CARLO M. TRAJNA

THE PSYCHOTEMPORAL MODEL

A tentative interpretation of paranormal phenomena

I would like to thank Steven J. Grieco for taking the trouble to translate *The Psychotewporal Plodel* into English. If the reader has any questions concerning passages of my work which the present translation might have rendered difficult or obscure, I will be glad to give all the necessary elucidations.

Unfortunately, the translator was also faced with the ungrateful task of translating from the Italian back into English a number of passages from works whose original English edition we were not able to find here in Florence.

Carlo M. Trajna

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PREFACE

This introduction to Dr. Carlo Trajna's work is almost beside the point, especially for those readers who are already acquainted with his untiring investigation of the psi "psychophonic" phenomenon.

As a parapsychologist, Director of the Istituto GNOSIS and personal friend of Carlo Trajna's, I have for some years been following his painstaking and fruitful (in every sense, I hope) research work whose aim is to give a logical and mathematical form to psi phenomena and to his interpretation of these phenomena. To achieve this, he has taken a truly illuminating idea for a starting point: I mean the Theory of the Psychotemporal Wave, a theory which has already been confirmed at the experimental level (a most important consideration, especially in the field of parapsychology), and which will assuredly receive further confirmation in the future.

In spite of my technical training, I am not entirely capable of following the mathematical groundwork which supports the formulation of this theory. Even so, it seems to me - as it must to all those who have a knowledge of mathematics - a rigorous theory in its logical unfolding.

A significant aspect of the Psychotemporal Theory is that it can be generalized to the whole field of paranormal phenomena. Its basic tenet, a legitimate one, I think, is that time is relative when applied to the manifestations of the human mind.

Research in the general field of parapsychology has lain dormant for some years. The question of psychophony in particular has up to now only given rise to harshly discordant opinions. While some dimiss it as pure and simple "psycholinguistic" delusion, others uncritically consider it a foolproof way of communicating with other dimensions.

But now this theory, which Trajna has recently condensed, perfected and subjected to practical experiments, opens a new and perhaps decisive vista on the whole field of study of paranormal phenomena. I believe, furthermore, that its basic concepts can also be grasped by the layman.

On behalf of Istituto GNOSIS, I should add that it has been a pleasure for me to publish this theory, in the hope that it will soon become a source of useful Information (with a capital "I") for all those, both in Italy and abroad, who study the paranormal.

At the same time, I am convinced that the Psychotemporal Theory will not only be of interest to parapsychologists, but also to researchers in other fields, thus favouring a multi-disciplinary approach to paranormal phenomena. The need for such a concerted effort is especially important nowadays, for it grows daily more dangerous to ignore the fact that the scientific investigation of reality also needs the support of a humanistic and existential foundation.

Giorgio di Simone

SUMMARY

This panpsychical theory generalizes a model which was published in the September 1990 issue of Quaderni Gnosis. Its title was:

A theoretical model for the Psychophysical automatisms involved in P.E.R. and in D.R.V.

The theory rests on two basic hypotheses:

1) it acknowledges the constant ***c*** (speed of light), in its dimensionless significance, as being a) the limit of the flow speed of psychic time, and b) the ratio between the speed of physical and psychic information signals and the corresponding physical and psychic speeds of time flow;

2) it applies to the psychic world the relationships existing in the physical world (such as intensity-speed of signals), and the principle of action and reaction, applying the latter to the relationship between perception and movement, and between ESP and PK.

As with any theory based on hypothesis and deduction, the basic hypotheses and propositions lead to a number of mathematical deductions. These are:

1) Differential perception of signals:

As soon as the flow speed of psychic time becomes different from the flow speed of physical time, the differential perception of the speed of psychic information signals and of the speed of biological information signals takes the form of "the sensation of time". The mathematical formulation shows that this sensation is expressed by the logarithm of the imaginary flow of psychic time.

2) The psychotemporal uave:

Psychic time flows in "temporal quanta" whose duration is expressed with the same mathematical formulation of the "sensation of time". Due to the well-known properties of imaginary numbers and logarithms, every four psychic temporal quanta the duration of psychic time is conceived as "real", i.e., in terms of real physical time. The psychotemporal wave is linked to ESP and PK phenomena.

A theory is substantiated when its deductions bear out other theoretical stances which the theory itself then helps to generalize. Thus the Paychotemporal Theory affects:

- the formulation of the relativity of time;
- Weber-Fechner's paychophysical law;
- Piaget's hypothesis on the structuring of the concept of time;
- Liberman's psycholinguistic theory.

A - A THEORY OF THE PSYCHOTEMPORAL WAVE

1 - A necessary premise

According to Karl Popper a theory is fully acceptable if it is falsifiable - a definition which fits the present theory, too.

But first of all, my reader has a right to know what stuff my theory is made of, so that if this is not to his taste he can turn to other matters without wasting more of his time. He might, however, also choose to follow D'Alembert's advice to scholars of mathematics: go on, faith will come.

The theory presented here is meant to serve as an interpretational model of what we call paranormal phenomena. I would be loath to assure my reader that such phenomena don't exist; nor should he, however, expect me to prove the opposite to him.

The latter task I willingly leave to parapsychologists, since it is their staff of life. Since my staff of life is civil engineering, the reader will allow me to go on to formulate the first hypothesis of my theory: paranormal phenomena do exist. The other hypotheses can be summarized thus:

- the panpaychist hypothesis, which equates the mind-body relationship with the mind-matter relationship;
- the dualist-interactionist hypothesis, which states that interaction exists "inside" any definably individual entity - that is, solely within the framework of structural interconnection;
- the hypothesis of a psyche-matter interface at the subatomic level, which annuls the discord between interactionism and the causal theory;
- the hypothesis that there exists an arrow of time, that this arrow, as held by Ilya Prigogine, is indicated by the self-organization arising out of dynamic chaos, and that it moves from an unmodifiable past towards an open future;
- the hypothesis that the interface problem can be temporarily set aside with the adage *hic sunt leones*, since without knowing the true nature of electricity someone can switch on a light anyway.

This theory presents a number of postulates which are no more arbitrary than other postulates which have made their contribution to the advancement of science. And, like with any other theory based on hypothesis and deduction, these postulates are followed by *mathematical deductions* (listed in Appendix A), and are an integral and necessary part of the theory. The fact that they are applied to psychic phenomena, and that the method employed to achieve this is unusual, should not raise any eyebrows, especially after the pubblication of a work such as Ignacio Matte Blanco's *The Unconscious as infinite sets.*

Let this, then, come as a disappointment to those readers who think I am propounding a paraphysical theory.

A theory is substantiated when its deductions bears out other theoretical stances which the theory itself then helps to generalize. The psychotemporal model thus directly affects:

- the formulation of the relativity of time;
- Weber-Fechner's psychophysical law;

- Piaget's hypothesis on the structuring of the concept of time;
- Liberman's psycholinguistic theory.

The theory's postulates concern two hypothetical paralleliams:
a) the psychophysical parallelism, comprising three postulates:

1) the first **(α)** is that the top speed in the Einsteinian conception of the physical world, i.e., the speed of light - viewed as a dimensionless mathematical constant - constitutes the upper limit of the imaginary flow speed of psychic time, and that its symmetrical opposite constitutes its lower limit;

2) the second **(β)** states that this same constant is the ratio between the imaginary temporal speed of psychic information signals and the imaginary flow speed of psychic time;

3) the third postulate **(γ)** equates the ratio between the imaginary intensity of psychic information signals and their imaginary temporal speed with the ratio between the intensity of physical information signals and their maximum speed, i.e., the speed of light.

b) The parallelism between normal psychic phenomena and so-called paranormal phenomena, whereby the normal relationship between perception and movement corresponds to the relationship between ESP and PK.

The psychotemporal theory points the way to new experiments which may declare its assertions false - the theory is, as I said, falsifiable.

The most important result of the elaboration of a theoretical model based on such premises concerns the disquieting phenomenon of precognition; this now emerges as a simple temporal inversion of the psychic recording of events which leaves the future open, accords full responsibility to the agent, and does not involve the notion of predestination. The cause-effect relationship thus remains unaffected by temporal succession.

The first version of this theory dealt with psychophonic phenomena only, i.e., P.E.R. (Paranormal Electromagnetic Recordings) and D.R.V. (Direct Radio Voices), and was published in the September 1990 issue of the journal of Istituto GNOSIS, which conducts studies on the hypothesis of survival. Its title was:
A Theoretical Model for the Paychophysical automatisms involved in P.E.R. and in D.R.V.

The present version of this theory makes it applicable to all phenomena investigated by parapsychology, including ESP and PK. Thus the interpretation of psychophonic phenomena becomes a subordinate case within a larger framework.

Broadening the theory's scope has given me the opportunity to revise, deepen and more precisely define it - and this has proved to be most useful.

For example, the new graphic representation of time I have adopted will, I hope, make it easier for the reader to follow my theoretical reasoning; it has also very much helped me to obtain a clearer view of the behaviour of the psychotemporal wave and its harmonics.

My review of the theory's mathematical groundwork enabled me to describe the integration constant of the function of psychic time (previously defined as a "temporal quantum having an undefinable duration") as the "sensation of the present."

The theoretical limits of the speed of psychic time have also been defined anew. These limits must be viewed as finite, and thus cannot be identified with zero and infinity, as I mistakenly did in the first version. Apart from the mathematical inexistence of the corresponding logarithms, zero speed and infinite speed of flow do not imply eternity, but rather the annulment of time and thus a return to a non-manifest state. If we posit the existence and evolution of the spirit, we must also ascribe a specific temporality to it (characterized by its not being measurable?). The problem is similar to that of viewing the universe as a four-dimensional sphere inside which space and time appear as infinite, though they are actually limited.
As concerns P.E.R. and D.R.V., I was able to link the different effects produced by kappa and gamma paychoscopic signals to the process of psychostimulation. This also allowed me to interpret with a finer degree of precision the so-called "reinforcement phenomena" which repeated playbacks generate in P.E.R.
I was also able to remove those printing errors in the formulas which had escaped my notice even after I made a corrigenda following the theory's first publication.
On the whole, I feel that in its present form the psychotemporal model is clearer, more coherent and altogether more persuasive. I therefore ask the reader to consider the first version of the psychotemporal theory obsolete and to turn his attention to the present one.

1.1 *Panpsychism*

The following definition of the word *mind* is taken from a standard dictionary of the Italian language.. "the complex of phenomena and functions which permit an individual to shape his experience of the world and of himself, and to act accordingly." (1) Although brief, it has the undeniable qualities of all ready-made definitions.
Its first merit is that it is functional. Indeed, the *functions of perception* are those which lead to the shaping of an experience of oneself and of the world; the *motor functions* make it possible to "act accordingly"; and the term *phenomena* comprises all the activities which process experience and lead to action.
Secondly, man usually "dons" the mind with full consciousness and self-awareness - but if one were to ignore the latter characteristic, the mind as such would fit other species as well.
Thirdly, the above definition allows us to regard the mind as a structure which is not necessarily of a material nature: so that its apparent locations in the body - the sensory organs, the nervous system and the brain - can be regarded as tools, as matter organized in such a way as to serve the mind's purpose. A structure of this kind may well be responsible for phenomena which contradict some of the axioms of the science of the sensible - phenomena, in other words, of the so-called paranormal type.
This is also because *what me call the "paranormal" lies concealed within the normal "functions" of the mind.*
Indeed, the function of *perception* does not lead to a direct experience of the world, but rather to an experience of the phenomena which occur in certain parts of our body as a result of other phenomena occurring in the outside world. He are thus dealing with a series of phenomena interlinked

by cause and effect, a sort of chain whose first link is directly connected to an external phenomenon, and whose final link is connected to that same "individual" who is the subject of the above dictionary definition, and whom we can call the "I".

The final link of this chain is unknown to this day, although we can suppose that it exists at the subatomic level. But whatever its nature, we can say that normal perception involves the I's direct knowledge of a physical phenomenon - in other words, it involves that type of knowledge which appears in so-called extrasensory perception.

Hence it makes no sense to hold that the same difference existing between normal perception and so-called extrasensory perception also exists between normality and paranormality. He can only say that through extrasensory perception we gain paranormal and direct knowledge of the world, while through normal perception we gain paranormal and direct knowledge of how the world affects our body.

As concerns the body's motor functions, these occur because the organs of movement receive particular electrochemical stimuli through the nerves.

In this case, too, we have a chain of physical phenomena linking the I to the organs of movement. As in the case of perception, we can safely say that here, too, the first link - the one that is directly connected to the I - is of a physical nature. Hence we come to the same conclusion reached above. Normal motor functions imply that the I directly affects a physical phenomenon - such as the type of action which occurs in so-called psychokinesis. It makes no sense to hold that the same difference existing between a so-called normal action and a so-called paranormal action also exists between normality and paranormality. We can only say that through psychokinesis the individual affects the world paranormally and directly, whereas when the action is normal the individual affects the body paranormally and directly, and through the body affects the world indirectly.

But it is not enough to know "how" we reach a direct or indirect knowledge of the world (thus in any case involving an extrasensory aspect). He must also ask ourselves "what" we are able to learn in this way.

According to Kant, our cognitive faculty can never apprehend things as they are in themselves, but only their intrinsic and extrinsic *relationships* (2). What do these relationships represent in their entirety? Let us attempt an interpretation taking a particular paranormal phenomenon as our starting point.

Paychoscopy is the name given to "that phenomenon whereby a psychic can touch an object (which may be in full view, or wrapped in paper, or inside a box) and tell its story or describe the episodes it has witnessed" (3). One of the many attempts to explain psychoscopy involves the notion of "psychic impregnation", according to which all events leave a trace in the physical world. Thus matter would seem to harbour “a sort of unconscious paychism, and therefore some sort of memory with which the subject may establish contact" (3).

This unconscious paychism is not viewed as a sort of tape recorder which memorizes the outside events which the "inanimate" object comes into contact with, but rather as a living organism which is also capable of being somehow infected by the moods, emotions and feelings of the human

beings who have lived through the events witnessed by the objects. A psychism is furthermore regarded as being capable of recording the object's "inner" experiences, those which come to bear on its innermost structure, its origin and evolution.

I said earlier that man usually "dons" the mind (as per the dictionary definition) with full consciousness and self-awareness, and that if one ignored the latter characteristic, the mind would also fit other species. Now, as regards the notion of consciousness, an additional point has to be made.

"I believe, " says the Nobel prize winner John C. Eccles, discussing consciousness in living beings, "that when we come to mammals and birds *we should in effect have a certain type of feeling concerning the existence of a consciousness at certain levels of their experience.* This is of course especially true when we come to the higher mammals, such as the cat and the dog. But there are many mammals who have larger and more complicated brains.... elephants, for example.... and dolphins.... and of course we ultimately get to anthropoid apes" (4).

This consciousness in living beings would thus seem to exist in different degrees, and not in a continuous way - except for in man, I was about to add. But is this exception really admissible? The working of the mind includes not only conscious activity, but also activity which never reaches the threshold of consciousness. Unconscious activity, which undoubtedly exists in the human mind, can be regarded as equally real - and as coming into play when consciousness becomes absent - in all those living beings whose "mental present of the nootemporal world is confined to the organic present of the life process" (5).

I don't think it is forcing things to say that such unconscious activity - even though reduced to the pure and simple function of accumulating information and harmonizing "behaviour" with so-called physical laws - is the only possible activity in those conditions, (the conditions of “inert" matter, for example (5)), in which our normal concept of time is rendered partially, or entirely, meaningless.

It is quite obvious that in this progressive degradation which starts the moment we descend "below" man, the term "mind" is no longer applicable. Rather, we talk about its poor cousin, "psychism", a term which we usually, and not always correctly, qualify as "unconscious".

In the same dictionary which gave us the definition of "mind", the item "psychism" reads: a "barely differentiated psychic activity, such as that occurring in animals or in certain mentally ill persons as a result of regressive phenomena." From this it is obvious that the connection between "psychism" and mind is so close that the former may also be applied to man. Indeed, the definition adds that psychism can also be understood as "the world of psychic phenomena" (1).

As concerns animals, it might be worthwhile quoting Konrad Lorenz, the founder of ethology, who cannot be suspected of having any sympathy for the notion of psychism. As regards "that process which occurred for entire ages, in the course of which all living organisms found themselves face to face with the elements of reality, and had, so to speak, to adapt to them," he states that "this philogenetical event is *a process of knowledge;* indeed, the fact that an organism has 'adapted' to external reality indicates

that its organic system has acquired a certain quantity of 'information on' that reality."

Lorenz goes on: "Images of the external environment are also formed in the course of the structuring of the body, or morphogenesis; fine, and the very way that fish have of moving, both reproduce the hydrodynamic characteristics of water, and these characteristics are theirs irrespective of whether they move their fins in the water or not. The human eye, as Goethe rightly saw, is a copy of the sun and of the physical characteristics peculiar to light, irrespective of whether there are eyes to see the sun and light. The behaviour of men and animals is also an image of the surrounding environment, precisely because they have adapted to that environment. The organization of the sense organs and the central nervous system allows living beings to *obtain certain relevant data* concerning the surrounding environment, and thus of responding to these data in a way that is functional to their own survival" (6).

In animals this paychism expresses itself in what we call "instinctive" behaviour. According to the conception introduced by Darwin and later cultivated until Monod, it is experience, casual transformations and natural selection which shape this behaviour in the species - the same process which leads to the establishment of physiological functions and to the evolution of anatomy.

Finally, our dictionary tells us that paychism is also "a theory which attributes nature and the functions of the mind to all reality". Thus the term is also synonymous with so-called *Panpsychism.*

Panpsychism holds that the paychisms inherent in single living organisms contribute to the organisms' evolution, and assumes that since these paychisms are different from the nature of the body, they are not extinguished by physical destruction. Thus it credits them with the ability to convey the experiences to the psychism of the species and to program finalized mutations, offering them, as it were, to the scrutiny of natural selection. For example, the tendency of giraffes to stretch their necks in order to reach food would seem to influence the casual mutation of one particular gene at the expense of other genes. The mutation which increases the length of the giraffe's neck favours some individuals and not others, thus bringing natural selection into play.

In short, panpsychism introduces an acceleration factor into Darwinian evolution, and this seems justifiable when the formation of haphazard casual mutations would require too long a period of time.

A comparison between living organisms and man-made mechanisms is instructive. In the latter we have an extremely obvious case of an explicitly finalized functional and structural evolution, which is also shaped by the experience we gain from the mechanisms themselves. Similarly, the panpaychist theory argues that so-called "non-living" natural structures harbour an unconscious psychism which is responsible for their structuring,
and that this psychism is the result of an unconscious, finalized "thought" which develops thanks to the experience which the structure itself supplies to it.

Thus according to panpsychism the subject of the dictionary definition of the word mind can consistently be applied to any "structure" defined as such: this can be an animal, a plant, or their organs or elementary parts,

such as cells, molecules, atoms and particles. A psychism would then be the structure's "conceptual" counterpart, increasingly similar to the definition of "mind", and thus also capable of recording all the structure's experiences: both the "inner" ones - its innermost structural relationships, origin and evolution - as well as the "external" experiences, i.e., its interaction with other structures.

Matter is nothing but stable energy in dynamic equilibrium, and would appear to be the result of a process of automatization which is typical both of the mind and of a psychism. The stability of the structure, and its ability to defend itself from potentially disruptive psychic activities, would then be safeguarded by a process which is similar to unconscious "repression", or to a computer's "protection levels" which save a program from being accidentally erased. And according to panpsychism it is these unconscious automatisms existing in energy and matter which we observe statistically as repetitive and unchanging forms of behaviour, and call the "laws of nature."

Panpsychism is an ancient theory, its inception going back to the Greek philosophers. It was widespread amongst such Renaissance thinkers as Telesius, Campanella and Giordano Bruno. In Spinosa the theory found full scope. Kant himself was not a panpsychist, but according to Karl Popper "it can be said that Schopenhauer is a Kantian converted to panpsychism" (7). He goes on to say that panpsychism "is accepted by a number of well-known contemporary biologists, such as C. H. Haddington in England and Bernard Rosch in Germany."

Karl Popper himself has very little sympathy for panpsychism because, he says, "many panpsychists... accept... the physicalistic concept that the physical world is sealed. They believe that psychological or mental processes and physical or material processes run parallel to each other without interacting; that mental processes... can only affect other mental processes... and that physical processes... can only affect other physical processes." In my view, *mental processes can only affect the physical processes to which they are connected as a result of the formation of a paychism* - thus the physical world is in no way sealed.

Popper deliberately ignores the paranormal, and offers three arguments against panpsychism. They are, in my view, rather weak. But I shall not discuss them here for reasons of space. I prefer to stress the fact that all the
experience of the so-called paranormal is a testimony in favour of panpaychism.

The alternative, and equally legitimate, argument that the mind cannot have an autonomous existence in relation to the world of matter and energy as it is known to us today, is, given the present level of scientific knowledge, in keeping with the postulates of science, but has yet to be "proven" by laboratory experience.

The panpsychist theory is not "falsifiable", i.e., we cannot envisage and carry out experiments which would declare it to be wrong. It is of no use to us in the field of "normal" physical and psychic phenomena, because all the examples that can be enlisted in its support lend themselves to other interpretations as well.

Nevertheless, the theory becomes a useful "model" - *if indeed it functions* - inasmuch as it can help us to interpret paranormal phenomena.

But it is a model which must not, exactly like in psychoanalysis, pretend to mirror the truth.

The main difficulty posed by panpsychism is how to define the relationship between psychism and matter. We are reminded of the famous riddle of what came first - the chicken or the egg? While we can argue that a psychism arises out of matter, we can equally logically declare the opposite.

The link between psychism and matter is simply a specific case within the larger framework mind-matter, and ultimately amounts to the relationship between the I and its brain.

The monistic view leads us on the one hand to interpret the I as a product of the brain, and, on the other, to explain paranormal phenomena with physical theories. Thus, for example, the psychiatrist Ninian Marshall says: "the quantic indefiniteness associated with the threshold of excitation of single neurons is a possible key" to help us understand the paranormal. This is due to the fact that "all subatomic systems, when considered at a given moment, are *a mixture of possibility and reality which tend to take each other's place on the basis of a wide ‚range of possibilities"* (8). (The italics are mine, for the psychotemporal model reaches the same conclusion.)

We most probably cannot go beyond the dualism of mind and matter if we take one or the other of these two poles as a starting point. A third, "external", position is required.

But in the framework of the present discussion it is enough to observe that the formation of a psychism in matter closely follows the extent of the structuring process of matter itself. The fact that a psychism manifests itself only at the higher levels of living organisms does not prevent us from hypothesizing - and the panpsychist theory does just this - that psychisms can also be found at the lower levels, existing in an unconscious and non--manifest state even amongst "non-living" structures. We can further venture that a psychism comprises all the conceptual elements innate in matter; these elements being, in any case, the human mind's only object of knowledge - for, as I said earlier, the mind can only apprehend the internal structural relationships of things, and their external relationships with the environment.

After this lengthy digression, the question raised earlier - how can we further define the complex of intrinsic and extrinsic relationships which we apprehend through our cognitive activity? - can be answered by affirming that this complex is *the psychism of the objects of knowledge.* This is like saying that what the mind can apprehend beyond its physical counterpart is not physical, but is of the same nature as itself.

Let us now observe that the *res cogitans,* which Descartes distinguished from the *res extensa,* nevertheless conserves one dimension - the temporal one. If it is not possible to ascribe to the mind or to a psychism that position in space which is accorded to the "constructions" which they have planned and directed, then it follows that psychic events must be subject to the basic law, whereby they can only take place singly, and each with its own temporal duration in time.

"Every phenomenon, in its infinite line of becoming, thus possesses its own paranormality and its own normality. The former is its reality 'from

the inside,' which expresses itself in the temporal dimension... ; the latter is rationalized reality, perceived sensorially in space..." (9).

In each structure the complex of extrinsic and intrinsic relationships comprising the object of knowledge and action defines the "present" relationship between its spatial situation, or physical form, and its temporal situation, or psychism existing in the temporal dimension. In other words, these relationships point to the bond existing within a given structure or organism, linking the "matter" composing it to the psychism which is inherent in it.

Panpsychism allows us to construct an exhaustive interpretational model which includes the paranormal and enables us to interpret knowledge and action in man. The apprehension of reality is normally regarded as an activity mediated by the relationship between mind and the psychism of the sense organs, and the manner in which man affects this reality as an activity mediated by the relationship between his mind and the psychism in his organs of movement. But in paranormal terms, a direct relationship between mind and mind is defined as extrasensory perception, a direct relationship between mind and psychisms in things is defined as psychokinesis, while both of these derive reality from within.

We are here dealing with relationships which do not imply action, but only *an exchange of information signals;* and this goes
for so-called psychokinesis as well. It is sufficient, in this case, for the information signals to describe and prescribe the action to be carried out. In terms of physical movement, this operational instruction results in a shift in position vis-&-vis the environment, while in terms of inner transformations it results in a change in those intrinsic structural relationships which are regarded as part of the so-called “psychism" of things.

Thus both the paths of apprehension of reality and action would appear to be two-fold: whereas one consists of motor functions and functions of perception, the other consists of the direct relationship between the mind and the psychism in things.

FOOTNOTES

(1) I have taken the definition from the Devoto and Oli Dictionary of the Italian language.

(2) "We thus reach the final conclusion that all our knowledge of the world is ultimately a knowledge of relationships to which what we call "world" complies (to a greater or lesser degree according to the appropriateness of the relationships chosen). True reality, *the noumenon* of the world, is unknown to us." Ignacio Matte Blanco, T*he Unconscious as infinite sets. An Essay in Bi-logic.* Gerald Duckworth & Company Ltd., London 1975.

(3) See the entry "Psychoscopy" in *L'uomo e I'ignoto,* Armenia Editore, 1978.

(4) Karl R. Popper and John C. Eccles, *The Self and its Brain. An Argument for interaction.* Springler-Verlag, Berlin, 1977.

(5) J.T. Fraser, *Time, Familiar Stranger,* The Univ. of Mass. Press, Amherst, 1978.

(6) Konrad Lorenz, *Die Rückseite des Spiegels. Versuch einer Naturgeschichte menschlichen Erkennens.* R. Piper & Co. Verlag, München, 1973.
(7) T'he Self and its Brain.
(8) Danah Zohar, *Through rhe Time Barrier,* Heinemann, London 1982.
(9) Ugo Dettore, *Modello N,* Edizioni Mediterranee, Rome 1999, p. 122.

2 - The psychotemporal model.

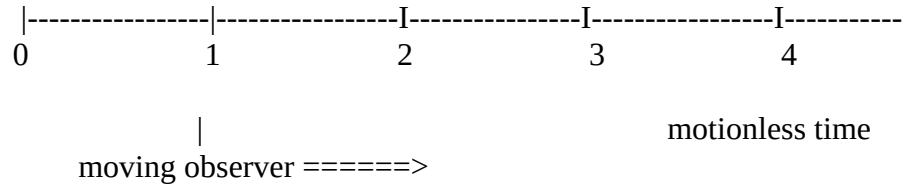
2.1 - *"Physical" time and "psychic" time*

J.T. Fraser, the world's greatest authority on the problem of "Time" (1), finds that all the identifiable types of temporality are dependent on the concept of "measure": even when we ascribe zero value to the time of particles, or when we talk of the non-existence of Time in the prototemporal universe.

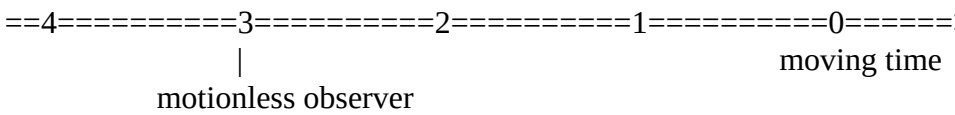
The concept of "measure" is derived from space, and there are several ways of measuring things. The length of a fence, for example, is measured by fixing the hook of a tape measure at one end; we then move to the other end of the fence, all the while unraveling the tape from the spool.

But in order to measure the length of a conveyor belt moving slowly in front of our eyes we must remain in a fixed position and apply our tape measure the required number of times.

In their graphic representations physicists use the first of the above methods. They indicate the successive intervals of time on a straight line which starts at the zero point and moves toward the right by means of an arrow which does not stand for the direction of the flow of time, but rather the direction in which an observer is moving along the straight line, touching the points 1, 2, 3 ... in succession.



But we can also represent time in the second of the above ways. Let us picture an arrow of limitless length marked with time units and running from left to right in front of a motionless observer who observes points 0, 1, 2 and so on, passing one after the other in front of him.



In both cases we are dealing with motion: the motion of time or the motion of the observer. And if there is motion, it is obvious that it must have a certain speed.

As we know, Albert Einstein linked the measurement of time to the speed of light and to the speed of translation of the instruments used to measure time. He once asked Jean Piaget how the concept of time, which Kant defined as an *a priori*, is formed in psychology. With a number of brilliant and famous experiments, the founder of genetic psychology proved that in children the notion of time is shaped on a direct apprehension of space and speed.

In the second of the above representations of time, the speed with which we imagine time to be moving is *constant and expressed with the ratio of the time unit to itself;* in other words, the speed of so-called physical time is, quite evidently, of a second per second, a minute per minute, an hour per hour, and so on. Thus it *is unitary.*

There is, however, a kind of temporality whose speed of flow is neither constant nor unitary. Fraser recognizes its existence.

He says: "He know from dependable sources that time travels at different speeds in different individuals. He also know, from equally dependable sources - the reader himself, for instance - that in the same person time travels at different speeds in the course of his life, and even in the course of a day or an hour" (2).

To put it more precisely: it is common knowledge that, as the result of a particular frame of mind, we may have the impression that more or less time is passing in relation *to the time recorded by our watch.*

This is what I shall call "psychic" time. Psychic time is linked to the living experience of the individual who measures it.

But Fraser says: "To say that time moves, travels or even stands still while we move and change is a metaphor. " A metaphor is a transferral of meaning, whereby the meaning of one word is transferred to another word. Metaphors bring two similar concepts together, identifying them with each other. "Metaphors, however," adds Fraser, “are not arbitrary, but derive from the mind's structural properties. They cannot take on any form. And once they have taken shape, they exhibit a high degree of stability. The assertion that time elapses or flows at different speeds is one of these acquired metaphors. What guarantees the validity or stability of this metaphor?" (2)

Let me try to answer this question. The guarantee lies in the fact that the mind has an exact notion of that time whose unit of measurement is in a constant mathematical relationship with itself, and which the mind grasps as "physical time" (as I shall henceforth call it). It is a known fact that many people are able to wake themselves up at a set time; they do this with a fine degree of precision and without resorting to an alarm clock. It is a precision which has no counterpart in human biological rhythms and cannot be explained away as a habit, since the hour for awaking is different from the usual one. Parapsychologists talk of an extrasensory perception of the time shown on the clock (3). This is a phenomenon which can take place unconsciously even when the person is awake.

But if we take into account the words of Jean Piaget, another conjecture is possible: namely, that the biological point of reference does exist, but that it is not a rhythm, but a *constant speed* available from within the body. In this case, the only possible speed is the speed of the electric signals in the brain circuits. I mean those electrical currents which are present in the higher layers of the cerebral cortex - the noblest part of the brain, considered to be the seat of cogitation - and which give rise to electroencephalographic waves. These waves are not in fact produced by the propagation of the impulses inside the axons, but are determined by electrical currents running between the dendrites of the cortical cells and their cellular bodies (4).

Their speed is equal to the constant speed of light and, if it is true that the concept of time is structured on that of speed, can be taken as a

reference point for the inner sense of time.

But it makes little difference which of these psychological explanations we choose to adopt. In any case the fact remains that the mind possesses an imaginary inner clock which is capable of measuring conventional "physical" time exactly, and which can also slow down or speed up in relation to different mental situations and frames of mind. And if we accept the existence of phenomena of retrocognition or precognition of events, we may legitimately ask ourselves whether these are not perhaps due to sporadic substitutions of the imaginary inner clock for the real clock; in other words, whether cases of slowing down or acceleration possibly project themselves in exceptional cases into physical time, thereby modifying our recording of real events.

At the unconscious level, we find that the perception of the constant speed of physical time peculiar to physical phenomena coexists with the perception of the variable speed of time which characterizes inner phenomena. Piaget's experimental findings could also mean that the different velocities in space upon which a child forms his notion of time function in this way because in the mind the notion of speed is constitutionally linked to that of temporality.

A temporality, furthermore, which, once it has been introduced into the physical world, may affect an apprehension usually mediated by the psychism of the sense organs in such a way that it is now no longer subjected only to the fundamental constriction which prevents it from going beyond the relationships between things (thus reaching the noumenon), but also to the ostensible identicalness between the cause-effect relationship and the temporal sequence.

It is precisely in the framework of paranormal phenomena that this supposed identicalness reveals its arbitrary nature. In a later section we shall see how the psychic signals which cross the intervals between different inner times running at different speeds produce effects which are not linked to a temporal succession.

"All theories," says Fraser, "share a basic assumption which is usually hidden and totally unjustifiable. They all conceal the image of a cosmic present in motion, a universal flow of time whose speed our mind is capable of evaluating, be it correctly or incorrectly. One of these evaluations would indeed appear to manifest itself in the sensation that time passes too quickly or too slowly, or even that it does not pass at all" (2).

But this basic assumption is, according to Fraser, unjustifiable because, he says, "there is nothing in the physical world that corresponds to this image of a present in motion or of a time that flows." (2).

This assertion contradicts that *arrow of time* which emerges from the second principle of thermodynamics and from other phenomena which physicists are at present investigating (5). Furthermore, it does not take into account the fact that the contested assumption *has no need for "real " time. What we call "physical" time is also psychic* time. Unlike the distinctions between different kinds of temporality, the difference between "physical" time and "psychic" time is not conceptual: it is a question of different psychical "experiences" of time.

Let us now see if and how we can "measure" psychic time and its speed of flow.

When we imagine that one unit of time has elapsed when the clock records the passage of a time interval equal to one time unit, it means that the speed of imaginary psychic time is equal to that of physical time, or unitary.

But when we have the feeling that ***n*** units of time have elapsed while the clock actually recorded the passage of time equal to one unit, it means that the imaginary speed of psychic time is ***n*** times greater than the speed of physical time.

If we introduce the concept of units of psychic time, then the speed of psychic time is ***n*** times smaller than a unit of physical time.

Or then we have the feeling that only one unit of time has elapsed while the clock shows that a time interval equal to n time units has elapsed. In this case the imaginary speed of psychic time is ***n*** times smaller than that of physical time, and the unit of psychic time is ***n*** times larger than that of physical time.

He can therefore establish that the imaginary speed of psychic time is being measured by the number of imaginary time units which we feel have elapsed while the clock was actually recording the passage of one unit of real time.

Imaginary psychic time is thus measured by the number of real time units which have elapsed on the clock while we have the impression that only one imaginary unit of psychic time has gone by.

In other words, the imaginary speed of psychic time is the inverse of immaginary psychic time.

For example, if we say that the speed of psychic time is of two imaginary time units to every real time unit, we are actually saying that while the clock records the passage of a period of time equal to only one real time unit, we have the subjective impression that two imaginary time units have elapsed.

In this case, psychic time is equal to the inverse of two, i.e., to half a unit of real time for every imaginary time unit, which means that the clock records the passage of a period of time equal to one half of a real time unit, while subjectively we have the impression that one full unit of imaginary time has elapsed.

But if we say, for example, that the speed of psychic time is a fifth of an imaginary time unit for every real time unit, we are saying that while the clock shows the passing of a period of time equal to only one real time unit, subjectively we have the impression that a fifth of an imaginary time unit has elapsed.

In this case psychic time is equal to the inverse of a fifth, i.e., to five imaginary time units, which means that the clock shows the passing of a period of time equal to five real time units, while subjectively we have the impression that only one imaginary time unit has elapsed.

He can picture the axis of imaginary psychic time as being parallel to the imaginary axis of physical time, and placed at a temporal distance from it equal to the amount of imaginary psychic time.

The information signals mentioned earlier are the foundation of psychic activity, and they travel in time: we can, therefore, legitimately ask ourselves whether they possess speed - obviously a temporal and not a spatial speed - and how much this is.

Although these signals can be regarded as purely psychic, when they have a physical support they are both psychic and physical. Examples of this are electrochemical signals propagated through the nerves, or electromagnetic waves modulated in a meaningful way.

Unlike the theory of informatics, which concerns itself with the "quantity" of information, this theoretical model is solely concerned with the "nature" of information, which is psychic.

While we can imagine the existence of "purely psychic information signals", we cannot in the same way imagine "purely physical information signals", because the information, by its very "nature", proceeds from the mind.

Thus the physical aspect of information signals must always be considered as a physical "support", and it is only thanks to a convention - an erroneous one, I should add - that we talk of a 'physical information signal". However, in those cases in which the information seems to appear even in the absence of physical information signals, it would not, strictly speaking, be correct to use the expression "purely psychic information signals", for the simple reason that we can never rule out a priori the presence of a physical support which is still unknown to us. But whether the presence of physical supports is confirmed or not, the appearance of such information necessarily implies the assumption on our part of the existence of signals consisting of a "physical information signal" and a "psychic information signal", indissolubly conjoined. He must obviously regard the first of these as operating in physical time and space, while we can consider the second as operating only in psychic time.

For the sake of simplicity, let us talk of "psychic signals" and "physical signals."

These premises allow us to deal with the "temporal kinematics of psychic signals" - i.e., the laws governing their motion - separately from the kinematics of physical signals.

In the spatio-temporal continuum physical time is regarded as the fourth imaginary spatial dimension, perpendicular to all three spatial dimensions.

I have already said that it is self-evident that the s*peed of physical time* is expressed in physical time units which elapse in the same unit, and that it is unitary.

The top speed of physical information signals occurring in the brain circuits is equal to the speed of electromagnetic signals, and therefore equal to the speed of light.

But we can also say that *the speed of physical information signals is equal to the speed of light multiplied by the speed of physicl time, which is unitary:* which is tantamount to saying that *the ratio between the speed of physical signals and the speed of physical time is equal to the speed of light.*

The first postulate (α) of the psychotemporal model states that the upper limit of the imaginary speed of psychic time is that of the speed of light (in its dimensionless sense), while its lower limit is constituted by the symmetrical opposite of that same speed.

If we now recall that the theory's second postulate (β) states that the same ratio existing between the speed of physical signals and the speed of physical time (and which is equal to the speed of light) also exists between

the imaginary speed of psychic signals and the imaginary speed of psychic time, then it follows that the imaginary speed of psychic signals is equal to the speed of light multiplied by the imaginary speed of psychic time. And due to the latter's upper and lower limits - mentioned in the first postulate - the upper limit of the imaginary speed of psychic signals is the square of the speed of light.

Thus this square expresses the ratio between the top speed of psychic signals and the speed of physycal time, in the same way as it expresses the ratio between energy and mass in Einatein's famous formula.

Maybe this analogy is somehow linked to so-called materialization phenomena and so-called telepathy.

FOOTNOTES

(1) *"Nootemporality, or noetictime.* This is the temporal reality of the mature human mind. It clearly distinguishes between future, past and present; between future horizons the unlimited past, and the mental present whose temporal horizons change in function of one's attention.

Biotemporality, or biological time. This is the temporal reality of living organisms, including man, and is limited to their biological functions. It is characterized by a distinction between future, past and present, but here the future horizons are very much restricted in comparison with those of noetic time. The limits of the organic present are probably stable for and specific to each species.

Eotemporality, or time of the physical **t**. Named after Eos, the Greek goddess of Dawn, Eotemporality is the simplest form of continuous time. It is the temporal reality of the astronomical universe of matter having mass. It has also been described as the time of pure succession. It is a continuous, but not direct, time which does not flow, and to which we cannot apply our ideas of present, future and past.

The time of the world of elementary particles is called *Prototemporality,* from the *word proto,* the first of a series (such as in protoplasm). This is a time which has no direction, does not flow and is fragmentary (not continuous), and in relation to which the singling out of precise moments has no meaning. Events in the prototemporal universe can only be localized in a statistical, probabilistic manner.

The world of electromagnetic radiation is called *Atemporal.* Atemporality does not mean nothingness, but rather that the time of particles travelling at the speed of light is zero. Atemporality defines a state of energy which invalidates all our common notions associated with time.

Sociotemporality is postulated as the specific reality of a given level, that of a planet which is homogeneous from the temporal point of view. The study of sociotemporality includes aspects of the socialization and collective evaluation of time. Since this is apparently a temporality in the process of being created, it is very difficult to outline its features with the same certainty with which we have described the characteristics of the time of light, of the time of mass at rest different from zero, and of the time of matter having mass and of life." J.T. Fraser, *Time, Familiar Stranger,* The Univ. of Mass. Press, Amherst, 1978.

(2) See previous footnote (1).

(3) See, for ex., John Gaither Pratt's *E.S.P. Research Today: a Study of Developments in Parapsychologyv since 1960.* Ed. Armenia, chapter 5: "The ability of Mr. Van Vuurde to awake with his own particular E.S.P."
(4) William F. Ganong, *Fisiologia Medica*, Piccni Editore, Padua 1977.
(5) Peter Coveney and Roger Highfield, *The arrow of time - A voyage through Science to solve time's greatest mystery.* W.H. Allen, London.

2.2 - *Psychic temporal quanta*

While the speed vector of information signals in the brain is situated in three-dimensional physical space, the speed vector of imaginary psychic

information signals lies on the imaginary axis of the corresponding psychic time.

The unconscious psychic experience of the difference between the speed of psychic information signals and the speed of the simultaneous brain signals is that of their ratio; but this ratio is ultimately the imaginary speed of psychic time (see formula 12).

The experiential synthesis of this speed, which varies with the variations of psychic time, is expressed by integrating the function which expresses this speed into the function of psychic time (see formula 13). The resulting expression, which we shall define the *sensation of time,* (1), is basic:

$$S_t = - \ln(ivt_p) + K$$

This is similar to the expression of Weber-Fechner's psychophysical law, which states that the sensation is in proportion to the logarithm of the intensity of the stimulus.

In our case the intensity of the stimulus is represented by the imaginary speed of psychic time. Thus the correlation which we have posited between the speeds of psychic signals and the speed of the signals in the brain leads to a situation which takes us right back to the classic stimulus-sensation model. We must, in other words, consider the unconsciously perceived phenomena (the different speeds of the signals) *as stimuli which are matched by corresponding temporal sensations.* The notions of physical time and psychic time are in fact correlated: our perception of both is characterized by an immediate interaction with the perceived phenomena: physical phenomena in the case of the perception of physical time, and psychic phenomena in the case of the perception of psychic time.

When the speed of psychic time is equal to that of physical time, i.e., when the subject is awake and fully conscious, the above expression of the "sensation of time" is reduced to the constant K, which represents the "sensation of the present". This sensation of the present disappears in different states of consciousness, so that the residual expression,

$$S_t = - \ln(ivt_p)$$

stands for the "psychic temporal quantum", or the mind’s unconscious perception of the variable and imaginary unit of psychic time.

S_t is expressed with the same time units that are used for physical time; but it is determined by that time unit (seconds, minutes, hours, etc.) which in each particular case is present in the unconscious. The *duration of the quantum is imaginary, but if ESP and PK phenomena intervene, it gets "projected" into physical time.*

S_t stands f or the temporal distance between the physical temporal plane and the ps;ychic temporal plane.

In a particular state of consciousness, the speed of psychic time thus reverts to being constant and unitary, inasmuch as it is expressed by "one temporal quantum for every temporal quantum".

When the speed of psychic time is greater then that of physical speed, $\mathbf{ln(iVt_p)}$ is positive, in which case the psychic temporal quantum $\mathbf{S_t}$ is negative: in other words, it has a direction which is opposite to that of physical time. The inverse happens if the speed of psychic time is less than that of physical time.

Since we are dealing with psychic time, the most suitable graphic representation is not the usual one,

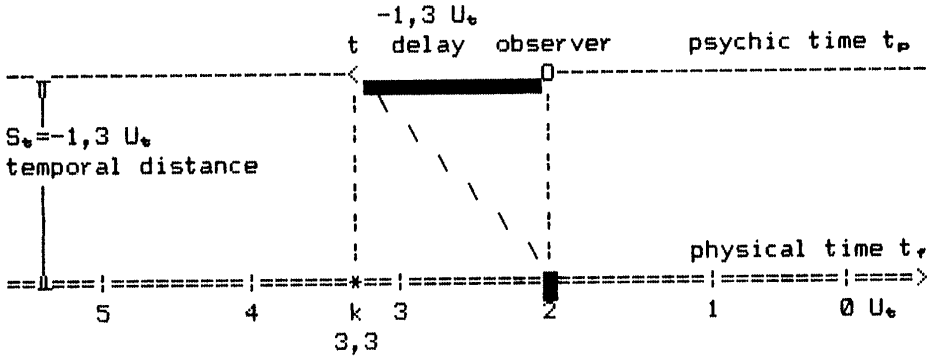
==|========|========|========|========|========>

0 1 2 3 4 $\mathbf{t_f}$

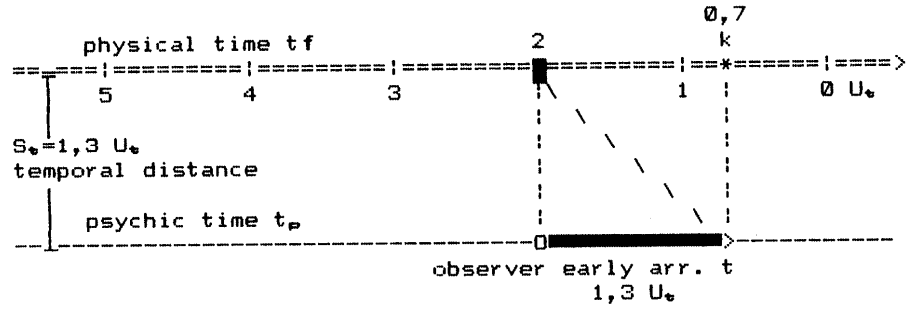
for in this case, as already noted, the arrow does not indicate the direction of the flow of time, but rather the direction in which the observer is moving along the time axis.

This is why we represent physical time with a long *arrow* marked with time units and running from left to right in front of a motionless observer 0, who, being immersed in his or her own psychic time $\mathbf{t_p}$ (which is represented by a straight line running parallel to the arrow at a temporal distance equal to $\mathbf{S_t}$ and which is positive above the arrow and negative below it), can paychokinetically "project" onto physical time his or her own temporal perception $\mathbf{S_t}$, as in the following examples:

a) *speed of psychic time > speed of physical time:*



b) ***speed of psychic time < speed of physical time:***



Beginning from moment 0, the values 1, 2, 3... n of the time units $\mathbf{U_t}$ will pass one after the other in front of observer 0 who is immersed in his or her own psychic time $\mathbf{t_p}$.

Since the arrow behaves like the tape of a tape recorder, the observer can be likened to the recording head.

Let us suppose that in the instant $U_t = 2$, which corresponds to a given event caused by psychic signals, tee observer is immersed in a particular state of consciousness so that the speed of his inner psychic time is different from that of physical time. And let us also suppose that this speed is greater, so that, for example, $\mathbf{S_t = - 1,3U_t}$. In this case, the temporal quantum $\mathbf{S_t}$ will go in the opposite direction of that of physical time, thus arriving with a *delay.* A signal emitted by a psychism (immersed in physical time $\mathbf{t_f}$) in the physical moment $\mathbf{U_t = 2}$, will bridge the temporal distance $\mathbf{S_t}$ and reach the mind (immersed in psychic time $\mathbf{t_p}$) in the psychic moment $\mathbf{t}$, with a delay equal to $\mathbf{S_t}$ and simultaneous wtth the physical instant $\mathbf{K = 3,3\ U_t}$.

But if the speed of psychic time is less than the speed of physical time, for example

$$\mathbf{S_t = 1,.3\ U_t ,}$$

then the temporal quantum $\mathbf{S_t}$ will be going in the same direction as physical time and will arrive *early.* A signal emitted by a psychism (immersed in physical time t f) in the physical moment $\mathbf{U_t = 2}$, will bridge the temporal distance $\mathbf{S_t}$ and reach the mind (immerses in psychic time $\mathbf{t_p}$) in the psychic moment $\mathbf{t}$, with an early arrival equal to $\mathbf{S_t}$ and simultaneous with the physical moment $\mathbf{k = 0.7\ U_t.}$

In both cases the diagonal arrow **2-t** stands for the temporal route taken by the signal.

In brief, the practical rule we should bear in mind is:

If the speed of psychic time is ***greate****r* than that of physical time, then the

temporal quanta are negative and their direction is opposite to that of physical time, thus being ***delayed****;* but if the speed of psychic time is ***less*** than that of physical time, then the temporal quanta are positive and their direction is the same as that of physical time, thus arriving ***early.***

If the speed of psychic time reaches the lower limit **l/c**, the result is

$$\mathbf{S_t = -lni(l/c) = lnic.}$$

If it reaches the upper limit, the result is $\mathbf{S_t = -lnic.}$

FOOTNOTES

(1) *Time, Familiar Stranger:* "We perceive light with our eyes, heat and cold with our skin, smells with our nose and sound with our ears. W*here is* the *sense* organ that *perceives* time? In *the vhole body,* £or this *sense* organ is the nervous *system."*

2.3 - *The psychotemporal wave*

Since the duration of the temporal quantum is expressed with the logarithm of an imaginary number, at the unconscious level the psychic temporal quantum is perceived as having no counterpart on the physical plane. And this is what occurs during the passing of the first three temporal quanta. But with the passing of the fourth, due to the well-known properties of imaginary logarithms and numbers, we get:

$$-(4\ln iVt_p) = -\ln i^4 (Vt_p)^4 = -\ln(l)(Vt_p)^4 = -\ln(Vt_p)^4 = -4\ln Vt_p$$

this being a real logarithm of a real positive number.

Thus with the fourth quantum the entire duration $(-4\ln Vt_p)$ is perceived as "real" and remains such for the duration of one quantum. The fifth, sixth, and seventh quanta are again perceived as imaginary; but with the eighth quantum the entire duration up to that moment is again perceived as "real" for the duration of one quantum. The same thing happens with the twelfth quantum, the sixteenth quantum, and so on. In short, with the quanta 4n (where n = 1, 2, 3...) the full quantum durations up to those moments are perceived as "real" for the space of one quantum. The result is a composite cycle of three successive imaginary temporal quanta and a fourth quantum which in the course of its duration is perceived as real together with the previous ones.

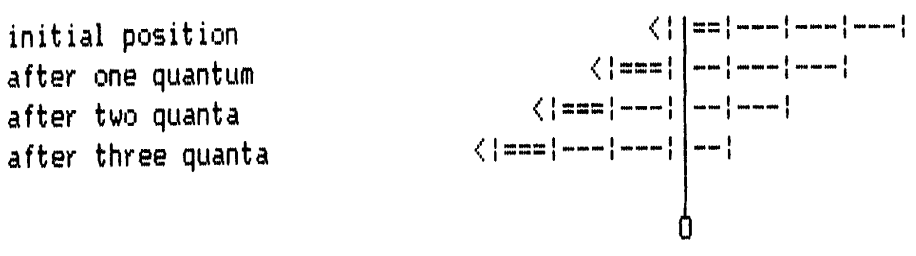
This cycle behaves like a wave which flows in psychic time and goes in the same direction as that of physical time if the speed of psychic time is less than that of physical time - or flows in the opposite direction if it is greater - at a speed of one temporal quantum every temporal quantum, i.e. a speed which is constant and unitary like the speed of physical time.

He shall call this **the psychotemporal wave.**

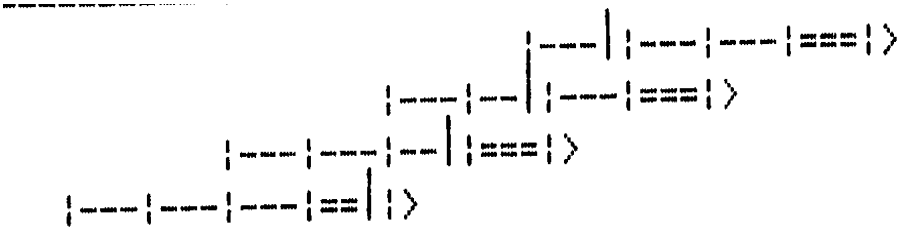
The paychotemporal wave could be optimally represented on the screen of a computer. The motionless graphic representation used here unfortunately requires a conventional simplification. Nevertheless, the fact that every four quanta the entire wave is perceived as "real" for the duration of one quantum, is a fact which - as far as the signals arriving at or departing from the psychic temporal plane are concerned - corresponds to the fictitious situation whereby in the wave flowing along the psychic time axis one quantum out of every four is marked as “real".

In relation to observer 0 who is immersed in psychic time t_p (a time which, it must be remembered, flows *always* in the same direction as physical time, either slower or faster than it), the wave flows in psychic time, going in the same or in the opposite direction, as in the following examples, where the quantum which gives the perception of real quanta is represented by |===|, and we suppose that $S_t = -1,.5\ U_t$, or $= +1,.5\ U_t$:

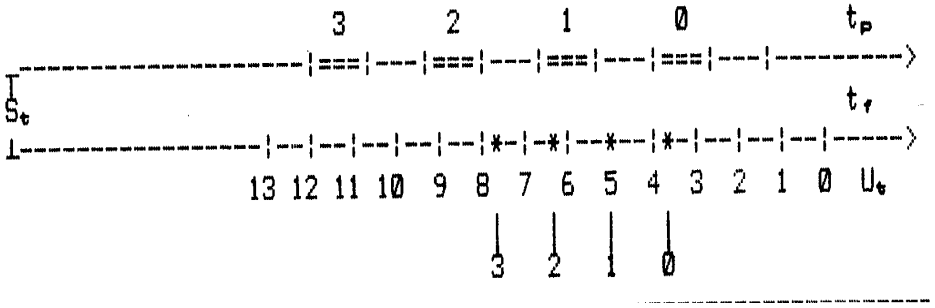
a) ***if the wave -is flowing in the direction opposite to that of physical time*** $(Vt_p > Vt_f)$**:**



But while the wave is flowing, in relation to the observer psychic time and physical time are also flowing, and allways in the same direction. For a more convenient graphic representation, let us now suppose that it is observer 0 who is moving (thus to the left of the page) together with the f low of psychic time and physical time, at the speed of one quantum every quantum. The motion of the wave will be added to the observer's motion, thus:

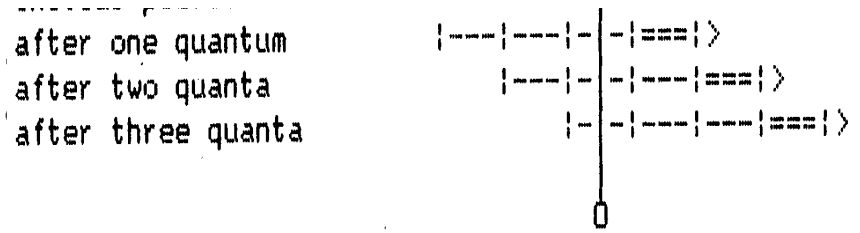


and if we project the "real" quanta onto the axis of psychic time:

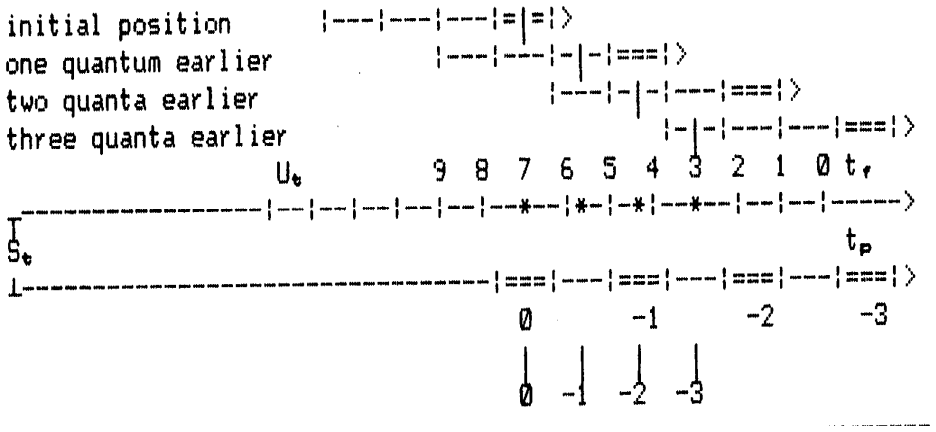


we show the successive positions of the real quanta which correspond to the successive positions of observer 0.

b) if the wave is flowing in the same direction as physical time ($Vt_p < Vt_f$):



and with the same representation used in the previous case, we get:



In this case, too, we show the successive positions of the real quanta which correspond to the successive positions of observer 0.

An analogous situation could be the following. We are seated and watching a little train going by in front of us, in which one person is seated every four seats (i.e., the succession is of three empty seats and one taken up). Due to the train's speed, one second elapses between the passing of one seat and the next. It is obvious that every four seconds we will see one person going by in front of us. But if each second all the persons move forward one seat, there will be one person going by in front of us every two seconds. And the same thing would happen if every second all the persons were to move back one seat.

If the speed of psychic time is equal to the speed of physical time, the paychotemporal wave is annulled.

Furthermore, the psychotemporal wave also generates its harmonics.

Let us now remark that during each fourth phase of the wave, i.e., during the "real" psychic quantum, there occurs a particular relationship between psychic signals and the mind's unconscious, autonomous areas.

As a rule, the mind associates with physical reality those signals which come from a temporal plane where the speed of flow is constant and unitary - like the speed of so-called physical time. These are the signals which come from the psychism of the sense organs, and they appear to be concomitant with the physical signals in the brain circuits, given that at the perception level the flow speed of psychic time is equal to the speed of physical time. But these signals can also include all those signals which come from psychisms whose speed of inner time is constant and unitary.

But nothing prevents us from supposing that during the passing of the "real" psychic quantum, at the unconscious level we perceive the duration of psychic time - which is flowing at a constant and unitary speed, like that of physical time - as being a close counterpart of physical time. As a result of this, the signals immersed in that temporal plane would appear to be similar to the signals coming from the physical temporal plane. Thus some unconscious materials, depending on what type they are (most often they are visual or auditory), become interchangeable with psychic signals of the same kind arriving from the physical temporal plane.

This situation is analogous to that stated in psychiatrist Ninian Marehall's theory: "each subatomic system, considered at a given moment, *is a mixture of possibility and reality, each of which tends to take the other's place on the basis of a vast range of possibilities."*

If we imagine an exchange of signals between the two temporal planes - the physical and the psychic - represented by 45° diagonals (as shown in the previous chapter), it is easy to see that on the psychic temporal plane they may or may not meet the "real" phases of the psychotemporal wave, depending on the physical instant in which they reach that plane. In Part C (Psychophony, Psychophonic raps) we shall see how this state of affairs perfectly explains the production of both single and multiple raps.

Finally, let us point out that if four psychic centres simultaneously form psychotemporal waves with a similar period and phase coincidence, the four waves add up together and each phase is multiplied by four, and is thus real. This is why we get a succession of temporal quanta all of which are real, and each of which is defined by the expression written above.

2.4 - *The intensity of psychic signals*

The concept of "intensity" of psychic signals regards both the emotional states of the persons involved, and the will sustaining them - i.e., the states of consciousness in which the signals are emitted - and for this reason they are correlated with the speed of psychic time.

If we posit (this being the third postulate) that the ratio between the intensity of the psychic signals and their speed is the same as the ratio between the intensity of physical signals and their speed, it follows that the intensity of the psychic signals is directly proportional both to the intensity of the physical signals as well as to the speed of psychic time; in other words, the intensity is directly proportional to their product.

This mathematical formulation reflects the psychological process whereby, for example, an emotionally charged verbal message produces effects proportional both to its meaning and to the intensity of the encoded sounds conveying it.

It is then demonstrated that the natural logarithm of the ratio between the intensity of psychic signals and the intensity of physical signals is equal to the psychic temporal quantum (see formula 29).

All the conjectures put forward up to this point regarding psychic processes are simply attempts to interpret the mathematical deductions of the psychotemporal model. In this connection, I would like to quote Richard P. Feynman: "...the way open to us to describe Nature generally appears incomprehensible to us... It is difficult to construct an intuitive model capable of describing even the simplest phenomena..." ("QED", Adelphi, Milan 1989).

The task is even more difficult when one seeks to construct a model for paranormal phenomena.

APPENDIX A
- SYMBOLS , POSTULATES AND FORMULAS

1 - Physical time and psychic time
1.1 - Physical time

Simbols

regular time = physical time	t_f
unit of time	U_t
speed of brain signals	Vs_f

Formulas

speed of physical time = $Vt_f=U_t/U_t=1$ **(1)**

The vector Vt_f lies on the imaginary axis of t_f , perpendicular to all three spatial axis:

top speed of brain signals =

=speed of the light = $Vs_f = c$ **(2)**

$Vs_f = c.Vt_f = c.1 = c$ **(3)**

$Vs_f/Vt_p=c$ **(4)**

Vector Vs_f lies in three-dimensional physical space.

1.2 -Psychic time

Simbols

imaginary psychic time it_p

imaginary speed of psychic time iVt_p

imaginary unit of psychic time iU_t

The axis of it_p is assumed to be parallel to the axis of t_f , at a distance equal to it_p . Vector iVt_p lies on this axis.

First postulate

$1/ic \leq iVt_p \leq ic$ **(α_)**

Formulas

In ordinary waking state: $it_p = t_f = 1$ **(5)**

In different states of consciousness :

$iVt_p=nVt_f$ where **(α) is:** $1/ic \leq n \leq ic$ **(6)**

$iU_t=U_t/n$ **(7)**

$iVt_p=1/it_p$ **(8)**

$it_p=1/iVt_p$ **(9)**

2 - Psychic temporal quanta

Simbols

imaginary speed of psychic signals iVs_p

Vector iVs_p lies on the axis of the corresponding it_p

Second postulate:

$iVs_p/iVt_p = c$ **(β)**

Formulas:

$ic \geq it_p \geq 1/ic$ **(10)**

$1/i \leq iVs_p \leq ic^2$ **(11)**

$iVs_p/Vs_f = icVt_p/cVt_f = iVt_p$ **(12)**

$iVt_p = 1/it_p = f(it_p)$ **(13)**

$\int (1/it_p)d(it_p) = \ln(it_p)+K = -\ln(iVt_p)+K$ **(14)**

The “sensation of time” is defined as:

$$S = -\ln(iVt_p)+K \qquad (15)$$

In the normal alert waking state $(iVt_p = Vt_f = 1)$:

$S_t = K$ = sensation of the present (16)

In different states of consciousness $(iVt_p \# 1)$ we obtain an integration between 1 and a given value of iVt_p , thus K is eliminated and formula **(15)** becomes:

$$S_t = -\ln(iVt_p) \qquad (17)$$

an expression whic is defined “psychic temporal quantum” = perception of iU_t. We deduce the following:

-if $Vt_p<1$, the temporal quanta flow in the same direction as t_f ;

-if $Vt_p>1$, the temporal quanta flow in the direction opposite to t_f .

Limits : for $iVt_p = 1/ic$ $S_t = -\ln(1/ic) = \ln ic$

for $iVt_p = ic$ $S_t = -\ln ic$

3 - The psychotemporal wave

At the end of 1 quantum the total duration is $-\ln(iVt_p)$

At the end of 2 quanta the total duration is $-2\ln(iVt_p)$

At the end of 3 quanta the total duration is $-3\ln(iVt_p)$

At the end of 4 quanta the total duration is $-4\ln(iVt_p)$

Since :

$$-4\ln(iVt_p) = -\ln i^4(Vt_p)^4 \text{ and } \quad i^4=1 \qquad (18)$$

we obtain:

$$-4\ln(iVt_p) = -4\ln Vt_p(\text{reale}) \qquad (19)$$

The durations $-4\ln Vt_p$, $-8\ln Vt_p$...$-4n\ln Vt_p$ correspond to logarithms of real numbers. The result is a composite cyrcle, in succession, of three imaginary temporal quanta and a fourth quantum which in thr course of its duration is perceived as real together with the precedings ones, and which constitutes the psychotemporal wave, with the following characteristics:

period = $T_{ot} = -4\ln Vt_p$ (20)

frequency = $F_{ot} = 1/T_{ot}$ (21)

duration = amplitude of 1st fhase = $-\ln(iVt_p)$ (22)

duration = amplitude of 2d phase = $-\ln(-Vt_p)$ (23)

duration = amplitude of 3d phase = $-\ln(-iVt_p)$ (24)

duration = amplitude of 4th phase = $-\ln Vt_p$ (25)

In relation to psychic time the psychotemporal wave flows at the speed of one temporal quantum every temporal quantum, i. e., the speed is unitary.

If $Vt_p = 1$, the psychotemporal wave is annulled.

If $Vt_p < 1$, the psychotemporal wave flows in the same direction as t_f and t_p.
If $Vt_p > 1$, the psychotemporal wave flows in the direction opposite to t_f and t_p.

Adding 4 psychotemporal waves having the same period and fhase coincidence, each phase is multiplied by four and is thus real, resulting in a succession of real temporal quanta, each of which is equal to $-lnVt_p$.

4 - Intensity of the signals

Simbols

Intensity of physical signals Js_f

Imaginary intensity of psychic signals iJs_p

$$Js_f/Vs_f = Js_f/c = r$$

Third postulate

$$iJs_p/iVs_p = r \qquad (\gamma)$$

Formulas

$$Js_f/Vs_f = iJs_p/iVs_p \qquad (26)$$

$$iJs_p/Js = iVs_p/Vs_f \qquad (27)$$

$$iVs_p/Vs_f = icVt_p/c = iVt_p$$

$$iJs_p = Js_f.iVt_p \qquad (28)$$

$$iVt_p = iJs_p/Js_f$$

$$S = -ln(iVt_p) = -ln(iJs_p/Js_f) \qquad (29)$$

B - A PSYCHOTEMPORAL INTERPRETATION OF PARANORMAL PHENOIIENA

Let us now apply the psychotemporal model to the basic phenomena which are the object of parapsychological inquiry:

- Extrasensory perception (ESP) phenomena
  - of the infrapsychic type (telepathy)
  - between mind and psychisms (paychoscopy)
  - of both types (clairvoyance)

- Paychokinetic phenomena (Pk)

These two headings encompass the entire spectrum of paranormal phenomena.

1 - Telepathy

According to panpsychism, the various psychic "centres" which bear the imprint of individualization intercommunicate thanks to an exceedingly complex network of signals which in modern terms make up the so-called PSI field. These signals do not flow in space and time, but only in the *inner time* of each psychic "centre".

Before Myers coined the term "telepathy" in 1882, telepathic phenomena were known as "thought transmission", since it was believed that they consisted of thought projected by the agent towards the percipient. This is now referred to as *kappa telepathy,* and is accepted in the practice of hypnosis, and especially distance hypnosis.

But nowadays it is *Gama telepathy* which is regarded as telepathy proper: in this form, "it is generally thought that it is the percipient who takes the initiative through clairvoyance of learning both the agent's conscious and unconscious thoughts" (1).

If we are to apply the psychotemporal model to telepathic phenomena we must take into consideration the principal feature of these phenomena - the kinematics of signals between different psychic "centres".

Between the communicants there can be any given distance in space, which is not important, and the time interval between the emission of the telepathic message and its reception does not depend on the spaces which it appears to have travelled through, but only on the perception which the comunicants have of the temporal distance separating them i.e., it *depends on the perception each of them has of the difference between their states of consciousness.*

This "temporal perception" ultimately becomes the "sensation of the present" (2) when both communicants are experiencing the same state of consciousness. The telepathic contact thus appears to be instantaneous.

But if the communicants are experiencing different states of consciousness, then it is the differential psychic temporal quantum which is being perceived (3), and the signal reaches its destination either some time after emission, or some time before.

From this angle, the difference between kappa telepathy and gamma telepathy translates into two different modes of transmission of signals: while in the kappa type the agent sends out the signal on his own initiative, in the gamma type he sends it on the percipient's request.

Let us bear in mind that psychic signals run in the same direction as temporal quanta: in other words, if the ratio between the speeds of psychic time is <1, then its logarithm is negative, its temporal quantum is positive and the signals run in the same direction as physical time, and reach their destination before being emitted. But if the ratio is >1, then its logarithm is positive, the temporal quantum is negative and the signals run in the direction opposite to physical time and reach their destination after emission.

A practical rule: ratio <1 = early arrival, ratio >1 = delayed arrival.

FOOTNOTES

(1) See Ugo Dettore's entry "Thought transmission" in the Encyclopedia *L'altro regno.*

(2) We will have the following temporal perception for the communicant who has an active role in communication:

$$S_t\, a = -\ln(iVt_p\, a)+K$$

and for the communicant who has a passive role:

$$S_t p = -\ln(iVt_p\, p)+K$$

and for their ratio:

sensation of temporal distance in the communicant who has an active role:

$$S_t a/p = -\ln(iVt_p\, a/iVt_p p)+K, \text{ and if } iVt_p a=iVt_p p$$

we get:

$$S_t a/p = S_t p/a = K$$

(3) $$S_t\, a/p = -\ln(Vt_p a/Vt_p p).$$

1. 1 - *Kappa telepathy*

Immediately before sending his signal, the agent has an unconscious perception of the psychic temporal speed which is peculiar to his state of consciousness at that time. But when he actually sends the signal, he has the perception of the ratio between his own speed and that of the percipient.

This ratio represents the temporal distance which separates the two communicants; and the unconscious perception of it is expressed by a period of time which, once projected into physical time, is measurable with a clock and translates into the amount of time it takes for the signal to reach the percipient.

If immediately before the telepathic contact the agent and the percipient are in the *same state of consciousness* - i.e., they have the same inner speed and are, so to speak, synchronized - then the ratio is equal to the unit, the temporal distance is zero and the emission and reception of the signals appear in the present as being *simultaneous.*

An example of this is the frequent case in which we suddenly divine the thoughts of the person we are listening to.

But if immediately before the telepathic contact the agent's speed of inner time is different from that of the percipient, we get,

- Early arrival kappa telepathy:

If the speed of inner time in the agent is less than in the percipient, then the ratio between the two speeds of psychic time is *negative,* and thus the signal reaches the percipient before emission. In practice, this early arrival occurs when the agent is immersed in deep thought and the percipient is operating in the "daydream" state of consciousness.

An example of this is when a person has a foreboding of the imminent death of someone he or she loves. There are also more common, everyday

cases, such as when, for example, I suddenly think I would like to see a friend I haven't seen in a long time, and shortly thereafter I meet him in the street. Or then I receive a telephone call from him, because in that very moment he happened to come across a letter of mine which reminded him of me. (For further clarity see the telepka graph in Appendix B).

- Delayed arrival kappa telepathy:

If immediately before the telepathic contact the agent's speed of inner time is *greater* than that of the percipient, then the ratio between the two speeds of psychic time is >1 and therefore the signal reaches the percipient after the moment of emission. In practice, this delay occurs when the agent operates in a "daydream" state of consciousness, while the percipient is immersed in deep thought.
An example of this is when a person has a sudden foreboding that something serious has happened to a friend of his, and then he learns that the friend in question had an accident some time before he himself was struck by this presentiment (for further clarity see the telepkr graph in Appendix B).

1.2 - *Gamma telepathy*

As regards the modality of gamma telepathy, we have to consider the "knowledge through clairvoyance of the agent's conscious or unconscious thoughts" (this being the definition of this type of telepathy) as a telepathic phenomenon. One could suppose that in addition to the signals that "convey" information, there is another type - namely, signals which "take on"information. But since the theory's hypotheses must necessarily remain both consistent and concise, I would venture the explanation that the percipient sends a signal to the agent which “conveys" the request for certain information, and that this information is then "conveyed back" by the answering signal.
If immediately before the telepathic contact the agent and the percipient are experiencing the same *state of consciousness* i.e., they have the same speed of inner time and are so to speak synchronized, then the ratio is equal to the unit, the temporal distance is zero, and the emission and reception of the various signals which characterize gamma telepathy appear as *simultaneous* in the present. In answer to his request signal the percipient immediately receives information in tune with *a present which is the same for both of then.*
But if immediately prior to the telepathic contact the percipient's speed of inner time is different from that of the agent, we get,

- early arrival gamma telepathy:

If the speed of inner time is less - if, in other words, the percipient (who in this case has an active role in the contact, since it is he sends who sends a request signal) is operating in a normal waking state, while the agent is, for example, in a "daydream" state of consciousness, then the ratio between the two speeds of psychic time is <1, thus the request signal sent by the percipient travels in the same direction as physical time, and so "catches up", so to speak, with an instant of time which has already elapsed for the percipient, thus reaching the agent before emission - i.e. arriving early. This is why it is appropriate to speak of early arrival gamma telepathy. Thus the agent (who now takes on a role which is active, albeit unconscious) gives information at that particular moment. The answering signal, due to the inversion of the temporal ratio which now becomes >1 for the agent, reaches the percipient with a delay which is equal to the early arrival, i.e., it again travels along the route of the request signal and reaches the percipient in the same instant of time in which the request signal is being emitted. In brief, the percipient instantaneously receives information in tune with a moment of time which for him is already in the *past.* (For further clarity see the telgama graph in Appendix B).

- delayed arrival gamma telepathy:

If immediately before the contact the percipient's speed of inner time is greater than the agent's; if, in other words, we invert the states of consciousness mentioned above, then the ratio between the two speeds of psychic time is >1, thus the request signal travels in a direction opposite to time, going towards an instant of time which has not yet reached the present, thus reaching the agent after the moment of emission. This is why it is appropriate to speak of delayed arrival gamma telepathy. Thus the agent gives information in tune with that particular moment in time. The answering signal, due to the inversion of the temporal ratio, again travels along the route taken by the request signal and reaches the percipient in the same instant in which the request signal was emitted. In brief, the percipient instantaneously receives information in tune with a moment of time which for him is in the future. For further clarity see the telgamr graph in Appendix B).

2 - Psychoscopy

As we know, "psychometry" is an old-fashioned term which is now considered inappropriate because it suggests "the extent of the Boul's transcendental faculties", and because it could be confused with the different meaning it has in the field of psychology. Today it has been superseded by the term "psychoscopy".

Psychoscopy is the phenomenon which allows a psychic to touch an object and "'see' the object's history and describe the episodes witnessed by it" (1).

Paychoscopy is always considered a phenomenon of retrocognition, or clairvoyance of past events. When it concerns the future, it involves what is called "tactile clairvoyance", in which it is thought that the psychic, through the "inductor" object, derives his information from the unconscious of the person who has been in contact with that same object. In this way the information is not necessarily restricted to the time in which the contact occurred, but can also take place in the future.

If we apply the psychotemporal model to psychoscopy, we see that the psychic can draw information pertaining to events witnessed by the object *both in the past and in the future*, thus rendering the theory of tactile clairvoyance superfluous - although of course this form of clairvoyance continues to be essential in explaining events which have not been, and never will be, witnessed by the object.

Scholars have put forward many explanations to explain paychoscopy. Some believe that psychoscopy is in all cases an aspect of tactile clairvoyance. Others hold that the object is merely a "support", having the function of a crystal ball. Yet others support the hypothesis of psychic impregnation, according to which all events leave a trace in the physical environment. Finally, there are those who believe that matter contains a sort of unconscious psychism and therefore, in some way or other, a memory with which the psychic can establish contact.

This last hypothesis is basic to the psychotemporal model, and ultimately reflects one of the various forms with which, according to Ugo Dettore, it is believed that "reality is one, independent of space and time, and that therefore each one of its aspects, however limited, can to all effects lead us to the knowledge of all the other aspects. *From this point of view telepathy and clairvoyance, both in space and in time, are a single phenomenon - a direct contact with various aspects of reality" (2).*

So as to fit psychoscopy into the psychotemporal model, we have to consider it as consisting of two different types - *when the psychic is acting intentionally, and when he is not.*

If the phenomenon is *casual* and not intentional, it must be viewed as *kappa psychoscopy* - that is to say, as a telepathic phenomenon of the kappa type (3), whereby the psychism of the object spontaneously sends information signals which are picked up by the psychic.

If, on the other hand, the psychic is operating *intentionally*, the phenomenon must be considered as *gamma psychoscopy* - that is to say, as a telepathic phenomenon of the gamma type (4), in which the psychic asks the psychism of an object to send him certain information.

The psychism of an object in immersed in eotemporality.

Eotemporality, or time of the physical t, "derives its name from Eos, the Greek goddess of Dawn, and is the simplest form of continuous time. It is the temporal reality of the astronomical universe of matter having mass. It has also been described as the time of pure succession. Eotemporality is a continuous, yet not direct, aspect of time, which does not flow, and to which we cannot apply our ideas of present, future and past." This is how J.T. Fraser defines Eotemporality (5).

Thus in the case of both types of paychoscopy discussed above, we may suppose that the psychic emits signals without the least perception of his temporal distance from the percipient's mind; and that it is the perception

of this distance on the part of the psychic immersed in *nootemporality* which determines the temporal route followed by these signals.

Nootemporality, or noetical time, "is the temporal reality of the mature human mind. It is characterized by a clear distinction between future, past and present: by future horizons and a limitless past, and by a mental present, with its temporal horizons shifting in function of the one's attention" (5).

Of these two temporalities, it is therefore the temporality of the percipient which prevails, and it is in any case the percipient who must be considered as having an active role in the phenomenon.

Even if the psychism of the object is impregnated with emotional charges coming from the human mind, and thus originally linked to changes in the speed of psychic time of the mind which has produced them, it nevertheless remains in the field of eotemporality. It is to eotemporality that we must ascribe the **t** speed of the physical, which is self-evidently of one time unit for each time unit, and thus unitary: so that the sensation which the mind has of it is equal to zero, in accord with Fraser (who, as we have seen, holds that eotemporelity is continuous but does not flow) (6).

2. 1 - *Kappa psychoscopy*

In kappa psychoscopy, if the percipient has a speed of psychic time which is less than the speed of physical time (if, for example, he is absorbed in deep thoughts), then the ratio is <1, thus the signal *reaches him early and concerns the future of the object* (For greater clarity consult the two graphs scopiaka and scopiakr in Appendix B).

But if the percipient has a speed of inner time greater than that of physical time (if, for example, he gives free rein to his imagination), then the ratio is >1, thus the signal reaches him late and concerns the *past* of the object.

A typical feature of kappa paychoscopy is that the psychic evokes and describes episodes with emotional detachment.

In kappa psychoscopy the function of the object is often represented by the environment.

2.2 - *Gamma psychoscopy*

When the signal is emitted by the object's psychism following a request signal, it follows the same temporal route taken by the request signal.

In this case the signals follow the same temporal routes generated in gamma telepathy. It is as if the psychic identified with the object's psychism and lent it, so to speak, his own nootemporality as if he were capable of perceiving the temporal distance in the same way as it could be evaluated by the object, if the object were endowed with nootemporality.

If a psychic intentionally takes an object in his hand, identifies with it and puts himself in a state of consciousness in which the speed of his inner

time is *less* than the speed of physical time (when, for example, he is absorbed in deep thoughts), then the request signal emitted by the percipient reaches the object's paychism early; the answering signal, which follows the same temporal route, makes up for the early arrival with an equal delay, thus reaching the psychic instantaneously. But the information is in tune with events which for the percipient belong to *the past.* (For greater clarity consult the two graphs scopiaga and scopiagr in Appendix B)

We can readily recognize the German doctor Gustav Pagenstecher's experiences with his female patient, Mrs. Maria Reyes de Zierold, as a classic example of early arrival gamma psychoscopy, drawing from past events. This psychic described past events connected with the objects she was asked to touch. When in deep trance, (another condition which can decrease the speed of psychic time), she so strongly identified with the object that she would talk in the first person, and often with genuine emotion. The authenticity of these phenomena was recognized by Dr. W. F. Prince in a report he published in 1922 in the Journal of the American Society of Psychical Research.

But if the psychic who is holding the object in his hand and identifying with it has a speed of inner time which is greater than that of physical time (if, for example, he is giving free rein to his imagination), then his request signal reaches the object's psychism with a delay, and the answering signal which retraces the same temporal route will make up for the delay with a corresponding early arrival, thus reaching the psychic instantaneously. But in this case the information is in tune with events which for the percipient belong to the *future.*

A typical example of delayed arrival gamma paychoscopy, which draws from the object's future, can be witnessed in the so-called "empty chair experiments", in which the psychic is, amongst other things, asked to touch the chair, as in the case of Eugenio Osty's famous experiment with the clairvoyant Pascal Forthuny.

Current opinion on this phenomenon is that if the information concerning the person who is sitting in that particular chair belongs to his future, then one has to refer to the hypothesis of the inductor object, which states that the psychic derives his information from the person's unconscious. In the case of the empty chair experiment this opinion would appear to be correct, because the chair comes into contact with the person at a particular time, and we cannot suppose that the same person will again sit in that same chair in the future.

But in other cases the psychotemporal model allows us, as we have already seen, to give a different interpretation: namely, that psychoscopy is a phenomenon in which a psychic, as a result of touching an object, picks up information pertaining to episodes witnessed by the object *in the past or in the future.*

FOOTNOTES:

(1) See U. Dettore's entry "Psychoscopy" in the Encyclopedia *L 'uomo e 1'ignoto,* Armenia Editore, 1978.

(2) See note (1).

(5) *Time, Familiar Stranger.*

3 - Clairvoyance

In any case the psychic thinks he is "seeing", and this is why one speaks of clairvoyance. But even though commonly used today, the term clairvoyance is incorrect.
Indeed, Ugo Dettore remarks that "clairvoyant sight is most often anything but clear, and in any case no clearer than normal eyesight" (1).
For this reason I find myself in agreement with Dettore's preference for such a term as "paragnosis", suggested by the parapsychologist Tenhaeff, because paragnosis "simply qualifies a type of knowledge which has an *affinity to* normal knowledge, but is different from it. It neither specifies its features nor its origin, and is thus in harmony with present day research."
According to the psycotemporal model, clairvoyance is never direct, but always mediated either by a human mind or by a psychism.
Its processes can thus be imputed, in each individual case, to the processes of either telepathy or psycoscopy.
And since both telepathy and paychoscopy, including both the kappa and gamma types of each of these, can, as described earlier, convey to the sensitive psychic signals coming from present, past or future, we *are able to explain clairvoyance occurring in the present, as* well is *retrocoqnition and precognition.*
By applying the psychotemporal model to clairvoyance (or paragnosis), we can explore this phenomenon's different possibilities according to the states of consciousness of the percipients and the "mediating agents", since these
states are characterized by specific and measurable variations of the flow speed of inner time.
If we want to bring these different speeds into the picture, we have to investigate the mathematical relationships of "larger than, smaller than, or equal to,", which always identify three possible cases. This is how we dealt with telepathy and psychoscopic phenomena, and we could do the same with paragnosis if this did not mean useless repetition. For telepathy and psychoscopic phenomena the reader can refer to the cases mentioned earlier.

FOOTNOTES

(1) See the entry "Clairvoyance", by Ugo l)ettore in the Encyclopedia *L'Uoeo* e *L'Ignoto,* Armenia Editore, 1978.

4. - Psychokinesis

Psychokinesis involves phenomena in which the mind appears to exert a direct action on matter. Such phenomena are not as frequent as cases of telepathy, which many people have experienced at least once in their life.

I know people who before actually pushing the button to call the elevator see the light go on, and then find the elevator arriving *empty*. This seems to be technically inexplicable, and could simply be a case of everyday mundane psychokinesis.

Within the general framework of panpsychism, psychokinesis has a plausible explanation. Within this framework, the action which man usually exerts on things can be considered as being mediated by the psychism existing in his organs of movement. But when a direct relationship arises between the mind and the psychism of things, then we get psychokinesis. This is a relationship which does not imply action as such, but only a transmission of signals which prescribe the action to be carried out - rather like Open Sesame!

The person who, as I described above, sees the lift arriving, has paranormally activated the control relay - in other words, he was about to push the button but was preceded by his unconscious.

A significant example of this is when a commander explains to his men the action to be carried out by giving them the order to carry it out. This is because the soldiers act by constriction only in the early stages of their military training. As time goes on habit increasingly takes over, and gradually persuades them that a discipline and a *hierarchy* are necessary.

Indeed, Dettore argues that what he calls "elementary centres of conscious energy" - and what I would call "psychical centres" - are capable of influencing one another, "both actively (dominating), as well as passively (being dominated)" - in other words he hypothesizes that they are "hierarchically structured" (1).

Dettore further conjectures "that the energy at work in psychokinesis does not derive from the subject, nor from those who are present, but from the object itself. Matter is a system of energies in equilibrium, and at the core of this system movements occur in every direction, and compensate each other. It is sufficient for one predominant motion - however slight - to be formed in a given direction, to cause the object to move to that side. In this sense, the subject would appear to act with his mind, directing the corpuscular energies of the object in one direction and thus obtaining a shift in its position.

"From this point of view, *the psychokinetic phenomenon would appear to be so closely related to the telepathic phenomenon as to coincide with* it" (2).

This last statement finds me in full agreement. In my interpretational model the paychokinetic phenomenon and the telepathic phenomenon do indeed coincide. But as concerns the notion of energy, I believe this is an essentially "physical" concept which was developed to explain motion.

For this reason I believe that elementary paychisms only have the capacity of "conceiving it" - "In the beginning was the Word."

Let us return to the psychotemporal model. I assume that the processes peculiar to psychokinesis are the same as those of kappa telepathy, in which a so-called agent transmits information to a so-called percipient. The difference lies in the fact that the information conveyed to the object's psychism must in the case of psychokinesis be *persuasively proscriptive.*

The agent mind can be immersed in different states of consciousness, thus with an inner time which may be faster or slower than regular time; but this regular time is the only admissible time for the psychism of so-called inanimate objects. Therefore the psychokinetic signal reaches the psychism of the object early if the agent's speed of inner time is less than regular time; and it arrives delayed if it is larger; and, finally, it *arrives instantaneously* if it is equal. (For greater clarity consult the graphs pka and pkr in Appendix B).

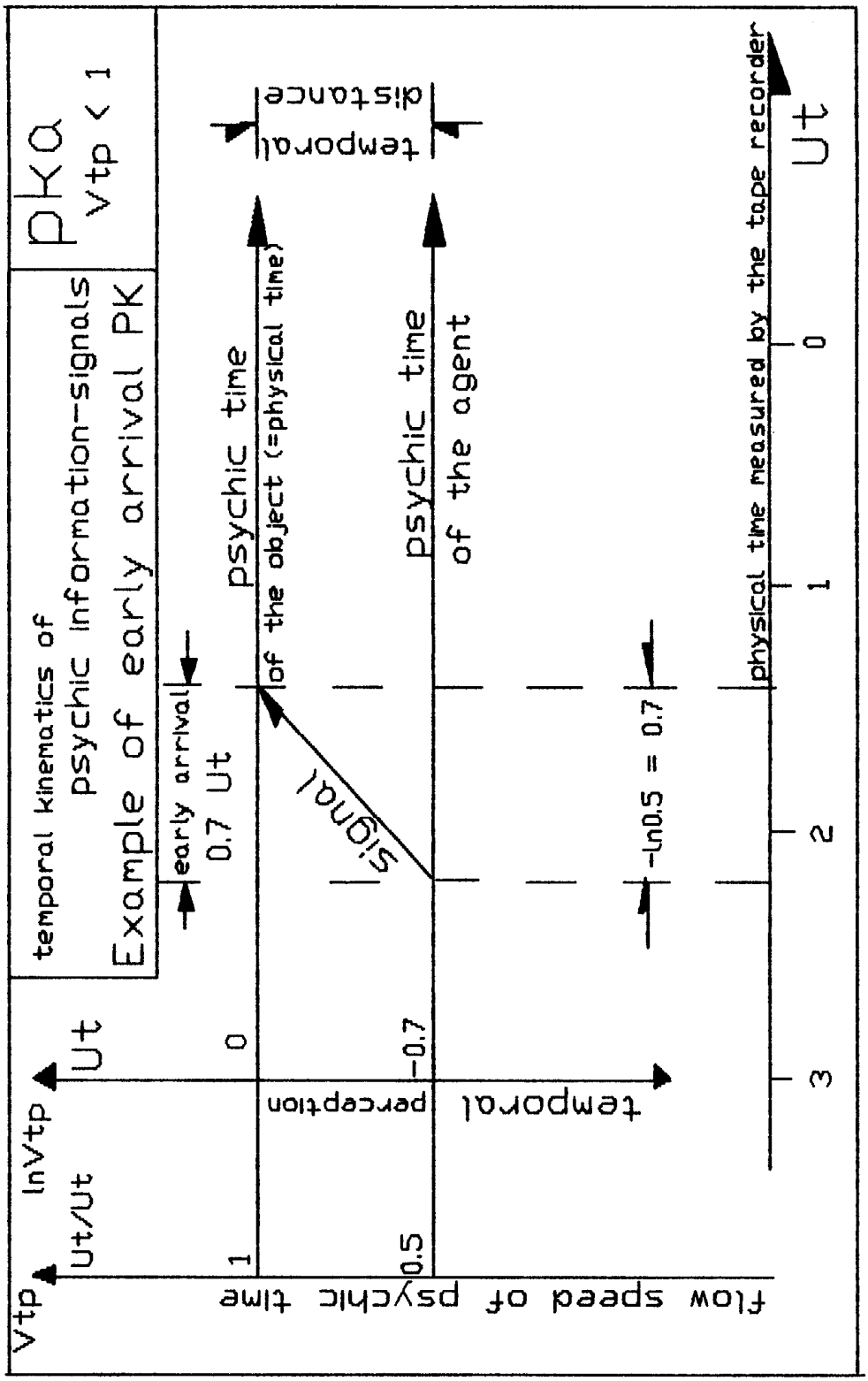
FOOTNOTES

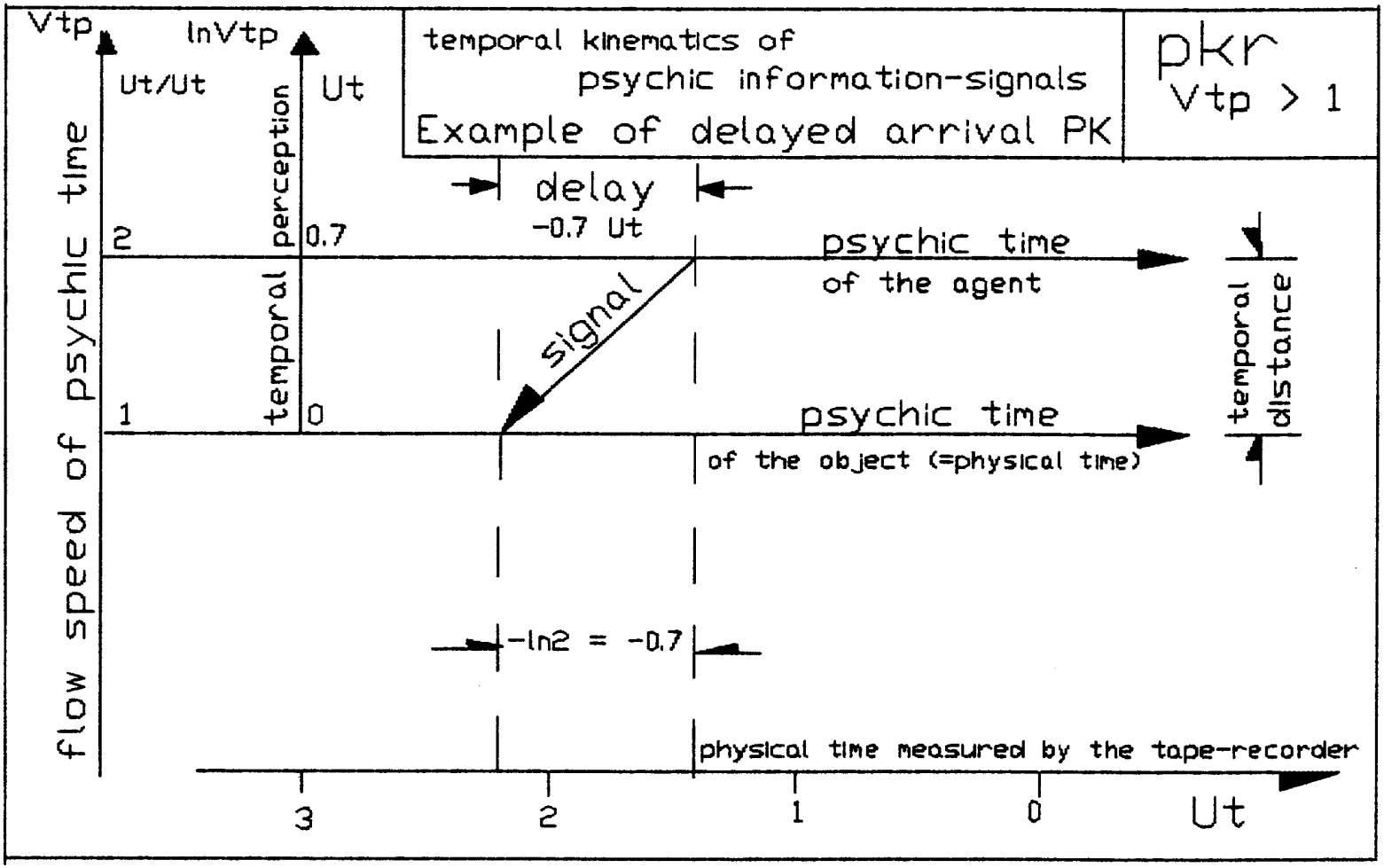
(1) See Ugo Dettore's Modello *N*, page 161, Edizioni Mediterranee.

(2) See Dettore's entry "Psychokinesis" in *L'Uomo e* L'Ignoto, Armenia Editore, Milan, 1978.

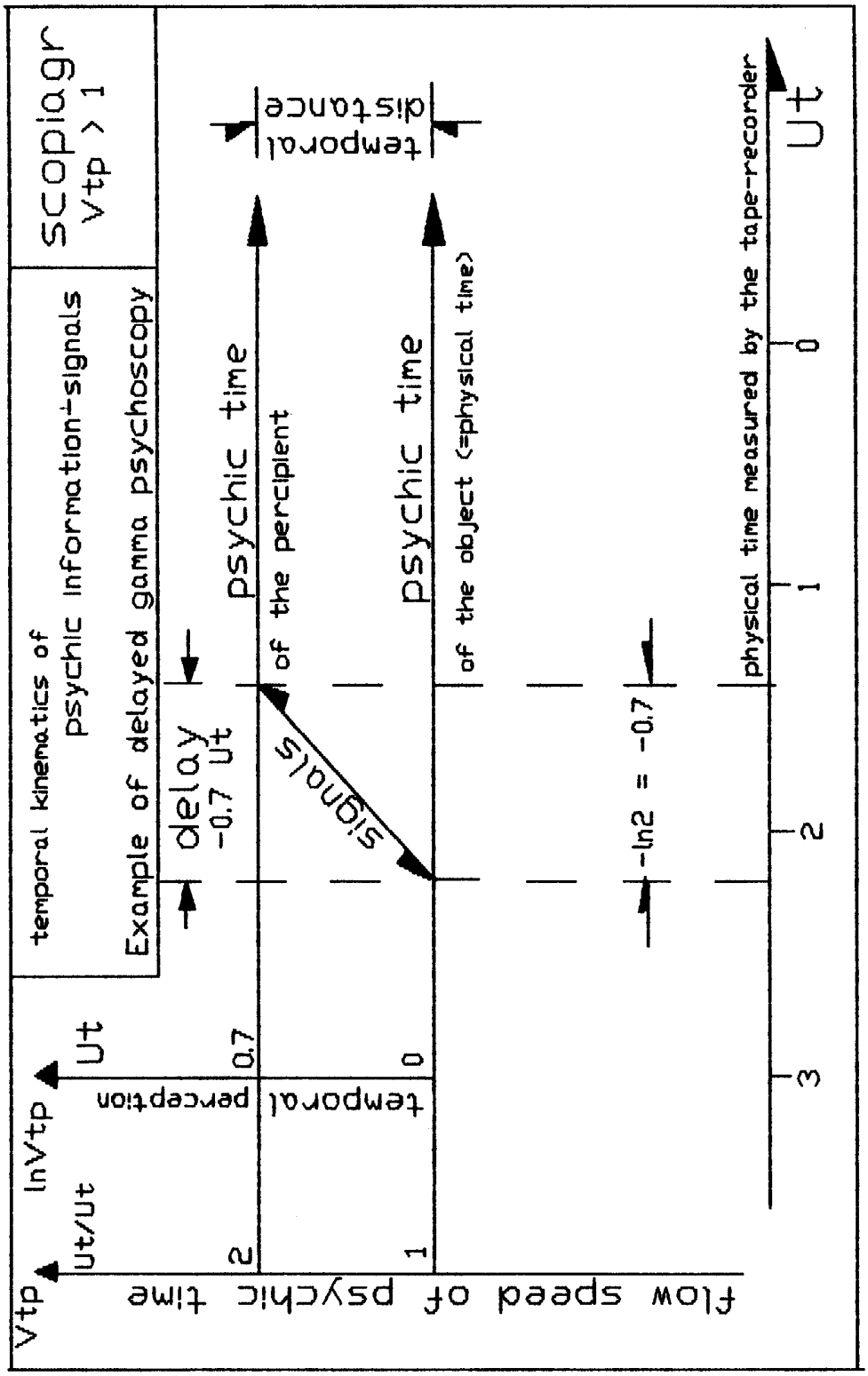
APPENDIX B

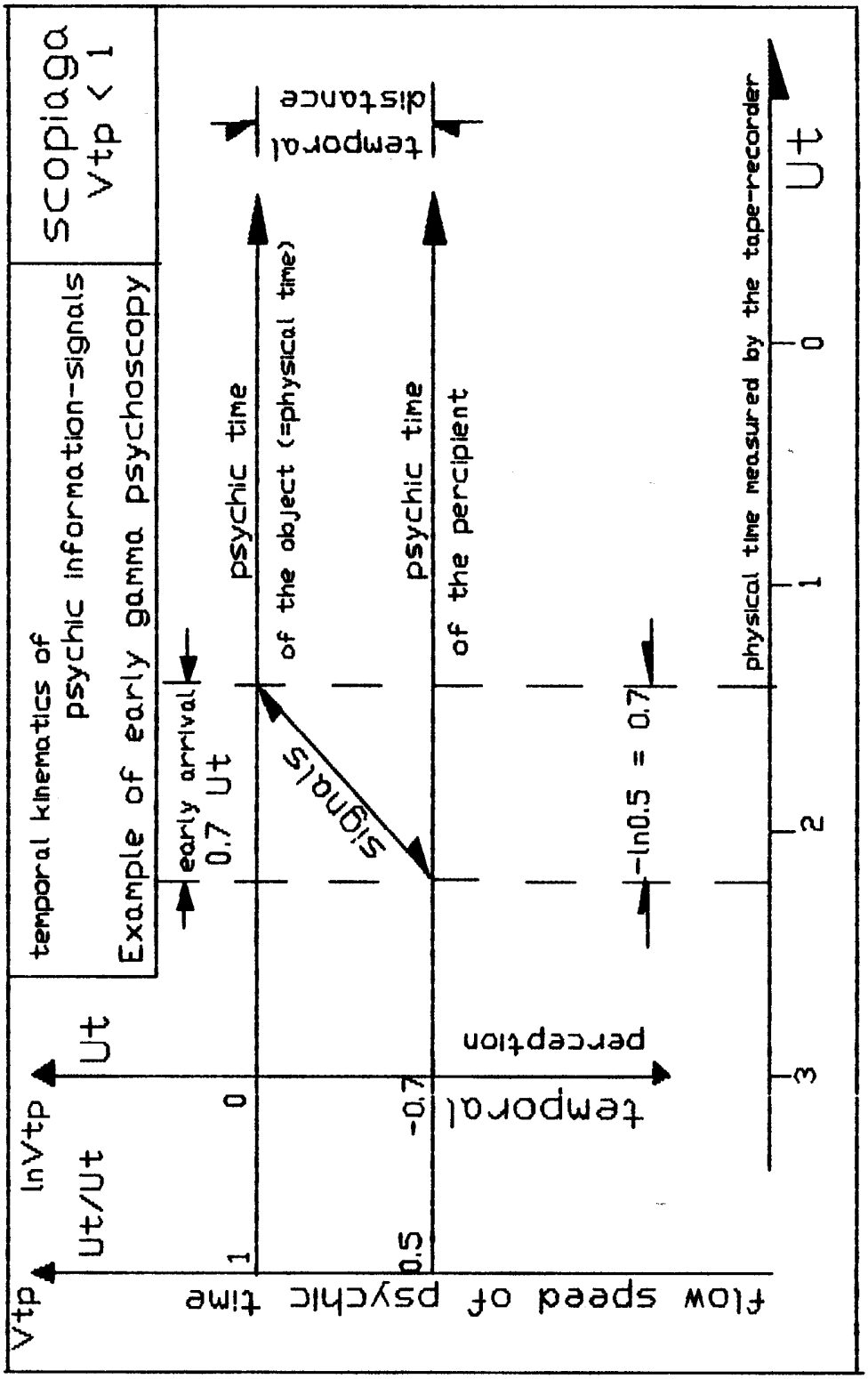
10 GRAPHIC REPRESENTATIONS

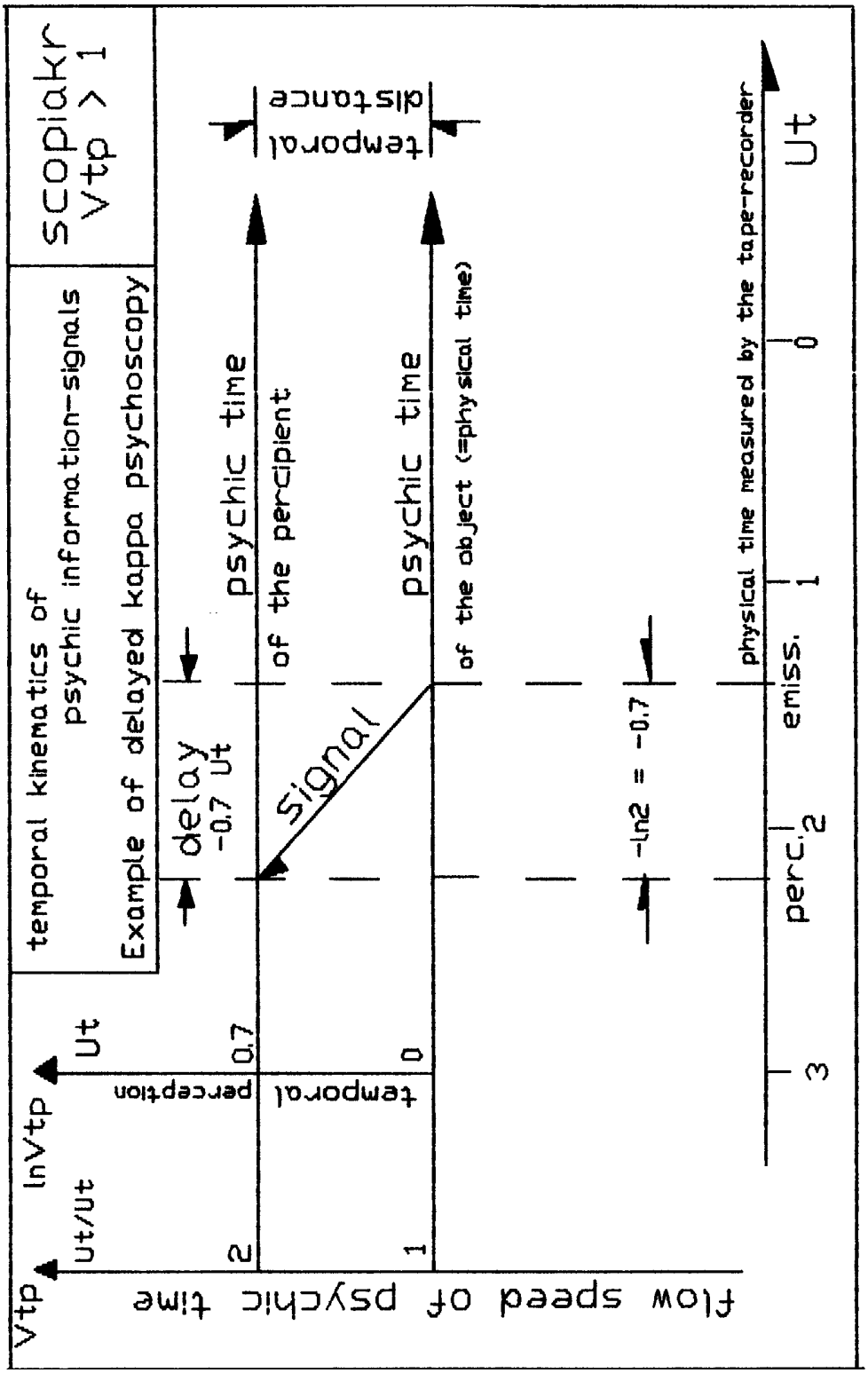

temporal kinematics of
psychic information-signals
Example of early arrival PK
pKQ
Vtp < 1
Vtp
lnVtp
Ut/Ut
Ut
flow speed of psychic time
1
0.5
0
-0.7
perception
temporal
early arrival
0.7 Ut
psychic time
of the object (=physical time)
signal
-ln0.5 = 0.7
psychic time
of the agent
temporal
distance
physical time measured by the tape recorder
3
2
1
0
Ut

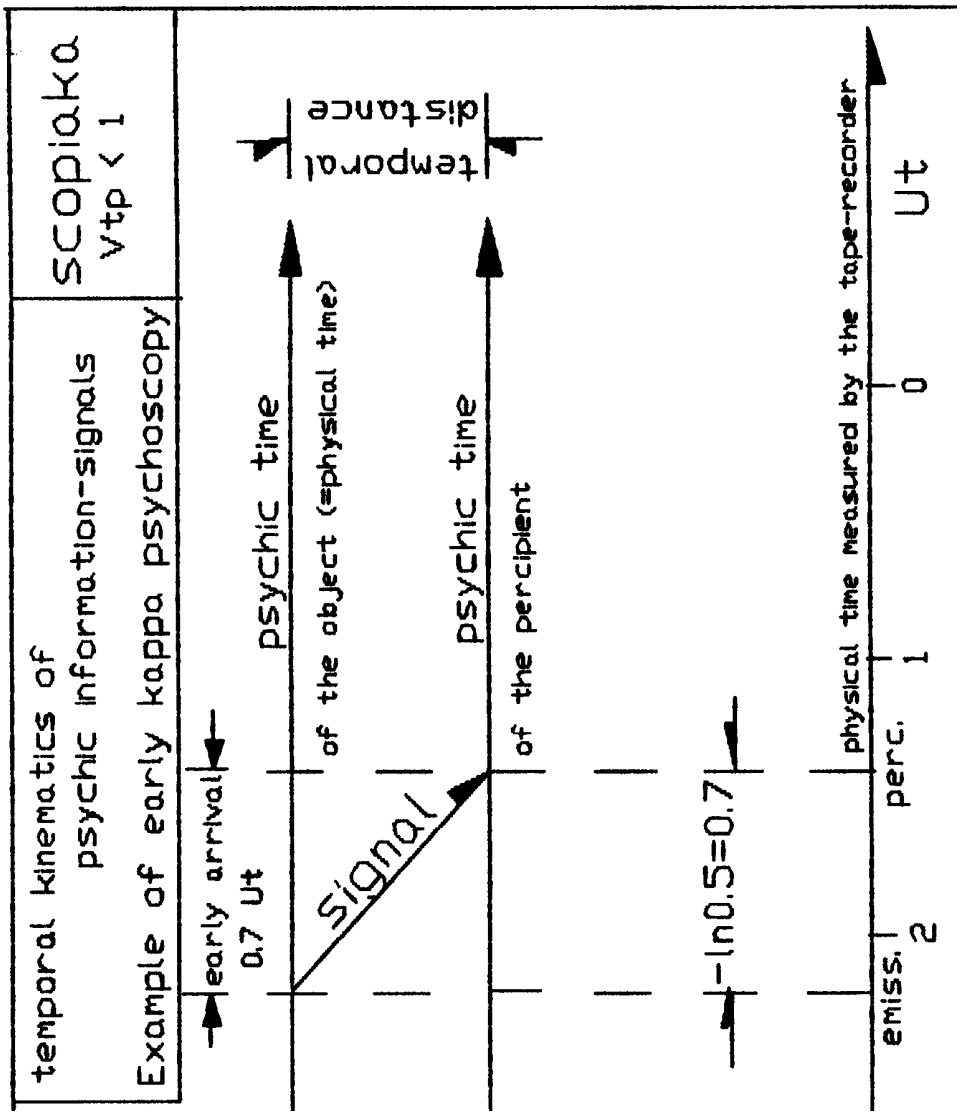

Vtp
lnVtp
Ut/Ut
Ut
perception
temporal
flow speed of psychic time
temporal kinematics of
psychic information-signals
Example of delayed arrival PK
pkr
Vtp > 1
delay
-0.7 Ut
2
0.7
1
0
signal
psychic time
of the agent
psychic time
of the object (=physical time)
temporal
distance
-ln2 = -0.7
physical time measured by the tape-recorder
3
2
1
0
Ut

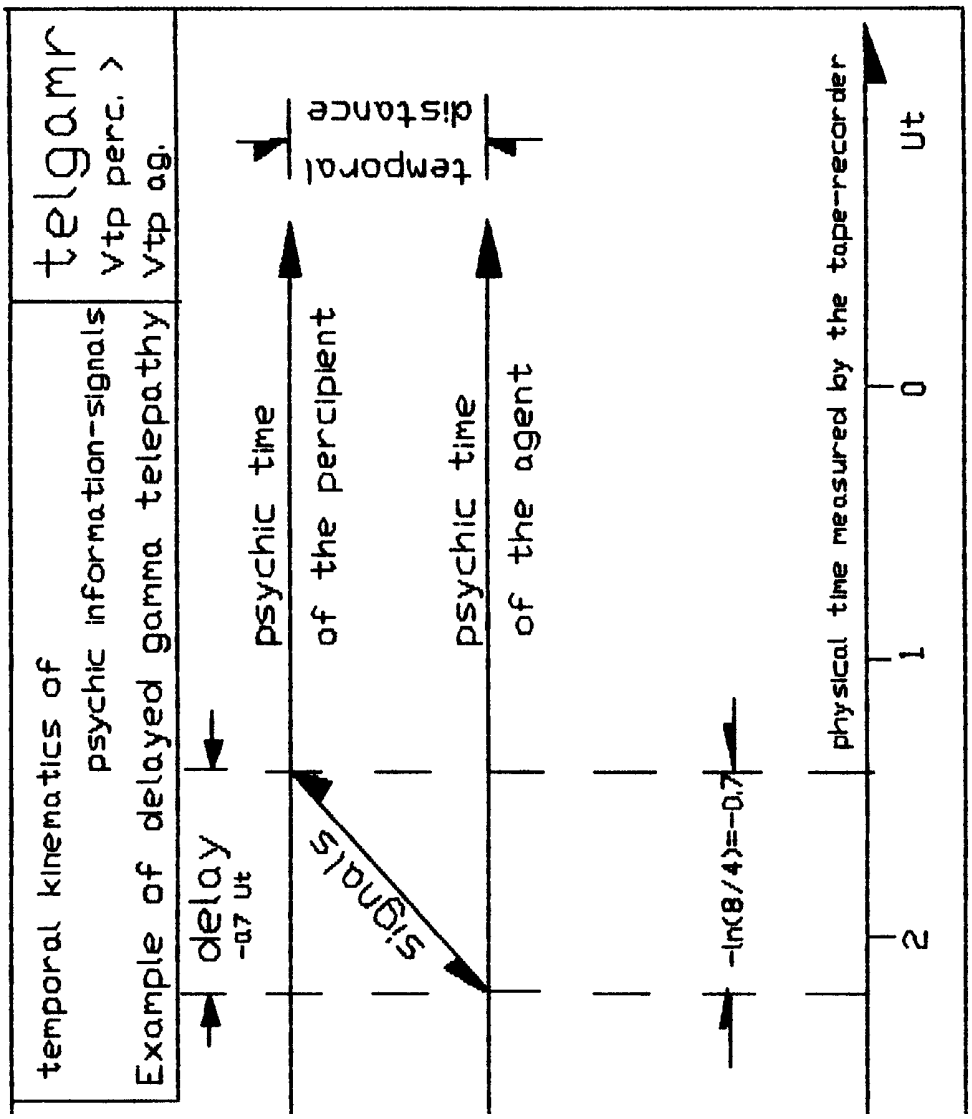
43

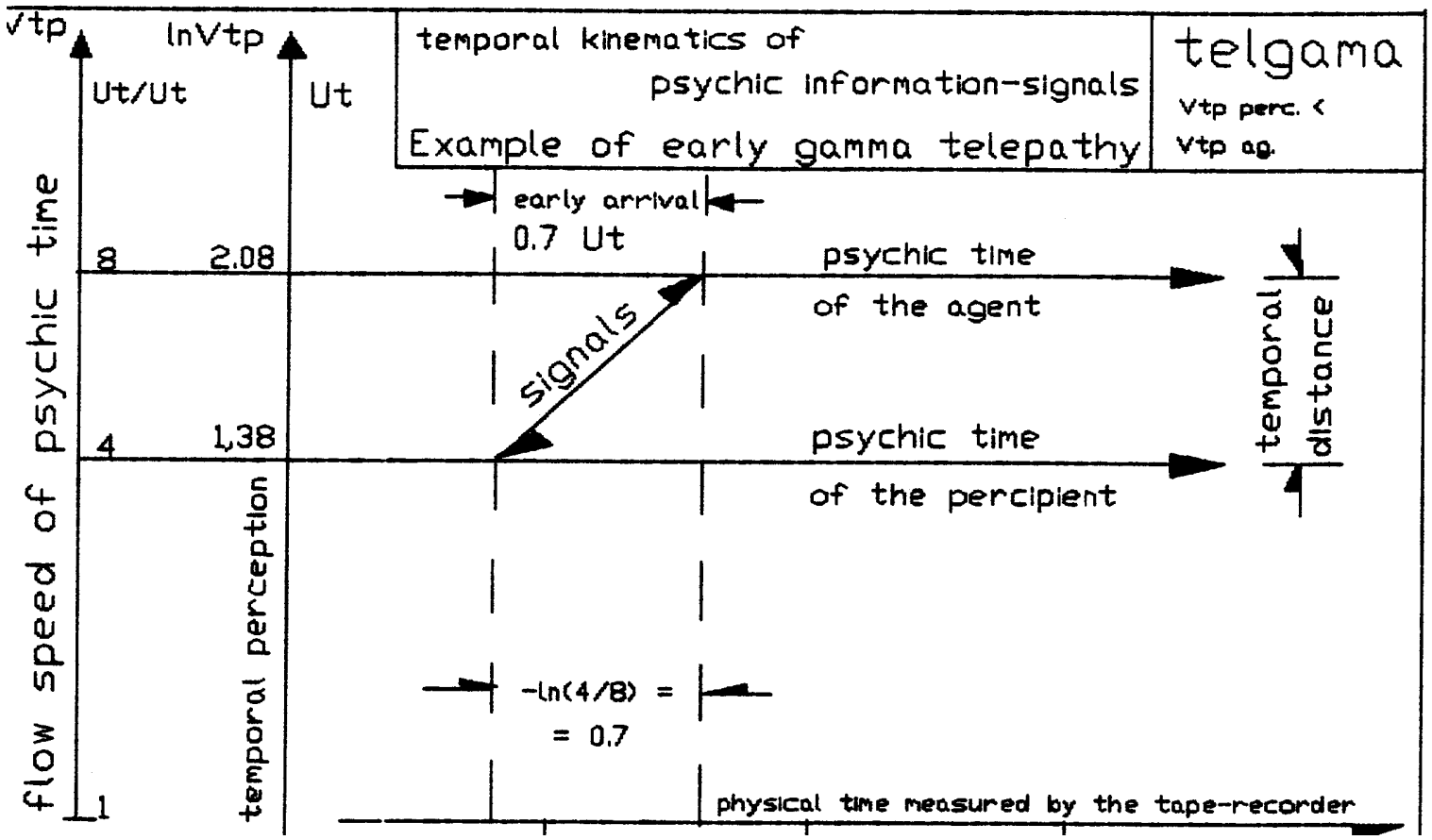

Vtp
ln Vtp
Ut/Ut
Ut
perception
temporal
flow speed of psychic time
2
0.7
1
0
delay
-0.7 Ut
signals
psychic time
of the percipient
psychic time
of the object (=physical time)
-ln2 = -0.7
temporal
distance
physical time measured by the tape-recorder
3
2
1
0
Ut
temporal kinematics of
psychic information-signals
Example of delayed gamma psychoscopy
scopiagr
Vtp > 1


scopiaga
Vtp < 1
temporal kinematics of
psychic information-signals
Example of early gamma psychoscopy
flow speed of psychic time
Vtp
lnVtp
Ut/Ut
Ut
1
0
0.5
-0.7
temporal
perception
early arrival
0.7 Ut
psychic time
of the object (=physical time)
signals
psychic time
of the percipient
temporal
distance
-ln0.5 = 0.7
physical time measured by the tape-recorder
0
1
2
3
Ut

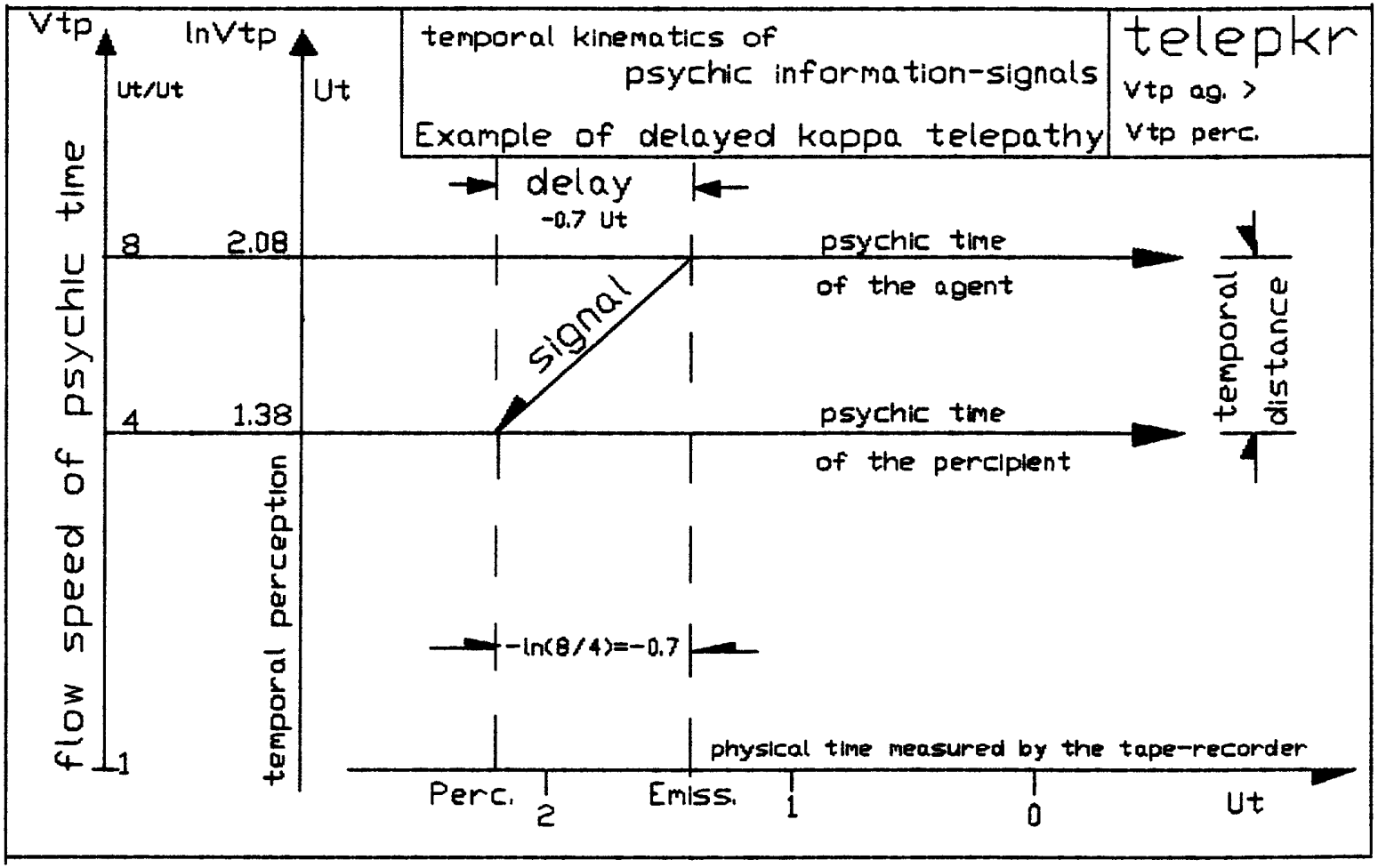

scopiakr
Vtp > 1
temporal kinematics of
psychic information-signals
Example of delayed kappa psychoscopy
flow speed of psychic time
Vtp
lnVtp
ut/ut
Ut
perception
temporal
2
1
0.7
0
delay
-0.7 Ut
signal
psychic time
of the percipient
psychic time
of the object (=physical time)
temporal
distance
-ln2 = -0.7
physical time measured by the tape-recorder
3
perc.
2
emiss.
1
0
Ut


temporal kinematics of
psychic information-signals
Example of early kappa psychoscopy
scopiaka
Vtp < 1
early arrival
0.7 Ut
psychic time
of the object (=physical time)
signal
psychic time
of the percipient
temporal
distance
-ln0.5=0.7
physical time measured by the tape-recorder
emiss.
2
perc.
1
0
Ut

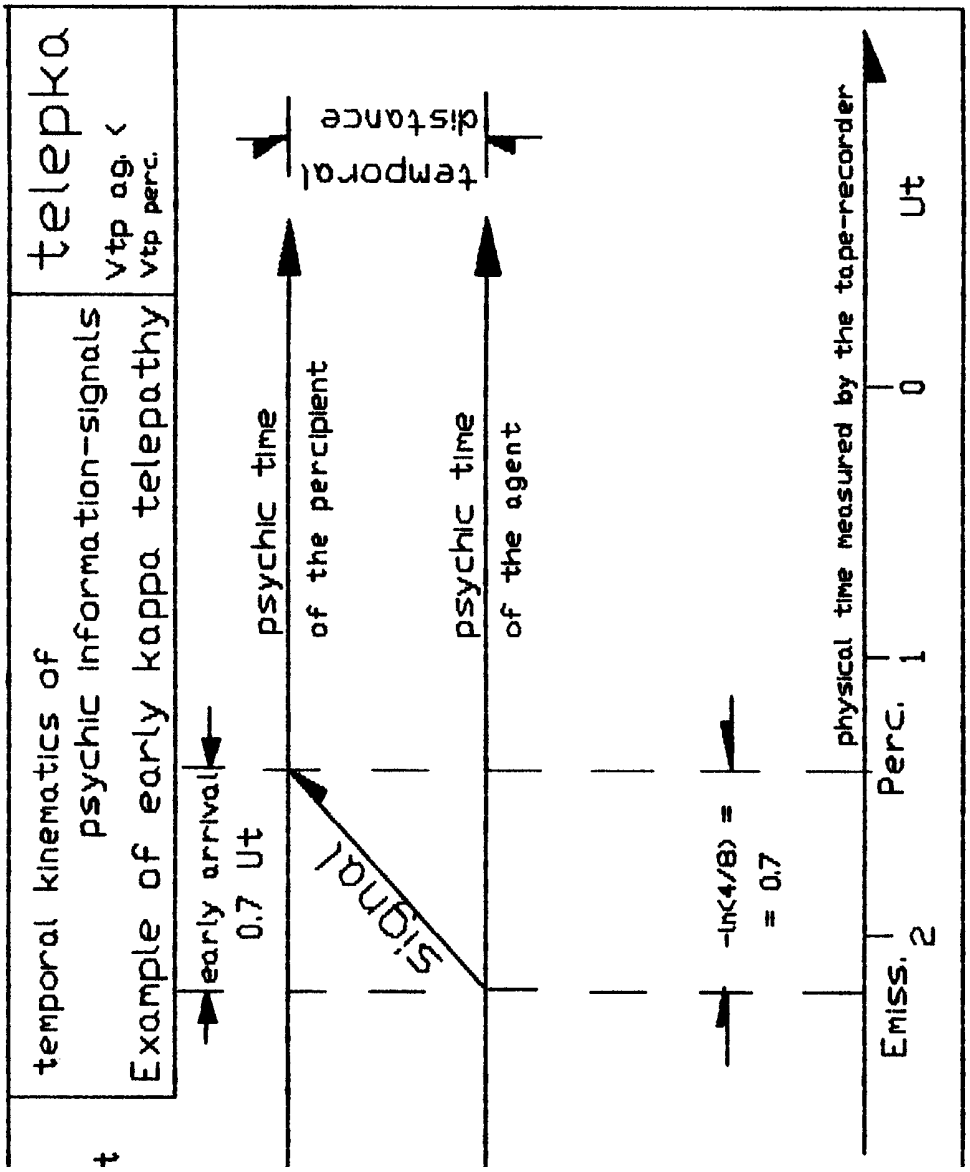

temporal kinematics of
psychic information-signals
Example of delayed gamma telepathy
telgamr
vtp perc. >
vtp ag.
delay
-0.7 Ut
psychic time
of the percipient
psychic time
of the agent
temporal
distance
signals
-ln(8/4)=-0.7
physical time measured by the tape-recorder
2
1
0
Ut


√tp
lnVtp
Ut/Ut
Ut
temporal kinematics of
psychic information-signals
Example of early gamma telepathy
telgama
Vtp perc. <
Vtp ag.
early arrival
0.7 Ut
8
2.08
psychic time
of the agent
signals
4
1,38
psychic time
of the percipient
temporal
distance
flow speed of psychic time
temporal perception
-ln(4/8) =
= 0.7
1
physical time measured by the tape-recorder

49


Vtp
lnVtp
Ut/Ut
Ut
temporal kinematics of
psychic information-signals
Example of delayed kappa telepathy
telepkr
Vtp ag. >
Vtp perc.
delay
-0.7 Ut
8
2.08
psychic time
of the agent
signal
4
1.38
psychic time
of the percipient
temporal
distance
flow speed of psychic time
temporal perception
-ln(8/4)=-0.7
physical time measured by the tape-recorder
Perc.
2
Emiss.
1
0
Ut
1

50


telepka
vtp ag. <
vtp perc.
temporal kinematics of
psychic information-signals
Example of early kappa telepathy
t
early arrival
0.7 Ut
psychic time
of the percipient
psychic time
of the agent
temporal
distance
signal
doubis
-ln(4/8) =
= 0.7
physical time measured by the tape-recorder
Emiss. 2
Perc. 1
0
Ut

C - PSYCHOPHONY

1 - Voices on tape and radio voices

Whereas in the Anglo-Saxon world paranormal voices are designated as Electronic Voice Phenomenon (E.V.P.), in Italy the term used by those who believe that all paranormal voices come from the deceased is *metafonia* (metaphony), while parapsychologists speak of *psicofonia* (psychophony). I propose to use the expression P.E.R. (Paranormal Electromagnetic Recordings) for those voices which are recorded on tape with a microphone but are not heard by the people who are present during the recording; and D.R.V. (Direct Radio Voices) for those voices which come directly from the loudspeaker of a radio receiver. Indeed, I feel it is appropriate to divide Paranormal Electronic Voices (P.E.V.) into these two separate and distinct type of phenomena, even though the processes which generate them are essentially the same in both cases.

Principal Characteristics of P.E.R.

As a rule, P.E.R. arise in the presence of ambient noises, and either cover these noises or appear in the intervals of silence. Sometimes they occur in conditions of total silence - a silence which is, however, relative when it is the human ear that is judging it. This is because ambient noises may not be detected either when they are composed of frequencies higher or lower then those which the human ear is capable of picking up, or when they are in any case too weak to be picked up (although they are in any case picked up by a microphone). Furthermore, we should not forget that in certain conditions the tape recorder may reveal and record carrier waves, or be affected by the same electromagnetic disturbance which affects a radio receiver.

Principal Characteristics of D.R. V.

Similarly, D.R.V. occur in the presence of carrier waves which can as a rule be heard through the loudspeaker, either transforming the encoded sounds or cropping up in the intervals of silence. Sometimes they arise in conditions of radio blackout, which, like ambient silence, must be considered relative when it is judged by the human ear. There is always a minimum sound level, which is called noise (white background noise). If D.R.V. have the same intensity as this noise, then they can be attributed to encoding of the latter. But if D.R.V. intensity is greater than the noise, then D.R.V. can be attributed to a transformation of spraying, or fragments of modulated carriers which may now and then picked up by a radio receiver as a result of events occurring in the reflecting ionized layers of the

atmosphere.

Characterictics common to both P.E.R. and D.R.V:

All voices share a basic characteristic: when two or more tape recorders of the same type are running in the same conditions, they do not simultaneously record the occurrence of the same P.E.R.; and when two or more radio receivers of the same type are all tuned to the same frequency, they do not simultaneously give the same D.R.V.

In general, the voices claim to come from the deceased, but there are also cases in which the deceased are replaced by alleged extraterrestrials. The only proven fact - because it is the only fact that can be proven - is that in many cases these voices convey the conscious or unconscious thoughts of living people.

The paycholinguistic explanation of P.E.R. is that they are purely subjective phenomena, the result of the listener's subjective interpretation. But having once excluded those cases in which such an explanation appears to be valid, the experience of P.E.R. clearly shows that the unexplained cases are necessarily *psychokinetic phenomena which do not lead to the production of electroacoustic phenomena, but transform all available phenomena of this kind.* At the same time it should be understood that when we get down to the actual interpretation of the voices, psycholinguistic phenomena cannot be ignored, as they cannot be ignored in interpreting normal recordings.

The experience of D.R.V. confirms the experience of P.E.R., and brings us to the same conclusion. This accord between the two types of voices is indeed predictable, since both tape recorders and radio receivers are affected by the same electroacoustic phenomena.

2 - Can paranormal voices be explained with a physical model?

As matters stand, if we were to offer a physical explanation for paranormal voices, we would have to assume the ability on the part of a living or bodiless human operator either to send radio waves to the tape recorder or radio set, or to influence the apparatus by means of electromagnetic induction. Furthermore, in both these cases we would also have to assume that there is some acoustic modulation and a specific tuning between the human operator and the machine in question.

Theories of this kind imply that the purported human emissions are so strong that they would in any case be picked up by measuring instruments. Yet nothing of the kind has hitherto taken place.

In view of this, and given the present state of our knowledge of physical

phenomena, three lines of thought are possible.

The first implies that we negate the presence of a psychokinetic phenomenon, ascribing the occurrence of P.E.R. and D.R.V. to incorrect interpretation of normal electroacoustic phenomena. This is *the paycholinguistic explanation.* The weakness of this reductionistic view is that it interprets the evidence solely on the basis of the aspects which the voices share with any other verbal production, thus forcing us to ignore a vast number of cases in which this explanation is clearly inadequate.

The second line of thought posits that a living or bodiless human operator emits, or utilizes, areas of nature which are still unknown to physicists, and which come to bear on the energy fields involved. This is *the paraphysical explanation (1).*

But hitherto all the contraptions constructed with the object of picking up paranormal voices (or at least improving their quality), and planned in accordance with paraphysical hypotheses, have all met with the same dismal failure.

The third possible explanation sees psychophonic phenomena as being part of the general system of paranormal phenomena. It brings into play a known ens, the mind, and posits the universal presence in nature of that other ens, paychism, which is closely related to the mind.

Meanwhile, as we await further progress in physics, I think we can propose a model which does not rely on hypothetical physical supports for information signals, and can be employed by the supporters of both the "psychophonic" and the "metaphonic" theories, since the question of whether the mind is incarnate or not is not crucial to this model.

It is obvious that such a model cannot be expected to represent things as they are in reality, but can only offer *a clear explanation of the entire case history concerning such phenomena, and suggest experiments which, if they give results inconsistent with the Model, will allow ug to proclaim the inconsistency of the model itself.*

I believe that the psychotemporal model can meet these requirements: and those people who have experienced paranormal voices will have no trouble in realizing this fact.

FOOTNOTES:

(1) In this connection, the experiments now being conducted by Mr. Daniele Gullà of Bologna are interesting. Mr. Gullà believes that the phenomenon is due to the hypothetical gravitons.

3 - P.E.R. and D.R.V. phenomena in the light of the psycotemporal model

Since P.E.R. and D.R.V. are not the result of the production of electroacoustic phenomena in broadcasting, but rather of the transformation

of any available phenomena of this kind, the mind must be aware of their presence before it can actually transform them. *Thus, in addition to psychokinetic phenomena, it is correct to posit also the presence of psychoscopic phenomena.*

All physical phenomena involved in the production and playback of paranormal voices share *an encoding system which leads, or way lead, to meaningful sounds,* and which is an essential part of the psychism of physical phenomena. Thus the psychic signals involved - both psychoscopic and psychokinetic ones - are carriers of meanings occurring in accordance with a common code.

It should, therefore, be clear that when I speak of *the Psychism of a tape recorder,* I am referring to the complex of physical phenomena which are associated with it, such as acoustic waves in the air, mechanical vibrations occurring in the diaphragm of a microphone, variable currents in its circuits, variable magnetic fields in the recording head, as well as the direction of the tape's micromagnets.

And when I speak of the *psychism of a radio receiver,* I mean the complex of the variations of electrical power along the aerial, the variation of currents in high- and low-frequency circuits, mechanical vibrations of the loud-opeaker's cone diaphragm, and acoustic waves in the air.

And, finally, when I speak of *mind,* I am also bringing into the picture the psychism of acoustic waves in the air, the mechanical vibrations in the human eardrum, the cochlea's potential variations, the impulses running inside the acoustic nerve, and the bioelectrical signals in the circuits of the central nervous system.

When P.E.R. are primed from ambient sounds, and when the radio loudspeaker brings to the operator the priming sounds of D.R.V., the extrasensory perception of psychic signals is added to the operator's perception of the supporting (acoustic) physical sounds, which thus run through his biophysical circuits. In the first of these cases, the operator's mind receives the signals emitted by the tape recorder's psychism. In the second case, it receives the sounds broadcast by the radio receiver's psychism. In both cases it receives them in conjunction with the signals related to the psychism of his hearing organ, whose intensity is proportional to the sounds he hears. But if the operator cannot hear the recorded sounds (for example, when in the case of P.E.R. the tape recorder receives modulated radio carriers, and when in the case of D.R.V. the loudspeaker does not emit sounds), then his mind receives only the signals emitted by the psychism of the tape recorder or the radio set, and the perception of supporting physical signals disappears.

Of these two cases, it is the first which is most favourable to the formation

of paranormal voices. This is because the sources of the psychic signals are doubled.

However, the conditions which are essential to the production of paranormal voices are twofold: first, the human operator's state of consciousness must be such that the speed of his inner time is different from the speed of physical time; second, that the psychisms of the equipment are connected to signals which lead to, or are in any case capable of leading to, a meaningful sound.

Even a so-called "pure" sound, which is not modulated, but only conceptually endowed with a frequency and intensity, can be invested with a particular or symbolic emotional connotation.

Since so-called white noises coming from a radio receiver are composed of a vast range of frequencies, they are in themselves sufficient to stimulate significant psychical reactions, even though in this case the "voices" have a very low intensity.

There are some noises (such as sirens or the blowing of a horn) and non-verbal productions (such as the barking of a dog) which have a meaning and in this case are employed as if they were musical or verbal texts. Experience shows that continuous and meaningful acoustic events are usually those that lend themselves beat to being transformed into voices. This is an important clue, for on the basis of the normality-paranormality parallelism posited earlier, we obtain confirmation of Liberman's paycholinguistic theory, which states that the process of verbal decoding involves the unconscious impulse to encode what is being decoded. The best stimulation for the voices is obviously human speech.

The intensity of the electromagnetic signals is directly proportional to the intensity of the acoustic signals, of which they are the transduction. The ratio between the intensity of the electromagnetic signals and their speed - since this speed is constant and equal to the speed of light - varies in proportion to the intensity of the signals.

By positing that the intensity-speed ratio of psychic signals is maintained, we can deduce that the intensity of the psychic signals is proportional to the product of the intensity of the physical signals times the speed of psychic time.

As for the signals emitted by the psychisms of the electroacoustic apparatus (both tape recorder and radio receiver), their intensity is proportional to the intensity of the physical signals. This is because in that case the speed of psychic time is equal to the speed of physical time, hence unitary. This means that the higher the intensity of the signals recorded by the microphone, or the higher the intensity the radio signals revealed by the tape recorder, the higher is the intensity of the signals emitted by the tape recorder's psychism.

And, similarly, the higher the intensity of radio signals picked up and revealed by the radio set, the higher is the intensity of the signals emitted by the psychism of the radio set.

It is a common experience that to produce P.E.R. the sounds recorded "live" constitute a stimulation which is far more effective than if one records sounds previously recorded on another tape recorder.

Considering the fact that in the latter case there are two tape recorders functioning - one playing back, and the other recording - we see that the probability of receiving "voices" on the second tape recorder is halved. Furthermore, although in some cases we could seriously envisage the possibility of "voices" occurring on a tape which is being played back (when, for example, one plays back a tape a second time and notices some changes), this phenomenon actually occurs quite rarely. Thus, while the probability of obtaining paranormal effects on the tape recorder which is recording is cut in half, there is also very little probability of noticing changes on the tape which is functioning as a primer (provided one is looking for such changes, which is usually not the case).

Applying the psychotemporal model to P.E.R. and D.R.V., the foregoing discussion yields the following:

1) For the psychic signals involved here, we should use decimal and not natural logarithms, thus using the following formula for the temporal sensations:

$$S_t = - \log(iVt_p)$$

in correlation with Fletcher's decimal logarithm scale, which is used to measure the intensity of the sensations produced by acoustic signals, as well as the decrease or increase in the intensity of a radio signal.

The limits of the temporal sensations are:

$$S_t = -\log(l/ic) = \log ic \qquad \text{for } iVt_p = l/ic$$

$$S_t = -\log ic \qquad \text{for } iVt_p = ic$$

2) Secondly, there now comes into play the theoretical deduction that in the course of the fourth (real) phase of the paychotemporal wave there occurs an interchangeability between signals of the acoustic type (arising from the psychism of the human hearing organ and the psychism of the tape recorder), and the mind's autonomous and unconscious levels, which are of the auditory type.

Thus a PK signal which is sent in this fourth and real phase as a reaction to a psychoscopic phenomenon involving electroacoustic broadcasting equipment, may carry unconscious material if the mind

receiving the signals is not in a normal waking state. This is because when the speed of psychic time is equal to the speed of physical time the psychotemporal wave does not occur.
In brief, we *can regard psychophonic phenomena as the final product of,*
1) a process of psycostinulation due to psychoscopic signals, and
2) a psychoinductive process due to psychokinetic signals.
Since psychoscopic phenomena can, as we know, be of the kappa or gamma types, we *can speak of kappa psychophony and gamma psychophony*, depending on whether the phase of psychostimulation involves paychoscopic phenomena of the kappa or of the gamma type.

3. 1. - *Psychophonic phenomena of the kappa type*

In kappa psychophony, the mind - without requesting them - unconsciously picks up the signals emitted by the ps;ychism of the tape recorder or radio receiver.

If these are the result of very short sounds devoid of meaning, such as a note played on the piano or the sound of an object striking a table top, then the psychokinetic signal is similar to the primer and comes, as we shall see later, either before or after it, depending on whether the speed of inner time of the reacting mind is lower or higher then the speed of physical time, in accordance with the mind's state of consciousness. But when these signals are the result of sounds lasting for a certain time, and/or invested with meaning (such as a more complex noise, a melody or a spoken word), then the psychokinetic signals are coloured by the reacting mind's unconscious materials, and thus, as already mentioned, temporally out of phase in relation to the primer.

3.1.1 - Kappa P.E.R.

3.1.1.1 - Psychophonic raps

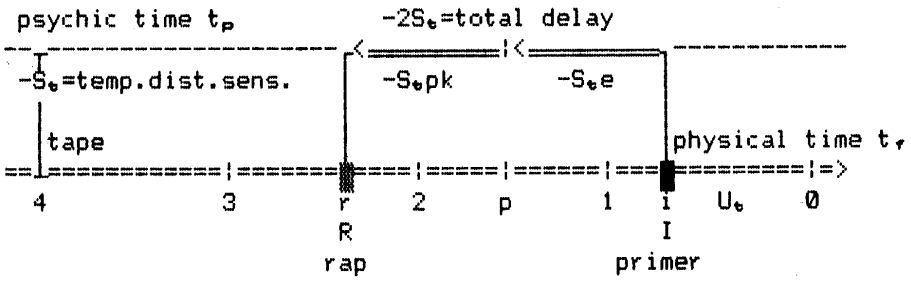
In order to understand how, in the framework of kappa psychophony, voices occur on the tape, we have to examine the first of the above cases, in which the available sounds are of the impulsive type and of brief duration, such as knocks. In this case the voices are nothing more than simple raps, and the subjective factor in interpreting them, which is the mainstay of the psycholinguistic explanation of this phenomenon, can obviously be ruled out.

Let us see the interaction between priming acoustic events (knocks), paychoindued events (raps), and the tape of a recording machine.

As mentioned earlier, the tape runs past the recording head in the same direction as physical time. The head's role is that of an observer and,

starting from no. 0 of the time count, it will record on the tape the units of physical time, such as the seconds elapsing on a watch. At a given moment **r** the head finds section **r** of the tape directly in front of it, and records the priming acoustic event **I**.

The tape recorder's psychism now sends to the operator (whose temporal distance from the physical time plane is quantified with the sensation S_t) a paychoscopic signal of the kappa type which reaches him in the instant **p**, *after* the temporal quantum $-S_t\ e\ (= -S_t)$, *if the speed of his own psychic time* V_t *is greater than the spoee of physical time.* If the signal encounters tee real phase of the psychotemporal wave, then there will be a psychokinetic reaction **R** which departs in the same instant **p**, reaches the paychism with an additional delay $-S_t pk = -S_t = S_t$ e and is recorded in instant ***i***, when the head is in front of section **i** of the tape. Thus, in relation to the knock, the rap **R** is recorded on the tape with a total delay of $-2S_t$.



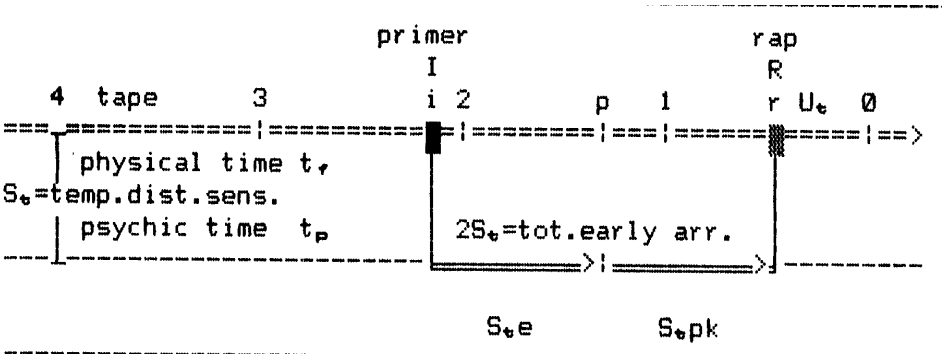
For greater clarity consult the graph postrap in Appendix Cl.

Thus *when the tape is played back we hear the rap coming after the sound that prized it.* In other words, we hear the effect coming after the cause, as we would normally expect.

But if the operator's flow speed of inner time (whose temporal distance from the time plane can be quantified with the sensation S_t) is *less than the speed of physical* time, then the psychoscopic signal kappa emitted by the tape recorder's paychism will reach the operator's mind *before* the quantum $S_t e = S_t$. If the signal encounters the real phase of the psychotemporal wave, there will be a psychokinetic reaction **R** which reaches the tape recorder with an additional early arrival of $S_t\ pk = S_t\ e = S_t$.

Thus , in relation to the knock, the rap **R** is recorded on the tape with a total early arrival of $2S_t$.

For greater clarity consult the graph antrap in Appendix Cl.



In this case, the effeet (the rap) is recorded before the cause (the primer). This is a direct result of the fact that the psychic signals "flow" in time at a speed greater than that of light. As Mary B. Hesse says: "If a causal action were propagated in some reference system with a speed greater than that of light, the causal ordinal of cause and effect would be overturned into some other system" (1).

We could object to this that when we hear the raps, all the acoustic events already belong to the past. But if, as is possible, we use earphones to follow the recording while it is taking place, then we will hear the raps before hearing the knock that will prime the raps - we will, in short, be predicting the future. He can only infer from this observation that the cause-effect relationship is not necessarily linked to the temporal succession of cause-effect: for this relationship is maintained even when the succession itself is inverted. On the same page, Hesse goes on to say: "The common notion of cause and effect is such that, 'having posited the cause, there follows the effect,' while it is not necessarily true that 'given an effect, we get that particular cause' - namely, the causal relation is asymmetrical."

Since in our case it becomes "necessarily true" that "given an effect, we get that particular cause," this means that the bond remains in the form, "having posited the cause, this produces the effect" which means, precisely, that the cause-effect relation is not necessarily linked to the temporal succession. Time goes on with its invariable and irreversible arrow; but *the Mind can "know" the events in inverted succession.*

For different reasons, and in different ways, raps can be multiple.

Indeed, once it has been recorded, a rap can act as a priming knock, producing a second rap in accordance with the process described above. This is due to the fact that the new psychoscopic signal again meets up with the real phase of the psychotemporal wave (see Section 2.).

The second rap can itself act as a primer, producing a third rap, and

this can go on for the entire duration of the paychotemporal wave. The intervals between the multiple raps are in this case equal to the interval between the primer and the first rap.

But at times it happens that the intervals between multiple raps are equal to half of the interval between the primer and the first rap, and in this case it is quite obvious that the psychoscopic signals coming after the first one have encountered the real phase of the second harmonic of the psychotemporal wave. This corroborates the theoretical assertion that the psychotemporal wave exists and that it possesses harmonics.

Multiple raps can be delayed or early. For greater clarity consult the two graphs rapmulta and rapmultp in Appendix Cl.

As already stated, multiple raps corroborate the theoretical assertion that the psychotemporal wave exists and that it possesses harmonics. But there is also another important clue substantiating this theoretical assertion.

Most experimenters of paranormal voices now use cassette recorders in which the tape runs at a constant speed of 4.75 centimetres per second.

Others, however, use tapes on spool, and in this case the tape can run at different speeds, according to the sound quality one wishes to have. In general, these different running speeds are standardized thus:

- first speed = 4.75 cm/s
- second speed = 9.50 cm/s = 2 x 4.75
- third speed = 19.00 cm/s = 4 x 4.75
- fourth speed = 38.00 cm/s = 8 x 4.75

We all know what happens when sounds recorded at a high speed are played back at a lower speed.

If, for example, we use the fourth speed (38 cm/s = 8 x 4.75) to record a note with a frequency of 3600 cycles per second for the space of 1 second, when we play it back at the third speed we will hear a note which is one octave lower, or a note with a frequency of 1800 cycles per second, lasting 2 seconds.

If we play it back at the second speed, we will hear a note which is two octaves lower, or a note with a frequency of 900 cycles per second, lasting 4 seconds. And, finally, using the first speed, the note will be three octaves lower, or a note with a frequency of 450 cycles per second, lasting 8 seconds.

Ever since the days of the pioneers of psychophony - who often used tape recorders running at different speeds - it was discovered that certain voices were revealed only if they were played back at a speed different from the recording speed. This almost always occurred when tapes recorded

at the top speed were played back at the lowest speed. The sounds which at the fourth speed appeared to be short, shrill and ununderstandable hoots, became an intelligible paranormal message when played back at the first speed.

Konstantin Raudive and Friedrich Jürgenson report that they discovered many voices of this type, recorded both from the environment and the radio.

These paranormal voices, which appear to utter their message at the tempo of normal human speech when the speed of the tape is decreased, last eight times longer than the initial jumble of shrill and unintelligible sounds; and all the various acoustic frequencies of which they are composed, which are similar to those of a normal human voice, turn out to be eight times slower than the initial ones (for this, see the graph velnastr in Appendix Cl). He can usefully interpret these different running speeds if we regard the first speed as the first (or fundamental) harmonic of the tape's speed, the second speed as the second harmonic, the third speed as the fourth harmonic, and the fourth speed as the eighth harmonic of the tape's running speed.

Let us now suppose that the agent mind has formed the voice just as we hear it at the first speed, but has "psychoinduced" it as it is recorded at the fourth speed. Let us, in short, suppose that the mind has psychoinduced the eighth harmonic of the voice it has generated (perhaps in order to adapt to a recording speed eight times greater than the speed usually employed).

But the tape has not recorded the harmonies of a verbal text. These would last as long as the text itself, so that when we play back the sample at the first running speed (i.e., at a speed eight times less than the recording speed), although we would again get the initial acoustic frequencies, the voice would last eight times longer than the "formed" voice. We would get an utterance delivered at a speed eight times less than that of "normal" speech - a very slow and "slurred" speech. But, as we know, the paranormal voice which reveals itself when the tape runs at the first speed appears to be uttered at a "normal" speed.

But if we imagine that the tape recorder running at the fourth speed (which corresponds to the eighth harmonic of the fundamental speed) picks up the eighth harmonic of the psychotemporal wave, the duration of the text recorded at the fourth speed will be equal to one eighth of the real phase of the wave, while the various acoustic frequencies will be eight times greater than the initial ones. If we play back the tape at the fourth speed, the text is ununderstandable. But if we play it back at the first speed, we hear a voice with the same duration as the real phase, because it will again be multiplied by eight, and with acoustic

frequencies equal to the original ones, because they have again been divided by eight. In other words, we will exactly hear the voice formed on the fundamental psychotemporal wave, speaking at a normal speed.
Thus the phenomenon is fully explained only if we posit the existence of temporal harmonics, which can be produced only if a basic temporal wave also exists (see the graph ondpsarm in Appendix Cl).

FOOTNOTES:

(1) Mary B. Hesse, *Forces and Fields,* Thowas Nelson and Sons Ltd, Edimburgh, 1961.

3.1.1.2 - Kappa voices

What happens when a normal operator tries to get paranormal voices on tape? Although they are formed in the same way as raps, they are rather more complex. This is because raps can also function as primers and multiply, and also because the primers are in fact articulated sounds. But ultimately the *"voices" are to raps as bricks are to a mall.*

The production of psychophonic raps allows us to explain the production of what we called kappa voices. All we need to do is to replace the priming strikes with an acoustic event with a longer duration: say, a musical or verbal text.

It is obvious that in the case of raps the priming noise is usually such that one expects no meaning from it save for the pure and simple meaning of noise: the same goes for the psychokinetic "ricochet", since a rap is a muffled, impulsive sound, very close to the priming sound.

Nevertheless, even in this case the unconscious impulse which leads us to encode in accordance with our own specific dictates can be so strong that multiple raps occurring in close sequence are sometimes used for the rhythmical enunciation of a real voice.

If the percipient's speed of inner time is unitary, i.e., if the psychophonic operator is in the alert making state of consciousness, with his attention directed to what is going on around him, then no psychotemporal wave will occur, thus no voices mill be generated.

Thus for kappa psychophonic phenomena, only two possibilities can be advanced:

First Possibility: **the flow speed of inner time tire in the percipient's mind is less than one.**

The psychophonic operator's state of consciousness must in this case be capable of producing a slowing down of his inner time: for instance, we know that this occurs if he concentrates on a problem which he has troubles in solving.

As regards the first phase of the kappa psychophony phenomenon, *the kappa psychoscopy phase,* let us bear in mind that in the framework of the first possibility *the percipient receives information from the psychism of the object which is temporally in tune with events which for him belong to the future.* This is because the signal emitted by the object's psychism reaches the percipient before the moment of emission.

If a complex of sounds with a certain duration is recorded, this means that the percipient mind unconsciously receives the information signal from the tape recorder's psychism a certain period of time before the moment in which the sounds actually occur in physical time.

As regards the second, or *psychokinetic phase,* let us remember that in the framework of the first possibility the signals emitted by an agent experiencing a flow speed of inner time which is less than regular time, reach the object's psychism before the moment of emission, that moment in which, as we have seen, the agent in the role of the percipient receives kappa psychoscopy signals from the tape recorder's psychism. And since the ratio between the two flow speeds remains the same as the one in the psychoscopic phase, the early arrival of the psychokinetic phase is equal to that of the preceding phase. These two early arrivals *add up and project themselves into physical time, vhich is the time in which the tape recording is baking place.* This is why the complex of sounds, now invested with those unconscious materials, goes back to the tape recorder's psychism and is there encoded in accordance with meanings which are different from those conveyed by the sounds which acted as primers: in other words, the sounds become a paranormal voice arriving before the primers.

If the operator finds himself in the abovementioned state of consciousness, it may occur that during playback he hears a voice against a silent background which has "manipulated" ambient noises which the operator could find and recognize by moving the tape forward. This is because these ambient noises occurred after, and not in the course of, the recording of the voice. (For greater clarity see the graph Kantvoci in Appendic Cl.)

***Second possibility*: the flow speed of the percipient's inrber time is greater then one.**

The psychophonic operator's state of consciousness must in this case be capable of producing an acceleration of inner time: for instance, we know that this occurs if he falls into the state of consciousness known as "daydreaming".

As regards the *kappa psychoscopy phase,* let us bear in mind that in the

the framework of the second possibility *the percipient receives information from the psychism of the object which is temporally in tune with events vhich for him belong to the past,* since the signal emitted by the object's psychism reaches the percipient after the moment of emission.

If we record a complex of continuous sounds with a certain duration, this means that the percipient mind unconsciously receives the information signal of these sounds from the tape recorder's psychism a certain period of time after the moment in which the sounds actually occur in physical time.

As regards the *psychokinetic phase,* let us remember that the signals emitted by an agent experiencing a flow speed of inner time which is greater than that of the clock, reach the object's psychism *after* the moment of emission - that moment in which, as we have seen, the agent in the role of the percipient receives psychoscopic signals of the kappa type from the tape recorder's paychism. And since the ratio between the two flow speeds remains the same as the one in the psychoscopic phase, the delay of the paychokinetic phase is of the same entity as that of the preceding phase. These two delays *add up and project themselves into physical time, which is the time in which the tape recording is taking place.*

What happens when a normal researcher looks for paranormal voices? If he has placed himself in the daydreaming state of consciousness mentioned above for this particular case, it may occur that during playback he hears voices against a silent background which have "manipulated" ambient noises which the researcher could find and recognize by rewinding the tape. This is because these ambient noises occurred before the recording of the voices. (For greater clarity see the graph Kposvoci in Appendix Cl.)

3.1.2 - Kappa D.R.V.

If the carriers are tranaduced in a loudspeaker, an operator who is present perceives them simultaneously, and in his biophysical circuits they generate corresponding electrcochemical and electrical signals. But this circumstance does not appear to be essential to the process of psychostimulation, since paychostimulation also occurs when the loudspeaker is not emitting any sound.

The stimulation-induction process appears to accord with the psychological model linking motor reactions to perceptive stimuli.

In kappa paychoscopy, when paychoinduction occurs as a result of brief sounds devoid of meaning, such as, for example, sounds produced in the loudspeaker by electrical discharges, the loudspeaker gives out raps which

are similar to primers and which come either before or after them, depending on whether the reacting mind's speed of inner time (in accordance with its particular state of consciousness) is higher or lower than the speed of physical time. But when psychoinduction occurs as a result of sounds with a certain duration and/or invested with meaning - such as complex noises produced in the loudspeaker by a series of electrical discharges, or a melody, or a word - it is impressed with the reacting mind's unconscious materials, and, like the raps, is temporally out of phase with the primers.

D.R.V. are produced in the radio receiver by primers which are themselves due to the radio receiver's reception of modulated radio carriers. This is amply corroborated by the fact that paranormal voices heard to be coming from the radio loudspeaker "overmodulate" music or speech broadcast by radio stations. But it is not only in these conditions that tuning circuits emit barely perceptible signals which are equal to those they are receiving (and to which the information signals emitted by a tape recorder's psychism are most probably connected). Indeed, we must bear in mind the fact that even when the radio receiver is tuned to an ostensibly silent zone, its tuning circuits still continue to receive barely perceptible radio signals occurring on neighbouring frequencies. It is not a coincidence that operators who are looking for radio "voices" usually tune in to frequencies which are very close to the modulated carriers. This is why those who believe that primers are involved in every case are not contradicted by the production of voices in ostensible conditions of blackout, or during the silent pauses. But of course there are also the other reasons for this (such as early arrival or delayed arrival of the voices in relation to the primers) which I have already explained in the section on P.E.R.

He can thus venture the hypothesis that the percipient's psychostimulation is always due to information signals emitted in any case by the radio receiver's psychism - both when the loudspeaker emits sounds, and when it doesn't.

When the voices occur in the intervals between broadcasting, it is highly probable that we are witnessing a case of kappa psychophony, inasmuch as the voices could be due to a temporal phase difference in relation to the primers.

3.2. - *Psycophonic phenomena of the gamma type*

The formation of gamma voices is different from that of kappa voices because all three signals (the two psychoscopic signals, request and answer, and the psychokinetic signal) follow the same temporal route between the agent mind and the tape recorder's psychism.

3.2.1 - Gamma P.E.R.

In *Gamma psychoscopy,* it is the mind which requests the sending of paychoscopic signals. In sensitives this process is intentional, unlike kappa psychoscopy in which they adopt a passive attitude. This difference, which may be noted in certain cases and is due to the different modes of occurrence of the psychophonic phenomenon, could be of great interest in helping to formulate a psychodynamic or spiritualistic interpretation of the phenomena.

When the tape recorder transduces ambient sounds, an operator who is present perceives them simultaneously, and they generate in his biophysical circuits corresponding electrochemical and electrical signals. But this circumstance does not seem to be essential to the stimulation process, because stimulation also occurs when the tape recorder receives and reveals radio carriers, or when modulated currents are acoustically induced into its low-frequency circuits by means of a similarly modulated electromagnetic field. These are all cases in which the operator who is present does not perceive sounds.

In gamma psychoscopy, too, the stimulation/induction process appears to accord with the psychological model linking motor reactions to perceptive stimuli.

In *gamma psychoscopy,* all three signals - the request signal, the answering signal coming from the tape recorder's psychism, and the psychokinetic signal sent back to it - follow the same temporal route and are superimposed on the priming sounds on the tape. Thus when we make a microphone recording of ambient sounds, the ambient sounds seem to be overmodulated by the voices. (For greater clarity consult the two graphs gantvoci and gposvoci.)

3.2.2 - Gamma D.R.V.

The request signal, the answering signal coming from the radio receiver, and the paychokinetic signal sent back to it, follow the same route and are superimposed on the priming sounds on the loudspeaker. Thus the sounds produced by the loudspeaker appear to be overmodulated and manipulated to the point that they take on meanings which are different from the initial ones.

4 - Group phemmna

What we have said up to now is true only for a single operator.

This means that in any case the duration of the voices (when they do

occur) is as a rule limited to the duration of the wave's fourth (real) phase, except when it slightly exceeds the wave - with decreasing intensity - due to the possible presence of harmonics.

But matters are different when the psychophonic operators are *in group of four, or multiples of four.* Indeed in this case (and provided that the operators are able to attain the same state of consciousness, as well as phase and frequency coincidence of the psychotemporal waves) the psychotemporal theory predicts the possible occurrence of what I have called the "psychotemporal carrier". In this case, it is possible to come across psychophonic productions of quite some length, either finding them on tape (P.E.R.), or hearing them on the radio (D.R.V.).

In the Grosseto laboratory this has been happening for a good many years.

The inconsistencies in enunciation of the Groseeto voices would suggest that we are here dealing with kappa D.R.V. Indeed, the beat way of rendering them intelligible when played back is to vary the tape's running speed for each word group (in general for each sentence spoken by one of the alleged comunicants). There is one speed which proves to be optimal because it requires none of those psycholinguistic efforts which can easily lead a superficial listener to make glaring errors when interpreting the voices.

Single emissions last approximately two to three minutes, and are spaced out by intervals which usually last longer.

We can suppose that an emission lasts as long as the various psychotemporal waves coincide (and the inconsistency in the voices' enunciation shows this coincidence to be rather unstable); that the priming sounds (primed from radio carriers which cannot be heard on the loudspeaker) come either before or after the voices, depending on the case; and, finally, that the intervals are longer than the emissions because they not only serve, as it were, "to recharge the batteries", but must also allow the psychical accord between the operators to be re-established.

Furthermore, according to the alleged comunicants, the operators are *not on this side* (and thus compose what is called *eggregoro* in the Italian language). But this is a matter of opinion, and I leave it to my reader to accept or reject this view.

5 - Voice anomalies

The most f requent anomaly is the speed of the utterances, which can at times be slower, and at others faster, than the normal speed of utterance. This irregularity may well be due to the fluctuations in the speed of psychic time, which cause the psychotemporal wave also to fluctuate

In kappa psychophony - the following being applicable to both early and delayed voices - if the temporal distance $\mathbf{S_t}$ slows down with the speed of psychic time, then the psychotemporal wave comes closer to the axis of physical time and the psychokinetic signals give shape to a voice lasting less time than the sounds that primed them. This leads to a faster utterance and a shriller pitch. But if the temporal distance $\mathbf{S_t}$ increases with the speed of psychic time, then the psychotemporal wave moves away from the axis of physical time and the psychokinetic signals are diluted into a voice lasting longer than the sounds which primed the signals. This leads to a slower utterance and deeper sounds, and, furthermore, the rarefaction tends to "empty out" the words. The graphic representations kantvocv, kantvoer, kposvocv and kposvocr, in Appendix Cl, give clear evidence of these phenomena.

6 - The so-called bridge

Another important circumstance emerges from the theoretical framework we have hitherto set up. The signals involved in psychophony necessarily flow in succession between the paychism of a particular apparatus and the operator's mind.

The foregoing explains the regular occurrence, already described above, whereby several tape recorders of the same type and functioning in the same conditions never yield the same P.E.R. simultaneously; and why, also, several similarly tuned radios of the same type never yield the same D.R.V. simultaneously.

In brief, the psychic signals are not propagated in all directions, like radio waves emitted by a non-directional aerial, but along a "Wave guide" - a bridge established between the operator and the equipment.

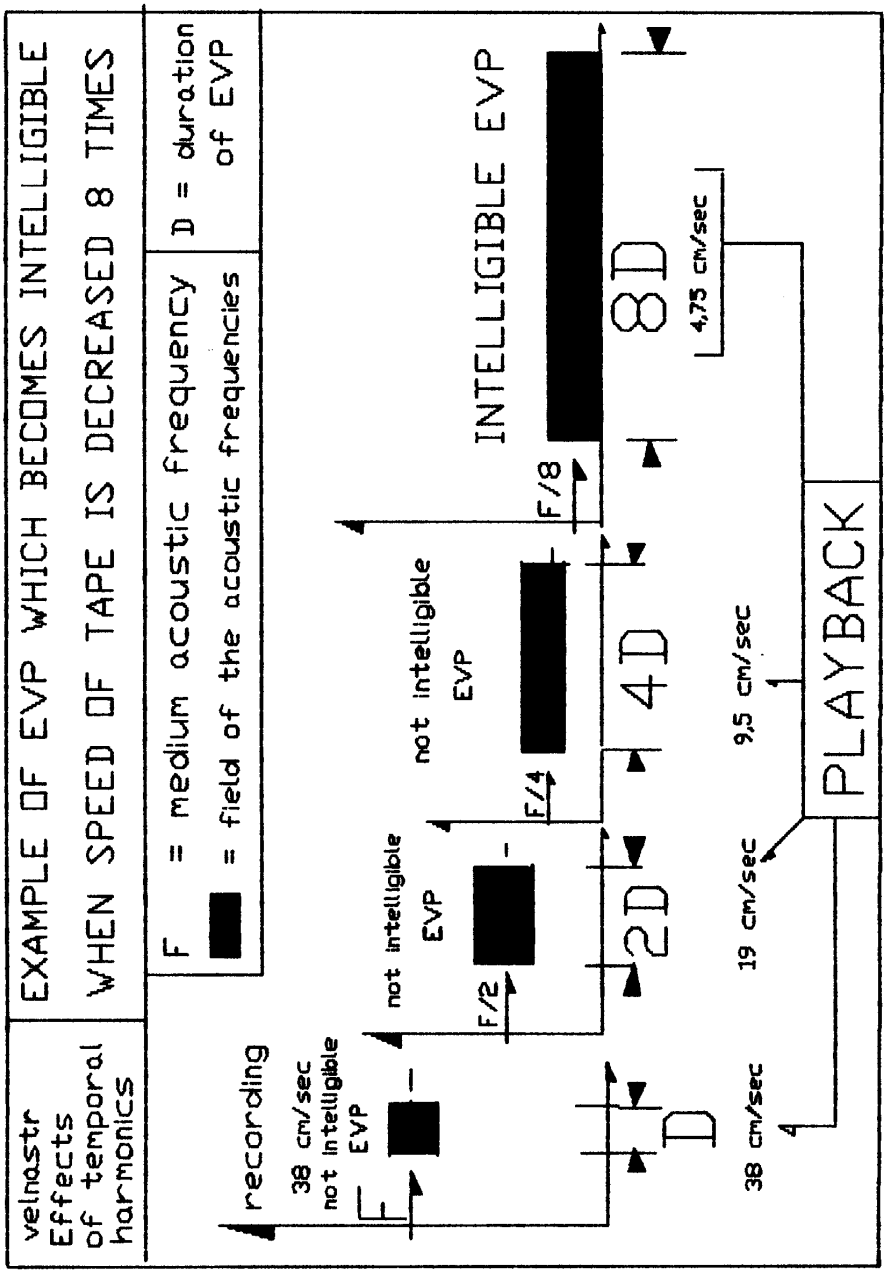
If we look at the graphic representations illustrating this text, this image of a bridge (a term which has in any case been used since the very inception of psychophonic experiments) does not appear to be unjustified.

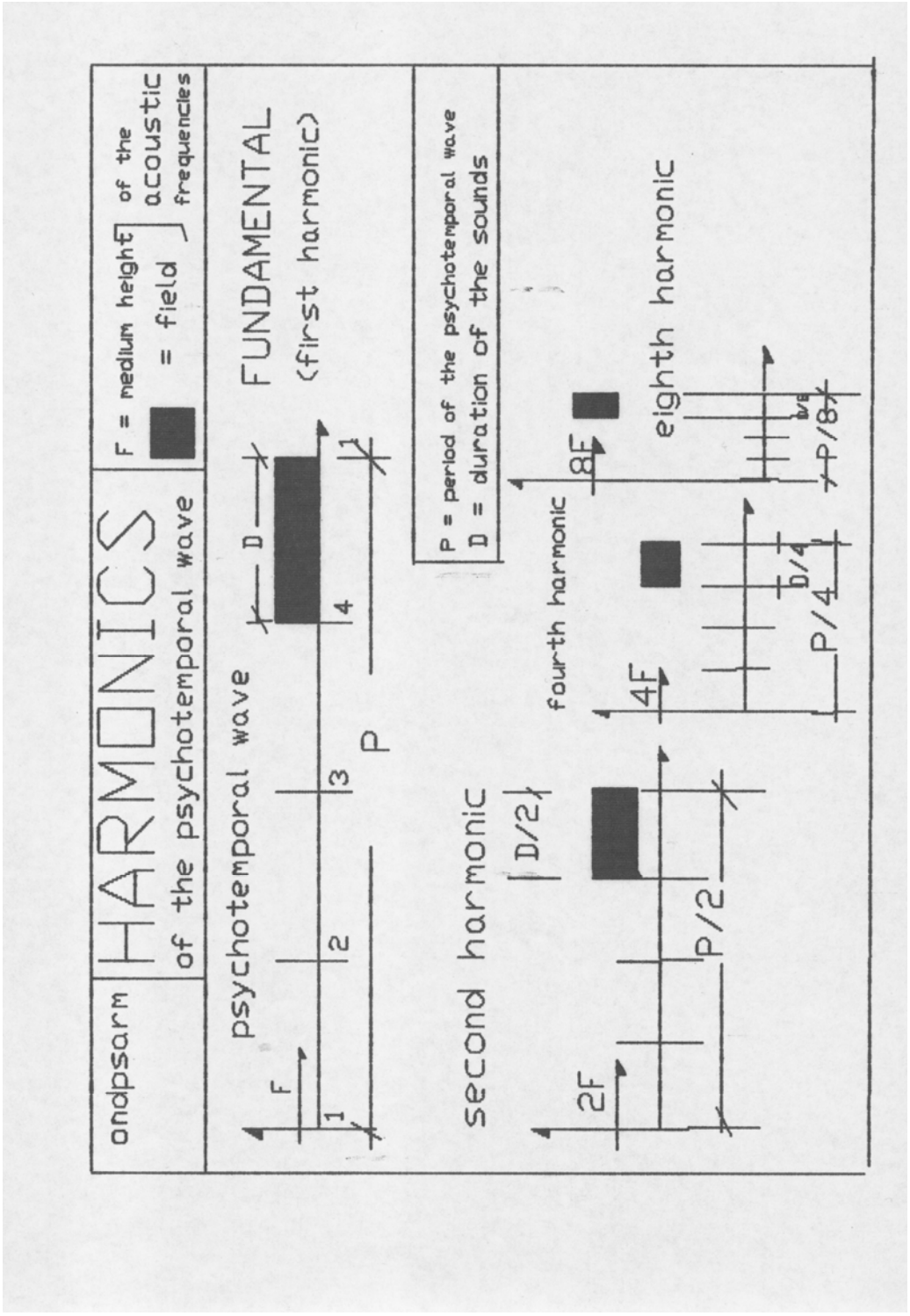
When we listen to a recorded conversation between two people, and during the intervals of silence we come upon voices which are entirely unaffected by overlapping, it is extremely probable that they have been produced neither by the speaker nor by the listener, but rather by a third, psychical, agent, who has used the recorded speech sequences to project his own thoughts.

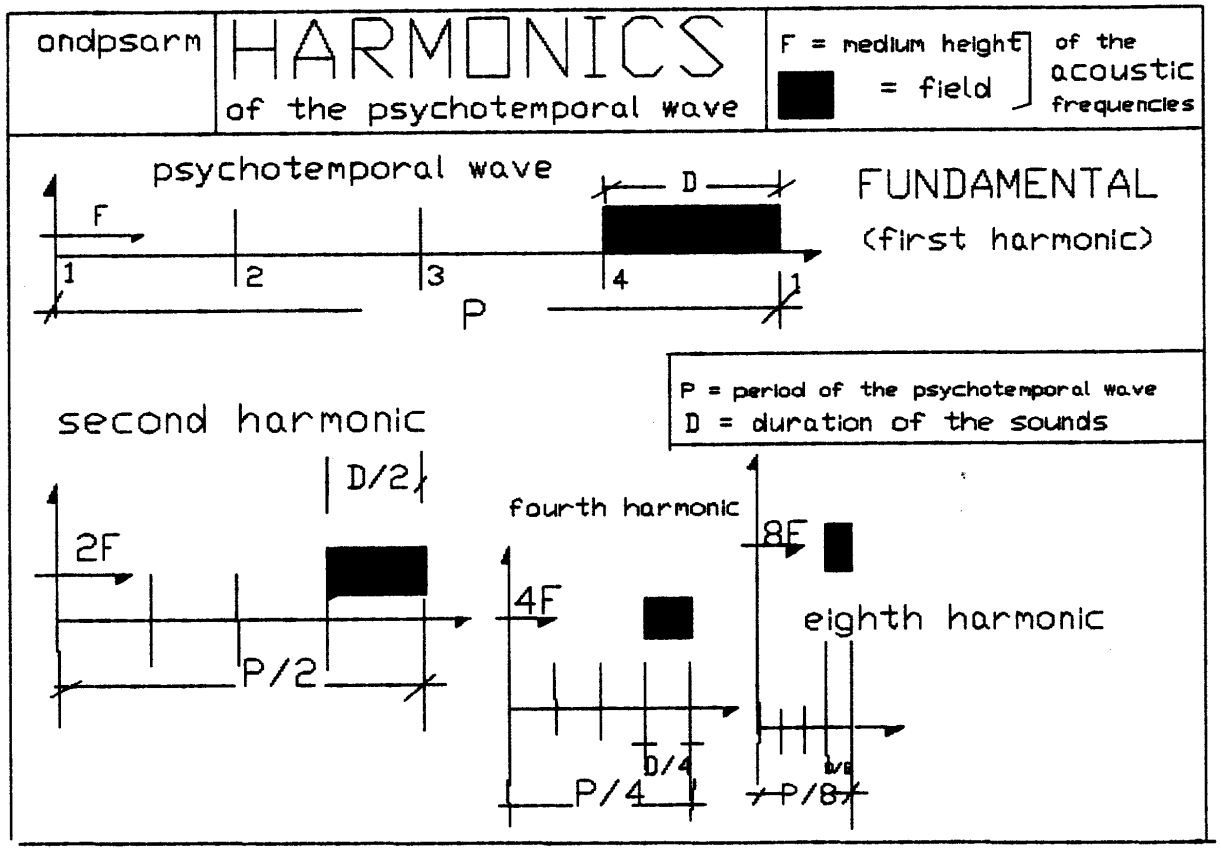
But when we come across partially overlapping voices due to a delayed or early arrival, there is a good chance that if the overlapping is delayed we are dealing with paychokinetic answers given by the listener.

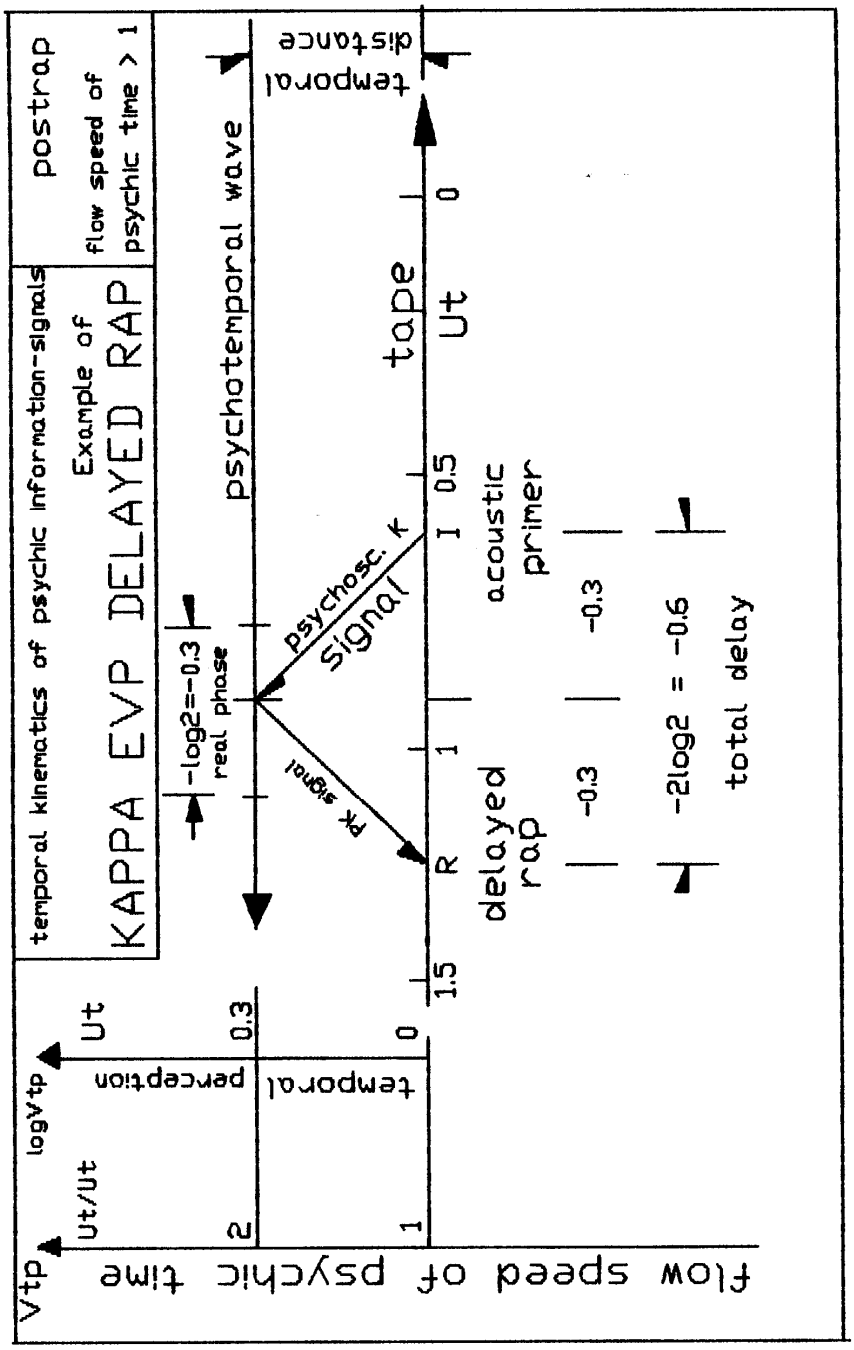
APPENDIX C1

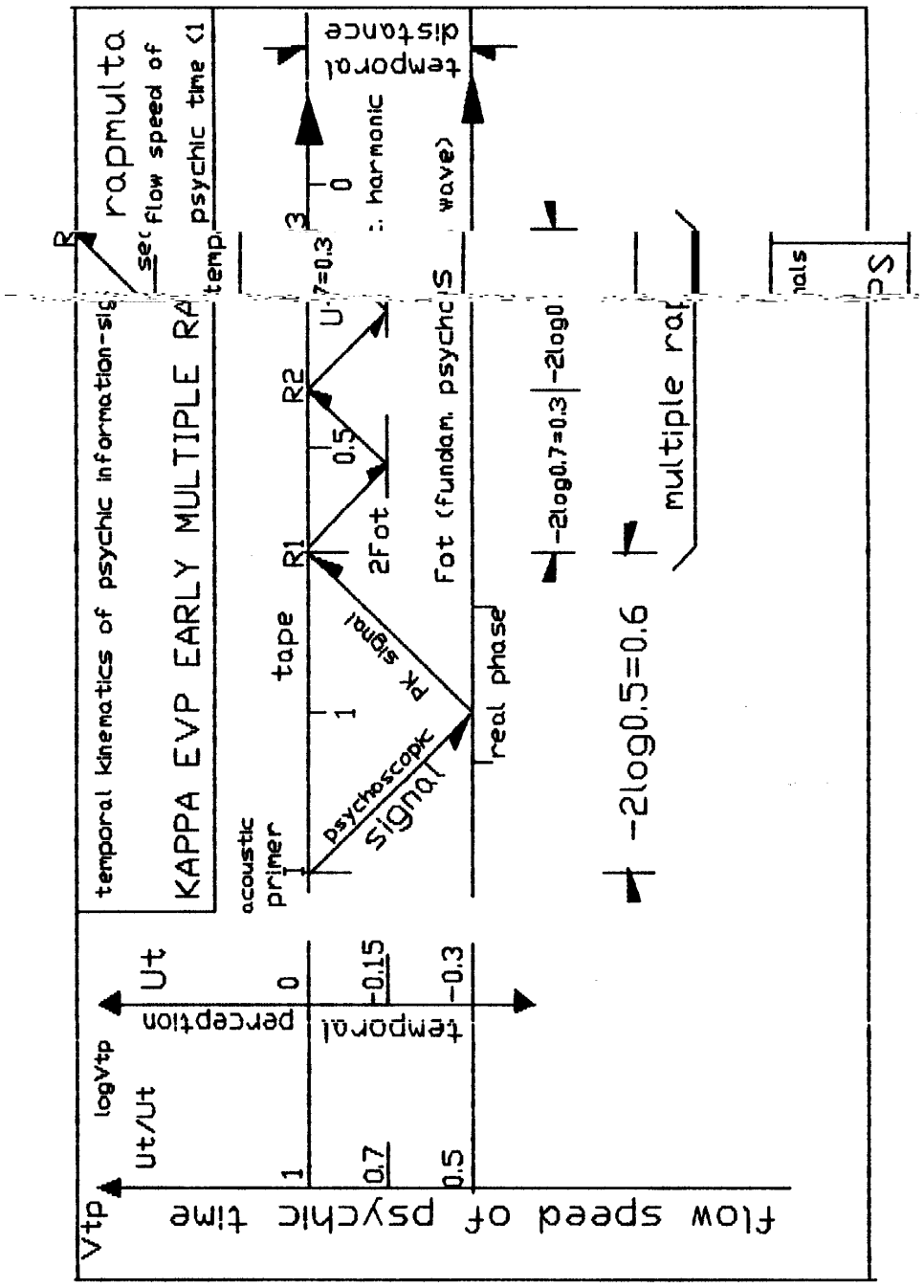
18 graphs

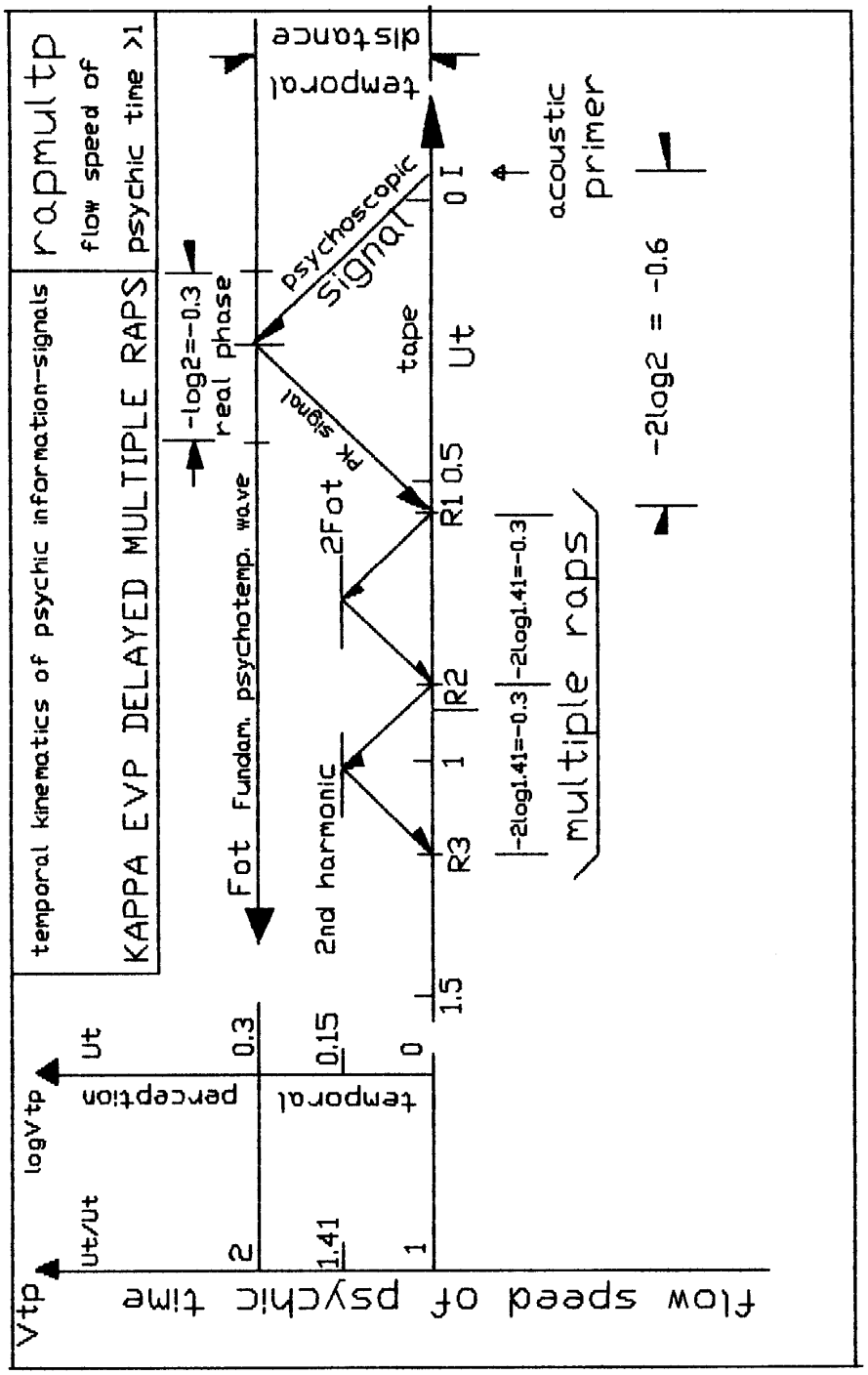

velnastr
Effects
of temporal
harmonics
EXAMPLE OF EVP WHICH BECOMES INTELLIGIBLE
WHEN SPEED OF TAPE IS DECREASED 8 TIMES
F = medium acoustic frequency
= field of the acoustic frequencies
D = duration
of EVP
recording
38 cm/sec
not intelligible
EVP
not intelligible
EVP
not intelligible
EVP
INTELLIGIBLE EVP
F/2
F/4
F/8
D
2D
4D
8D
38 cm/sec
19 cm/sec
9,5 cm/sec
4,75 cm/sec
PLAYBACK

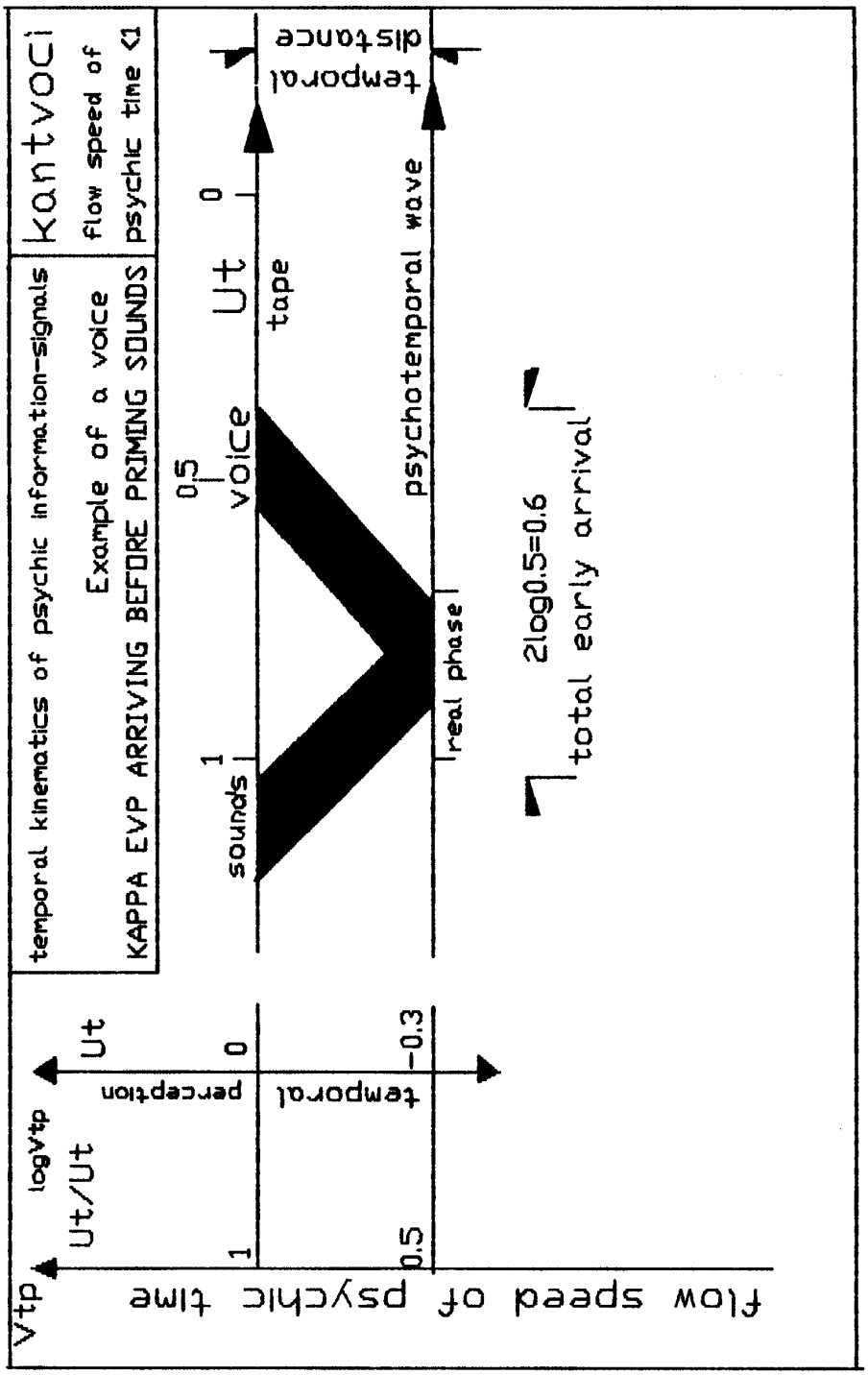

ondpsarm
HARMONICS
of the psychotemporal wave
F = medium height of the acoustic field frequencies
psychotemporal wave
FUNDAMENTAL
(first harmonic)
F
D
1
2
3
4
P
P = period of the psychotemporal wave
D = duration of the sounds
second harmonic
D/2
2F
P/2
fourth harmonic
4F
D/4
P/4
eighth harmonic
8F
P/8

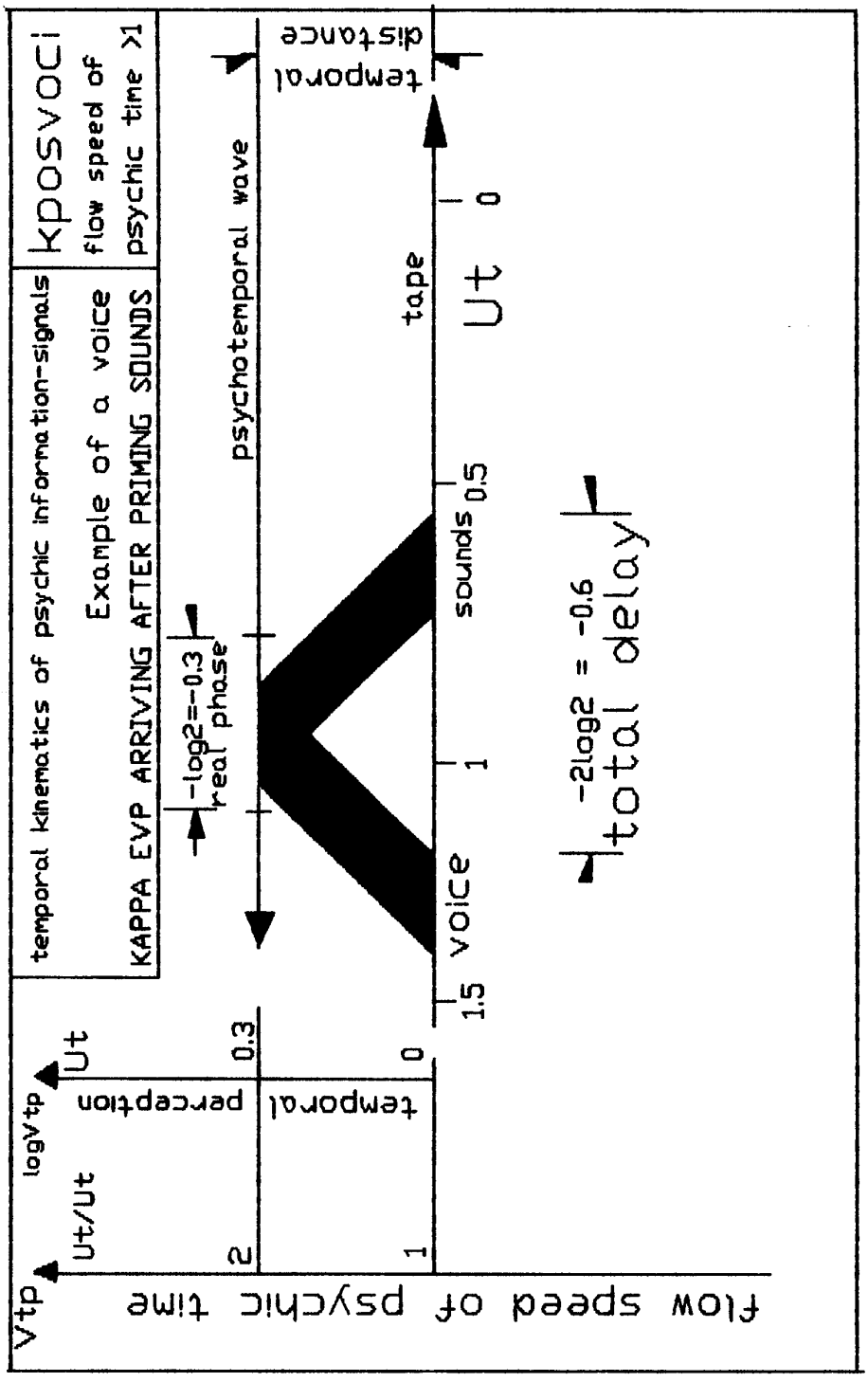

ondpsarm
HARMONICS
of the psychotemporal wave
F = medium height
= field
of the acoustic frequencies
psychotemporal wave
D
F
1
2
3
4
1
P
FUNDAMENTAL
(first harmonic)
P = period of the psychotemporal wave
D = duration of the sounds
second harmonic
D/2
2F
P/2
fourth harmonic
4F
D/4
P/4
8F
eighth harmonic
P/8

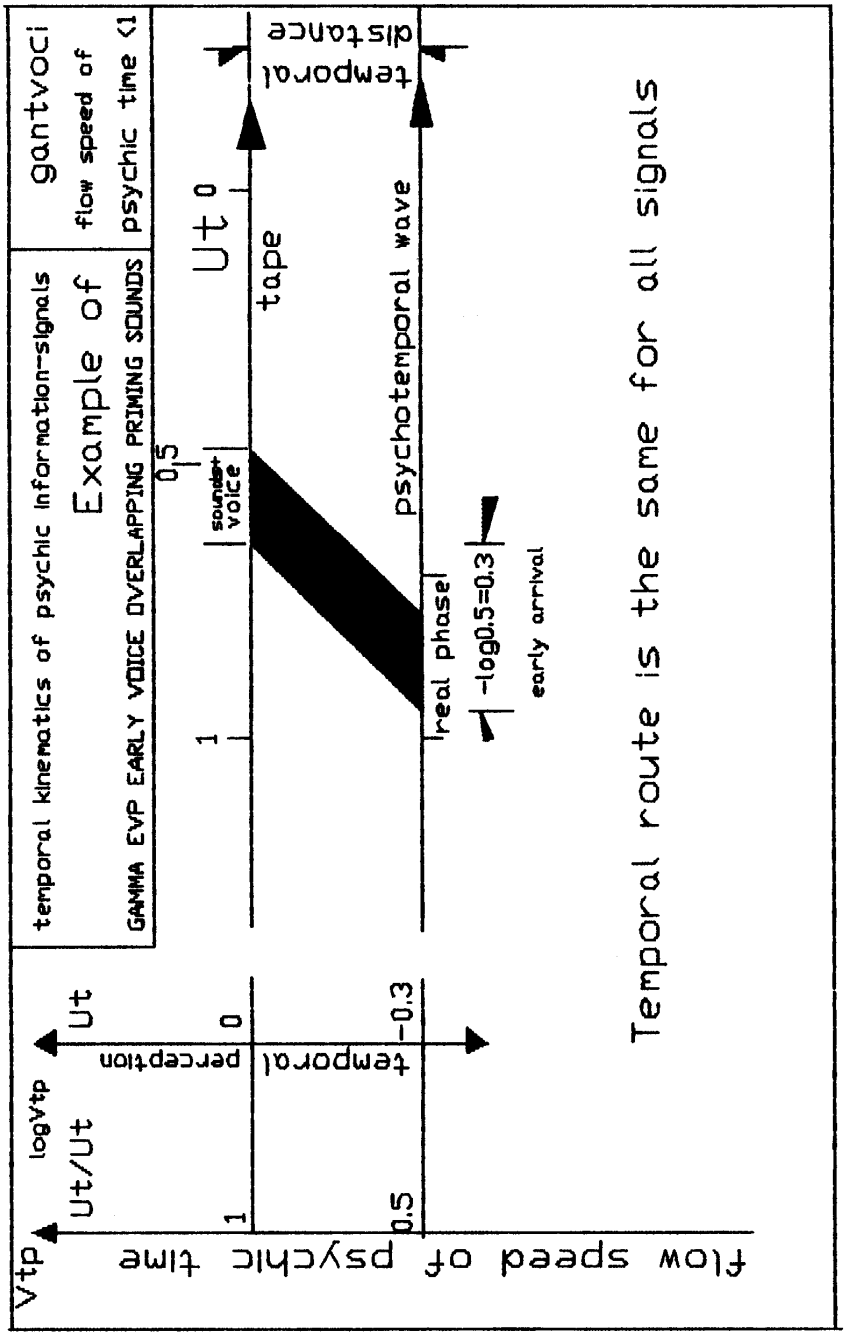

temporal kinematics of psychic information-signals
Example of
KAPPA EVP DELAYED RAP
postrap
flow speed of
psychic time > 1
Vtp
Ut/Ut
logVtp
Ut
perception
temporal
2
1
0.3
0
flow speed of psychic time
-log2=-0.3
real phase
psychotemporal wave
temporal
distance
psychosc.
signal
PK signal
tape
Ut
0
0.5
1
1.5
R
acoustic
primer
delayed
rap
-0.3
-0.3
-2log2 = -0.6
total delay

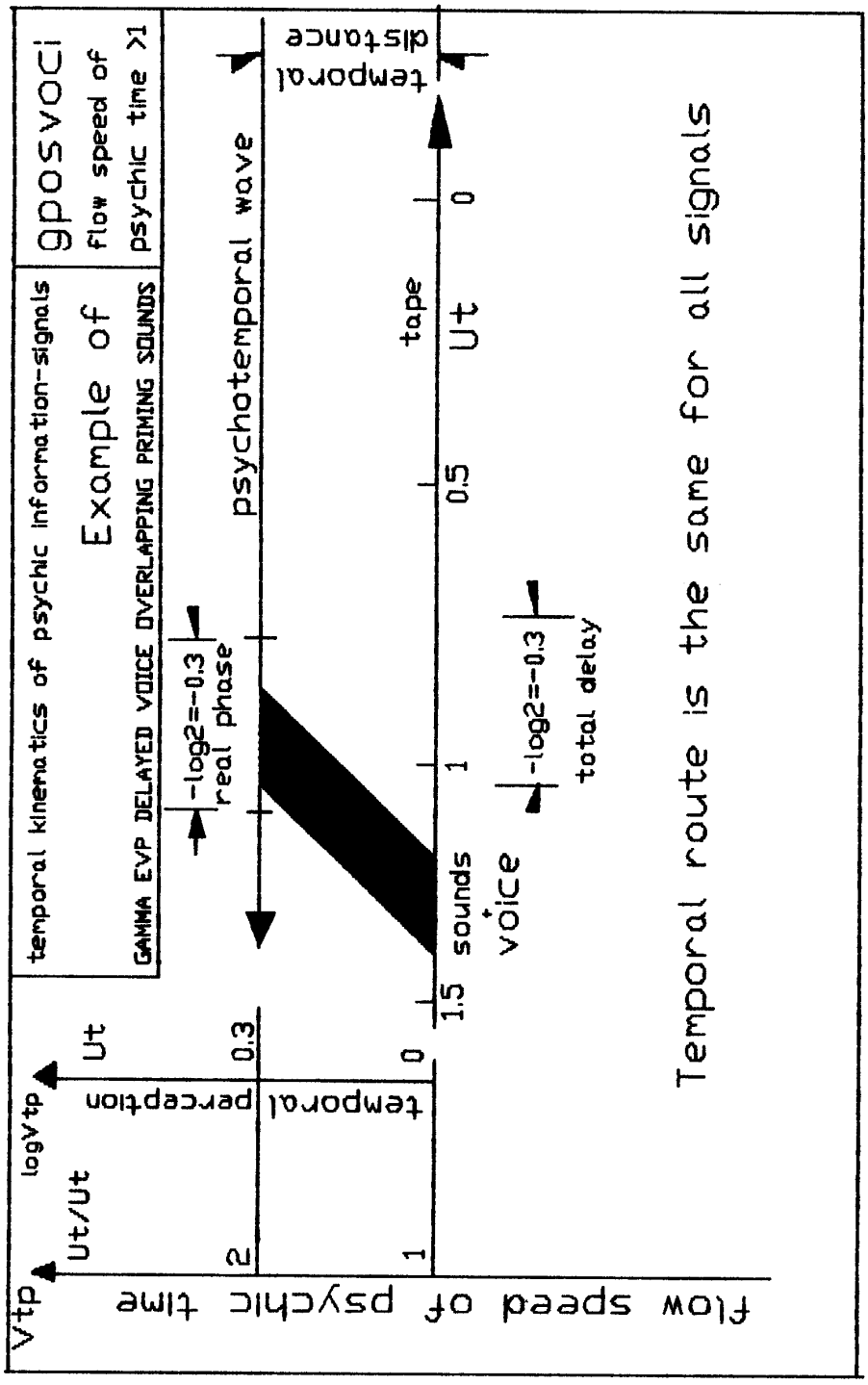

flow speed of psychic time
Vtp
logVtp
Ut/Ut
Ut
perception
temporal
1
0.7
0.5
0
-0.15
-0.3
-2log0.5=0.6
multiple ra
-2log0.7=0.3
-2log0
Fot (fundam. psychic
wave)
temporal
distance
3
0
: harmonic
R2
R1
0.5
2Fot
tape
real phase
psychoscopic
signal
acoustic
primer
temporal kinematics of psychic information-sig
KAPPA EVP EARLY MULTIPLE RA
rapmulta
flow speed of
psychic time

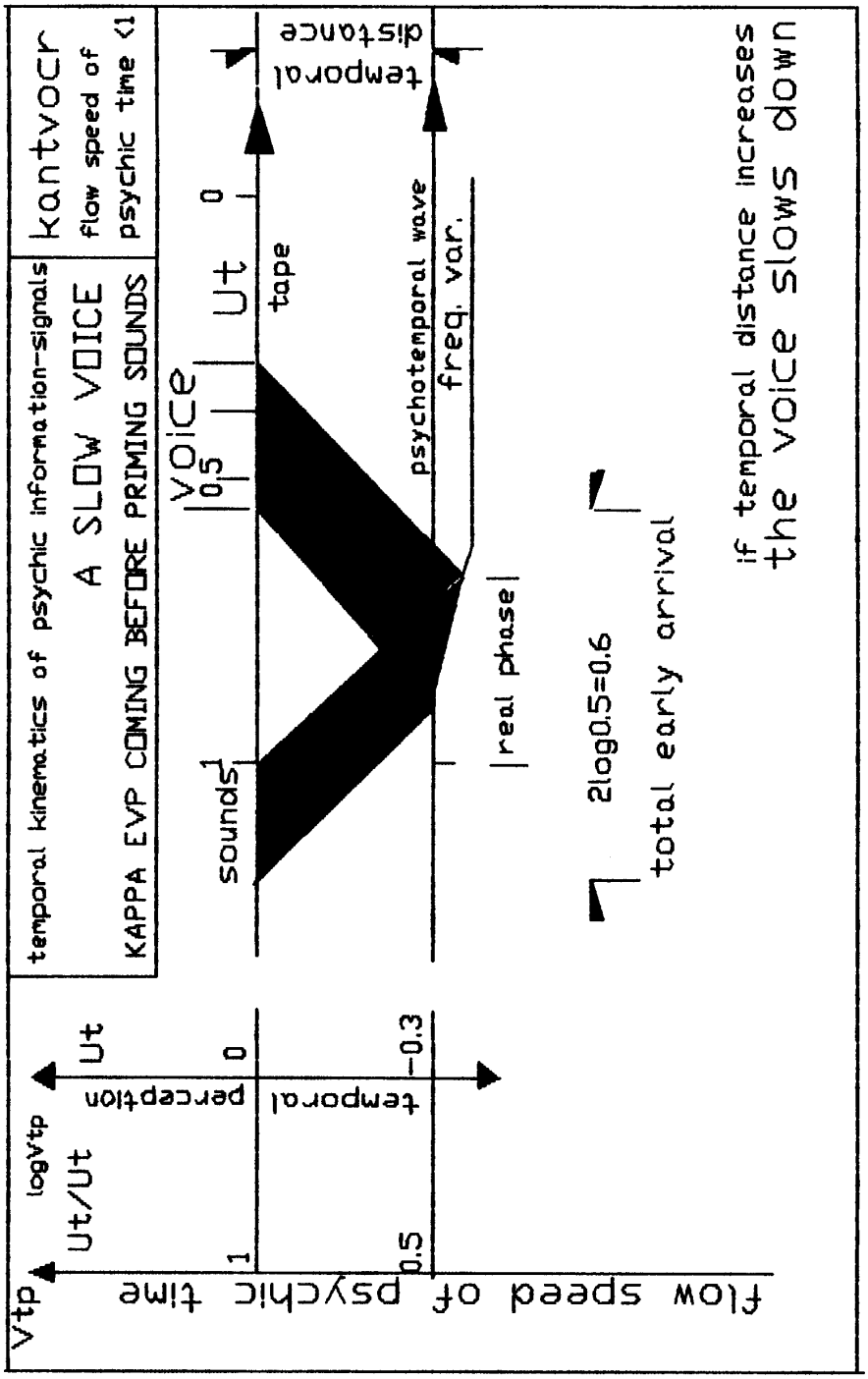

rapmultp
flow speed of
psychic time >1
KAPPA EVP DELAYED MULTIPLE RAPS
temporal kinematics of psychic information-signals
flow speed of psychic time
Vtp
Ut/Ut
logVtp
Ut
perception
temporal
0.3
0.15
0
2
1.41
1
1.5
Fot Fundam. psychotemp. wave
2nd harmonic
-log2=-0.3
real phase
2Fot
psychoscopic
signal
tape
Ut
R1 0.5
R2
R3
1
0 I
temporal
distance
acoustic
primer
-2log1.41=-0.3
-2log1.41=-0.3
multiple raps
-2log2 = -0.6

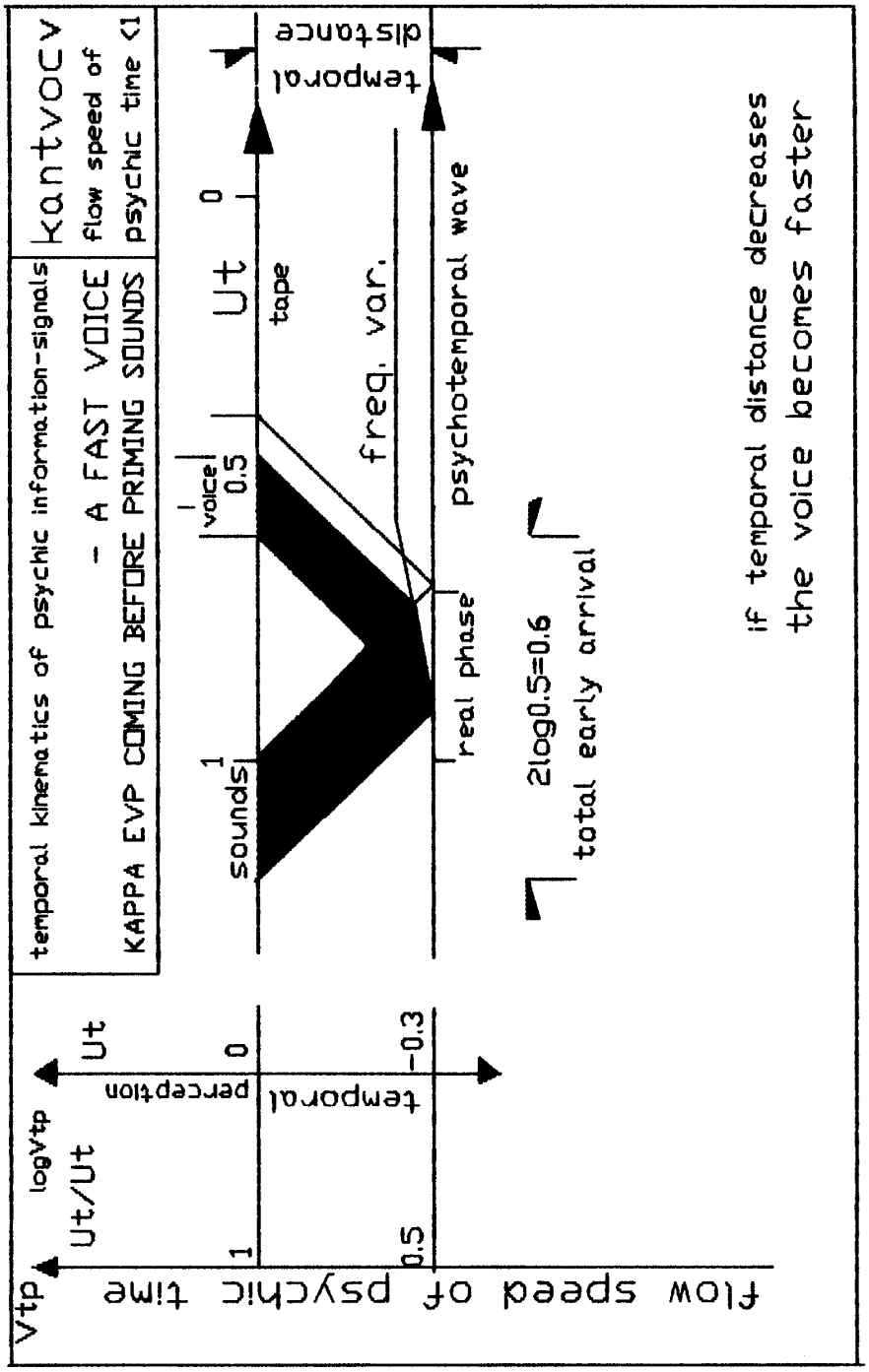

kantvoci
flow speed of psychic time <1
temporal kinematics of psychic information-signals
Example of a voice
KAPPA EVP ARRIVING BEFORE PRIMING SOUNDS
flow speed of psychic time
Vtp
logVtp
Ut/Ut
Ut
perception
0
1
temporal
-0.3
0.5
0.5
voice
Ut
0
tape
sounds
1
real phase
psychotemporal wave
temporal distance
2log0.5=0.6
total early arrival

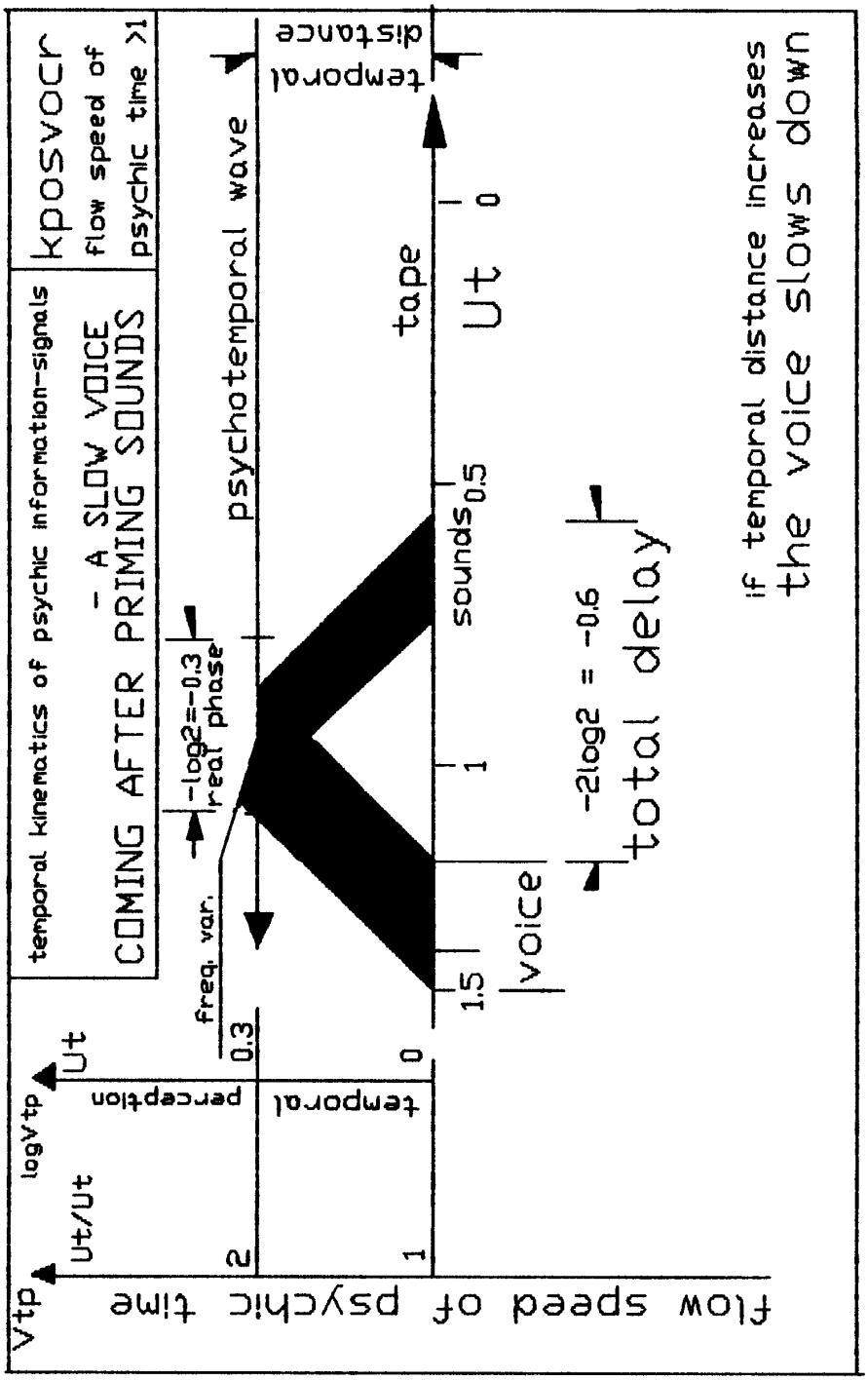

kposvoci
flow speed of psychic time >1
temporal kinematics of psychic information-signals
Example of a voice
KAPPA EVP ARRIVING AFTER PRIMING SOUNDS
flow speed of psychic time
Vtp
Ut/Ut
logVtp
Ut
perception
temporal
2
0.3
1
0
-log2=-0.3
real phase
psychotemporal wave
temporal distance
tape
Ut
0
0.5
sounds
1
1.5
voice
-2log2 = -0.6
total delay

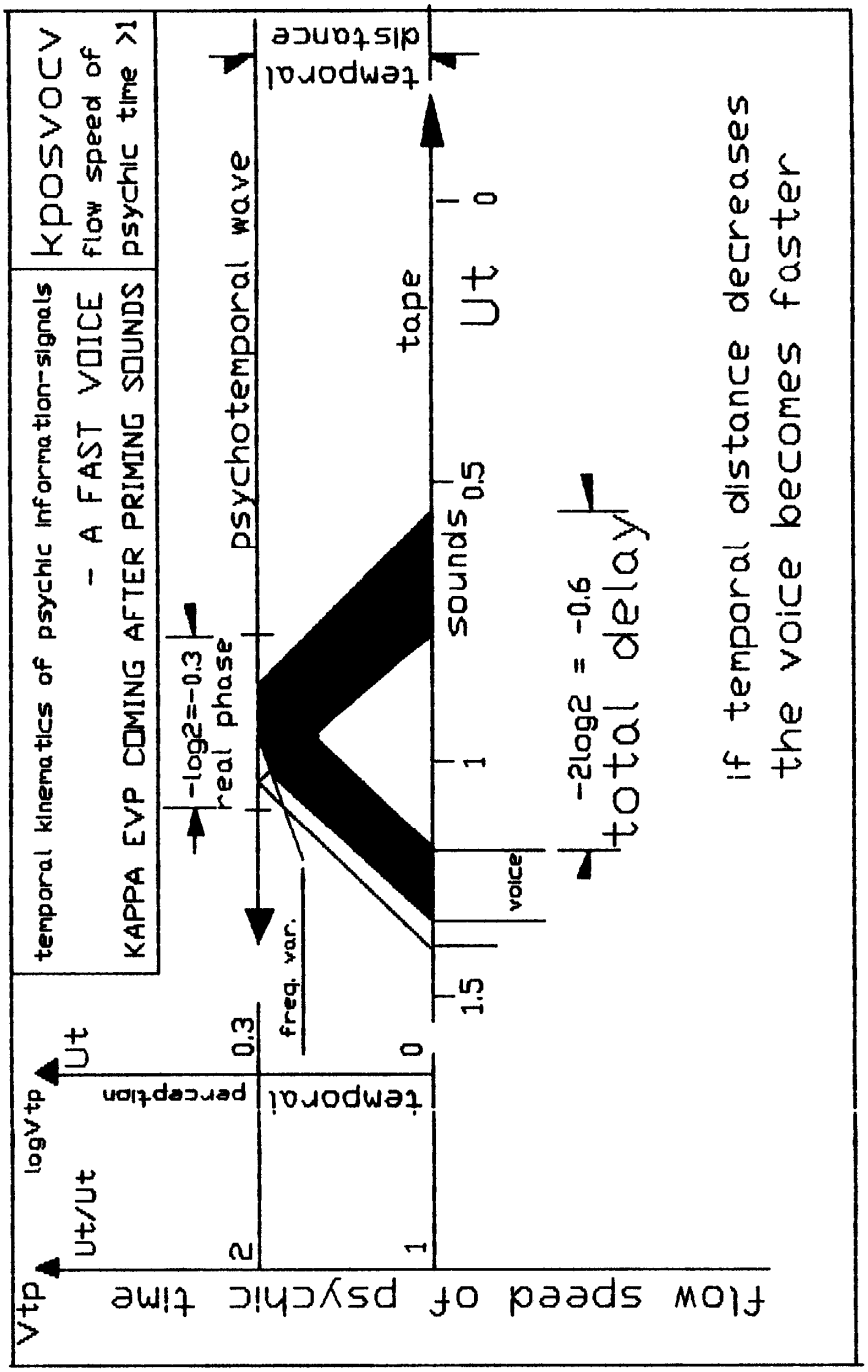

Temporal route is the same for all signals
flow speed of psychic time
Vtp
Ut/Ut
logVtp
Ut
perception
temporal
0
-0.3
1
0.5
temporal kinematics of psychic information-signals
Example of
GAMMA EVP EARLY VOICE OVERLAPPING PRIMING SOUNDS
gantvoci
flow speed of
psychic time <1
0.5
sounder voice
1
Ut 0
tape
temporal distance
psychotemporal wave
real phase
-log0.5=0.3
early arrival

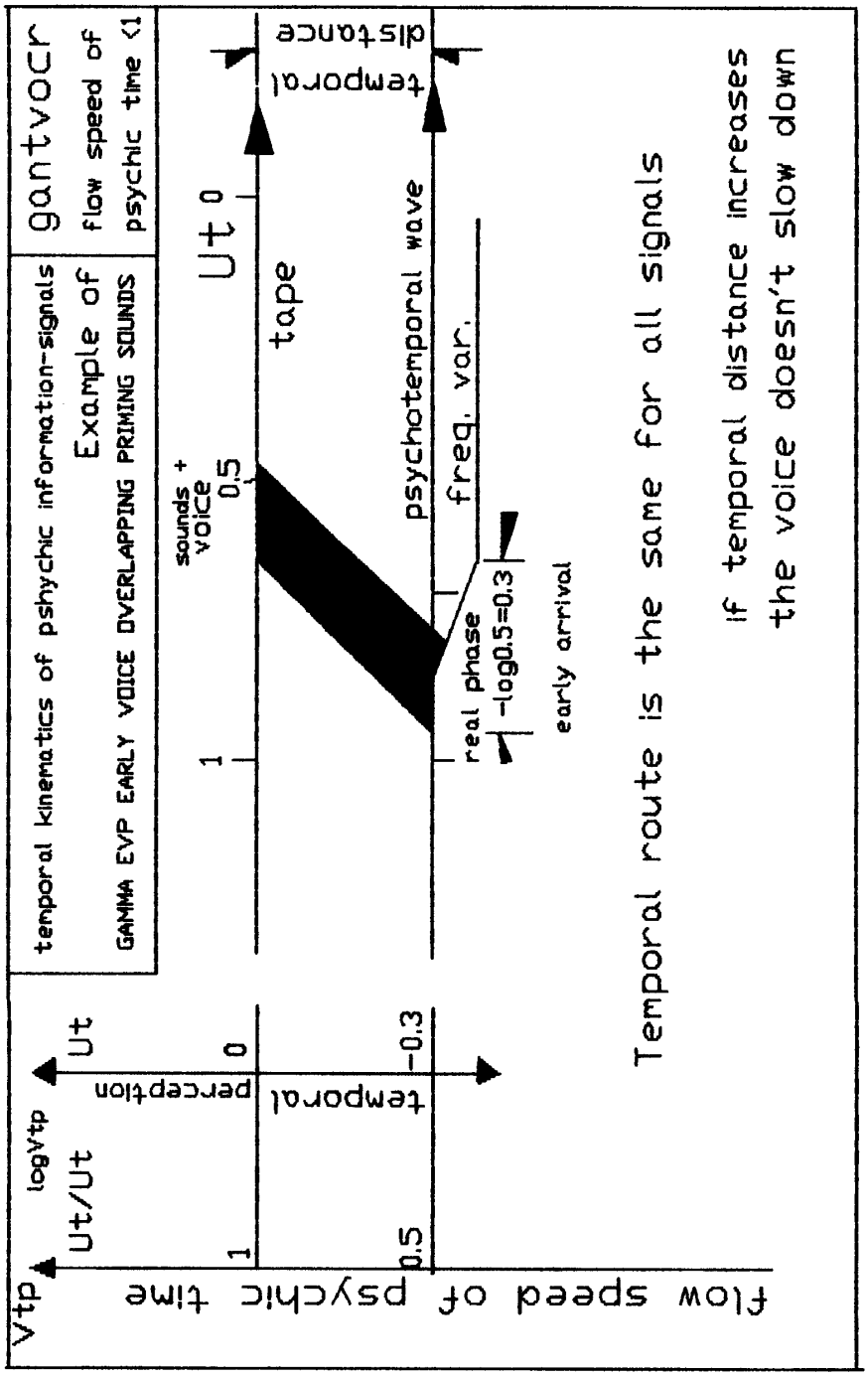

gposvoci
flow speed of psychic time >1
temporal kinematics of psychic information-signals
Example of
GAMMA EVP DELAYED VOICE OVERLAPPING PRIMING SOUNDS
Temporal route is the same for all signals
flow speed of psychic time
Vtp
Ut/Ut
logVtp
Ut
perception
temporal
2
1
0.3
0
1.5 sounds
voice
-log2=-0.3
real phase
-log2=-0.3
total delay
psychotemporal wave
tape
Ut
1
0.5
0
temporal distance

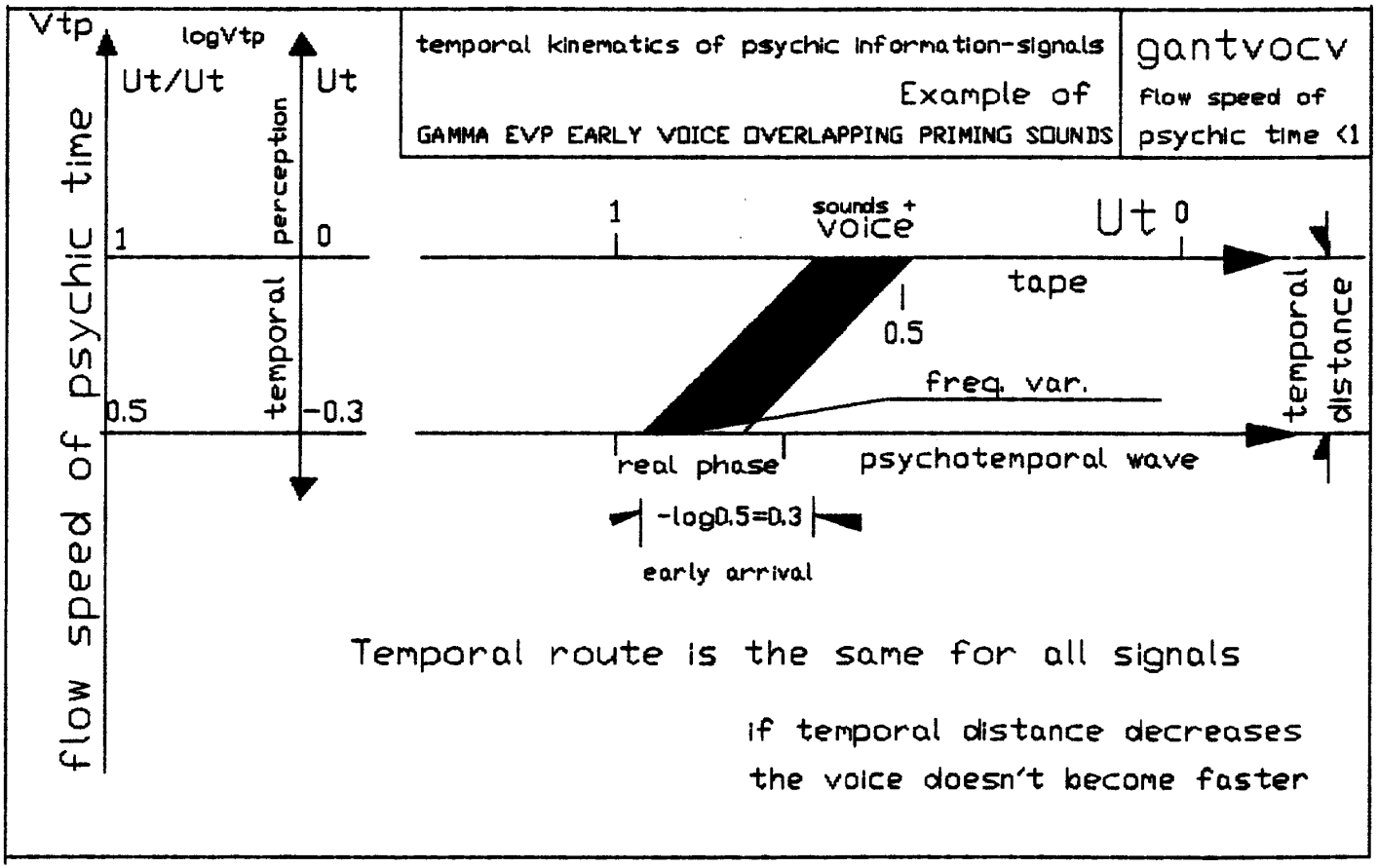

kantvocr
flow speed of
psychic time <1
temporal kinematics of psychic information-signals
A SLOW VOICE
KAPPA EVP COMING BEFORE PRIMING SOUNDS
if temporal distance increases
the voice slows down
flow speed of psychic time
Vtp
logVtp
Ut/Ut
Ut
perception
0
1
temporal
-0.3
0.5
sounds
voice
0.5
Ut
0
tape
temporal
distance
psychotemporal wave
freq. var.
real phase
2log0.5=0.6
total early arrival

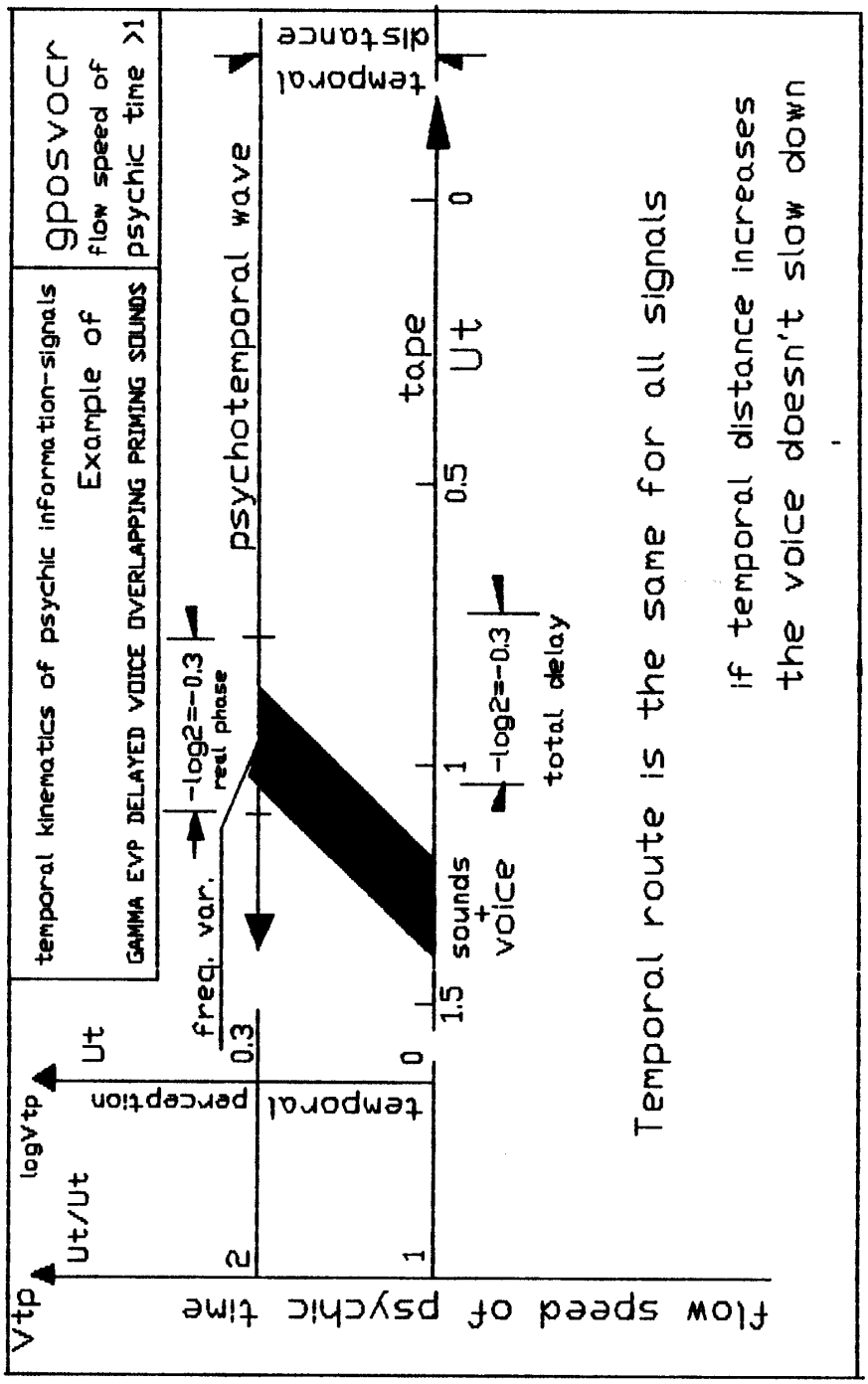

temporal kinematics of psychic information-signals
- A FAST VOICE
KAPPA EVP COMING BEFORE PRIMING SOUNDS
kantvocv
flow speed of
psychic time <1
flow speed of psychic time
Vtp
logVtp
Ut/Ut
Ut
perception
0
1
temporal
-0.3
0.5
voice
0.5
sounds
1
Ut
0
tape
freq. var.
temporal
distance
psychotemporal wave
real phase
2log0.5=0.6
total early arrival
if temporal distance decreases
the voice becomes faster

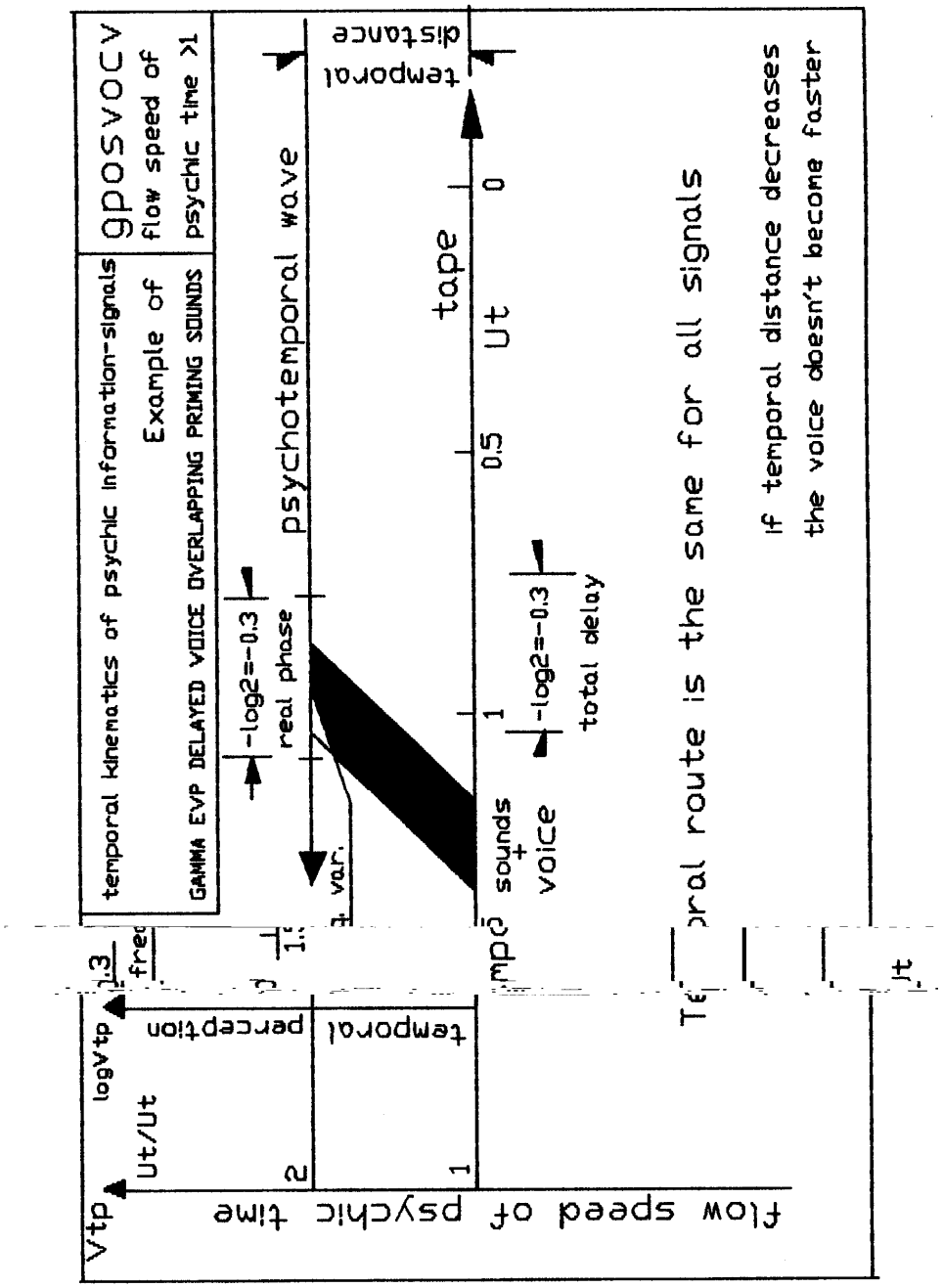

temporal kinematics of psychic information-signals
- A SLOW VOICE
COMING AFTER PRIMING SOUNDS
kposvocr
flow speed of
psychic time >1
flow speed of psychic time
Vtp
Ut/Ut
logVtp
Ut
perception
temporal
2
1
0
0.3
freq. var.
-log2=-0.3
real phase
psychotemporal wave
temporal
distance
tape
sounds
0.5
1
Ut 0
1.5
voice
-2log2 = -0.6
total delay
if temporal distance increases
the voice slows down


kposvocv
flow speed of
psychic time >1
temporal kinematics of psychic information-signals
- A FAST VOICE
KAPPA EVP COMING AFTER PRIMING SOUNDS
flow speed of psychic time
Vtp
Ut/Ut
logVtp
Ut
perception
temporal
2
1
0.3
0
-log2=-0.3
real phase
freq. var.
psychotemporal wave
tape
sounds
0.5
1
1.5
Ut
0
voice
-2log2 = -0.6
total delay
temporal
distance
if temporal distance decreases
the voice becomes faster


gantvocr
flow speed of
psychic time <1
temporal kinematics of pshychic information-signals
Example of
GAMMA EVP EARLY VOICE OVERLAPPING PRIMING SOUNDS
Vtp
logVtp
Ut/Ut
Ut
perception
temporal
distance
Ut 0
tape
sounds +
voice
0.5
1
psychotemporal wave
freq. var.
real phase
-log0.5=0.3
early arrival
flow speed of psychic time
Temporal route is the same for all signals
if temporal distance increases
the voice doesn't slow down


temporal kinematics of psychic information-signals
Example of
GAMMA EVP EARLY VOICE OVERLAPPING PRIMING SOUNDS
gantvocv
flow speed of
psychic time <1
Vtp
logVtp
Ut/Ut
Ut
perception
temporal
flow speed of psychic time
1
0
0.5
-0.3
sounds +
voice
Ut 0
tape
0.5
freq. var.
temporal
distance
real phase
psychotemporal wave
-log0.5=0.3
early arrival
Temporal route is the same for all signals
if temporal distance decreases
the voice doesn't become faster


Vtp
Ut/Ut
logVtp
Ut
perception
temporal
2
1
0
flow speed of psychic time
temporal kinematics of psychic information-signals
Example of
GAMMA EVP DELAYED VOICE OVERLAPPING PRIMING SOUNDS
gposvocr
flow speed of
psychic time >1
freq. var.
0.3
-log2=-0.3
real phase
psychotemporal wave
temporal
distance
tape
Ut
0.5
1
0
1.5
sounds
+
voice
-log2=-0.3
total delay
Temporal route is the same for all signals
if temporal distance increases
the voice doesn't slow down


flow speed of psychic time
Vtp
Ut/Ut
logVtp
perception
temporal
temporal route is the same for all signals
if temporal distance decreases
the voice doesn't become faster
tape
Ut
0.5
0
1
sounds + voice
-log2=-0.3
total delay
psychotemporal wave
temporal distance
-log2=-0.3
real phase
temporal kinematics of psychic information-signals
Example of
GAMMA EVP DELAYED VOICE OVERLAPPING PRIMING SOUNDS
gposvocv
flow speed of
psychic time >1

APPENDIX C2

TESTING THE PSYCHOTEMPORAL MODEL

1 - Testing psychophonic raps

1.1 - Pilot test

The purpose of this experiment was to make a preliminary test of the production of the phenomena predicted in the theory, without attempting to classify the procedure in a definitive way. The pilot test took place between October 1989 and March 1990 at the Istituto Atlantide in Florence. It involved a group of members of the Institute trained by Vice-President Dr. Francesco Romano and placed under my direction.

He attempted to achieve the psychic conditions hypothesized in the theory in two different ways:

a) to accelerate the inner time, we performed relaxation exercises, listened to music, swung a lighted pendulum or used rhythmical lights;

b) to slow down the inner time, each member was asked to solve logical or mathematical problems.

The primers, spaced out by suitable time intervals, consisted of either producing sounds with a small bell, or making knocking sounds of various types. The microphone recording was made with a Philips N2235 tape recorder, using TDK Normal Bias - EQD cassettes.

Results: raps occurred for approx. 5% of the acoustic primers, and were delayed or came early, as predicted in the theory.

1.2 -*Model test*

The purpose of this experiment was to test the production of the phenomena predicted by the psychotemporal theory, using the results of the pilot test to outline the most dependable procedures, as well as to provide a precise operational model to guide those wishing to repeat similar experiments in the future.

1. 2. 1 - *Procedure*

1.2.1.1 - Bringing about the required psychic conditions

In this case we adopted the same procedure used for the pilot test, minus the lighted pendulum and the rhythmical lights.

1.2.1.2 - Apparatus

Three tape recorders were used:

- A tape recorder R1 with casette C1 and microphone Mic1 for ambient noises (control tape recorder);
- A tape recorder R2 with cassette C2 and microphone Mic2 with a connecting cord, placed inside a deadening chamber (which restricts access to outside noises from approx. 50 decibel up) for recording ostensible raps;
- A tape recorder R3 with cassette C3 and microphone Mic3 with a connecting cord, also placed inside the deadening chamber, for recording ostensible raps.

Tape recorders R2 and R3 were both Philips D6350 models. Microphones Mic2 and Mic3 placed inside the deadening chamber were also of the same brand (EM-603 electret condenser, 600 Ohm, 64 decibel, 30/18,000 Hertz).

The acoustic primers were produced with a xylophone played by one member of the group who followed a score drawn up in three copies, each copy referring to one of the three tape recorders. The three copies of the score classified a series of primers made up of 1, 2, 3 or 4 knocks, alternated in such a way as to enable us to determine whether the raps recorded during the time intervals were being produced by the preceding primer or by the following one.

1.2.1.3 - Playback of tapes

- The entire group listened to cassette C3 and marked on the copy of the score of tape recorder R3 the acoustic events occurring during the time intervals between the primers;
- The entire group listened to cassette C2 and marked on the copy of the score of tape recorder R2 the acoustic events occurring during the time intervals between the primers;
- The entire group listened to cassette C1 and marked any ambient noises on the copy of the score of tape recorder R1 (control tape recorder).

1.2.1.4 ~ Identifying the raps

A comparison was made of the three copies of the score. To qualify as raps, the acoustic events had to occur in the time intervals between two primers, and only on cassettes C3 or C2 (those corresponding to Mic3 and Mic2 placed inside the deadening chamber), and could not tally with events taped on cassette Cl (corresponding to control tape recorder Rl).

Raps were identif ied as delayed or early by examining their likeness to the features of the primer preceding it or the primer following it.

The three copies of the score, as well as the description of the raps, were duly signed by all participants.

This procedure follows the results consolidated in previous experiments, according to which a psychic operator never produces psychokinetic effects on more than one tape recorder at the same time. Even so, it is possible that two psychic operators may produce

simultaneous psychokinetic effects each on his own tape recorder. Thus the present procedure did not recognize as raps any acoustic events occurring simultaneously on two tapes corresponding to the two microphones placed inside the deadening chamber, because they could be the result of accidental sounds occurring inside the deadening chamber. This unfortunately eliminates some potentially paranormal phenomena by simply regarding them as normal. But it is better to run this risk than the opposite one.

1.2.2 - Results

5 experimental evening sessions took place in the temporary office of Istituto Atlantide.

357 primers all in all gave the following results: 7 delayed raps, including two double rape; 9 early raps, including one double rap.

This adds up to a total of 16 raps out of 357 primers, averaging. 4.48%.. The specific experimental prediction (early or delayed raps, depending on the psychic conditions predicted in the theory) was thus always confirmed.

2 - Testing the Psychotemporal carrier

2.1 - *Experimental procedure*

8 sessions were held between 28 Nov. 1989 and 11 July 1990 at the offices of Istituto Atlantide in Florence. A group of members of the Istituto trained by Dr. Francesco Romano was placed under the direction of Dr. Carlo M. Traina.

The preliminary procedure was the same as the procedure described above to obtain the acceleration of psychic time. In addition, 4 members sat in a circle, forming a so-called chain.

We used an old-fashioned valve-operated medium and short wave radio receiver, and tuned it in to the white noise on the short wave band.

2.2 *Results*

28-11-89: 25 low intensity voices (maximum length of each voice 25 syllables) and 8 high intensity voices (max. length of each voice 17 syllables);

12-12-89: 14 high intensity voices (max. length of each 41 syllables);

28-3-90: 93 low intensity voices (max. length of each 74 syllables);

30-5-90: 3 low intensity voices (max. length of each 11 syllables) and 17 high intensity voices (max. length of each 32 syllables);

6-6-90: 81 medium intensity voices (max. length of each 58 syllables);

20-6-90: 59 medium intensity voices (max. length of each 38 syllables);

27-6-90: 13 medium intensity voices (max. length of each 50 syllables)

and 33 high intensity voices (max. length of each 101 syllables);

11-7-90: 28 high intensity voices (max. length of each 41 syllables).

The total no. of voices obtained were:

121 medium intensity voices (max. length of each 74 syllables);

153 low intensity voices (max. length of each 58 syllables);

100 high intensity voices (max. length of each 101 syllables).

Given the fact that, in accordance with consolidated experience, the maximum individual length of the voices received by one psychic operator only is not higher than 11 syllables, the results obtained in the present experiment confirm the theoretical proposition that the presence of 4 psychic operators can give rise to a continuous type of psychotemporal "carrier" which yields much longer "messages".

Florence, 31 May, 1991. The Director of the Experiments

Carlo M. Trajna.