



## Psychological mechanisms of the «déjà vu» experience

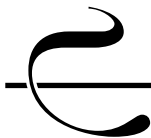
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*The article is devoted to consideration of essence, conditions, and arising mechanisms of one of inscrutable psychological phenomena – the “déjà vu” experience. Various hypotheses that were proposed for explanation of the nature and specificity of the “déjà vu” phenomenon are analyzed, and their disadvantages are marked. The author’s conception of psychological mechanisms underlying the “déjà vu” experience is offered. The conception is based on new understanding of concepts “psyche”, “consciousness”, “awareness” and explains not only the arising of experience of the present as already was being in the past, but also a prediction of the nearest future of this present.*

**Key words:** “déjà vu” experience, psychological mechanisms, psyche, consciousness, awareness.

The ‘déjà vu’ experience is very interesting and unusual psychical phenomenon that earlier researchers tended to classify as a disorder, illusion, or hallucination of memory. Translation the term “déjà vu” from French is “already seen”, but as A. Funkhouser [9] pointed out ‘just exactly what it is meant is pretty vague.’ According to A. Funkhouser there are three major types of “déjà vu”: déjà vécu - “already lived”, déjà senti - “already felt”, déjà visité - “already visited”.

The definition that has become the standard in research on “déjà vu” was proposed by V. Neppe and is the following: ‘any subjectively inappropriate impression of familiarity of a present experience with an undefined past’ [24, p. 3]. In other words, the “déjà vu” experience is subjective psychical phenomenon that is the impression that the present experience was already being in the past, but an appropriate period of the past can not be defined. Very often, the “déjà vu” experience is accompanied by confidence that neither the given situation, nor all events, which seem a familiar, were not actually and could not be before now. G. Reed [27] was remarking that attempts of explaining the effect of “déjà vu” by the assumption that the events being perceived were already in the past are accompanied by a question: “How could I recognize this situation as a familiar, when I know that I have never been here before?” For this reason at interpretation of the “déjà vu” experience the concepts “false recognition” or “inappropriate familiarity” is often used. In medicine, there are special medical terms “paramnesia” or “cryptomnesia” that mean disturbance or disorder of memory expressed in occurrence of false memoirs. In the “déjà vu” experience the “false recognition” is often supplemented by a feeling of prevision, of owning the knowledge what must



happen at the next moment.

Regular studying of the “*déjà vu*” experience has begun in psychiatry and was connected not only with disturbance or disorder of memory, but also with such diseases as epilepsy and schizophrenia [24]. Many publications devoted to various descriptions and possible interpretations of the “*déjà vu*” experience were printed in parapsychology magazines where “*déjà vu*” was considered as a parapsychological phenomenon [3]. In Psychology scientific studying of the “*déjà vu*” phenomena was and now remains extremely inconvenient as all of them have no outwardly observable behavioral signs. Researchers are compelled to rely on the own experience of this phenomenon or on the introspective description of an others experience. However, extreme subjectivity of an introspective method of research, the absence of objective behavioral signs of the “*déjà vu*” effect and the presence of the problems in psychology with definition of concept “psyche” were the reasons why Psychology was appeared helpless in scientific interpretation of mechanisms of the given effect. As David Glenn figuratively noted, ‘Psychology has placed “*déjà vu*” in general in a box with a marking “Interesting, but insoluble”.’ [11].

On pages of the psychological edition an attempt of the all-round analysis various hypotheses, including the psychological ones, concerning mechanisms of the “*déjà vu*” experience, has been undertaken by Alan Brown [3]. Interesting and extensive review of psychological theories and approaches to the solving of the “*déjà vu*” problem is presented in James Alcock’s work [1]. Among native works devoted to the survey of the “*déjà vu*” experience that may be marked are works of N. Ivanova & A. Nesterova [13] and A.A. Kurgan [20].

Many researchers are inclined to consider that the events and circumstances which are being recognized in the “*déjà vu*” effect as were being in the past, really were being in the past (or in the real past [28], or in a dreams [6, 7, 8]) but then, in the past, they have not been presented in consciousness. However, as they suppose, at some moment of perception of actual situation the special state of brain connected with disorder of its normal work appears, and information on a similar situation that was in the past, is being taken out from memory and becomes accessible to awareness. If earlier there was no awareness of the similar situation, then it seems that this situation not existed at all. Now when it is realized, the simultaneous awareness of situations of the past and present appears and according to their opinion, this becomes the reason of occurrence of the “*déjà vu*” experience.

Among researchers who connect occurrence of the “*déjà vu*” experience with restoration process of information of the past events out of the memory, it would be desirable to pick out Takashi Kusumi [22]. Considering the “*déjà vu*” effect not as an exclusive abnormal phenomenon, T. Kusumi asserts that “*déjà vu*” arises during special metacognitive process similar to reminding process in which events and situations worried in the present, automatically cause occurrence of an images of similar events and situations which were in the past. Herewith the author suggests to distinguish two kinds of memory - explicit and implicit memory which, judging by a context in



which they are used, correspond at more degree to the processes of memory connected and unconnected with the processes of awareness of the memorized images. In structure of the "déjà vu" phenomenon T. Kusumi allocates three metacognitive component:

1. Preliminary feelings of strong familiarity for a present experiences, involving a process of implicit memory.
2. Similarity and dissimilarity judgments between the present and a retrieved past experience made after a search of explicit memory.
3. Reality monitoring for the retrieved experience, which is a decision on whether or not the present experience is identical with a retrieved experience.

According to T. Kusumi, the "déjà vu" effect arises, when the positive decision on identity of compared experiences is made. T. Kusumi has presented set of metacognitive components causing occurrence of the "déjà vu" effect in the form of the scheme reproduced by us on the fig. 1.

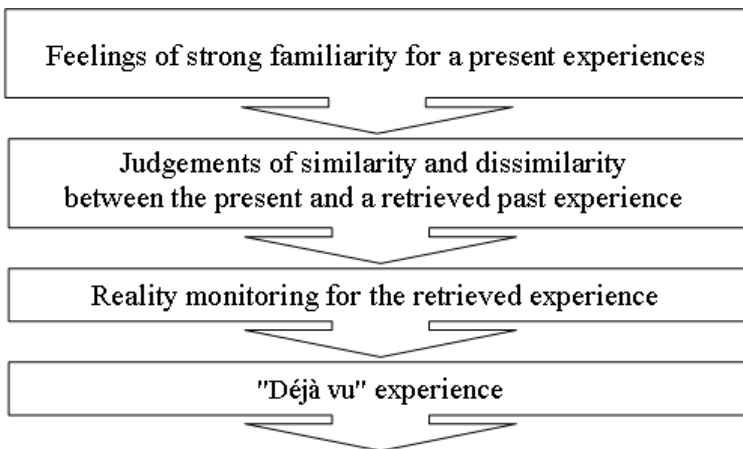
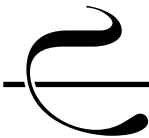


Fig. 1. Metacognitive components underlying in the basis of the «déjà vu» experience (according to T. Kusumi [22])

For the best understanding of basic statements of the T. Kusumi's conception it makes sense to present them in the other form - in the form of graphical functional scheme (fig. 2 see) that consists of not metacognitive, but normal cognitive psychical processes of perception and memory.

To take into account T. Kusumi's idea about two kinds of memory (explicit and implicit) we have introduced into the scheme additional psychical function - awareness thanks to which images appear in consciousness (are become realized). Introducing of this function allows to specify a purport of two kinds of memory entered by T. Kusumi and to differentiate functions of perception and awareness considering them as two different psychical processes.



Starting point in T. Kusumi's reasoning is the beginning of process of person perception of real situation  $C_i$  at the moment of time  $t = t_i$ , and formation in person's psyche the corresponding perceptual image which we have designated as  $C'_i$ . In case of awareness, this image designated as  $\hat{C}'_i$ , is memorized thanks to explicit kind of memory. If for any reasons (for example, owing to distraction of attention or absence of value) there is no awareness of the image  $C'_i$ , then this image can be memorized thanks to the processes of implicit memory.

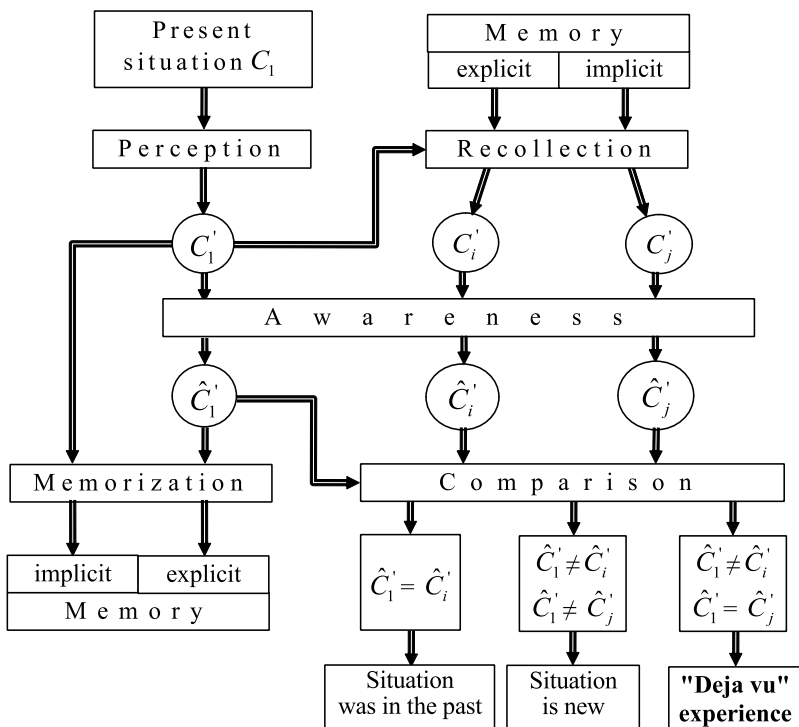


Fig. 2. Functional scheme of occurrence of the “déjà vu” experience in situation  $C_i$ , according to the T. Kusumi's conception. (The sign «'» at the upper register of the letter «C» designates an image of situation, the sign «^» above the image  $C'$  designates the fact of awareness of this image)

As is shown in Fig. 2, simultaneously with the memorizing process, the processes of recollection of a situation that was and was realized in the past, or a situation that was in the past but was not then realized are starting also. The processes of recollection and appearance of the images  $\hat{C}'_i$  and  $\hat{C}'_j$  occur thanks to mechanisms of accordingly the explicit and implicit memory. Being realized, these images are compared with the realized image  $C'_i$  of the current situation  $C_i$ . If one of the images  $\hat{C}'_j$  is similar



to  $\hat{C}_i$ , then it is appeared a recognition of situation  $C_i$ , as really was in the past, if there is no one - then situation  $C_i$  is being perceived as new which was not in the past. If there is one of images  $\hat{C}_i$ , of the implicit memory is similar to  $\hat{C}_i$ , then there is an effect of similarity of perceived situation  $C_i$  at confidence that such situation was not in the past (as earlier it was not realized). The appearance of this effect T. Kusumi considers as the "déjà vu" experience.

Despite the natural-scientific bases and harmony in composition, T. Kusumi's conception has two essential lacks, which do not allow accepting it.

Firstly, and this is the most important, his conception not conforms the basic condition of the "déjà vu" effect according to which the effect can be named "déjà vu" only at real not seeming absence in the past of those events and situations that are observed in the present. Otherwise this will be not "a false recognition", but a normal true recognition of situation that once actually was (in reality or even in dreams), and has been fixed in memory, but for some reasons was not reproduced and was not realized earlier.

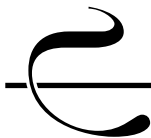
Secondly, the requirement to identify images of the present and those that are accepted as images of the past correctly reflected in the hypothesis cannot be practically satisfied, if the last images are really images of the past. The probability of occurrence in the present of situation identical to that situation, which was once in the past, is practically equal to zero. Similar in something - yes, identical - not! But without identity of the images the "déjà vu" effect does not arise. Necessity in identity of the images of the present and attributed to the past under condition of real absence of the present situation in the past provides inscrutability of the given effect and complexity of its interpretation.

Situation of the present can be perceived as identical to situation of the past in two cases:

- 1) if image of situation attributed to the past is a copy of image of the present situation;
- 2) when perception of situation of the present is deformed under the influence of the past experience (by the mechanism of apperception) and the image of perception becomes a copy of the image that was in the past.

Considering the second of the specified cases, it is necessary to notice, that in all cases of apperception the person has a distortion of perception not of all situations and all set of objects of situation, but only of one or several objects. The situation as a whole is worried as the new present. Usually in effects of apperception, there is a false recognition of only some one very significant and previously expected object. In the cases of total apperception when the perception of whole situation is deformed, it will be actually not apperception, but hallucination. Moreover, at any forms of hallucination, the image of hallucination is accepted to the present, and there are no other images of hallucination accepted to the past. This is a specific disturbance of psyche and a specific effect, which is differed from the "déjà vu" effect [10].

As to the first case that is more reasonable to an explanation of the "déjà vu" effect, here there is a problem - how the copy of any image can arise earlier than its original?



One of variants of the solving of this problem, or more exactly of the problem of consecutive occurrence of two identical images, is offered in physiological hypotheses.

Usually they are being formulated on the basis of idea about synchronism disturbance in work of separate sites of a brain at transferring the sensory information to its central parts. Disturbances are supposed in speed of transmitting neural impulses through the visual conductive ways that go from different eyes, or in work of the left and right hemispheres of a brain [24]. As a result of these disturbances two streams of the sensory information on the same situation arrive to the central parts of a brain and are being realized there with some time interval. It is recognized that the second stream of the sensory information is realized as the present, and the first - as the past identical to the present and this leads to the subjective "d  j   vu" experience.

It is necessary to recognize, that the explanation of the "d  j   vu" effect based on the idea about synchronism disturbance in work of separate sites of a brain seems rather attractive and logically justified. However, the presence of synchronism disturbance is not enough for occurrence of the "d  j   vu" effect.

Analysis of various descriptions and factors causing occurrence of the "d  j   vu" effect allows to specify not less than five conditions which should be carried out for its occurrence and realization in full content:

1. It should take place occurrence and subsequent awareness of two images in psyche:
  - an image corresponding to the «present»;
  - an image accepted for an image of the «past».
2. Occurrence of an image of the past and its awareness should precede occurrence and awareness of an image of the present.
3. The content of an image of the past should be identical to the content of an image of the present.
4. What occurs in the present and what is reflected in the image of the present should not be in last experience of the person (this is the most essential condition of the "d  j   vu" experience).
5. Recognition of the present as was being in the past should be accompanied not only certitude that this present actually was not and could not be in the past, but also a prediction of the nearest future of this present.

The last of conditions means that simultaneously with the image of the present not only an identical image of the past, but also an image accepted to the nearest future of perceived situation should be allocated in psyche.

According to the listed conditions, for the arising of the real "d  j   vu" effect there must be in psyche not two, but three images, which are accepted, accordingly, to images of the present and of the past and nearest future of this present. Today we cannot point out any of hypotheses described in psychological or other scientific literature, devoted to mechanisms of the "d  j   vu" effect, which would satisfy to all specified conditions and requirements.



The original attempt to explain how in the “d  ja vu” effect there can be three images and how a future prediction arises, has been undertaken in A.A. Kurgan’s work [21]. The presumption was that in the “d  ja vu” effect along with image of the present in psyche of the person are being formed not only an image of the past, but also an image of the future of this past. At identification of image of the present with image of the past the image of the future past is being transformed to an image of the future current present and its awareness leads to occurrence of processes of the prediction accompanying the “d  ja vu” effect.

However, supposing, that the person can have knowledge of the past and the future of this past so far as both the past, and its future already were in his last individual experience, the author actually disturbs one of the basic conditions necessary for a recognition of the fact of existence of the “d  ja vu” effect. Trying to find out the mechanism of transformation of the image of the future past to the image of the future present, A.A. Kurgan falls back on existential reasoning in which he uses the concept “retention” entered by E. Gusserlem [12]. In consequence of existential reasoning, A.A. Kurgan comes to conclusion that in the “d  ja vu” effect there is the decentralization of a person, disappearance of “I”, and occurrence of processes of awareness without a carrier of consciousness. He writes, ‘in experience of lasting “d  ja vu” there could not be I, as subject of awareness, ... there was no subject of experiences who could fix the future, the past and the present’ [21, p. 88].

However how there can be a process of awareness without “I” (without a carrier of consciousness) who, and only who can produce awareness, remains the big riddle. In our opinion, similar statements are a consequence of deep errancy and inconsistent judgments existing in Psychology with respect to concepts “psyche” and “consciousness”; and connected with them the concept “awareness”.

### **Rectification of concepts “psyche”, “consciousness”, and “awareness”**

Insufficiency of definitions of concepts “psyche”, “consciousness”, and “awareness”, that are central for Psychology, their discrepancy and inconsistency among themselves were repeatedly marked in the psychological literature, in particular in works of such scientists as K.K. Platonov [26], A.N. Leontev [23], A.V. Petrovsky & M.G. Yaroshevsky [25], N.I. Chuprikova [4, 5]). Problems in defining of concept “psyche” were shown in our work [19]. In V.P. Zinchenko’s foreword to the Russian edition of the G.Hunt’s book “On the nature of consciousness” it is noticed that ‘unfortunately, the Philosophy and a Science cannot brag that for thousand years of existence and development they have come to some unequivocal definition of consciousness. At all evidence the live consciousness persistently resists to any conceptualizations.’ [29, p. 11].

However, in 2000 we have advanced the opinion that “psyche” or psychical form of reflection of external influence is being characterized by arising of changes in sensory processes of an organism, which forestall real changes in influence parameters [14]. In subsequent publications [15, 16, 19] there were represented additional substantiations of possibility to consider psyche as the property of a brain that provides the obtaining by an organism of the knowledge of the nearest future of objective realiHow



we have shown [19], the mechanism of obtaining of corresponding knowledge and, accordingly, the mechanism of realization of property of a brain that is named psyche, are being described by a following relation:

$$C'_{n, future} = C'_{present} + (C'_{present} - C'_{l, past}) \quad (1)$$

where  $C'_{present}$ ,  $C'_{n, future}$ ,  $C'_{l, past}$  – the knowledge of the situation  $C$  in the present, nearest future and latest past.

The process of obtaining knowledge  $C'_{present}$  about situation of the present  $C_{present}$  comes to life on the basis of the sensitivity mechanism and represents a process of physiological reflection of objective reality that is provided by nervous processes proceeding in sensory system of an organism.

Unlike these nervous physiological processes which can be designated by the concept «reception», psychical process is a process of obtaining knowledge  $C'_{n, future}$  about situation  $C_{n, future}$  which is the nearest future of situation  $C_{present}$ . For the further consideration of psychological mechanism of the “dèjà vu” effect, let us designate this psychical process by the concept “perception”. Thus, we partition processes of physiological and psychical reflection (processes of perception and perception), considering, that the first provide reflection of the present, and the second – of the nearest future of this present. However, in spite of functional partition both forms of reflection are being carried out simultaneously and provide practically simultaneous formation of two streams of nervous impulses in human nervous system, one of which is a carrier of knowledge  $C'_{present}$ , and the other – of knowledge  $C'_{n, future}$ .

As for definitions of concepts “consciousness” and “awareness” and their basics, we have offered them in works [17, 18].

Consciousness is being defined by us as a cognitive psychical process that provides the obtaining by a person of the knowledge about himself as a carrier of psyche. As a result of consciousness, in the psyche of a person the image that is usually designated as image “I” is being formed.

Awareness we define as the result of process of connecting between image “I” and any of the other images that arise in psyche. Considering that connecting between any images in psyche is being provided by the process of thinking, and the result of thinking is the understanding, it is possible to tell, that awareness is the result of thinking with participation of consciousness (more precisely with the participation of the image “I” that is the result of consciousness). In the other words, awareness is the understanding in which one of connected images is the image “I”.

Set of images connected with image “I”, together with the image “I” represent nothing else than the area of psyche which usually is described by the concept “conscious sphere”. Another part of psyche and, accordingly, another set of images untied with the image “I”, is the sphere of unconscious.

In the graphical form, the essence of concepts «consciousness» and «awareness», «thinking» and «understanding» is reflected in the scheme presented on fig. 3.



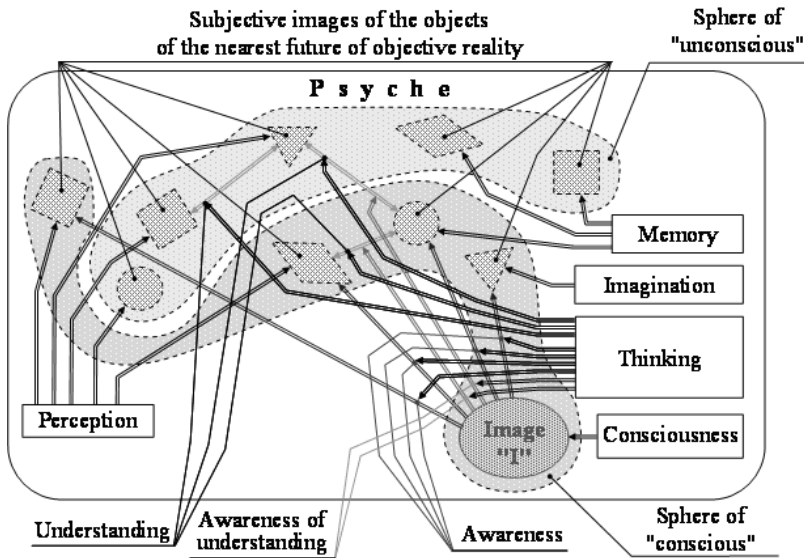


Fig. 3. Essence and interrelation of psychological concepts «consciousness», «awareness», «thinking», «understanding»

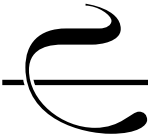
### Interpretation of the «*déjà vu*» effect based on new understanding of concepts «psyche», «consciousness», and «awareness»

Let us admit, that at the moment of time  $t = t_1$ , there is some situation  $C_1$ . Being existed at the moment  $t_1$ , this situation represents a present situation. After a while  $\Delta t$ , that is at the moment of time  $t_2 = t_1 + \Delta t$  as a result of changing of the situation  $C_1$ , there is a new situation - situation  $C_2$  which becomes a new situation of the present. In relation to situation  $C_2$ , situation  $C_1$  can be considered as a past situation. In turn, situation  $C_2$  in relation to situation  $C_1$  can be considered as a future situation.

If to accept situation  $C_2$  as the present situation, then in order to have the possibility to speak about occurring of the «*déjà vu*» in this situation it is necessary the fulfillment of the following conditions:

- 1) the image of the past situation, that is  $C_1'$ , should correspond (be identical) to the image of situation of the present, that is  $C_2'$ ;
- 2) the situation of the past, that is situation  $C_1$ , identical to situation  $C_2$ , actually should not be.

To explain how this is possible and, essentially, to make the first step in explanation of the mechanism of «false recognition» that is the main sign of the «*déjà vu*» effect, we must find the answer to the question whether can arise in psyche of the person who is being in situation  $C_1$ , (in situation of the past in relation to situation  $C_2$ ) an image of situation  $C_2$  that is not existing at the moment of the time  $t = t_1$ .



According to our understanding of concept "psyche", exactly this occurs at the presence of psyche. By definition, psyche is the property of a brain which provides the obtaining of the knowledge about the nearest future of the objective reality. The psychological form of reflection of the reality is an advanced or outrunning reflection. Thanks to presence of psychological processes in a brain at the moment of the time  $t = t_1$ , simultaneously with physiological reflection of a situation of the present, that is situation  $C_1$ , there is also a reflection of the nearest future of this situation, scilicet the creation of the image of situation  $C_2$ . To distinguish the images which are the result of psychological reflection, we will be marking their with double stroke. If the result of physiological reflection of situation  $C_1$  is marked as  $C_1'$ , an image of the nearest future of this situation that is received as a result of psychological reflection, must be marked as  $C_2''$ . Through time  $\Delta t$  situation  $C_1$  together with images  $C_1'$  and  $C_2''$  will leave in the past, and as the new situation of the present there will be the real situation  $C_2$ . Accordingly, there will be also a physiological reflection of this situation in the form of the image  $C_2'$ . If in the first case the image  $C_2''$  is the image of predicted situation  $C_2$  in the second case  $C_2'$  is also an image but of really arisen situation  $C_2$ . It is obvious, that the image  $C_2''$  in relation to the image  $C_2'$  acts as the past because really has been created earlier. How much it will be identical to the image  $C_2'$ , will depend on the correct work of brain structures and, accordingly, on the adequacy of psychological processes.

At the moment of a finding of a person in situation  $C_1$  when there are not exist neither situation  $C_2$ , nor its physiological reflection  $C_2'$  the image  $C_2''$  created at the expense of the mechanism of psyche is being realized by the person as an image of the present. Certainly, images extracted from the memory may be realized as images of the past. But as situation  $C_2$  is not exist and never was, it naturally could not be at the past. Therefore among images  $C_1''$  extracted from memory an image identical to the image  $C_2''$  cannot be. At the next moment, when situation  $C_2$  will come, the image  $C_3''$  will be already the image of the present. And again among images extracted from memory there can not be the images identical  $C_3''$ . So at a normal current of psychological processes the "d  ja vu" experience can not arise.

What infringement and infringement of which psychological process should be expressed, that there was possible an occurrence of the "d  ja vu" experience?

Let us consider time moment  $t = t_2$ , when there has come situation  $C_2$ , and let us make some simplification concerning memory processes. As we will consider cases of unconditional absence in the past of the events occurring in the present, we will not allocate two kinds of memory as it offers T. Kusumi, and will speak about memory in total as processes of memorization and recollection some images.

At the finding of a person in situation  $C_2$  in his nervous system in the result of the processes of reception that are the level of physiological reflection there is image  $C_2'$  that arises at this moment. Further on the basis of mechanism of psyche as the result of processes of perception functioning in accordance to relation (1) the image of the nearest future of an existing situation is being constructed. And this image is the image  $C_3''$ .



After awareness, this image is being conserved in memory. Further at the subsequent cycles of perception it can be taken from memory, but already as an image of the past (see fig. 4).

In the same way processes of reception and perception in nervous system of the person were proceeding when he was in situation  $C_1$ . But then as a result of perception the image of the nearest future of situation  $C_1$ , that is an image  $C_2$ , was being constructed and was been kept in memory after awareness. It means that when a person just appears in a really arisen situation  $C_2$ , in his memory there is already the image  $C_2$ . Being taken out from memory it represents an image of the past.

At the same time as it has been told above, the image  $C_3$  is being constructed as a result of perception, and its content is being accepted as the content of the present situation. In so far as contents of images  $C_3$  and  $C_2$  are not equivalent ( $C_3 \neq C_2$ ), situation accepted as the present is being recognized as new and no the "d  ja vu" experience arises.

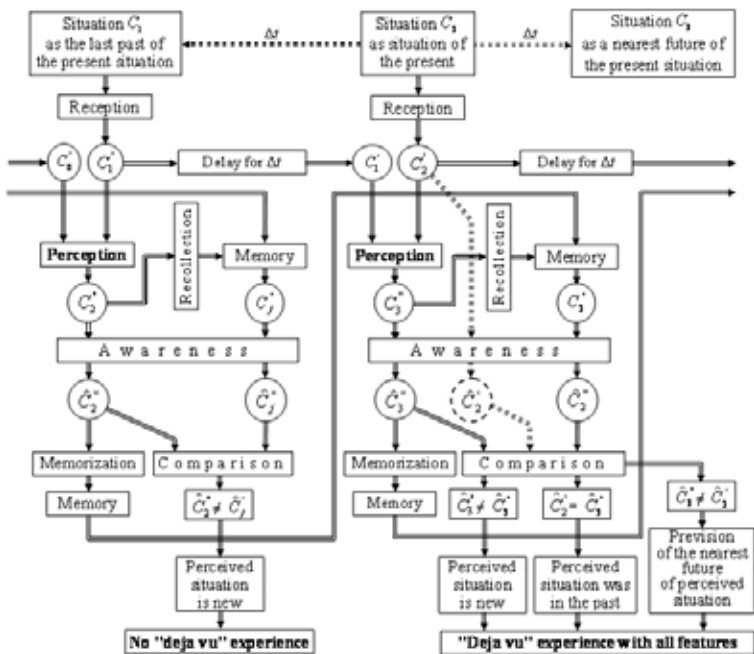
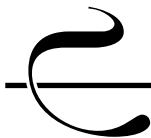


Fig. 4. Awareness of the result of physiological reflection of the present situation (awareness of the image  $C_2$ ) as a reason of the arising of the "d  ja vu" experience

And now let us presume, that for some reason (it is possible owing to fatigue) in normal work of psyche there is a failure, and there is possible to recognize not only results of perception as psychical form of reflection, viz images  $C_2$  and  $C_3$ , but also results of recep-



tion videlicet the image  $C_2'$  that is physiological form of reflection. The case of awareness of the image  $C_2''$  is shown on the right part of the scheme presented on fig. 4. In this case there are three images that are recognized:  $\hat{C}_2'$ ,  $\hat{C}_2''$  и  $\hat{C}_3''$ . In so far as the image  $C_2''$  is taken out from memory the image  $\hat{C}_2''$  is undoubtedly being determined as an image of the past. The image  $\hat{C}_3''$  in relation to the image  $\hat{C}_2''$  is accepted as an image of the present, and by force of inequality  $\hat{C}_3'' \neq \hat{C}_2''$ , the perceived situation is being recognized as new.

On the other hand, the image  $\hat{C}_2'$  also is being accepted as an image of the present because it is the direct reflection of the present. As far as a context of the image  $\hat{C}_2''$  is practically identical to a context of the earlier created image  $\hat{C}_2'$  (identity of contexts of this images is the basis of adequacy of psychical reflection), the present situation that is reflecting in the image  $\hat{C}_2'$  is being recognized as identical to that which was in the past.

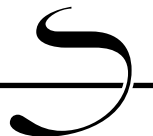
It turns out, that at infringement of usual processes of awareness (when results of the reception start to be recognized), the person starts to recognize a present situation as already was being in the past (by force of equality  $\hat{C}_2' = \hat{C}_2''$ ) at full confidence that in the past there was not the given situation (by force of inequality  $\hat{C}_3'' \neq \hat{C}_2''$ ). This is a variant of the «*déjà vu*» experience described as a rule in popular psychological literature.

However, this is not all. As a result of comparing of images  $\hat{C}_2'$  and  $\hat{C}_3''$ , each of which in comparison with image  $\hat{C}_2''$  pretends to be recognized as an image of the present, the priority is being given to the image  $\hat{C}_2'$  as a primary image. Accordingly, the image  $\hat{C}_3''$  starts to be recognized as an image of the future and this stipulates appearance in consciousness of the person of the feeling of prediction of the future of the present situation.

Thus we have a full set of features of the «*déjà vu*» experience and may to declare that the «*déjà vu*» experience as the psychical phenomenon arises as the result of disorder not of memory processes, but of processes of awareness when for any reason, awareness of the result of physiological reflection of objective reality acting on the person comes into being. Obviously, images  $C_2'$  и  $C_2''$  are represented by different ensembles of nervous cells and nervous impulses accordingly in peripheral and central areas of a brain. Perhaps, the reason of disorder of awareness is the arising of undesirable nervous links between this areas.

One may suggest that arising of links between two ensembles of nervous cells with equivalent informational context may lead to phenomenon of their resonant reciprocal excitation when excitation of one ensemble causes the excitation of another. In this case, the receptor system turns out to be incapable to react to changes of influences of objective reality, and this leads to discontinuance of psychical processes that are processes of reflection of the nearest future of the reality. As a result, processes of awareness of a current situation are being disturbed, and this disturbance is appeared in the form of losing of consciousness.

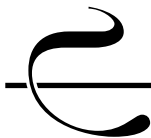
Owing to processes of mutual excitation on an exit of large set of nervous cells there can arise autonomous, incessant streams of nervous impulses, which are independent of external situation. Arriving in motor system, they can cause protracted reductions of muscles that are spasms. Taking into consideration that in medicine the infringement of consciousness and arising of spasms are symptoms of an epilepsy [2],



it is become clear why the "déjà vu" effect is being connected with an epilepsy and why scientific studying of the given effect has begun in medicine.

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