cases of telepathy and in cases involving high-functioning psychics, as opposed to what is observed in typical experiments involving intentional telepathy and remote viewing, reasonable image clarity and detail can be present. For example, Ossowiecki located a bracelet with "traditional work" in the bushes – an apparent sufficiently clear view of a small object (Barrington et al., 2005, pp. 104-106). Croiset saw the blade of an ice skate worn by a dead girl protruding up through the dirt at the bottom of the ocean (van Luijtelaar & Kramer, 2020). McCoy could perceive a fracture on a bone (McCoy, 2011, p. 72).

The factors that modulate the effectiveness of psychic ability, hence the effective *strength* or *quality* of telepathic or clairvoyant information communication, have been summarized by Radin (2024) as (1) belief, (2) motivation, (3) imagination, (4) intention, and (5) a state of gnosis, described by Radin as a special state of awareness, a direct intuitive knowledge of reality, called "samadhi" in yogic lore. Many have pointed to *emotion* and *strong intention* in the sender as factors that increase the strength of shared telepathic information (e.g., McCoy, 2011).

The fact that accurate naming can occur when there is clear visual psi perception of details such as found in cases of spontaneous telepathy and with gifted psychics contradicts the assertion in Hypothesis 2, that the neurological top-down visual pathway is largely disconnected in psi perception. When the reception is strong, an effective disconnection may weaken or disappear.

In spontaneous cases with relatively clear perception (Ossowiecki used the term "lucid state"), the visual information available in the mind's eye can be assumed to have higher contrast, intensity, and resolution, which would improve the overall accuracy of the process of high-level feature integration. Even with gifted psychics, what is perceived is often "clouded" and requires considerable concentration to discern details. Ossowiecki noted,

> Whether I read a concealed target, or find a lost article, or do psychometry, my sensations are almost the same...The vision is clouded and demands great concentration. Great effort is needed to see some of the circumstances and details displayed. Sometimes, this lucid state is evoked in a few moments, and at other times, one has to wait for hours. It depends to a large extent on the ambiance; incredulity, skepticism, or even attention concentrated too closely on my person can block a quick and successful result or cripple the perceptions (Barrington et al., 2005, p. 44).

Psychic Gerard Croiset would typically report details which often included clear information about future events. He participated in many "chair test" experiments in which he would give information about a person who freely chose or was randomly assigned to sit in a particular row and chair position at a meeting which in some cases took place months after he gave the information. One "chair test" was scheduled to take place in the boardroom of the Museum of Natural History in Verona, Italy. The day before, German parapsychologist Professor Anton Neuhausler picked a chair and asked Croiset, "Who will sit tomorrow at Verona on the fourth chair to the left in the third row?" Croiset immediately gave his impressions which were written down by Neuhausler and placed

in a sealed envelope. The chair test took place on the next day:

> The Verona chair test was supervised by Dr. de Boni and Professor Zorzi who opened the envelope at the beginning of the experiment. Until then, the contents were absolutely unknown to them.
>
> Croiset's day-earlier impressions in Munich began: "A girl will come and sit on the chair. She has dark hair, wears a dark dress and a light-colored blouse. ..."In the immediate surroundings of her house is a ladies' hair-dresser's salon. ... "She lives on the fourth floor. ... "She has beautiful handwriting. ..."She loves animals and has a picture of a squirrel. I do not know if she made this drawing herself or recently looked at a drawing like it which made a deep impression on her. ..."When she walks home she sees at the end of her street a small square. On that square stands a round building with arches. ..."Has she at home a Russian samovar or Turkish pipes with loops twisted into one another? ..."She wears black pumps. The upper leather is lightly damaged. There is a crack in it. ..."Did she yesterday experience some emotion because of a cigarette box? Did it fall to the floor? ..."Who is the old gentleman with the mustache? Has she a portrait of him in her room? ..."Did it recently happen to her that a dead animal, from a butcher's shop, fell in front of her feet?" (Pollack, 1964, pp. 251-252)

The ellipses in the above quotation indicate where comments about the correctness of Croiset's impressions were inserted. In this experiment, as in the many others documented in Pollack's (1964) book, the information provided by Croiset was substantially accurate, although inaccuracies did occur (see Luijtelaar & Kramer, 2020). Note how the information he supplied is largely visually descriptive. Croiset's information often contains references to visually described situations involving heightened emotion in the subjects.

High-level Knowledge from Psi-Encoded Information

Experiments have been conducted which indicate that some people know with a probability significantly greater than chance who is calling them on the phone (Schmidt et al., 2009; Sheldrake & Smart, 2003). This "knowing" of who is calling, or in other instances, "knowing" of who is sending spontaneously received telepathic information, appears to be an example of successful communication of high-level information, which includes naming. The thought of the name of the calling individual (as opposed to a visual impression of the way they look) would suddenly pop into the receiver's mind – a "knowing" – just before or when the phone rings. When a caller acts to connect by phone with someone, this thinking amounts to "broadcasting" psi-encoded information about who the caller is and the caller's intention to communicate with a specific person. It appears that the identifying information, in this case, is encoded in non-sensory ways as a form of high-level information. Ossowiecki mentioned how he could become aware of the "world" of an individual ("I easily transported myself into *his world* and told him, '... you will meet a woman, a Russian, with whom you will fall in love and whom you will marry shortly after. Her name will be Lydia')" (Barrington et al., 2005, p. 120; emphasis added). When becoming aware of a person calling on the phone, it is possible that what one becomes aware of is the "world" of the calling individual – which appears to refer to abstract, high-level information as opposed to low-level physical sensory-encoded information. Similarly, in cases of remote healing, the healer can direct "intentions of well-being" at the patient (Achterberg et al., 2005). This also appears to involve communication of high-level abstract information, or it may involve communication of visual information generated by using mental imagery to visualize area(s) of the patient's body having a healed appearance. Another example of the communication of abstract psi-encoded information was mentioned in connection with Croiset. When he was 26,

> his mother suddenly died of cancer. During the last stage of her illness, she ate many peaches. On her deathbed, a half-peeled peach was lying on her bedside table. [Whenever] Croiset sees the image of a half-peeled peach, it symbolizes a cancer patient to him" (Pollack, 1964, p. 56).

One explanation for this is that high-level information about a person's "world," including their health, is contained in the data structure of psi information accessible to a gifted psychic. In the above case, the presence of cancer in the data structure of the psi-encoded information received by Croiset would have been decoded by his visio-cognitive system to be visualized as a half-peeled peach. The above example, and there are many cases of psychic knowledge of health conditions (see, e.g., Cayce & Cayce, 2004; McCoy, 2011), suggest that under certain conditions, information such as the identity of hidden medical conditions is accurately communicated. It remains possible that the actual psi-encoded representa-

tion of the communicated information was not high-level, but a representation in terms of low-level visual features of structures inside the body. For example, healers Cayce and McCoy were known to have substantial knowledge of anatomy, even though they never studied it, and McCoy and other psychics have reported cases of seeing visual structural details inside their patients' bodies.

The rarely mentioned psychic ability called "claircognizance" refers to becoming aware of a deep, gut-level knowledge about a currently relevant situation in one's life. "Claircognizance does not receive images, sounds, smells or tastes, instead it is an undeniable and unshakable inner truth" (Martinez, 2022). For example, you immediately know that a person has had a traumatic experience when she was 11 years old (H. Wahbeh, personal communication, August 24, 2024). "It is just *knowing things* without any real backing" (Wille, 2024, "What is Claircognizance?", emphasis in original).

Since claircognizant information is not perceived via a sensory representation such as images, sounds, smells or tastes, this type of information is not decoded within a sensory processing channel. Rather, it is expressed in the brain via a non-sensory pathway, and the information it represents can be decoded directly into high-level cognitive knowledge. This does not involve the processing of sensory cues but is rather a more direct conversion of psi-encoded information into semantic information.

DATABASE OF PSI-ENCODED INFORMATION

Clairvoyant perception can be precognitive, as illustrated by Croiset's "chair test" example mentioned above (no sender was present at the time Croiset received the information), or it can address events that occurred in the past (retrocognition), as well as in real time, as illustrated by a case in which Ossowiecki was asked to discover what happened to a lost bracelet and, if possible, to get it back.

> Mr. Ossowiecki was given a small box in which the lost bracelet used to be kept. ... He said, 'I see the bracelet; it is a thick gold chain, traditional work. It is hanging on the lilac bush in front of the bedroom window. It slipped out of a pocket and fell out unnoticed when the servant was shaking things out. Search carefully there and you will find the bracelet' ... The bracelet was found among the thick leaves of the lilac bush growing outside the bedroom window" (Barrington et al., 2005 pp. 104-106).

From the examples above, and from many other examples in Barrington et al. (2005) and Pollack 1964), it is *as if a recording exists of everything that happens in the world, down to a fine level of detail*, and a gifted psychic *can tune into any desired segment of the recording,* by using a *link object* as a cue (psychometry), or simply using knowledge of the desired attributes of what to tune into. The recording appears to be associatively organized, making it possible to move attention associatively from one event to another in time and space based on specific attributes. Difficult to understand, future events also appear to be part of the record, as evidenced by precognitive clairvoyant perception. This record has been called by various terms, for example, the "skein of time and space" at times by Edgar Cayce (Cayce & Cayce, 2004) and the "Akashic record" by Cayce and others (e.g., Barrington et al., 2005; Graboi, 2024; Laszlo, 2004; Leadbeater, 1903/2009). After reading the many documented reports by Ossowiecki (Barrington et al., 2005) and Croiset (Pollack, 1964), the existence of some such kind of information record "out there" is difficult to deny. If such a record does exist, it must have a data structure; it would presumably be recorded in *some format* (the term "Akashic format" comes to mind). Is this the same format of all psi-encoded information?

Hypotheses In Retrospect

Three hypotheses were proposed early in this discourse. The first addresses the data structure of psi-encoded information, suggesting that it lacks a high-level information component. The second pertains to the visual perception of psi-encoded information, asserting that during psi perception, the visual system typically operates as if effective access to high-level visual cortical information is attenuated, leading to an inability to name objects. The third hypothesis asserted that psi information originating from a telepathic sender and psi information perceived through clairvoyance, without an active sending agent, share the same data structure. Given the evidence from diverse related areas that have been examined after positing the three hypotheses, an initial assessment of their validity can be made.

Hypothesis 1: Absence of High-Level Meaning in Psi-Encoded Visual Information

Hypothesis 1 states that *received psi information that enters the visuo-cognitive system of the brain does not include high-level information, including information about the integration of basic visual features into specific objects, symbols, and their names. The visual and cognitive system used to perceive psi-encoded information is responsible for organizing and assigning high-level organization and meaning to raw sensory features communicated by psi-encoded*

information.

Hypothesis 1 is supported by free response data in visual telepathy experiments, as seen, for example, in Figure 1 and in the work of Warcollier (1948/2001), Sinclair (1930/2020), Swann (1991/2017), and others. "Shape, form, and color are described much more reliably than the target's name, function, or other analytical information" (Warcollier, p. xix). Typical "partially correct" responses contain a number of correct or approximately correct visual features at relatively low levels of organization which are perceived either as free-standing features or organized into partial or incorrect objects. Incorrect object recognition is also seen in the case of visual agnosia and tachistoscopic perception. In these types of perception, some low-level visual features are perceived, but accurate information that defines their higher-level organization into specific objects is absent.

If the visual information in a telepathically sent psi-encoded message does include usable information about higher levels of visual feature organization, including information about more complex organizations of features into specific objects, symbols, and their names (information present in the mind of the sender), receivers of this information would be expected to know and/or draw the correct objects and name them with greater accuracy than has been found experimentally, and the naming problem would not be expected to be such a widespread issue in recognition of psi-encoded visual information.

Hypothesis 1 appears to be provisionally supported *under certain conditions.* It appears to be true in the case of experiments in which visual images constitute the psi-encoded information which is communicated and which is decoded by the visual and cognitive processing system. It appears to be the case, however, that other non-sensory channels are available (for example, in claircognizance) which can decode high-level cognitive information in the data structure of psi-encoded information.

Hypothesis 2. Functional Disconnect of Higher Cortex in Psi Visual Perception

Hypothesis 2 states that d*uring the perception of psi-encoded visual information, the receptive apparatus in the brain that detects low-level visual features of psi-encoded information is, to some extent, functionally disconnected from the higher-order "top-down" processing that normally participates in the integration and recognition of these features*.

In mental imagery, low-level visual features are activated "top-down" starting with activation of the high-level object or scene being visualized. For example, visualizing the Eiffel Tower would activate a similar set of neurons in the visual system hierarchy (but not the retina) which would be activated as if the Eiffel Tower itself or a picture of it were viewed with open eyes. Functional magnetic resonance imaging (fMRI) and positron emission tomography (PET) studies have shown that regions such as the primary visual cortex (V1), as well as higher visual areas from V2 up to the temporal lobe, can be active during both seeing and imagining visual objects (Bartolomeo, 2002; Kosslyn et al., 1997; Pearson et al., 2015). Above the visual cortex, both visual perception and mental imagery engage parts of the parietal lobes and frontal cortex. These areas are associated with higher-level cognitive functions, including attention, memory retrieval, sensory integration and spatial manipulation, which are important in constructing mental images. The areas activated in visual perception and mental imagery overlap, but the intensity and extent of activation in visual perception typically result in stronger and more extensive activation, particularly in the primary visual areas, due to direct sensory input. Some non-overlap between the two processes was also noted (see Ganis et al., 2004).

By contrast, when visual information is acquired from a remote psi-encoded source, it does not originate from the activation of high-level information resident in the percipient's cognitive system, but rather, the percipient must acquire, decode and direct the relevant low-level visual feature information associated with a remote source into the visual system hierarchy.

The high cortical level cannot be involved directly in processing psi-encoded information because it is the level at which object naming normally occurs and object naming of psi-encoded visual information typically fails. This suggests that pre-processed remotely acquired psi-encoded visual information is interfaced to and weakly activates a portion of the early to intermediate visual cortex (V2 – V5), and the activation is typically too weak to allow normal object recognition processes to function effectively. As found in mental imagery, activation of the primary visual cortex (V1) would not generally occur except in cases where very detailed image generation is involved (Kosslyn et al., 2001; Kosslyn & Thompson, 2003; Mazard et al., 2004).

It may also be the case that during psi perception, all the psi-encoded information is not present at the visual interface at the same time, and when a location in an image is re-attended, the visual information for that area must be re-acquired – a recurrent "on-demand" process. Psi visual perception is made more difficult because the intensity of the imported visual features is typically very low, making specific visual features harder to perceive, requiring more attentional resources, effort, and time to discriminate them from the background. Further adding

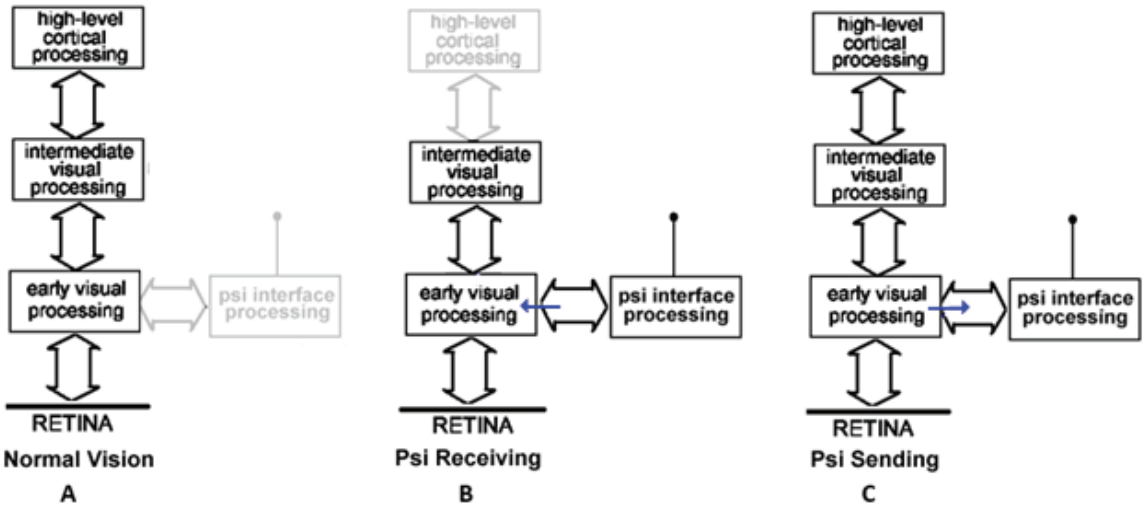

Figure 6. Simplified illustration of normal visual processing and proposed psi visual processing. In the absence of attentional focus to relevant psi information, visual processing occurs normally, as illustrated by the visual information processing diagram in A. The double arrows indicate normal bidirectional top-down and bottom-up processing of neural information. However, when relevant psi information is present and given attention, the "psi interface processing" brain center is assumed to become strongly activated, sending visually decoded low-level feature information to early levels of the visual processing system, indicated by the blue arrow in B. This input adds to and competes with the normal processing flow of visual information. Visual information hypothesized to be devoid of high-level semantic information comes from the psi interface processing area. This area is conceived to be a brain region where psi-encoded information is received from an external source and is decoded into visually coded neural signals which feed into the visual neural hierarchy, resulting in conscious perception of visual shapes, color, motion, etc. Their organization into recognized objects and names is problematic due to the typically poor quality and accessibility of features in the psi neural visual footprint. Panel C illustrates a concept for information flow during telepathic sending of visual imagery generated primarily by top-down signal flow from high-level cortex, activating lower visual system levels and conscious visual experience. There is an absence of high-level information in the outgoing signal. An "antenna" connected to the psi-to-brain interface area symbolizes connectivity with the larger psychic environment.

to the difficulty, the features of a received psi-encoded image do not persist for long. The psi-encoded information available to the receiver usually fades entirely within no more than a few seconds. In a process like this, the best strategy is to simply try to remember any distinct visual feature impressions, such as basic shapes and colors and their relative locations in the field of view. Trying to put a name to what is being seen, given the impoverished visual information available, would take resources away from perceiving what is actually there, further decreasing the useful information available.

In the case of higher-quality received images, visual information would presumably be received with greater intensity and contrast, greater persistence, and greater activation of V1. This would provide finer detail with increased vividness, and the more robust activation of the lower and intermediate visual hierarchy would allow more normal bidirectional processing flow between high cortical levels and lower visual levels, allowing the percipient to use high-level cognitive resources more effectively to organize and name what is seen. Figure 6 illustrates potential neural processing for normal vision, psi-encoded visual information processing, and psi-encoded visual information generation in a telepathic sending situation.

In the figure, an as-yet unidentified brain area is assumed to be an interface center for detecting and decoding ("demodulating") psi-encoded information into neurological signals compatible with sensory and cognitive neural processing. It is tempting to speculate that this psi-to-brain interface region is not located in the higher cortical areas responsible for high-level cognitive processing of abstract symbols and ideas that developed late in evolution but is located in the older brain in evolutionary terms. The actual mechanics of the interface between the brain and the external psi-encoded information are unknown at this time. It is possible that psi information to neural information transfer occurs at the quantum level, as theorized by Hameroff and Penrose, 2014.

Venkatasubramanian et al. (2008) found significant activation of the parahippocampal gyrus in an interesting pilot study using fMRI to detect active brain areas during telepathic reception. This region, which is involved

in memory encoding and retrieval, is part of the limbic system deep in the brain and includes the hippocampus, amygdala, and hypothalamus. The psi information interface brain center is assumed to be responsible for decoding the "native format" of psi information into a sensory format compatible with processing centers in the visual system hierarchy. In Figure 6 B, the psi interface becomes active, which feeds decoded visual psi information into low levels of the visual system, where it is assumed to temporarily rival and add to the activation in these areas to some extent. Normal visual system bottom-up flow to the higher cortical areas would be modified by this additional neural activity. During a brief time period a percipient whose attention is focused at this level would consciously *see* psi-originated visual features.

Figure 6, C illustrates the pathway operating in the reverse direction when a sender is "broadcasting" visual imagery. The imagery originates top-down from higher cortical levels and activates lower levels of the visual system, causing visual details in the imagery to be perceived consciously. Activation from these lower levels acts as a source of activation into the psi interface, where the neural information is converted into psi-encoded information. Again, this might entail a conversion of the neurally encoded information into quantum-level encoding. In this conceptualization, the visual information channeled into the outgoing psi interface does not include high-level cortical "naming" and other high-level symbolic associational information.

In the foregoing formulation, an independent visual and cognitive apparatus, an independent "second consciousness" as Swann suggested, is not present. The fact that clear perception of psi-encoded information is possible when the signal-to-noise ratio is improved due to the strength of belief, intention, etc., of the sender and/or receiver further suggests that *psi-visual perception makes use of the normal visual perception anatomy*. It is assumed that a separate area in the brain is dedicated to the initial transduction of psi-encoded information, which is converted and projected into the visual cortex. Conversion of one form of information (for example, high-level semantic information in the higher-order associative cortex) into another form of information (for example, visual or auditory sensory information in the primary visual or auditory cortices) is something the brain routinely does – for example, the processing that occurs when one it asked to "visualize the Eiffel Tower" demonstrates a conversion from auditory to cognitive to visual information. When a person "hears" a song in their head or engages in inner speech, their brain is converting semantic or conceptual information into auditory sensory information. The auditory cortex is involved in generating these internal sounds.

Hypothesis 2, which asserts that there is a functional disconnect between higher cortical processing and lower-level visual feature processing in the perception of psi-encoded visual information, is supported if for no other reason than the fact that the visual information available from psi-encoded information to lower levels of visual processing is generally of low quality, which in itself makes the connection with correct high-level information problematic.

Hypothesis 3. Uniform Data Structure of Psi-Encoded Information

Hypothesis 3 states that *all visual psi-encoded information, whether sourced by visualization in a sender's mind, or directly viewed by a sender, or whether its source is a passive environment with no active sender, whether the information source is in real-time or in the past or in the future, has the same general data structure.* This hypothesis is based on an implication derived from the similarity of behavioral and introspective evidence in the two modes of psi communication. The hypothesis suggests the possibility that forms of information transfer arising under such apparently different means of production (sender vs. no sender) can have an identical data structure. A radically different worldview than our current paradigm would be needed to allow for such a possibility.

In an alternative worldview, there is no physical movement of information, and all psi-encoded information is *always everywhere.* In this world view physical and mental universe emerges from a foundation of *information* which is effectively distributed like the information in a hologram throughout what our limited sensory-cognitive systems perceive and conceive as extensions in space and time. It will be remembered that each region of a holographic film contains the whole image, suggesting the whole is contained in every part. This basic worldview is found in schools of Buddhist, Hindu, and Taoist philosophies, among others, and is now making inroads into Western thought. The general idea is that a "deeper reality" exists outside the ordinary experience of reality shaped by our sensory perception and cognitive constructs – a "deeper reality" based on *universal consciousness*. In Western science, physicist David Bohm(1980) proposed the concept of the "implicate order" in which the physical universe is conceived as taking instructions from information exported from a kind of hologram where every part contains information about the whole. A branch of physics and philosophy called "Informational Realism" exists in which *information* is viewed as the primary substance of the universe instead of matter. Physicist John

A. Wheeler's (1989) famous catch phrase: "it from bit," succinctly expresses this concept — "it" referring to all the matter-energy that comprises the universe and "bit" meaning *information* (for additional discussion, see, e.g., Bohm & Hiley, 1975; Gober, 2018; Graboi, 2023, 2024; Radin, 2006, 2009; Talbot, 1992; Targ, 2012; Wheeler, 1989). In such a universe, the data structure of its primary substance, information, could reasonably be expected to be the same across all modes of communication, including telepathy, where there is an obvious sending agent, and clairvoyance, where there is not. It is not reasonable to claim any ability to assess the validity of hypothesis 3 at this time. Its value is to suggest a possibility that may deserve consideration in the context of the next paradigm.

CONCLUSION

An implicit assumption about the perception of psi-encoded information is that we are continuously bathed in a "field" of psychic information which exists in a "deeper" and "more subtle" dimension outside the constraints of physical space and time. Swann referred to this as the "second reality." Our information-processing brains have the ability to tune into specific information resident in this "field" where it is expressed as neurally encoded information compatible with our sensory perception and cognitive anatomy. And our working brains also inject information into this "field." The term "field" is quoted because the information in it "does not fall off with distance, nor is it associated with energy in the usual sense. Possibly the notion of field should be widened or, at the quantum level, we should be talking about pre-space structures, or about algebraic relationships that precede the structure of space and time." (Peat, 1995, p. 3).

Examination of the naming problem has brought us closer to understanding perceptual factors in psi-encoded information reception – a unique mode of perception. With regards to the visual sense, it resembles mental imagery in that there is no direct stimulation of the retina with light, yet there is a conscious perception of visual features. Unlike mental imagery and more like normal vision, it is not sourced from the activation of high-level "top-down" cortical information. Rather, it is sourced from psi-encoded visual information, which appears to be available to the visual system in the form of low-level visual features. In many experimental contexts, information regarding the higher-level organization and meaning of these features does not appear to be contained in the received psi-encoded data.

It has been proposed that the visual perception of psi-encoded information is mediated by activation of the existing visual system anatomy at relatively low levels above the retinal level (Figure 6). During the generally brief periods when psi visual perception is active, high cortical levels in the visual processing hierarchy are often unable to perform accurate object recognition. This inability has been termed "the naming problem."

Specific factors that appear to contribute to the naming problem are (1) low resolution of psi-decoded visual data; (2) low intensity and contrast of psi-decoded visual data; (3) psi-decoded visual features are not available to the visual system as an entire image with all features aligned to show their spatial relationships. Successive fixations of covert visual attention are needed to detect one or a few low-level visual features at a time; (4) the perceived psi-decoded visual data do not persist. Received visual information typically requires a number of fixations of the spotlight of covert visual attention totaling a few seconds. These factors limit the number of distinct spatially aligned low-level features that can be extracted in the time available and integrated for object recognition. As found in tachistoscopic recognition experiments, the extracted visual information is often insufficient to allow accurate object recognition and naming.

Using cognitive resources to attempt to identify or name objects or symbols in received psi-encoded information takes attentional resources away from the process of perceiving and remembering the visual features that are detectable during the time they are available. Additional factors which contribute to the naming problem may include: (5) a lack of high-level information in the received psi-encoded data. For example, if the psi data included the notion of "hat" in Figure 1, the drawing made by the receiver would likely have been more accurate; (6) attention to each successive location in the received image may disrupt the memory trace of previously attended visual information in the perception process, a "visual information masking" effect.

Some individuals perceive received imagery in more detail (i.e., with higher resolution) than others. An analogous variation across individuals in perceived image resolution occurs in mental imagery. Good imagers see their images with more detail, and in such cases, fMRI data has shown that more of the visual system is activated top-to-bottom, including V1, the level that receives input directly from the retina and which produces the highest perceptual detail (Kosslyn et al., 2001; Kosslyn & Thompson, 2003; Mazard et al., 2004). A reasonable assumption would be that high-functioning psychics, like good imagers, have the ability to activate more of their visual system, including V1, during the perception of psi-encoded information.

Psi information may be *initially acquired* into the sensory-cognitive apparatus via a "second consciousness

that integrates with the second reality *and* with the physical as well, (Swann, 1991/2017, p. 51; emphasis in original)." After initial acquisition, the psi-encoded information is assumed to be decoded into sensory and cognitive neural information units appropriate to the receiver, followed by the use of normal processing methods found in all sensory pathways. The decoded visual information is assumed to be projected to and processed by largely the same areas of visual processing within the visual cortex which are activated in the process of mental imagery and visual perception. Since fine detail is not typically perceived, the data from visual imagery research suggests that the visual system areas involved would not typically activate V1 strongly, the primary visual cortex. In cases where fine detail is perceived, V1 would be activated more strongly. Thus, the naming problem with its concurrent lack of fusion effect can be explained in terms of mental imagery and normal perception, which are degraded due to the enumerated factors discussed above without the need to postulate a substantially independent visual processing pathway.

Although the naming problem supports the possibility that psi-encoded information lacks high-level information, such as object names and their function, other psi-receptive modes, such as claircognizance, suggest that high-level information can be communicated in psi-encoded data. The question of the conditions in which received psi-encoded information can or cannot contain such information deserves further investigation. Investigation of the characteristics of psi data structure in different contexts can help in the formulation of a new paradigm in which psi phenomena are understood as part of the natural order. Investigation can be pursued experimentally through analyses of behavioral and physiological data, analysis of reported cases, introspective data, and by using brain imaging techniques such as fMRI to understand the interplay of brain areas involved in psi perception. Venkatasubramanian et al. (2008) have demonstrated the feasibility of using fMRI technology to study telepathy in a preliminary study. Introspection as a tool to investigate psi communication and perception should not be discounted. An example of the value of introspective data in understanding the dynamics of psi perception has been presented.

A radio can have poor reception either because the incoming signal at the antenna is too weak and/or noisy, or because the radio that processes the incoming signal in the radio performs poorly (or a combination of both). Since high functioning psychics can have "lucid states (Barrington et al., 2005, p. 44)" this suggests that the incoming signal to every brain is adequate, and the issue of the naming problem is the result of factors in the neural processing system of the percipient. The naming problem, therefore, appears to be due more to perceptual dynamics than to the dynamics of psi-encoded information propagation through spacetime.

In practical terms, in order to maximize performance in visual psi perception phenomena, the typical percipient should avoid using intense guesswork to integrate the few barely perceived and remembered low-level visual features in what is received. Rather, the percipient is well-advised to take Ingo Swann's advice, "[When you can achieve] a detached poise, a sort of disinterest ... the core ESP processes will work their best" (Swann, 1991/2017, p. 124), and Lori Williams' advice, "describe don't identify" (Williams, 2020), and Russell Targ's advice, "Don't try to name it" (Targ, 2012, p. 223).

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