Understanding Déjà vu: Explanations, Mechanisms and the 'normal' kind of déjà vu (Part 2)

Explaining Déjà Vu (Section 4)

Review Article

Volume 2 Issue 6 - 2015

Vernon M Neppe[1,2,3,4]*

[1]*Director, Pacific Neuropsychiatric Institute and Exceptional Creative Achievement Organization, USA*
[2]*Professor, Department of Neurology and Psychiatry, St. Louis University, USA*
[3]*Executive Director and Distinguished Professor, Exceptional Creative Achievement Organization, USA*
[4]*Distinguished Fellow of the American Psychiatric Association, USA*

***Corresponding author:** Vernon M Neppe, Director, Pacific Neuropsychiatric Institute and Exceptional Creative Achievement Organization, Seattle, Washington, USA, Tel: 206 527 6289; Email: psyche@PNI.org

Received: April 19, 2014 | **Published:** May 26, 2015

Abstract

The 72 different proposed explanations for déjà vu are examined. Broadly 50 were hypothesized before 1979 and another 22 were brought forward thereafter. These show the many explanations for the concept, but they do not illustrate the scientific mechanisms with which to approach déjà vu. These explanations may ultimately express themselves phenomenologically in a limited number of ways and these explanations may commonly overlap.

Keywords: Associative Déjà Vu; Chronic Déjà Vu; Confabulation; Continuous Déjà Vu; Definition; Déjà; Déjà classification; Déjà experiences; Déjà subtypes; Déjà terminology; Déjà vu; déjà vu books; History; Memory; Modern era; Multidimensional scaling; Neppe; Phenomenology; psi; Psychodynamic; Psychotic Déjà Vu; Redintegration; Restricted paramnesia; Schizophrenic Déjà Vu; SPE Déjà Vu; Subjective psi experience Déjà Vu; Temporal Lobe epileptic Déjà Vu; TLE Déjà Vu

To understand the variability of the explanations, we should remember that until 1979, a major research and classification problem was the inconsistency in eliciting déjà vu: Consequently, data interpretation became difficult. At that time, there were only the 11 kinds of déjà experiences described earlier in this series, such as, *déjà fait*-already done, *déjà pensé*-already thought and *déjà raconté*-already told [1].

Paradoxes abounded at that point: Déjà vu occurred at least once in the lifetimes of two-thirds of ostensibly "normal" individuals [2,3]; yet in medical schools, it was taught routinely that déjà vu was a symptom in temporal lobe epilepsy (TLE) [4]. It was also reported in 'subjective psi experients' who often would supply intense descriptions [5]. Additionally, Neppe raised the question: was there a special kind of déjà vu in psychotics? [2] The time was ripe to examine whether déjà vu was a single phenomenon or phenomenologically distinct in these populations, and, if so, in what way.

Despite the overlap of déjà experiences in different 'nosological' (read as synonymous with 'classification') subtypes, Neppe made the comment that some of the déjà experiences are particularly common in certain of these nosological subtypes.

Let's try to correlate how the most commonly located déjà subtypes correlate with the subtypes of déjà experience. This is based phenomenologically on the Neppe research and also clinically on real life experience [3,6].

In all, no fewer than 72 such ideas can be extracted from the literature on déjà vu [7,8]. Because so many (and often related) explanations appear, we shall merely survey the most popular or important. These explanations are just interpretations and it's interesting to see how and when the concepts developed.

In Tables 4A, 4B, 4C, 4D and 4E, I separate into easy steps the different explanations prior to 1979. These explanations are listed in the Neppe books *Déjà Vu Revisited* [9] and *The Psychology of Déjà Vu* [3]. In Table 4F, 4G, 4H, 4I and 4J, the 22 explanations since 1979 are discussed, with 21 derived from *Déjà Vu A Second Look* [6].

Organic Mechanisms
A. Early Organic Mechanisms[a1]
The detailed lists that follow may be daunting to the reader, but the content is interesting andwhile the terms sound complex initially, their meaning is, nevertheless, important.
1. *Paramnesic rationalization:* MacCurdy explains déjà vu as due to forgotten previous actual exposures or forgotten previous exposures to 'replicate' (such as previous exposure to postcards of a scene). The déjà vu experience relates to *rationalizing* these paramnesias, producing 'restricted paramnesias' [10].
2. *Epileptic: Hughlings* Jackson the great epilepsy pioneer explains that epilepsy, particularly non dominant temporal lobe type, causes déjà vu [11].

1 The present tense is often used in these descriptions, because although the authors are long deceased, their explanations endure.

Double Functioning Theories
3. *Wigan* Arthur Wigan pioneered the first major déjà vu explanation: It results from a momentarily inattentive cerebral hemisphere becoming attentive, producing a double impression [12].
4. Both *Maudsley* [13] and *Jensen* [3] have similar theories pertaining to inter hemispheric asynchrony.
5. *Grasset* describes widening of the interval between sensation and perception produces déjà vu [14].
6. *Ellis* has a similar theory to Grasset [15], involving transient failure to distinguish the old from the new. Other theories similar to Grasset are [3,16] *Anjelt, Abramowski, Mere, Peillaube, Buccola* [17] and *Sully* [18].
7. *Titchener* writes about a momentary disjunction of mental processes normally held together in a single state of attention results in déjà vu [19].
8, 9. *Murphy* and *West*, implicate fatigue with similar theories to Titchener [3].
10, 11, 12. *Biervliet, Soury* and *Vignoli* stress distortions resulting from the ease with which the image arises, producing déjà vu [3,20].
13. *Heymans* in 1904: Momentary slackening of attention produces déjà vu [21]
14. *Montesario*: Déjà vu results because of the absence of that which informs us of the novelty of the perception [3,20].
15. *Henri Bergson's* describes double access to perceptual data occurs when the usual (Bergsonian) filter which prevents access of certain information into the brain is not working properly [22,23]-as in states of fatigue [24].
Later Organic Mechanisms
16. *Temporal lobe seizure (Penfield*, 1955, 1958): Déjà vu involves a minor seizure due to firing in the temporal lobe (also Mullan and Penfield (1959)) [25].
17. *Spatiotemporal disturbance* Robert Efron's concept is well known: Déjà vu results from a spatiotemporal perceptual disturbance involving a momentary delay in receipt of images by the dominant hemisphere from the non-dominant one [26].
18. *Channel time difference* Alex Comfort's idea of a difference in 'channel time" between two major 'perceptive" paths is quite modern. This difference causes one to objectify the other, producing a déjà vu effect. The differences here may be semantic with alternative perceptual 'channels' possibly being mechanistically similar to the spatiotemporal hypotheses, but it also allows for broader psychodynamic explanations [27].

Table 4A: "Organic" Explanations before 1979.

Early Psychological Mechanisms
19. *Redintegration:* Familiarity induced by part of the experience pervades the whole. Redintegration sometimes involves common factors which to the subject may seem particularly striking. This is often common factors perceived unconsciously and it may have meaning only for that subject, such as a seemingly meaningless thread in a carpet alternatively, it may be something unusual that stands out for most people, like the hand of the statue of Liberty. Both could help induce redintegration: When exposed to a room with a statue and carpet, a feeling of familiarity may result because of either andmay then lead to producing an impression of déjà vu [3,20].
20. *Daydream fantasies:* Déjà vu results from a close approximation of the present experience to a fantasy or daydream image or percept [3,20].
21. *Superadded feelings Bernard-Leroy's concept:* An 'intellectual feeling' of the 'already seen' is superadded to one's present perception, producing déjà vu [28].
22. *Personality split: Dugas in* 1894 felt déjà vu results from 'personality splitting' in a particular way [29].
23. *Concentration disturbance* Ribot's idea was a moment of distraction between two perceptions of the same place produces déjà vu [3,20].
24. Anxiety *relief* The great Pierre Janet believed déjà vu to be a mechanism for tension relief: It involves an anomaly of perception in which denial of the contemporary presence of an event leads to a sense of pastness. This relieves anxieties about the new situation [3,20].
25. *Repression emergence* Even Sigmund Freud plays a role: Déjà vu is a defense mechanism by which unconscious fantasies become conscious [30]. Similar theories are those of Bergler and Ferenczi [3,20].
26. *Repression maintained*: Déjà vu results because material necessary for full recognition is repressed [10].
27. Dreams: *Ferenczi* discusses unconscious dream experience causes déjà vu [31]. (also Pieron [3,20]).

28. Subconscious *significance:* Other earlier theorists who used ideas pertaining to the unconscious were *Dwelshauvers* and *Gilles* [3,20].
29. Dream *correspondences*: To *Sully,* déjà vu has marked correspondences to dream material combined with everyday experience due to chance [18] (also *Shelley* [32] and *Hodgson* [33]).

Table 4B: Psychodynamic and Psychological Mechanisms.

Later Psychological Mechanisms pre-1979
30. *Fantasy gratification Pickford's 1940 idea*: Déjà vu is a symptom pertaining to partial gratification of fantasies [34].
31. *Anxiety relief Oberndorf* in 1941 proposed a fundamental concept: That déjà vu is a reassuring mechanism to relieve anxiety by having 'been through it before' [35]
32. *Second chance*: Marcovitz perceives Déjà vu is a wish for a second chance to correct unresolved guilt's [36].
33. *Double boundary* To *Federn* by 1952, déjà vu involved the ego-boundary is withdrawn from prevailing invested mental representations producing a double boundary [3,20].
34. *Wish fulfillment as an ego-defense* Jacob *Arlow's* 1959 idea that déjà vu involves an ego defense against anxiety is fundamental [37]. This may symbolize the fulfillment of a previous wish, fantasy or memory suppressing the original source of anxiety by substituting the present experience.
35. *Failed ego-defense Levitan* understood déjà vu as a failure of defense against anxiety brought about by archaic, regressive responses [38].
36. *Dreams Zuger* [39] and also not surprisingly, Jung [40]: Déjà vu relates to memories of dreams.
37. Dream *substitute Schneck* regarded déjà vu is a dream substitute [41].
38. Recognition *disorder* (Reed, 1972): Déjà vu results from a failure to recognize the source of different previously experienced percepts that had been organized into similar concepts [42].

Table 4C: Psychodynamic

Early Paranormal Mechanisms
Previous existence
39. *Aristotle, circa* 350 B. C. E: Déjà vu derives from a previous existence [3,20].
40. *Pythagoras* (quoted by Ovid) [43]: Déjà vu is due to reincarnation [3,20].
41. *Hindu philosophy* also has the reincarnative hypothesis of déjà vu [3,20].
42. *Ouspensky* (1931): Also used repetitive reincarnation working through the same situations to explain déjà vu [44].
Spirits
43. *St Augustine* attributed the phenomenon to malignant and deceitful spirits [45].
44. *Myers* (1895) felt disembodied spirits could assist in precognizing such phenomena [46].
45. *Ancestral and ante-natal memories* the great *Frederick Myers* in 1895 proposed that ancestral and ante-natal memories are recollected through hereditary transmission of mental phenomena or images produce déjà vu [46].
46. *Telepathy*: Lalande in1893 regarded déjà vu as sometimes due to telepathic communications [47].
47. *Precognition: Carrington* in 1931 suggested that some cases of déjà vu may be due to genuine precognition [48].
48. Out-of-body experiences (Carrington [48] and also Shirley [49] felt déjà vu may at times be explained by out-of-body experiences during sleep.
Later Paranormal Mechanisms
49. *Telepathic and precognitive paramnesia* The Indian Philosopher, Dr CTK Chari in the 1960s, proposed several mechanisms for déjà vu. One was that telepathic and precognitive memory distortions are partly or wholly responsible for some déjà vu experiences [50,51].
50. Precognitive dreams Funkhouser's 1981 thesis attributed at least some déjà vu results to precognitive dreams [52,53] Also West in 1946 [54] and Dunne in his famous 1927 Experiment with Time [55]) had argued similarly.

Table 4D: Proposed Para psychological Mechanisms Pre-1979.

Later Subjective Psi Mechanisms [6][b2]

We should not neglect the early contributions. Many of them focus on what we now call *associative déjà v*u and range from psychoanalytic explanations, to explanations of compensating for anxiety, to memory distortions, to depersonalization, to minimal delays in transmission of information, to the part reinstating the whole (redintegration). Some specifically spoke about the paranormal, though this was comparatively rare.

In my 1981 PhD thesis [2], in my 1983 book *The Psychology of Déjà Vu,* [3] and then in the reformulation of that 1983 book, a companion volume for this book entitled *Déjà Vu Revisited,* [3] I pointed out the 50 different explanations or phenomenological mechanisms for déjà vu that prevailed at the time and have listed them above. Subsequently, several more related theories have been developed. Whether to accord these the status of full theories depends on the slant.

I cannot sufficiently overemphasize the fallacy of the conclusion that, because there may now be at least 72 different explanations for déjà vu and one of them is right, then the other 71 of them must be wrong. It is almost like saying '*I am only allowed to have one mechanism for thought*, not 72 different mechanisms for thought.' Indeed, the great majority of these mechanisms are possibly correct, but incompletely so, having elements of truth:

They may ultimately express themselves phenomenologically in a limited number of ways-for example, associative, subjective paranormal, temporal lobe, psychotic and/or other organic including a chronic persistent or continuous variation. The mechanisms therefore have been arbitrarily classified under different headings. However, it is possible; for example, that some mechanisms classified pathologically-for example, frontotemporal limbic disconnectedness-may have relevance in the ordinary ostensibly normal individual's déjà vu.

Conversely, mechanisms that appear relevant for the general population and predominantly reflect associative déjà vu may overlap over all categories of déjà vu. There is no reason why the temporal lobe epileptic or the organically impaired patient or the well-controlled psychotic patient should not have their déjà vu correlated with the associative mechanisms hypothesized below. Similarly, there is no reason why such associative déjà vu may not have complex etiologies with psychodynamic precipitants of underlying memory distortions triggered by differently functioning frontotemporal connections. On the other hand, of course, some of these mechanisms are unproven and may turn out to be incorrect. Nevertheless, given that they appear in the published literature, I have attempted to make this as complete a listing as possible.

2 Whereas Neppe uses the phrase 'subjective psi' to emphasize the neutral, non-prejudicial connotation, the term 'paranormal' is far more frequently used and this term has been maintained for other authors in their desciptions of déjà vu.

After careful consideration, I believe the following 21 should be added to the original 50 mechanisms:

1) Sno's hologram [56],
2) Brown's implicit memory / source monitoring matching / gestalt perspective of déjà vu [57,58],
3) Kusumi's 'metacognition' theory [59],
4) Neppe's theory of redintegrative or paramnesic distortion combined with a current trigger like environment or anxiety [3,60],
5) Spatt's [61] erroneous activation of a recognition memory system involving the parahippocampal gyrus, a memory system responsible for sensations of familiarity [62], Perceiving an experience whilst in this state of heightened activation gives rise to familiarity impressions that normally accompany conscious recollection. The prefrontal cortex and the hippocampus are then recruited [62] in a 'normal' manner, finding no 'content', thereby leading to the perception of déjà vu.

Table 4E: Explanations of déjà vu linked with the associative déjà vu category

6) Laubscher's etheric versus physical body delay [63,64],
7) Chari's rare autoscopic links with déjà vu [65,66],
8) Peake's past life review [67],
9) Funkhouser's reawakening of the critical role of dream precognition [53,68,69],
10) Neppe's time distortion mechanism, both precognitive and retrocognitive [3,60].

Table 4F: Explanations of déjà vu linked with the subjective paranormal déjà vu category.

11) Neppe's further mechanism, namely the delusional misinterpretations of events creating the impression of similarity [3,60].

Table 4G: Explanations of déjà vu linked with the psychotic déjà vu category

12) Neppe also described the classical mechanism in temporal lobe epilepsy déjà vu relating to the stereotypical complex or simple aura march of symptoms associated with the real cognitive awareness of the unreality of the familiarity experience [3,60].
13) Neppe's paradoxical description of the contradictory different or inappropriate sameness (not necessarily specific to TLE déjà vu) [3,60] as in déjà paradoxe.

14) Neppe's hallucinatory mechanism during a phase of twilight consciousness [3,60] as in déjà halluciné.
15) Marshall, Halligan and Wade [70] observed that déjà vu type experiences may mediate some of the confabulations occasionally encountered in frontal patients.
16) This explanation is derived from Neppe in 2015 while preparing this manuscript and relates specifically to Temporal Lobe Epileptic Déjà Vu. In essence, the brain stimulation and also the PET data in needs to be reconciled with the correlative clinical data. The Temporal Lobe Epileptic Déjà Vu that results could be from direct seizure firing in either hemisphere, but specifically require interpretations of familiarity based on non-dominant hemisphere.

Table 4H: Explanations of déjà vu linked with the temporal lobe epilepsy déjà vu category and brain related elements like fronto-temporolimbic dysfunction.

The Controversial Entity of *continuous déjà vu* is also Referred to as 'Chronic' Déjà vu and 'Persistent' Déjà vu:
17) A controversial but possibly separate mechanism of what is currently being described as 'continuous déjà vu'. The difference is that it is regarded as occurring in ostensibly normal individuals and as not being due to an abnormal type mechanism such as psychosis or seizures. This entity and its purportedly distinct mechanism requires far more research to even be regarded as falling within the domain of déjà experience. Based on the scanty amount of data in such reports, we believe it to be more logically a mechanism possibly linked with reduplicative paramnesias and not déjà vu per se (Neppe and Funkhouser in discussion).
18) Another controversial form of *continuous déjà vu* described by Chris Moulin's group in demented patients [71] which Neppe argues appears more appropriately linked with confabulation [6]
19) Neppe argues the most common form of *continuous déjà vu* is either
a) déjà vu complex partial seizure status epilepticus (in English: one seizure superimposed upon another but these seizures being predominantly the impression of déjà vu) [57,72-74], or
b) Alternatively, extremely frequent temporal lobe epilepsy déjà vu (for example, twenty seizures per day of déjà vu because of poor control) [57,72-74].
20) Moulin et al. point out that the hypothesized [75] recollective experience circuit located in the medial portion of the temporal lobe must interact with the frontal system in integrated processing sequences. déjà vu is a disruption. They suggest brain damage to the control system for activating the obligatory recollective experience gives rise to persistent feelings of recollection. These possibly emanate from networks in the temporal lobes and it is the lack of control of these networks from the frontal lobes that gives rise to déjà vu.

Table 4I: Explanations of déjà vu linked with continuous déjà vu category and brain related elements like fronto-temporolimbic dysfunction.

Moulin et al. [71] differentiate déjà vu and déjà vécu in the next two, so this becomes an attempt at phenomenologically differentiating different experiences.
21) Déjà vu involves strong feelings of familiarity triggered by recent, frequent, or expected stimuli that enter consciousness while representations of the stimuli that trigger the feelings of familiarity do not, for whatever reason, gain conscious representation
22) Déjà vécu is differentiated etiologically from déjà vu, as a special state that arises when recollective experience occurs for the present moment. When an item/stimulus undergoing on-line processing recruits or triggers the experience of recollection, then the experience becomes déjà vu.

Table 4J: Explanations of differentiating déjà experiences.

Effectively, this makes for 72 major theories explaining déjà vu.

As pointed out earlier, each proposed mechanism does not imply that all are correct, nor that any one necessarily excludes any other. For example, a predisposing factor of redintegration (the part-reinstating-whole mechanism) combined with restricted paramnesia (only part-recognitions of past memories producing déjà vu distortions) may exist and this may produce déjà vu only under specific circumstances associated with a need for anxiety relief.

These mechanisms may, at times, set the framework particularly for *associative déjà vu* given the correct precipitators. However, this may even require a precipitating trigger for the déjà vu experience, such as that mild acute anxiety being relieved by the déjà vu, or alternatively fatigue that precipitated the poor memories, or simply exposure to a new situation which may be unexpected. Any combination of these may be relevant features for *associative déjà vu* experiences [3]. Clearly, other subtypes may also apply. Abnormal firing in the brain may trigger déjà vu, but that particular stereotypical path of firing in the brain may require an environmental trigger. Subjective psi experiences may be triggered by long-forgotten memories of a specific place and this may be interpreted as "psychic" and may have many elements that are subjectively pertinent given the previous experiential milieu of the subject. A psychotic patient may have limited reality contacts and may misinterpret their realities, sometimes

quite idiosyncratically, but there may still be that anxiety or redintegrative mechanism that may begin the process. And someone with a dementing condition may persistently experience the present with an undefined past and confabulate that past. The difficulty may be whether the memory distortions are of such a kind that they can be interpreted as déjà vu in the first place!

Déjà Vu: Understanding the mechanisms (Section 5)

Abstract

Déjà vu must be regarded as symptomatic of many causes, each different. The early history of mechanistic expression of déjà vu involved Zangwill and Chari. Neppe discusses the eight modern mechanisms for déjà vu allowing analysis of the 72 explanations plus leading to the development of the four subtypes that incorporate these mechanisms.

The 36 different déjà experiences are linked with the four features of the four different déjà vu subtypes. Examples of the qualitative differences are provided.

Classification of Déjà Vu

As shown in the previous section, most authors on déjà vu have tried to derive or explain the déjà vu phenomenon from a single pathology or etiology. They then have proposed explanations; though the majority of the 72 do not have a solid basis and yet many have regarded déjà vu as due to one particular cause.

This is clearly untenable. Déjà vu must be regarded as symptomatic of many causes, each different. As such, a system of classification of déjà vu becomes obligatory, which will involve an attempt to differentiate the déjà vu experience within this classificatory system [1].

Apparently, the only two real early attempts to classify déjà vu experience in the published literature are those of Zangwill [76] and Chari [50,51]. Zangwill discussed two subdivisions namely, *endogenous* and *reactive Déjà Vu* [76]. Endogenous means internal, reactive refers to responses to the environment.

Endogenous paramnesia

'Endogenous paramnesia' was a paramnesic experience associated with a memory disorder of mental synthesis. Zangwill's endogenous experience was approximately synonymous with organic neuropathological causes of déjà vu [76]. Zangwill cautioned that a psychogenic explanation for endogenous déjà vu was incorrect and should not be attempted. His organic bias was strengthened by Penfield's 1958 experimental induction of dreamy state seizures by electrical stimulation of the temporal lobe [23]. This conclusively illustrated the occurrence of endogenous déjà vu.

Reactive déjà vu

Reactive déjà vu was precipitated by some 'specific peculiarity of the setting or environment'. Reactive déjà vu included theories which postulated a psychological linkage of the present with the past. It did not, therefore, presuppose any 'true impairment of mental syntheses. The bulk of modern day hypotheses on the origin of reactive déjà vu derive from the psychoanalytic theories of déjà vu.

Zangwill's dichotomy of endogenous and reactive déjà vu certainly differentiated two major areas [76]. It had, however, limited application for a clinico-pathological classification, because etiology, symptomatology, diagnosis and prognosis were not unified. Also, his dichotomy may well have been too simplistic. For example, 'déjà vu with subjective psi experiences' was ignored, as was any further sub classification of organic experiences.

Chari's Classification

Professor C. T. K. Chari's classification of déjà vu [50,51,77] was certainly broader than Zangwill's [76]. He distinguished three kinds of déjà vu experience, the first two of which are difficult to accept in the form presented.

Pathological and abnormal cases

Chari felt that déjà vu manifested pathologically in a wide variety of psychopathological diagnoses. He cited the alcoholic psychoses, migraine, schizophrenia and paranoia, epilepsy, general paresis of the insane-a late stage of syphilis and neurosis. His justification for the choice of these diagnostic groups was that déjà vu had been reported in these conditions. He considered the essential feature of the déjà vu experience in these abnormal cases to be impaired awareness of one's memory of surroundings (persons and objects). [50,51] Chari, however, did not adequately defend this obscure opinion [3,20].

Normal déjà vu

Chari gave the example of MacCurdy's 'perplexity psychoses' [10]. He felt that déjà vu was initiated by certain environmental elements of the past resembling the present and could sometimes be activated by fatigue or decreased attention. Thus, he indirectly equated 'normal déjà vu' with the 'restricted paramnesia'.

Precognitive déjà vu / telepathic déjà vu

Chari believed that this kind of déjà vu may

a) come in successive waves;

b) reach great intensity at times, increasing to a climax;

c) involve an illusion of reliving a *total* situation;

d) evoke a 'turmoil of memories' and a marked affective response congruous with this, which lasts a few minutes (not a mild perplexity as in the normal group);

e) Have precognitive components.

Credit should be given to Chari for his pioneering attempts at suggesting qualitative parameters for this particular kind of déjà vu experience [50,51]. He extracted his data from case reports of alleged precognition and claimed reincarnation [50,51]. We have established that there are 36 different *déjà experiences*. However, these do not have diagnostic relevance, though some may fit more within certain subtypes.

Several relevant questions arise: Are there different déjà

subtypes or just one way to adequately explain all déjà experiences? [78,79] For example, is déjà vu a subjective psi experience (SPE)? And can we apply the methodology used for analyzing déjà experience to the discipline of 'Consciousness Studies'? [79].

This introduces a second axis: The *nosological subtypes* of déjà vu. This means that the causes, origin and population distribution may be distinct and usually separate, although technically one individual could have more than one kind of déjà vu. We examine the four major ones later, with a questionable fifth diagnostic category.

First based on the literature, there are eight categories of mechanism of déjà vu:

Everybody from parapsychologists to psychoanalysts has suggested mechanisms for this common sensation but different researchers tend to place it within varying conceptual models. In this respect, déjà vu experiences can be interpreted in the fabric of eight different mechanisms as in Table 5A.

Within these eight mechanisms, we could analyze 72 current different explanations for déjà vu. There is overlap. But some of these are purely theoretical; others may occur but are unlikely or inappropriate. Almost all of these causes can broadly be characterized within the "*psychological*" (including psychodynamic, memory and psychotic), '*cerebral*' (paroxysmal, focal or hemispheric), or '*paranormal*' (including reincarnation, precognition and distortions of time) groups [78,79]. Because so many (and often related) explanations appear, we shall merely survey the most popular or important. It will soon become clear that no single hypothesis can explain the wide range of déjà vu occurrences. Déjà vu is simply not a single, unitary phenomenon.

I briefly list below and apply data from multiple publications [3,6,77,20,80-87]. In essence, déjà vu cannot be understood unless we first place the experience within the appropriate explanatory category. Is it a psychological, neurological or parapsychological experience?

First we examine the 8 major hypothesized mechanisms in **Table 5A**

I. Predominant links with Associative Déjà Vu and occurring in ostensibly "normal" individuals.
(1) *Disorders of memory*. Déjà vu could be conceived simply as an illusory reference to something that never happened. If we work from this position, déjà vu is nothing more than an error in memory.
(2) *Ego-state disorder*. Perhaps déjà vu really doesn't concern memory so much as it represents a distortion of the person's sense of reality. When a person suddenly finds his surroundings strange and unfamiliar, psychologists call this experience 'derealization'. It is a common symptom reported in both normal and mentally ill people. Couldn't déjà vu be a related or complementary psychological state in which the person's surroundings merely feel uncannily familiar?
(3) *Ego defense*. Psychoanalysts prefer to see déjà vu as a psychodynamic process orchestrated by the unconscious mind. A person facing a psychologically threatening situation represses his anxiety, thereby refusing to consciously acknowledge his predicament. Déjà vu results when the person unconsciously tells himself something like "*I've been through this before and I came out okay, so I don't need to feel stressed.* "
(5) *Error in recognition*. Déjà vu may simply be an error in our recognition of a situation and may not be related to the brain's memory.
II. Predominant links with Temporal Lobe Déjà Vu and occurring in ostensibly "Temporal Lobe epileptic" individuals.
(6) Epileptic firing. Déjà vu may be the product of electrical activity within the brain. The brain is constantly functioning electrically and any small discharges located in those areas regulating memory and familiarity could cause the environment or situation to look intensely familiar.
III. Predominant links with Subjective psi experience Déjà Vu and occurring in ostensibly "Subjective psi experients".
(7) Subjective psi experience. Some forms of déjà vu may result from forgotten precognitive dreams, out-of-body experiences or past-life revivifications.
IV. Predominant links with Psychotic Déjà Vu and occurring in ostensibly "Psychotic individuals sometimes not overtly manifesting thought disorder".
(8) *Psychotic misinterpretation of reality*. The déjà vu may be part of a more intricate distortion of information or events which have a peculiar, even idiosyncratic, meaning of special significance for the person experiencing it.

Table 5A: The major hypothesized mechanisms of déjà vu: The Neppe classification [3,20].

What is the difference between describing explanations and mechanisms? The 72 explanations are attempts to explain how déjà vu occurs. Many of these are linked up with the eight major subdivisions that Neppe suggests are possible ways in which déjà vu occurs [3,6,20]. These mechanisms in turn are hypothetical constructs that fit the four major nosological subdivisions. In one of these four, Associative déjà vu particularly, there are several ways in which déjà vu may occur (#1-5 in Table 5A above). Currently, we think that the cause in these instances may be multifactorial involving several different mechanisms. None of these mechanisms are exclusive to subgroups and, for example, disorders of memory, may explain the confabulatory elements attributed to the so-called and controversial Alzheimer, chronic subtype; and psychotic misinterpretations may explain a continuous déjà vu.

Déjà vu research: The phenomenological approach (Section 6)

Abstract

Significant important differences exist in the expression of déjà vu in the different subject populations reflecting the four different nosological subtypes. This article gives some brief examples and explanations andalso illustrates the complexity of the descriptions and their analyses and the phenomenology of these experiences.

Neppe hypothesized and then, by applying multidimensional scaling in 22 dimensions, empirically demonstrated four phenomenologically distinct nosological subtypes representing four different, distinct populations motivating four, etiologically distinct kinds of déjà vu: subjective psi experience (SPE) déjà vu (in SPE experients), associative déjà vu (in ostensible "normals" [subjective psi non-experients] and also in non-epileptic temporal lobe dysfunction and non-temporal lobe epilepsy patients), psychotic déjà vu (in schizophrenics) and temporal lobe epileptic (TLE) déjà vu in TLE patients. The approach used serves as a model for phenomenologically relevant analyses in neuroscience, psychology, psychopathology and parapsychology. This allows standardized, relevant recordings. This also requires development of further appropriate questionnaires to ensure phenomenological homogeneity in further research and meta-analyses. Phenomenological detailing ensures a methodology of ensuring that data is recorded in as standardized and relevant a way possible.

As we've seen, Dr Vernon Neppe has delineated seventy-one logical scientific explanations for the mechanism of déjà vu. Most are simply incorrect as there is no basis for them. Sometimes the models overlap, as with the Brown [88] and Banister [89,90] work below. And to complicate more, as we've seen, the déjà vu phenomenon is possibly the most misused of all terms, because it's a fashionable way to talk about information repeating itself [3,6,20]. At this point, there are nearly 2000 useful articles on déjà vu. Many are listed in Neppe's '*Déjà Vu Glossary and Library*' [83], but, of course, updated since then. This section briefly chooses some modern highlights in research in déjà vu. This gives a taste of key work but without overwhelming [91].

Applying Qualitative Phenomenological Research

The stimulus for the modern differentiation into demonstrable subtypes began in 1971. While a medical student in 1971, Vernon Neppe was intrigued by several contradictory paradoxes. He learned in his psychiatry course that déjà vu was symptomatic of temporal lobe epilepsy, yet his further research showed that 70% of the population had this experience [92]. He noted that something like déjà vu can be induced either by hypnosis or by electrical stimulation of the brain's temporal lobe. Neppe wondered whether so-called "psychics" were having a different kind of experience.

Could it be that déjà vu is really not a single phenomenon but that several different types exist? Could the sensation originate in several differing ways? And could some déjà vu experiences be normal to us while others represent pathological processes at work?

It is remarkable how little research had been addressed to these issues by 1980. This paucity of data, nevertheless, helped guide Neppe's own research as part of his doctoral work at the University of Witwatersrand in Johannesburg, South Africa [2]. Neppe began by studying the way different groups of people described déjà vu experiences.

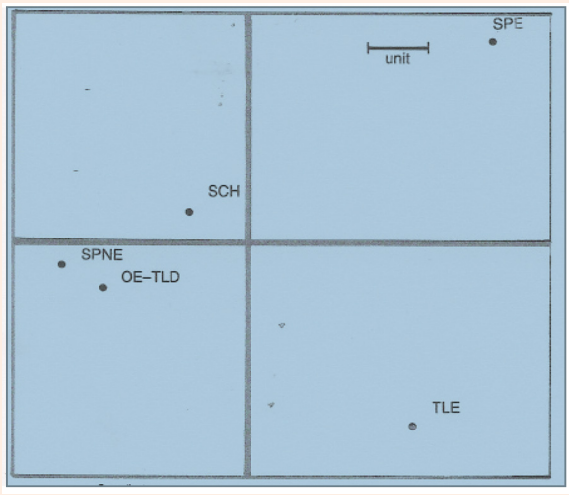
This led Vernon Neppe (1979) [2,3] to analyze déjà vu in detail phenomenologically, so qualitative differences could be elicited in possible subtypes. Neppe developed a Déjà Vu Questionnaire to adequately screen for the many instances of déjà *experiences*. He added names to nine (at that point unnamed) *circumstances* in which déjà vu could occur. Coincidentally, two of these déjà experiences were also independently being described by Art Funkhouser in Switzerland-*déjà rêvé*- already dreamt and *déjà visité*-already visited (a locality). Therefore, Neppe was able to study the 21 known kinds of déjà vu experiences in his phenomenological analyses [3,6,79]. He administered a screening and a detailed questionnaire, the latter to analyze phenomenological differences. This was combined with detailed interviews including specific examples.

Self-proclaimed psychics report frequent déjà vu experiences and their experiences did not seem to be pathological. This reflected those who reported subjective psi experiences based on specific, detailed criteria for subjective validity and specificity [3,79]. Neppe, therefore, collected several such cases. He compared two groups from the same membership organization.

First, there were 'ostensibly normal people' who claimed no psychic abilities so-called '*Subjective Psi Non-Experients*'. Their déjà vu reports were compared with a second distinct population of: ostensible normal' but they reported many psychic experiences that they interpreted as such and therefore were called '*Subjective Psi Experients*'. Like all déjà vu reports, the descriptions in both instances were subjective, neither confirming nor denying the objective validity of their experiences. But the key question was did each have a distinct kind of déjà vu? [3,79].

Neppe also looked at the déjà vu reports of schizophrenics and epileptics [3,79]. This constituted a second comparative population, this time a *neuropsychiatric population of temporal lobe epileptics*, a subtype of all epileptics that he postulated would be specific: He also included other non-temporal lobe epileptics and then compared the temporal lobe epileptics with a *schizophrenic population* who did not exhibit overt psychosis but were sufficiently ill that they had been hospitalized. He included a further group of *non-temporal lobe epileptics* and those who were *not epileptic but had temporal lobe dysfunction*. He postulated they would have the same déjà vu experiences as the '*Ostensibly normal Subjective Paranormal Non-Experients*'. They would therefore appear rather like that ordinary, normal kind of déjà vu, as there would be no firing specifically in the area of the brain that would cause them to experience this déjà vu awareness that it had happened before. Importantly, in all these subjects, special carefully evaluated criteria were used in the whole available population at the pre-defined times, so that comparisons could be made.

Citation: Neppe VM (2015) Understanding Déjà vu: Explanations, Mechanisms and the 'normal' kind of déjà vu (Part 2). J Psychol Clin Psychiatry 2(6): 00112. DOI: 10.15406/jpcpy.2015.02.00112



Co-ordinates:	SPNE	SPE	TLE	SCH	OE-TLD
x-axis	-3. 164	4. 076	2. 717	-1. 013	2. 615
y-axis	-0. 320	3. 443	-3. 050	0. 601	-0. 674

Figure 6A: Multidimensional scaling and the graph showing median column geometry [3,38,79]

Graph representing the differences between the 5 Groups based on the five-point qualitative parameters of déjà vu. (Distance between two column points approximates the Euclidean distance between the two columns as vectors in R22)

It was very important to differentiate this because otherwise one would ask: if a person has a seizure and they have a particular aura, but the aura is frontal lobe, for instance, could the person be experiencing the same aura and thinking that it is déjà vu? Would it be that this subgroup of epileptic would know it was not déjà vu because they would experience the appropriateness of the experience and perceive it as logically different?

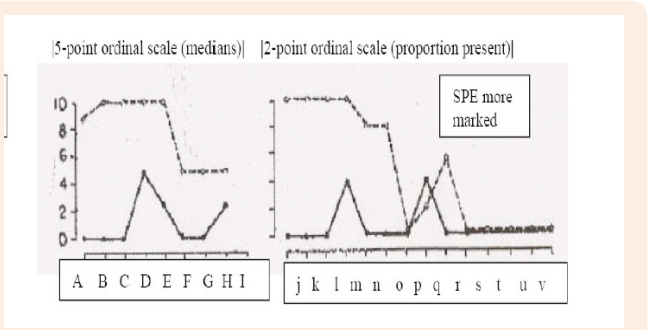
The complexity of the phenomenon and the lack of consensus in the literature-as well as the relative dearth of scientific study of déjà vu-led Neppe in 1981 to develop a questionnaire-the Neppe Déjà Vu Questionnaire. This had two major components: The Screening Questionnaire portion attempted to ensure that déjà vu experiences were being screened for in a broad enough fashion. Secondly, the Qualitative Questionnaire section that followed was designed to gather specific details about the subjects' déjà vu experiences [3]. This 1981 questionnaire consisted of 86 items. Neppe asked each informant to detail his or her experience [2,3]. He explored the circumstances under which the episode was perceived, the perceptual quality of the déjà vu, changes in thinking that accompanied it, intensity, clarity, emotional level and any associated and possibly paranormal factors and so on.

Neppe hypothesized that there would be four phenomenologically distinct *nosological subtypes* in his four comparative subpopulations. This hypothesis was, indeed, demonstrated by applying multidimensional scaling in 22 dimensions using median column geometry, to the data. Effectively, the statistician, Dr Dan Bradu, used a cutting edge technique to analyze mathematically 22 dimensions and produce a geometric visual of the result. (Figure 6a represents this and Figure 6b and 6c shows visually the graphic differences between the different groups. Specifically and remarkably, but also fortunately because it eliminated debate, the four different nosological déjà vu subtypes were represented in the defined populations in four different quadrants [3,38,79]. With all four quadrants represented, we were able to demonstrate that there was an existence of the four nosological subtypes [3]. This was predictable across diagnostic categories and we could classify these different symptom categories as qualitatively different amongst the four. Neppe called the four distinct and hypothesized categories: *Subjective paranormal* (SPE) *déjà vu, Temporal lobe epileptic* (TLE) *déjà vu, Schizophrenic (later called, Psychotic) déjà vu and Associative déjà vu* [3].

These subtypes strongly motivated for four, etiologically distinct kinds of déjà vu subtypes occurring in these four different populations (*subjective psi experience* (SPE) *déjà vu* (in SPE experients), *associative déjà vu* (in ostensible "normal's" [subjective paranormal non-experients] and also in non-epileptic temporal lobe dysfunction and non-temporal lobe epilepsy patients), *psychotic déjà vu* (in schizophrenics) and *temporal lobe epileptic* (TLE) in TLE patients.) [3,38,79].

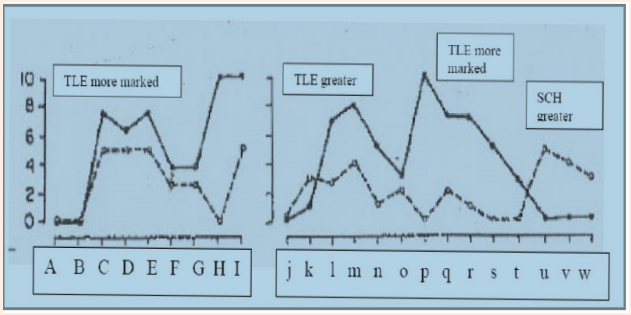
Figure 6A shows multidimensional scaling and the graph showing median column geometry representing the differences between the four different quadrants. This has five groups because the non-temporal lobe epileptics and the non-epileptic temporal lobe dysfunctions (OE-TLD) were studied as a separate group, and, as hypothesized, this population fitted into the subjective paranormal non-experience group. Their results were very close and this itself was very useful because it shows the linkup of the neuropsychiatric with the so-called "normal" sub-population in this regard implying a certain unified population. SPE = Subjective paranormal experients; TLE = temporal lobe epileptics.

The graph represents differences between the five groups based on the five-point qualitative parameters of déjà vu. The distance between two column points approximates the Euclidean distance between the two columns in R [22] vectors. Experts looking at this graph could argue that *Psychotic Déjà Vu* (SCH) is not too different distance-wise in R [22] from the *subjective paranormal non-experience Déjà Vu* (SPNE) (= Associative Déjà Vu) but we have to examine not only the major distance between the two, but the qualitative differences (Figure 6B). However, this graph is a 2 dimensional representation of 22 distinct dimensions and their location in all four quadrants applying ordinal medians is truly remarkable. Realistically, there were only a few phenomenological components that were different. In other words, Psychotics were having Associative déjà vu and exhibited no startling profound features other than their key distinct feature and problem adding to this, namely consistent misinterpretation of reality, referential phenomena and delusional and hallucinatory thinking [2,6]. This is well reflected in the analysis of Figure 6C showing the specific dimensional features in the 5 subpopulations.



A = More than one perceptual modality of déjà vu	j = Acceptable SPE
B = SPE time-distortion	k = Claimed SPE
C = Clarity of déjà vu	l = Marked cognitive change
D = Clarity of chosen case	m = Marked environmental awareness
E = Degree of familiarity	n = Experiential growth
F = Emotional intensity	o = 'Sensing' familiarty
G = Strongest point	p = Post-ictal features
H = Frequency of déjà vu	q = Special circumstances
I = Illness relating to déjà vu	r = Marked body awareness
	s = Deja aura to seizure
	t = Jamais vu aura
	u = Psychotic special meanings
	v = Psychotic self reference
	w = Psychotic SPE

Figure 6B: Specific dimensional features in the SPE vs. SPNE of the 5 subpopulations [3,79,38].



A = More than one perceptual modality of déjà vu	j = Acceptable SPE
B = SPE time-distortion	k = Claimed SPE
C = Clarity of déjà vu	l = Marked cognitive change
D = Clarity of chosen case	m = Marked environmental awareness
E = Degree of familiarity	n = Experiential growth
F = Emotional intensity	o = 'Sensing' familiarty
G = Strongest point	p = Post-ictal features
H = Frequency of déjà vu	q = Special circumstances
I = Illness relating to déjà vu	r = Marked body awareness
	s = Deja aura to seizure
	t = Jamais vu aura
	u = Psychotic special meanings
	v = Psychotic self reference
	w = Psychotic SPE

Figure 6C: Specific dimensional features in the TLE vs. SCH of the 5 subpopulations [3,79,38].

Obviously, there are individual subjects that may overlap in a déjà vu subtype, so we can have a psychotic patient with temporal lobe epilepsy. And individuals may belong to more than one group; for example, a TLE patient and an SP experient can theoretically overlap, although I've never seen it. Associative déjà vu can obviously occur in all groups: Just because somebody has temporal lobe epilepsy doesn't mean that they cannot have Associative Déjà Vu. And when this occurs in the psychotic patient, it could post-hoc "tinge" the description psychotically.

To these four nosological subgroups (the fifth being just a variant of the "associative déjà vu" population) may possibly be added Moulin's, as yet, unproven 2005 variant in dementing patients [71]. Though these four subtypes exhibit sufficient distinctiveness to classify an individual déjà experience description, individual subjects may also overlap in déjà vu subtype, particularly as individuals may belong to more than one group (e. g. TLE and SPE; or associative déjà vu may occur in all groups as well, though a psychotic patient could post-hoc "tinge" that description with a psychotic interpretation).

These Findings Might Pioneer a New Way of Thinking: As Neppe Points Out

The approach used serves as a model for phenomenologically relevant analyses in neuroscience, psychology, psychopathology and parapsychology. This allows standardized, relevant recordings. This also requires development of further appropriate questionnaires to ensure phenomenological homogeneity in further research and meta-analyses [79].

The differentiation of a precognitive SPE and *SPE déjà vu* is phenomenologically relevant: The SPE déjà vu event is by definition not definitively precognized before the experience. This allows, at times, a distinct differentiation from actualized precognition, though this may be particularly difficult in *déjà rêvé* when dream residues exist. Experients sometimes perceive their *déjà vécu* as due to reincarnation, but this may be one of several possible unlikely explanations. Note that the four distinct nosological subtypes may theoretically manifest in all thirty different déjà experiences.

Further research has led to the *New Neppe Déjà Vu Questionnaire (NNDVQ-2006).* The possibility of using questionnaires such as these over the Internet becomes a cogent one as provisionally done by Funkhouser at http://funkhouser. dreamunit. net/déjà vu/.

Neppe examines the qualitative features resulting from these questionnaires in some detail elsewhere in his books [38,73,93] as well as comment on comparative incidence [94-96]. The updated modified version of the original questionnaires are modified in the final two chapters of the A Second Look book, *Questioning the Déjà Vu Questionnaires [47] and The New Neppe Déjà Vu Questionnaire—2006 (NNDVQ)* [29]. An application of this phenomenological research is that the methodology to differentiate subtypes of déjà vu (≥4) can be used to continue such analyses, for example, possibly correlating SPE déjà vu occurring in the distinct population of Subjective Paranormal Experients with other kinds of SPE. Such analyses can only be arrived at using detailed phenomenological analyses, though key features can now be differentiated. We know, for example, that other subtypes of déjà vu (TLE, psychotic, associative) are apparently not SPEs.

Citation: Neppe VM (2015) Understanding Déjà vu: Explanations, Mechanisms and the 'normal' kind of déjà vu (Part 2). J Psychol Clin Psychiatry 2(6): 00112. DOI: 10.15406/jpcpy.2015.02.00112

However, the broader lesson of the Neppe déjà vu phenomenological research is to motivate the importance of the development of the phenomenological school of Consciousness Studies and also of analyzing neurophysiology and neuropathology in the context of symptoms. Effectively, all possible paranormal experiences, whether subjective or objectified in an empirically based research environment, should be analyzed phenomenologically. This application of the temporal lobe and features linked with it, is far broader in neuroscience than just studying déjà vu: In the context of subjective psi experiences, Neppe in 1977 [97] and Palmer and Neppe in 2003 [98,99] applied such work to temporal lobe symptomatology. Neppe also studied SPEs and olfactory hallucinations [100,101]. Applications of this approach using phenomenological analyses in other areas of subjective experience are highly relevant and can even include subjective experiences such as psychiatric symptoms like hallucinations and delusions.

This kind of analysis can be applied not only to spontaneous SPE case analyses, both prospective and retrospective, but it can also be used in Objective psi Experience [OPE], for example, in the experimental research paradigm, when prospective paradigms allow for a more detailed data set.

Phenomenological detailing ensures a methodology of ensuring that data is recorded in as standardized and relevant a way possible. Neppe has suggested an A to Z Axis Classification of such experiences (applying the mnemonic 'SEATTLE'). He has specifically empirically demonstrated how subtypes of these 26 Axes can be directed to precognizing events, particularly using sub-classifications ('TICKLES' and 'FOLDINGS') of two specific axes [102].

Associative Déjà Vu (Section 7)

Abstract

Déjà vu occurs in about 2/3 of the population. This is predominantly the common kind, namely Associative Déjà Vu in which 23 déjà experiences predominantly occur. These are relatively rare during one's lifetime, invoke some perplexity but seldom a marked impression and are often rationalized, It differs from the other subtypes described, as such experiences are generally of short duration, relatively unimpressive because they're not usually intense, nor do they include a precognitive impression, or specific symptom sequences, or aspects of thought disorder.

By far the most pertinent and common type of déjà vu is '*Associative déjà vu*'.

Déjà experiences hypothetically manifest frequently in the normal population: Based on several studies world-wide, across "normal" populations and those with psychiatric or brain illnesses, using several broad screening questions, possibly two-thirds or even 70% of individuals have had at least one déjà vu experience in their lifetime [81], usually 'Associative déjà vu'. *But this associative déjà vu* is not specific to the general population and can occur in conjunction with or instead of other kinds of déjà vu experiences in any subtype.

Descriptions of 'Associative déjà vu' are most often vague, associated with perplexity ("*Now why did this happen? And why now? I can't really explain it,*"). And, then may come the rationalization phase, where indeed, the experient (the person experiencing it) may 'associate' their experience with something: The experient might try to explain their déjà vu possibly with one or more of those 72 explanations. Associative déjà vu experiences are generally short-lived (seconds) and do not impact greatly and they may be associated with a mild psychological experience like relief of anxiety.

This most common type of déjà vu experienced by normal, healthy people is what Neppe originally [2] and still does call *Associative Déjà Vu* because it is 'associative' in nature: You see or hear or talk or visit or experience any of the twenty or more déjà experiences that allow associations-linkages-with something. Such happenings become a complex psychodynamic issue, often with anxiety relief and some association that looks like part of a previous occurrence, or reflects an incompletely forgotten memory.

'Associative déjà vu' experiences occur possibly only a few times in a person's lifetime and usually begins when some aspects of a place or situation suddenly feel familiar [2,6]. Sometimes mild stress or anxiety will prompt it. An unusual action or sight may also trigger a vague, unclear impression of déjà vu. The experience usually lasts but seconds and is unassociated with any substantial change in the person's thinking or emotions-other than that he or she is bewildered by its occurrence.

The trigger in the following case [3] may be an unconscious conflict the informant had with cigarettes and smoking:

"*The one I'm describing happened a year ago. I went into a little corner cafeteria to buy cigarettes. I had never been to that particular shop before nor had I ever seen the shopkeeper before. As I was buying it, I felt the shopkeeper and the whole situation were familiar and I had gone through this experience before. This often happens when I buy cigarettes and has occurred in several small cafeterias.*"

A debatable kind of déjà vu experience is induced or mimicked by so-called 'restricted paramnesias'-this is the process of partial forgetting where vague yet genuine memories are manifesting in the present in a form reminiscent of déjà vu.

Now is this déjà vu? Yes, it is but one of those situations where one has to invoke the definition: Neppe still regards such partial forgetting as déjà vu insofar as the 'past is undefined' initially, even if later it becomes defined-"*I know why: It reminded me of my visit to the dentist—I couldn't explain it but now it's clearer*". And sometimes, if one has a more direct memory, it would not be déjà vu because it is based on direct memories. That may be one reason why some individuals don't seem to have déjà vu: They remember too well!

A colleague reported the following experience: [3]

"*A patient came to see me. I was meeting him for the first time. The immediate impact was that I had met him before. He looked familiar. I even asked him where we had met, but he denied ever meeting me. Then I thought, 'Possibly not. ' At that point I remembered a patient whom I had treated 12 years ago. I realized that I must have mistaken one for the other.*"

In this respect, this experience can be classified as anyone or any combination of the following: a distortion of memory, ego-state defense or error in recognition. In this example, the feeling of familiarity would not be true déjà vu if the subject while having the déjà vu experience were able to recall the actual patient from twelve years before. This would be so as the subject would really be experiencing something from his defined past. However, this is not the case here. Initially, he has the perplexity of "*where does he come from? Why is he familiar*?" Then comes the rational thinking: "*I mistook him for a specific person twelve years ago*." We could consider this experience a form of "restricted paramnesia" in that a process of forgetting has occurred and vague yet genuine memories are manifesting in a form reminiscent of déjà vu [103].

What does this all mean? Simply that no single explanation for déjà vu can cover its entire range of effects. Many déjà experiences are commonly described in 'Associative Déjà Vu'. In Neppe's experience over the past three plus decades, the following are the most common:

déjà lu	already read
déjà parlé	already spoken (act of speech)
déjà visité	already visited [a locality]
déjà rencontré	already met; specifically relates to interpersonal situation
déjà raconté	already recounted [already told]
déjà arrivé	already happened

and of course *déjà vu* itself as the generic "already seen".

In Neppe's experience, the following are less common in "Associative déjà vu":

déjà entendu	already heard
déjà éprouvé	already experienced [already felt]
déjà fait	already done
déjà pensé	already thought
déjà senti	already felt, smelled
déjà connu	already known (personal knowing)
déjà dit	already said/spoken (content of speech)
déjà goûté	already tasted
déjà trouvé	already found (met)
déjà articulé	(already articulated) (old unused)
déjà percu	(already perceived)
déjà passé	(already passed) (old unused) uncertain where to classify.

Another four déjà vu subtypes can occur but are so rare that it is hard to describe their origins:

i. déjà touché—already touched. This is a physical sensation and completes all the déjà experiences of all physical senses.

ii. déjà mangé —already eaten, chewed

iii. déjà musique—already heard or played specific music or sung

iv. déjà chanté —already sung

But the traditional global term

déjà vu - already seen, still is pertinent.

The common general, associative type of déjà vu occurring in ostensibly normal individuals is less easy to clearly define and describe. It differs from the other subtypes described, in that, on the one hand, such experiences are generally of short duration and while on the other hand, they can be remembered. Associative déjà vu rarely leaves a deep impression because they it is not as intense nor do they include a precognitive impression, or specific symptoms or aspects of thought disorder. In many instances, one might more accurately speak of instances of mistaken identity or experiences that can be traced—easily or with some effort—to a preceding event or impression [104,105].

An all too striking example of the *associative déjà vu* subtype was provided by Nathaniel Hawthorne, [106] the 19th century American author of *The House of Seven Gables*. In 1863, he published *Our Old Home*, a journal of his travels in England. In a chapter entitled 'Near Oxford', he related how he explored the ruins of an old castle at Stanton Harcourt. He was particularly struck by an amazing sense of familiarity he felt within the cavernous kitchen of the place. It was only later that he traced his feeling to a letter of Alexander Pope's, written to the Duke of Buckingham where he described the kitchen of the place he was staying (without naming it) and Hawthorne had read this letter during his studies many years previously (the psychoanalytic aspects of Hawthorne's experience were treated in a 1945 paper by Zangwill [76]). Halévy in 1907 [53] and Smith in 1913 [107] have reported similar experiences.

Further complications set in when we realize that the various diagnostic subcategories, the multiple explanations and even the déjà vu experiences themselves, aren't necessarily mutually exclusive: they can overlap. For example, memory may be distorted due to anxiety, thereby causing the person to block the anxieties by making his memories appear to conform to something that never happened. If this sounds a bit complicated, maybe it can be clarified by looking at the many cases in Neppe's collection: [2,3] Still some of these explanations *are* mutually exclusive [6].

Some authors such as Brown have focused on *associative déjà vu* without defining it as such, regarding it simply as déjà vu. This unfortunately over represents the entity. We must be careful not to allow for "like" phenomena to be over generalized and to be compared with other subcategories-"not like" [102].

Now why the term 'associative'? Neppe called it this for two reasons

1. This (unlike the term 'normal') made it non-prejudicial and allowed for the possibility of the entity to occur with other subtypes. We have on many occasions found that patients with TLE still have associative déjà vu instead of or in addition to their TLE déjà vu. Moreover, as indicated, other

non-temporal lobe epileptics and patients with non-epileptic temporal lobe dysfunction have been well demonstrated to have associative déjà vu. [2,3,92]

2. The term 'associative' implies some kind of association. Every hypothesized mechanism for this associative déjà vu ultimately has some mechanistic association. This may be psychological, psychoanalytic, psychiatric and cerebral or memory related. But each indicates a link with the individual's interaction with his environment or his psyche or his brain. Moreover, recent work, including that of Brown, Ito, Kusumi [59], Sno and Wolfradt, has demonstrated a link of previous memories at times [58,108-113]. And in the past, the work of Heymans and Banister supported this [21,89,90,113-115]. Thus, there may even be more support for the term.

Why not replace it with 'general déjà vu'? Firstly, because 'associative' has become the standard and so there needs to be cogent reason to replace it. Secondly, because it would imply just that-general-and this does not mean much when one is describing specific qualitative features.

Associative déjà vu still remains a justifiable subtype three plus decades after it was coined.

Theoretical and empirical approaches to Associative Déjà Vu (Section 8)

Abstract

Several different explanations and mechanisms for Associative déjà vu are addressed. The contribution of Brown and Marsh in evoking déjà vu by distortions of memory or attention following on Banister's early work on restricted paramnesias and of the theoretical model of redintegration is examined.

- *The Brown and Marsh work evoking déjà vu by distortions of memory or attention with the 'cell-phone theory' and associated other contributions are put in perspective with the Banister and Zangwill work on restricted paramnesias and the earlier theoretical contribution of 'redintegration'. However, the importance of the psychodynamics in inducing this 'associative déjà vu' is emphasized.*
- *Sno's theoretical holographic model might be a promising one of the 72 possible ways to explain déjà vu.*
- *The infinitesimal lag ideas of Wigan, Heller and Efron imply a hemispheric role and data on brain stimulation of déjà vu remains difficult to interpret.*
- *The youngest age of children having déjà vu is documented at age 5 years. This is pertinent for developmental cognitive analyses.*

Evoking Déjà Vu By Distortions Of Memory Or Attention

To another important author on déjà vu, Dr. Alan Brown, "*déjà vu is experienced as the acute and significant input clash between a subjective sense of familiarity and an objective feeling of unfamiliarity.*" [88,116] Brown and Marsh have produced controlled experimental data in that regard [88,117]. At Duke University and SMU applying subliminal pre-flashing with photographs asking which locations were familiar [88,116]. Brown proposed his '*cell phone theory*' (or theory of divided attention): when we're distracted by something else, we subliminally take in what's around us but may not truly register it consciously. Then, when we are able to focus on what we are doing, those surroundings appear to already be familiar to us even when they shouldn't be. Therefore, the implicit familiarity with the divided attention is pertinent with one another [103].

It appears that this might be too limiting in that there are several additional subtle components but the Brown research could reflect one component of inducing Associative déjà vu. Brown describes this déjà vu experience as "*ostensibly new, yet accompanied by a brief but intense impression that this particular event has happened before*." However, the phenomenology of Associative déjà vu does not reflect this description: It's certainly brief, but it's seldom intense. The *intensity* component may simply not be true: *Associative déjà vu* is on the whole far less intense than temporal lobe epileptic or SPE déjà vu and psychotic déjà vu is vague in quality and variable but usually of an intensity enough to produce a delusional awareness. Certainly, too, the brief component is limiting and not necessarily true, particularly in the subtypes of *temporal lobe epilepsy (TLE)* déjà vu, *SPE déjà vu* and *psychotic déjà vu*. Thus, the description of déjà vu as essentially brief and intense, without respect to distinctive differentiations among groups, will tend to limit research. Also Brown recognizes a "biological" type, but, of course seizures and psychosis, for example, are very different.

Similar studies by Drs Larry Jacoby and Kevin Whitehouse at Washington University [118], as well as Whittlesea in Canada [119] using word lists produce similar results.

But is the Brown, Jacoby and Whittlesea research describing a new concept in déjà vu research? Two very common mechanisms for déjà vu involve what is known in psychology as "redintegration" and "restricted paramnesia" Both processes relate to memory and they frequently occur together.

For example, let's say a subject, while touring a castle on a trip to Europe, once saw an enormous steel gate of Gothic design. Years later he visits for the first time an American war museum which has the same sort of gate. He could easily perceive the whole museum, not just the gate, to be familiar and be perplexed because he *knows* he has never seen it before. Déjà vu has occurred because the gate has been remembered out of context-that is, the subject is remembering the gate but not the associated castle.

Now, Brown's model is not too different from what two British psychologists, Banister and Zangwill, regarded as 'restricted paramnesias' in the 1940s [89] in their hypnosis study of not only visual but also olfactory stimuli [90]. They successfully engendered a déjà-like experience through hypnotic experiments with subjects, whereby familiarity with objects was forgotten through hypnosis, and then a sense of vague familiarity was re-invoked by presenting those same objects [89,120].

Restricted paramnesias reflect distortion or falsification of memory of any kind in which a failure to recognize a portion of a past memory causes a vague impression of familiarity of the present situation [83]. Restricted paramnesia is important

because it can be experimentally induced by the post-hypnotic suggestion to forget exposed material.

Indeed, in the 1940s, Zangwill also gave it a name: '*Reactive déjà vu*' was his hypothetical subtype of *déjà vu* explaining *déjà vu* in terms of reactions to environmental precipitators. This is incorporated within the broader Associative Déjà Vu paradigm [76]. And, in another paper, he broadly recognized the role of the temporal lobe [59]. Even more so, Dr CTK Chari in India in the 1960s made a legitimate attempt to understand the non-unitary aspect of déjà vu, but did not have the data to directly subtype the phenomenon. [50,51]

Another similar but different mechanism is 'redintegration': the act of imaging a whole complex mental state on exposure to part of it; the part reinstating the whole [83]. Effectively, *redintegration* means the process of restoring to a perfect state-re-integrating a part into a whole.

Interestingly, this term goes back to the 19th century [3,20] One of the earliest mentions of redintegration appears in Hodgson's Time and Space in 1865 [33]. And the term is used in Emminghaus' *Allgemein Psychopathologie* in 1878 [121]. Essentially all these mechanisms are very similar, involving partial remembering or partial forgetting or partial registration of events without the full conscious awareness [3,20,83].

Psychodynamics and Memory

It may be insufficient to explain most déjà vu just through subliminal stimuli, or hypnotic forgetting, or through redintegration alone. In the real world, there is likely another component at play.

There is another side to the psychological experience of déjà vu. *Why* does it occur at any given moment? *Why* does the brain play tricks *just then and not at some other purely random time*? Can spontaneous déjà vu generally be solely explained in the real world by redintegration, restricted paramnesia or the cell phone theory?

Based on his many cases, Neppe argues there must almost always be a psychological relevance (i. e., a meaning) for the déjà vu experience to occur in the ordinary person [2,3]. The situation must be correct before the memory is triggered and the déjà vu sensation is subsequently produced. The fact that a psychodynamic meaning underlies the experience has been written about extensively in psychoanalytic literature.

The psychodynamic explanation that seems most likely is that déjà vu sensations relieve anxiety. For example, let's cite another case: [2,3] The subject was beginning a semester at a new school. Understandably he felt a little anxious and this situation presumably set up the psychological milieu for the episode. When he entered the classroom and met his instructor, suddenly everything seemed familiar and he felt he had been through the situation before. Sensing that, he was reassured and his anxiety was relieved.

The redintegration and paramnesia elements are not difficult to imagine. Classrooms, desk, schoolchildren, the whole situation-any of these factors could have acted as a trigger for the déjà vu. But a key may have been that the experience was psychologically meaningful for the subject at that time. It helped him to deal with the situation confronting him and worrying him.

A number of different psychodynamic explanations for déjà vu have been proposed and even Sigmund Freud played a role in their formation [122]. Freud described a special kind of déjà vu which he called déjà raconté which translates to "already recounted or told". Sometimes his patients would get the feeling they had already told him about a certain incident. These sensations may have made them feel more secure discussing the incidents or may have unconsciously eliminated the need to discuss their hurtful aspects.

Related varieties of psychoanalytical explanations for the déjà vu experience exist in psychoanalytic literature-a fascinating area dealt with in detail in Neppe's books, *The Psychology of Déjà Vu* and its rewrite *Déjà Vu Revisited* [3].

All these explanations may be particularly applicable to what Neppe recognized as the single subtype of déjà vu, occurring in ostensibly normal individuals which he called 'associative déjà vu'. But there are other explanations, usually more applicable to other subtypes.

The Kusumi Integration of Associative Déjà Vu

The idea of integration of several mechanisms is well reflected by Kusumi's model [123] which again, like Brown and Banister and Zangwill, only focuses on one subtype of déjà vu, Associative Déjà Vu. Kusumi integrates three higher level cognitive components to explain the mechanisms involved in 'analogical reminding' and the reporting of relevant empirical data. These three components are

1. feelings of knowing and monitoring reality during new events,
2. judgments of similarity and dissimilarity between new and retrieved events and
3. Monitoring of reality in 'prototype events'.

The Kusumi model allows individuals to experience an inappropriate feeling of familiarity with a current situation because they erroneously believe that a similar situation has occurred in the past. He recognizes that déjà vu is based on normal memory mechanisms [123] arguing that:

a. 70% of normal adults experience the phenomenon,
b. prototypical scenes stored in memory are frequently involved in déjà vu experiences of locations (i. e. 'I have been here before') and
c. The impression of familiarity increases as the number of cues that match between past and new experiences increase. Kusumi regards déjà vu as part of adaptive human behavior and recognizes its role in human memory and knowledge representation [123].

Kusumi [123] follows on Neppe's repeated emphasis of requiring a broader integrative view of déjà vu [2,3,79] But Neppe recognizes that this is far more so than just in the Associative Déjà

Vu context, because the same principles can be applied to the other déjà vu subtypes [2,3,79].

Sno's Holographic Model

Dr Herman Sno, a psychiatrist in Holland proposed the holographic model of memories so that one can recreate the entire three-dimensional image from any fragment of the whole. The smaller the fragment, however, the fuzzier the ultimate picture. To Sno, déjà vu happens when some detail in the environment we are currently in (a sight, sound, smell, et cetera) is similar to some remnant of a memory of our past and our brain recreates an entire scene from that fragment [56,112, 124-127]. Again, this is essentially the idea of red integration and again this is just one of the possible 72 proposed mechanisms.

The Infinitesimal Lag Model

Strangely, fiction contributed to science: Joseph Heller in Catch 22 [128] suggested the infinitesimal lag model. *Yossarian shook his head and explained that déjà vu was just a momentary infinitesimal lag in the operation of two coactive sensory nerve centers that commonly functioned simultaneously*.

The idea was taken up by Robert E fron, who tested an idea at the Veterans Hospital in Boston in 1963 [26]. Processing enters multi directionally or at least bidirectionally producing that infinitesimal lag or 'dual processing'. But even more so, did Wigan's ideas [129], 117 years before, of a hemispheric difference causing what was effectively déjà vu, influence Heller's Yossarian character? Drawing on his personal experiences, Wigan in 1844 suggested that the sensation (not even named at that point) occurs only when a person is tired-when one of the brain's hemispheres is somewhat inattentive to what is occurring in the person's environment. When something causes the dozing brain hemisphere to wake up, the hemisphere uses this environmental information after the first awakened one.

Age and déjà vu

We don't know for certain when children begin to have the experience. It is not equally described in the scientific literature for all age groupings. Prior to Neppe's research into déjà vu, the youngest case was reported by the Russian mystic P. D. Ouspensky in 1931, who described his déjà vu experience at about seven years old. [44]. Neppe described a subjectively externally validated case by a five-year-old [3,130,131]. He has also learnt of a 4 year old but there is insufficient external validation to establish the age. If any readers recall déjà vu experiences from early childhood, the author would be pleased to hear from them-bear in mind that many have claimed earlier experiences, but they must conform to the scientific definition of déjà vu.

For the present we must settle for the following description first published in 1983 in the book The Psychology of Déjà Vu [3]. This case represents one of two such descriptions Neppe has encountered, when the subject was five years old:

"I was only five years old. I can assess this because that was when we went on a holiday including Lake Tanganyika. Maybe that was the reason it stuck in my mind—because l was quite small. We went on a little launch on the Lake. The adults were trying to catch crocodiles. I felt great excitement and was also a little afraid. My child mind worried that the crocodiles would turn over the launch. We went only to a little island actually in the lake. You can imagine how small it was. As I walked on it, it looked familiar. I thought I had been there before. The whole scene seemed familiar, no specific features. I had never been on an island like this. The feeling was quite ridiculous, because there probably weren't even any houses."

The fact that young children (and not simply more mature people) report such experiences is important to our eventual understanding of this syndrome. It prompts us to ask some important theoretical questions:

I. At what age can the child compare his youthful memories with previous ones, in order even to acknowledge that their familiarity is inappropriate?

II. At what point can the child perceive that such unfamiliarity is inappropriate, wrong and not based on real memories?

References

1. Neppe VM (2015) Classifying déjà vu linked with déjà experiences (Section 4). IQNexus Journal 7(1): 25-31.
2. Neppe VM (1981) A study of déjà vu experience: thesis. Unpublished doctoral thesis, University of the Witwatersrand, Johannesburg.
3. Neppe VM (1983) The Psychology of Déjà Vu: Have I been Here Before? Johannesburg Witwatersrand University Press.
4. Neppe VM (1981) Is déjà vu a symptom of temporal lobe epilepsy? S Afr Med J 60(23): 907-908.
5. Neppe VM (1986) Déjà vu in the survival context. Theta 13/14(2): 26-29.
6. Neppe VM, Funkhouser ATs (2006) Déjà Vu: A Second Look. Brainvoyage.com, Seattle, USA.
7. Neppe VM (1983) The concept of déjà vu. Parapsychological Journal of South Africa 4(1):1-10.
8. Neppe VM (2006) Does the definition of déjà vu withstand a quarter of a century of research? In Déjà Vu: A Second Look. Brainvoyage.com. Seattle, USA, pp. Chapter 15.
9. Neppe VM (2006) The qualitative aspects of déjà vu experience, in Déjà Vu Revisited. Brainvoyage.com (Brainquest Press), Seattle, USA, p. 13-64.
10. MacCurdy JT (1924) The psychology of déjà vu, in Sectional transactions: British Association for the Advancement of the Science: Report of the 92nd meeting. British Association Office, London, pp. 442.
11. Jackson JH (1889) On a particular variety of epilepsy "intellectual aura", one case with symptoms of organic brain disease. Brain 11: 179-207.
12. Wigan A (1844) The duality of the mind. Longaan, Brown, Green and Longman, London.
13. Maudsley H (1889) The double brain. Mind 14(54), pp. 161-187.
14. Grasset J (1904) La sensation déjà vu. Journal de Psychologie Normale et Pathologique 1: 17.
15. Ellis HD (1911) The world of dreams. Boston: Houghton-Mifflin.
16. Neppe VM (2006) A special note to the reader. In: Neppe VM (Ed.),

Déjà Vu Revisited, Brainvoyage.com. Seattle, WA, USA, pp. xv.

17. Buccola G (1883) Le illusioni della memoria. Rivista di Filosofia Scientif 2: 708.
18. Sully J (1881) Illusions. New York: Humboldt, pp 425.
19. Titchener EB (1918) A Beginner's Psychology. New York: McMillan, USA, pp. 398.
20. Neppe VM (2006) Déjà Vu Revisited. Brainvoyage.com (Brainquest Press), Seattle, USA.
21. Heymans G (1904) Eine Enquête über depersonalisation und fausse reconnaissance [An inquiry concerning depersonalization and false recognition]. Zeitschrift für Psychologie und der Physiologie der Sinnesorgane 36: 321.
22. Penfield W (1955) The role of temporal cortex in certain psychical phenomena. Journal mental science 101: 451-465.
23. Penfield W (1958) Functional localization in temporal and deep Sylvian areas. Res Publ Assoc Res Nerv Ment Dis 36: 210-226.
24. Bergson H (1908) Le souvenir du présent et la fausse reconnaissance. Révue philosophique 66: 561-593.
25. Mullan S, Penfield W (1959) Illusions of comparative interpretation and emotion. AMA Archives of Neurology and Psychiatry 81(3): 269-284.
26. Efron R (1963) Temporal perception, aphasia and déjà vu. Brain 86(3): 403-424.
27. Comfort A (1977) Homuncular identity-sense as a déjà-vu phenomenon. British Journal of Medical Psychology 50(4): 313-315.
28. Bernhard-Leroy (1898) Étude sur l'illusion de fausse reconnaissance. Thesis, Faculté de Médecine de Paris.
29. Dugas L (1894) Observations Sur La Fausse Mémoire. Révue Philosophique 37: 34-45.
30. Freud S (1924) Zur Technik der Psychoanalyse und zur Metapsychologie. In: Leipzig, et al. Internationaler Psychoanalytischer Verlag.
31. Ferenczi S (1912) A case of déjà vu in Final contributions to the problems of methods of psychoanalysis. Hogarth Press, London.
32. Shelley PB (1880) Speculations of metaphysics, In: The Works of Percey Bysshe Shelley in Verse and Prose. Reeves and Turner, London, pp. 297.
33. Hodgson SH (1865) Space and time. Longman, Roberts and Green, London.
34. Pickford RH (1940) Three related experiences of déjà vu. Journal of Personality 9(2): 152-159.
35. Oberndorf CP (1941) Erroneous recognition. Psychiatry Quarterly 15(2): 316-326.
36. Marcovitz E (1952) The meaning of déjà vu. Psychoanal Q 21(4): 481-489.
37. Arlow JA (1959) The structure of the déjà vu experience. J Am Psychoanal Assoc 7: 611-631.
38. Levitan H (1969) The depersonalization process. Psychoan quarterly 38: 97-109.
39. Zuger B (1966) The time of dreaming and the déjà vu. Comprehensive Psychiatry 7(3): 191-196.
40. Jung CG (1966) On synchronicity: in Collected Works: Bollingen Series. Princeton U Press, Princeton, New Jersey, USA.
41. Schneck JM (1962) The psychodynamics of 'déjà vu'. Psychoanal Psychoanal Rev 49: 48-54.
42. Reed G (1972) The Psychology of Anomalous Experience: A Cognitive Approach, Vol. 50. Hutchinson U Library, London, England.
43. Ovid P Metamorphoses Book XV (quoting Pythagoras), 5 CE.
44. Ouspensky PD (1931) A New Model of the Universe. Kegan, Paul, Trubner, Trench, London.
45. Saint-Augustine: On the Trinity: Book XII chap. XV, 415 (circa).
46. Myers FWH (1895) The subliminal self. Proceedings of the society for psychical research 11: 334-593.
47. Lalande A (1893) Sur les paramnésies. Révue philosophique 36: 485-497.
48. Carrington H (1931) "Déjà vu": The sense of the "already seen". Journal of the American Society for Psychical Research: 25: 301-306.
49. Shirley R (1936) The Problem of Rebirth. Rider, London.
50. Chari CTK (1964) On some types of déjà vu experiences. Journal of the American Society for Psychical Research: 58: 186-203.
51. Chari CTK (1962) Paramnesia and reincarnation. Proceedings of the Society for Psychical Research 53: 264-286.
52. Funkhouser AT (1981) Déjà Vu: Déjà Reve. Unpublished diploma thesis, CG Jung Institute, Küsnacht, Switzerland.
53. Funkhouser AT (1983) The "dream" theory of déjà vu. Parapsychological Journal of South Africa 4(2): 107-123.
54. West DJ (1946) The Investigation of Spontaneous cases. Proceedings of the Society for Psychical Research 48: 264-300.
55. Dunne JW (1934) An Experiment with Time (3rd edn). Faber and Faber, London.
56. Sno HN, Linszen DH (1990) The déjà vu experience: remembrance of things past? Am J Psychiatry 147(12): 1587-1595.
57. Neppe VM, Funkhouser AT (2006) Modern research on déjà vu: A brief, selective update of recent ideas, In: Déjà Vu: A Second Look (Chapter 17). Brainvoyage.com. Seattle, USA.
58. Brown AS, Marsh EJ (2005) Evoking familiarity without recollection: Modeling the déjà vu experience, in Poster presentation to the 2005 Annual Meeting of the Psychonomics Society, Toronto, Canada.
59. Kusumi T (2006) Human metacognition and the déjà vu phenomenon, In: Fujita K, Itakura S (Eds.,), Diversity of Cognition: Evolution, Development, Domestication and Pathology (Chapter 314). Kyoto University Press, Kyoto, Japan, pp. 302-314.
60. Neppe VM (2006) Déjà Vu Revisited. Brainvoyage.com. Seattle, USA.
61. Spatt J, Déjà vu (2002) Possible parahippocampal mechanisms. Journal of Neuropsychiatry and Clinical Neurosciences 14: 6-10.
62. Milner P (1989) A cell assembly theory of hippocampal amnesia. Neuropsychologia 27: 23-30.
63. Laubscher BJF (1983) A mystical perspective of the aetiology of déjà vu. Parapsychological Journal of South Africa 4(1): 83.

Citation: Neppe VM (2015) Understanding Déjà vu: Explanations, Mechanisms and the 'normal' kind of déjà vu (Part 2). J Psychol Clin Psychiatry 2(6): 00112. DOI: 10.15406/jpcpy.2015.02.00112

64. Laubscher BJF (2006) A mystical perspective on déjà vu, In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 12). Brainvoyage.com. Seattle, USA.

65. Chari CTK (1983) Autoscopy, out-of-body experience and psi-conduciveness. Parapsychological Journal of South Africa 4(2): 150.

66. Chari CTK (2006) Autoscopic déjà vu. In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 12). Brainvoyage.com. Seattle, USA.

67. Peake A (2006) Is There Life After Death?: Arcturus Foulsham, in press.

68. Funkhouser AT (2004) Dream Theories of Déjà Vu. Dream Network 23(3): 15-17.

69. Funkhouser AT (2006) Dreams and déjà vu: chicken or egg? In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 9). Brainvoyage.com. Seattle, USA.

70. Marshall JC, Halligan PW, Wade DT (1995) Reduplication of an event after head-injury: A cautionary case-report. Cortex 31: 183-190.

71. Moulin CJ, Conway MA, Thompson RG, et al. (2005) Disordered memory awareness: recollective confabulation in two cases of persistent déjà vécu. Neuropsychologia 43(9): 1362-1378.

72. Neppe VM, Funkhouser AT (2006) The qualitative differentiation of déjà vu: Does it still hold a quarter of a century later? In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 18). Brainvoyage.com. Seattle, USA.

73. Neppe VM, Bradu D (2006) Déjà vu subtypes: four challenges for researchers, In: Déjà Vu: A Second Look (Chapter 6). Brainvoyage.com. Seattle USA.

74. Neppe VM (2006) When is déjà vu not déjà vu? A second look at paramnesias, In: Neppe VM, Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 16A). Brainvoyage.com. Seattle, USA.

75. Bancaud J, Brunet-Bourgin F, Chauvel P, et al. (1994) Anatomical origin of déjà vu and vivid 'memories' in human temporal lobe epilepsy. Brain 117: 71-90.

76. Zangwill OL (1945) A case of paramnesia in Nathaniel Hawthorne. Journal of Personality 13: 246-260.

77. Chari CTK (1951) A note on precognition. Journal of the Society for Psychical Research: 36: 509-518.

78. Neppe VM, Bradu D (2006) Déjà vu subtypes: four challenges for researchers, In: Neppe VM, Funkhouser AT (Eds.), Déjà Vu: A Second Look. Brainvoyage.com. Seattle, USA, p. 52-56.

79. Neppe V, Déjà vu (2010) origins and phenomenology: implications of the four subtypes for future research. Journal of Parapsychology 74(1) 61-98.

80. Neppe VM (1983) The different presentations of the déjà vu phenomenon: New research. Parapsychological Journal of South Africa 4(2): 124-139.

81. Neppe VM (1983) The incidence of déjà vu, in Parapsychological Journal of South Africa, 4(2): 94-106.

82. Neppe VM (1983) The causes of déjà vu. Parapsychological Journal of South Africa 4(1): 25-35.

83. Neppe VM, Déjà Vu (2006) Glossary and Library. Brainvoyage.com. Seattle.

84. Neppe VM (2006) Uncovering the complexity of déjà vu, In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 3). Brainvoyage.com. Seattle, USA, p. 31-35.

85. Neppe VM (2006) Single cause of déjà vu or multiple etiologies? , In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 4). Brainvoyage.com. Seattle, USA, pp. 39-46.

86. Neppe VM (2006) Subjective paranormal déjà vu, In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 10). Brainvoyage.com. Seattle, USA, pp. 110-120.

87. Neppe VM (2006) Does the definition of déjà vu withstand a quarter of a century of research? In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 15). Brainvoyage.com. Seattle, USA, pp. 142-163.

88. Brown AS (2004) The Déjà Vu Experience: Essays in cognitive psychology. Psychology Press, New York, USA.

89. Banister H, Zangwill OL (1941) Experimentally induced visual paramnesias. British Journal of Psychology 32(1): 30-51.

90. Banister H, Zangwill OL (1941) Experimentally induced olfactory paramnesias. British Journal of Psychology 32: 155-175.

91. Neppe VM (2015) The modern era of déjà vu research: The Neppe phenomenological research (Section 5). IQNexus Journal 7(1): 32-39.

92. Neppe VM (1983) The different presentations of the déjà vu phenomenon: New research, in Parapsychological Journal of South Africa, 4(2): 124-139.

93. Neppe VM, Funkhouser AT (2006) The qualitative differentiation of déjà vu: Does it still hold a quarter of a century later? (Chapter 19). Brainvoyage.com. Seattle, USA.

94. Neppe VM (2006) An aside-the aged debate: the age factor through the déjà vu retrospectoscope, In: Déjà Vu: A Second Look (Chapter 9). Brainvoyage.com. Seattle, USA.

95. Funkhouser AT, Neppe VM (2006) Update on the Incidence of déjà vu: an appendix, In: Déjà Vu: A Second Look (Chapter 7B). Brainvoyage.com. Seattle, USA.

96. Neppe VM (2006) How definitions impact the incidence of déjà vu, In: Déjà Vu: A Second Look (Chapter 7A). Brianvoyage.com. Seattle, USA.

97. Neppe VM (1983) Temporal lobe symptomatology in subjective paranormal experients. Journal of the American Society for Psychical Research 77(1): 1-29.

98. Palmer J, Neppe VM (2004) Exploratory analyses of refined predictors of subjective ESP experiences and temporal Lobe Dysfunction in a neuropsychiatric population. European Journal of Parapsychology 19: 44-65.

99. Palmer J, Neppe VM (2003) A controlled analysis of subjective paranormal experiences in temporal lobe dysfunction in a neuropsychiatric population. Journal of Parapsychology 67(1): 75-98.

100. Neppe VM (1983) The olfactory hallucination in the psychic, in Research in Parapsychology 1982. In: Roll WG, et al. (Eds.), Scarecrow Press, USA, pp. 234-237.

101. Neppe VM (1983) Anomalies of smell in the subjective paranormal experient, in Psychoenergetics. J of Psychophysical Systems 5(1): 11-27.

102. Neppe VM (2011) Ensuring homogeneous data collection for

Citation: Neppe VM (2015) Understanding Déjà vu: Explanations, Mechanisms and the 'normal' kind of déjà vu (Part 2). J Psychol Clin Psychiatry 2(6): 00112. DOI: 10.15406/jpcpy.2015.02.00112

present and future research on possible psi phenomena by detailing subjective descriptions, using the multi-axial A to Z SEATTLE classification. Neuroquantology 9(1): 84-105.

103. Neppe VM (2015) Other important vignettes of the modern era of déjà vu research (Section 6). IQNexus Journal 7(1): 40-46.

104. Neppe VM, Funkhouser AT (2006) The qualitative differentiation of déjà vu: does it still hold a quarter of a century later? In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 18). Brainvoyage.com. Seattle, USA, pp. 202-222.

105. Neppe VM, Funkhouser AT (2006) Modern research on déjà vu: A brief, selected update of recent ideas, In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter 17). Brainvoyage.com. Seattle, USA, pp. 189-201.

106. Hawthorne N (1863) Our Old Home. In: Smith & Elder (Vol. 2), London.

107. Smith T (1913) Paramnesia in Daily Life. American Journal of Psychology 24: 52-65.

108. Ito K (2000) The déjà vu phenomenon in a non-clinical population-an online research study with personality perspective. University of Buckingham, Buckingham, England.

109. Kusumi T (1996) Situational factors of déjà vu experiences: Representational similarities in autobiographical memory and dream, in 7th annual meeting of the Japan Society of Developments Psychology, Tokyo, Japan.

110. Kusumi T (1998) Déjà vu experiences: An explanation based on similarities of experiences in analogical reminding, in 1st Tsukuba International Conference on Memory, Tsukuba, Japan.

111. Kusumi T (2006) Human metacognition and the déjà vu phenomenon, In: Fujita K, & Itakura S (Eds.), Diversity of cognition: Evolution, development, domestication and pathology. Kyoto University Press, Kyoto, Japan, pp. 302-314.

112. Sno HN, Schalken HF, de Jonghe F (1992) Empirical research on déjà vu experiences: a review. Behav Neurol 5(3): 155-160.

113. Sno HN, Draaisma D (1992) Heymans' onderzoek naar "déjà vu"-ervaringen. / Heymans' study of déjà vu. Nederlands Tijdschrift voor de Psychologie en haar Grensgebieden.

114. Heymans G (1906) Weitere Daten über Depersonalisation und "Fausse Reconnaissance" [Further data concerning depersonalization and "false recognition"]. Psychologie und Physiologie 43: 1-17.

115. Sno HN, Draaisma D (1993) An early Dutch study of déjà vu experiences. Psychol Med 23(1): 17-26.

116. Brown AS (2004) The déjà vu illusion. Current Directions in Psychological Science 13(6): 256-259.

117. Brown AS (2003) A review of the déjà vu experience. Psychol Bull 129(3): 394-413.

118. Carey B, Déjà vu (2004) If it all seems familiar, there may be a reason, The New York Times.

119. Whittlesea BW, Jacoby L, Girard K (1990) Illusions of immediate memory: evidence of an attributional basis for feelings of familiarity and perceptual quality. Journal of memory and language 29(6): 716-732.

120. Neppe VM (2006) Déjà Experience or not Déjà Experience? Déjà Vu: A Second Look (Chapter 16). Brainvoyage.com. Seattle, USA.

121. Emminghaus A (1878) Allgemein psychopathologie. Leipzig: FCW Vogel Verlag.

122. Freud S (1933) Fausse reconnaissance (déjà raconte) in psychoanalytic treatment, in Collected Papers, Vol. 2. (Ed.), Hogarth Press, London, pp. 334-341.

123. Kusumi T (2006) Human metacognition and the déjà vu phenomenon, In: Fujita K, & Itakura S (Eds.), Diversity of cognition: Evolution, development, domestication and pathology. Kyoto University Press, Kyoto, Japan, pp. 302-314.

124. Sno HN, Linszen DH, de Jonghe F (1992) Een zonderlinge zweming. Over déjà vu-ervaringen in de bellettrie. Tijdschrift voor Psychiatrie 34(4): 243-254.

125. Sno HN, Linszen DH (1991) "The déjà vu experience: Remembrance of things past?" Comment. American Journal of Psychiatry 148(10): 1418-1419.

126. Sno HN (1993) Déjà vu and holographic images: Reply. American Journal of Psychiatry 150(4): 680.

127. Sno HN (1994) A continuum of misidentification symptoms. Psychopathology 27(3-5): 144-147.

128. Heller J (1961) Catch 22. In: Simon & Schuster (Eds.), New York, USA.

129. Clarke B (1987) Arthur Wigan and The Duality of the Mind. (Vol.11), Cambridge University Press, England.

130. Neppe VM (2006) An aside-the age debate: the age factor through the déjà vu retrospectoscope, In: Neppe VM & Funkhouser AT (Eds.), Déjà Vu: A Second Look (Chapter89). Brainvoyage.com. Seattle, USA, pp. 92-95.

131. Neppe VM (1983) Age and the frequency of déjà vu. J Parapsychology 47(2): 182-184.

Citation: Neppe VM (2015) Understanding Déjà vu: Explanations, Mechanisms and the 'normal' kind of déjà vu (Part 2). J Psychol Clin Psychiatry 2(6): 00112. DOI: 10.15406/jpcpy.2015.02.00112