

## THE ELUSIVE NATURE OF ESP

by JON TAYLOR

## ABSTRACT

This paper develops the proposal that fields corresponding to emotions can extend their influence through space and time, and therefore serve as a vehicle for ESP. An attempt is made to carry out a more detailed analysis of the structure of emotions and of the appraisals which produce them. It is suggested that in the case of precognition, for example, thoughts about the possibility of the event happening are appraised in the present and thoughts about the knowledge of the event happening are appraised in the future—to produce emotions containing low and high levels of ‘belief’ respectively. Fields corresponding to these appraisals ‘resonate’ together and this produces a tendency towards replication between the fields and between the molecular structures associated with them in the brain. This will result in a transfer of some of the ‘belief’ from the emotion produced in the future to the one produced in the present. An ESP contact is made if the percipient notices that the level of ‘belief’ in the present emotion is higher than that which would normally correspond to the appraisal made in the present.

Factors affecting the noticeability of the change in ‘belief’ are discussed and possible explanations are put forward for the elusive nature of the ESP contact. Early methods of responding subjectively to ESP targets are then reassessed to determine the extent to which they overcome factors which might inhibit ESP performance and suggestions are made for steps which might be taken to improve repeatability in future experiments.

## INTRODUCTION

In my previous paper, “A New Theory for ESP” (1998), I suggested that ESP contacts take place between living brains only, and that they may be due to interactions between fields associated with the appraisals of thoughts about events. For example, if similar thoughts are similarly appraised both in the present and in the future, the corresponding fields will have similar structures. The fields ‘resonate’ together and this sets up a link between the present and future thoughts.

A simplified analysis of the basic appraisals in terms of ‘wish’ and ‘belief’ led to explanations being put forward for the kinds of scenario in which ESP most frequently occurs. However, further consideration of the mechanism suggests that it is unnecessary to suppose that the resonance itself leads to a building up of the *strength* of the emotion—a supposition that would not necessarily follow from the kind of resonance suggested. Furthermore, the treatment in terms of ‘positive’ and ‘negative’ belief towards the same event (i.e. putting the ‘belief’ on a bipolar scale) can lead to considerable confusion regarding the way in which associations are formed.

A new and more detailed analysis has therefore been attempted. This should not only lead to a better understanding of the mechanism of ESP but it will also suggest some possible reasons for the elusive nature of this phenomenon. This could enable new methods to be devised, which will improve scoring rates and ensure better repeatability in future experiments.

Whilst the treatment applies mainly to precognition, it is assumed that identical arguments would apply to telepathic contacts with thoughts appraised by other people.

#### THE BASIC APPRAISALS

Lazarus (1991, pp.145–146) is careful to define appraisal as the evaluation of the significance of an event for one's personal well-being. When an appraisal is carried out, an association is activated in the brain between items corresponding to knowledge of the event and items corresponding to knowledge of something which is either beneficial, or harmful, to one's well-being. This leads to a feeling of 'wishing', either for the event to happen or for it not to happen.

The cognitive assessment of whether or not the event happens, or of the probability of it happening, is not an appraisal. However, the resulting knowledge of this assessment can be included in the appraisal, to produce the additional feeling of 'belief' towards the event. There must always be an appraisal for an emotional feeling to be produced.

#### *Appraisal in Terms of 'Wish'*

The theory proposes that when knowledge about an event is appraised, a field is created which permeates both space and time. If identical appraisals are repeated on different occasions, then fields having identical structures will be produced. The fields resonate together, thus setting up a link between the appraisals and their underlying thoughts.

The basic appraisal refers to the association of a given event with a given benefit. This provides a measure of the 'desirability' of the event, or the extent to which the event would be beneficial or harmful to a person's well-being, if such an event were to happen. It results in a feeling of 'wish', either for the event to happen, or for it not to happen.

The structure of the field associated with the appraisal must necessarily be highly complex, since it has to contain information both about the event and about the associated benefit, and thus convey the feeling towards that specific event. Normally, we would not expect the benefits associated with the event to change between present and future appraisals. A desirable event will continue to be 'desirable', even when it is reappraised on a later occasion. However, if for some reason it is later reappraised as 'undesirable', this is because a different association has been activated. It has now been associated with something which is potentially harmful to well-being and the corresponding field will have a different structure. Thus it is possible to feel a 'positive' wish towards an event at one moment and a 'negative' wish towards the same event at another moment, without the fields interacting with each other and their effects possibly tending to cancel each other out over time.

The strength of the emotion will depend on the nature of the event and on the nature of the benefit with which it is associated. In my previous paper (1998, pp.297–298), I suggested that the multiple resonances produced when the same appraisals are repeated on subsequent occasions might lead to an *increase* in the strength of the emotion felt. This may have been an erroneous deduction since such an effect would not immediately follow from the kind of resonance likely to be involved. In fact, such a 'resonance' might more

accurately be described as a 'pulling together' between the fields. In any case, the build-up in strength of the emotion can be explained in terms of reverberation in the hippocampal circuits of the brain (see Eccles, p. 398, in Popper & Eccles, 1983).

Resonance between identical fields corresponding to present and future appraisals serves to create a link between the underlying thoughts. However, such a link on its own is not sufficient for an ESP contact to be made. Even if the resonance is somehow noticed in present thoughts, this will give little indication as to whether or not the future event will happen. It simply means that the percipient will continue to think about the *possibility* of the event happening, on a later occasion. Therefore, an appraisal in terms of 'belief' will be necessary for ESP to occur.

### *Appraisal in Terms of 'Belief'*

When the basic appraisal is made, an assessment is also carried out to determine whether or not the event has happened, or the *probability* of it happening. Knowledge of this assessment is then included in the appraisal, to produce a feeling of 'belief' towards the occurrence of the event. Such an assessment of probability may vary each time the appraisal is carried out and we will assume that it lies somewhere on an imaginary scale from 0–100%. The level of 'belief' arising from the appraisal will correspondingly vary from a minimum to a maximum.

Notice that the scale used to measure the 'belief' is somewhat arbitrary. It is often measured on a bipolar scale, on which it is considered to be positive when the probability of the event happening is considered to be greater than that of it not happening. In other words, we assign a positive belief to probabilities greater than 50% and a negative belief to probabilities less than 50%. When the belief is negative, we are simply implying that some other event is more likely to happen instead. However, since we are not interested in a comparison with the 'other' event, we shall put the belief on a unipolar scale, so that it corresponds with the scale of probability. Thus minimum belief is equivalent to 0% probability, and maximum belief is equivalent to 100% probability of the event happening.

Now, whilst thoughts are believed to depend on the spatiotemporal patterns of neuronal connectivities, the emotions arising from the associations between thoughts are probably due to the formation of certain neurotransmitters—such as norepinephrine and serotonin—at the synapses (e.g. Atkinson et al., 1993, pp. 40–41 and p. 643). It is possible that the structures or patterns of some of these neurotransmitter molecules may be progressively modified according to the increasing assessment of probability of the event happening. The level of 'belief' will thus depend on the degree of modification to the basic structure. However, if resonance occurs between the fields corresponding to structures which have been modified to different degrees, there will be a tendency towards replication, not only between the fields, but also between the structures themselves.

Let us suppose that a percipient thinks about an event, first in the present, then in the future. Present thoughts refer to the possibility that the event might happen. They are appraised with low probability and this in turn leads

to a low level of 'belief' towards the event happening. Later on, the event does happen and the percipient's future thoughts refer to his or her experience of it happening. The thoughts are now appraised with high probability, leading to a high level of 'belief' that the event has happened. The fields corresponding to the appraisals resonate and they will tend to replicate one other. This has the effect of slightly reducing the belief associated with the future appraisal and increasing the belief associated with the present appraisal. There will be a 'flow' of belief from future to present. I suggest that this is what enables the ESP contact to be made.

THE EMOTIONS PRODUCED

We shall now consider the way in which the 'wish' and 'belief' combine to produce the kind of emotions which can arise in ESP scenarios. The quality of the emotion will depend not only on the level of the component of belief, but also on whether the appraisals refer to thoughts about one or more events.

The following analysis attempts to simplify the classification of emotions as far as possible and is based initially on Roseman's structural model (1984, pp.17-23).

*Events Caused by Circumstances*

Probability	Associated Belief	Emotion Produced	
		Desirable Event	Undesirable Event
100%	Maximum Belief	Joy (Max. Hope)	Distress (Max. Fear)
50%	Average Belief	Hope	Fear
0%	Minimum Belief	Sorrow (Min. Hope)	Relief (Min. Fear)

Figure 1. Emotions corresponding to Events caused by Circumstances

Figure 1 shows the emotions corresponding to both desirable and undesirable events which are caused by outside circumstances. The left-hand column shows the cognitive assessment of probability of the event happening, on a scale from 0-100%, along with some corresponding levels of associated belief. The right-hand columns show the emotions produced. In the case of a desirable event (appraised with positive wish), the emotions lie on a scale between 'sorrow' and 'joy'. However, these emotions are really the extreme values of the single emotion of 'hope'. When the 'belief' is at an absolute minimum, there is little or no hope. The emotion is expressed as 'sorrow' towards the event. As the level of belief increases, the level of hope also increases, until it reaches a maximum value, when it is expressed as 'joy'. In the case of an undesirable event (appraised with negative wish), the emotions lie on a scale between 'relief' and 'distress'. These are the extreme values of the emotion of 'fear'.

It is important to notice that if a person were to appraise his or her thoughts about a desirable event "not happening", this would be the same as appraising thoughts about an undesirable event "happening". We are therefore dealing

with a new event. For example, a belief felt towards "not winning" a race is the same as a belief towards "losing" the race. This is an undesirable event and the emotion produced would be that of 'distress' and not 'sorrow'. This illustrates why it is important to put the 'belief' on a unipolar scale, as already discussed.

Notice also that the term 'minimum belief' is used to describe the level of belief when the probability of the event happening is zero. Although the 'belief' will be virtually non-existent, the term 'no belief' cannot be used because it might imply that the appraisal in terms of 'belief' has not been carried out. We should be left with the feeling of 'wish' only and the emotions shown on the right-hand side of the table would not be produced.

If we now consider a typical ESP scenario corresponding to a desirable event, we might have the emotion of 'joy' produced by the future appraisal, when the percipient knows that the future event has happened and when the 'belief' is at a maximum. We will suppose that, in the present, the probability of the event happening has been assessed at about 50%. There will be average belief towards the event happening and the emotion will be expressed as 'hope'. When the fields due to the present and future appraisals resonate together, some of the 'belief' will be transferred from the future to the present. The emotion actually felt in the present will correspond to a level of belief slightly higher up the scale than that associated with the present appraisal. If the percipient notices the 'extra' belief, an ESP contact is made.

This transfer of 'belief' from the field produced in the future to the one produced in the present is what I loosely described as 'precognitive feedback' in my previous paper (e.g. 1998, p.295).

Notice that the 'belief' arriving from the future cannot be attributed to the present appraisal; it has come from 'outside' and it will draw the percipient's attention both to the appraisal and to the underlying thoughts. What might otherwise have been subconscious thoughts are brought to a level of conscious awareness. For example, a percipient might suddenly "find herself thinking" about what is going to be the future event. In fact, she might even feel a mild feeling of 'surprise' that she should happen to be thinking about such an event. (The feeling of 'surprise' will be discussed later.) Then, of course, there is the effect of the 'extra' belief itself. This might produce a feeling of conviction (often reported by percipients) that the thoughts do refer to an event which will happen in the future.

### *Events Caused by Oneself*

In this case we are concerned with a 'cause-and-effect' sequence, in which one event A causes another event B to happen. Whilst B is still subject to the influence of A, any personal benefits are shared between the two events. For example, if B is considered to be 'desirable' for some reason, then A must also be desirable because it leads to B happening. Furthermore, since A must happen in order for it to cause B, the 'belief' will be shared between the two events as well. The two events are brought together in the appraisals and they both contribute to producing the same 'emotional field'. An ESP contact will therefore refer both to the 'cause' and to the 'effect' together. This prevents the intervention paradox from arising (Taylor, 1998, p.295).

Figure 2 shows the emotions corresponding to desirable events caused by

Probability	Associated Belief	Emotion Produced	
		Towards Causing Event	Towards Oneself
100%	Maximum Belief	Satisfaction	Max. Pride
50%	Average Belief	Anticipation	Ave. Pride
0%	Minimum Belief	Min. Anticipation	Min. Pride

*Figure 2. Emotions corresponding to Events caused by Oneself (desirable events)*

oneself. The probability of the event being caused to happen is again shown on the left, along with the corresponding levels of belief. The kind of emotion produced will depend on whether thoughts refer to the event producing the 'effect' in the 'cause-and-effect' sequence, or to the person (in this case, oneself) producing the effect (Roseman, 1984, p.22). The right-hand columns show the alternative emotions produced.

As an example, we may take the scenario in which Harry would like to precognize the outcome of his intention "to take the train to his destination". In this case, Harry intends to apply a cause: "taking the train", in order to produce an effect: "arriving at his destination". Harry appraises the sequence in the present, thus producing the feeling of 'anticipation' that the cause will be applied and that it will produce the effect. Later, when the cause has been applied and it has produced the effect, his future appraisals will produce the feeling of 'satisfaction'. Resonance takes place between the fields produced and some of the future belief is transferred to the present. ESP occurs if Harry notices the 'extra' belief produced in the present.

We are assuming that the train journey is a routine one, implying minimal personal satisfaction to Harry himself. He is therefore unlikely to appraise thoughts about himself as the cause of his arrival. However, if the event had been an important race which Harry had just won, his emotion would more likely be that of 'pride', directed towards himself for having won the race.

Notice that after the 'cause' has been applied, there is no further need to include it in the appraisal. The application of the 'cause' has lost its personal significance. It has become 'cold', or non-emotional (Lazarus, 1991, p.144). Thus, once Harry is approaching his destination, there are no further benefits to be obtained by "taking the train". Harry can now appraise thoughts about "arrival at his destination" only, producing 'hope' before the event happens, and 'joy' after it has happened.

He therefore precognizes his arrival in exactly the same way as he would precognize any other event controlled by circumstances. We now see why, in the case of such outside events, we can precognize the event alone. The 'cause', whatever it may be, is a 'cold' cognition and does not contribute to the emotion.

An interesting question concerns the exact nature of the future appraisal which has to correspond to the appraisal of the complete 'cause-and-effect' sequence in the present. By the time the future 'effect' is produced, thoughts about the 'cause' may already have turned 'cold'. One possibility is that Harry

still appraises the memory of the complete sequence ('cold' cause, along with 'hot' effect) at some moment in the future, to produce 'satisfaction', as already suggested. Alternatively, it is possible that he appraises the future thoughts one by one: first, the 'cause', just after it has been applied, and then the 'effect', just after it has been produced (and whilst each of these thoughts is still 'hot'). In this case, the fields corresponding to the thoughts appraised in the present and those appraised at different moments in the future would all have to resonate together, to produce the necessary influence in the present.

Finally, notice that the 'cause' itself might consist of a number of 'sub-causes', all of which contribute to producing the final benefit. Harry might have intended, for example, to carry out a number of activities, such as "walking to the station", "buying a ticket" and "boarding the train". If any of these items is activated, it must be included in the appraisal until after the activity has been carried out and thoughts about it have turned 'cold'.

The important point is that the appraisal must unite the 'causes' with the 'effect' until the 'causes' have been applied. This is necessary to prevent the intervention paradox from arising.

*Events Caused by Another Person*

Probability	Associated Belief	Emotion Produced	
		Towards Causing Event	Towards Causing Person
100%	Maximum Belief	Satisfaction	Max. Liking (Love)
50%	Average Belief	Anticipation	Ave. Liking
0%	Minimum Belief	Min. Anticipation	Min. Liking

Figure 3. Emotions corresponding to Events caused by Another Person (desirable events)

Again we are dealing with a 'cause-and-effect' sequence, but in this case the 'cause' is produced by another person. The emotions are directed either towards the causing person, or towards the causing event, as shown in Figure 3.

Such scenarios are less likely to be useful for ESP; we are far more concerned with obtaining either precognitions about circumstantial events, or 'intuitive warnings' about events which are subject to our own influence (Taylor, 1998, p.301). However, the inclusion of events caused by others enables us to draw up a more complete picture of emotional structure and shows how emotions towards other people can arise. If desirable events are produced, the emotion of 'liking' or 'love' will be felt towards the person causing them. If the events are undesirable, the corresponding emotion will be that of 'dislike' or 'hatred' towards that person.

The foregoing classification of emotions simplifies Roseman's original model, in which he distinguishes five different kinds of appraisal. However, two of his appraisals—whether or not the event happens, and the probability of the event happening—really refer to the same appraisal of probability. It is simply extended to cover the full range, on a unipolar scale. Furthermore, Roseman

distinguishes the appraisals of events caused by different types of agency (circumstances, oneself and other people). However, the appraisal is still made in terms of whether or not the events are beneficial or harmful to one's well-being. It is not the appraisal which is different. The difference is in the events appraised.

I would therefore defend my assertion that all emotions are based on just two basic appraisals, producing the component feelings of 'wish' and 'belief', either towards an event happening, or towards an event being caused to happen by someone or something. Any variations in the emotions produced are due to the nature of what is appraised and not to the way in which it is appraised.

#### THE ELUSIVE NATURE OF THE ESP CONTACT

The foregoing analysis enables the various emotions to be assigned to ESP scenarios. In the case of precognition, for example, appraisals are carried out in the present and in the future. The appraisals in terms of 'wish' produce identical fields, which resonate together and create a link between the present and future thoughts. The appraisals in terms of 'belief' cause the structures of the fields to be modified according to the different levels of assessed probability of the event happening. Thus, a tendency towards replication between the structures of the fields will result in a 'flow' of belief from the field containing the higher level to the one containing the lower level.

It would seem reasonable to suppose that the 'amount' of belief transferred will depend on the difference between the levels of belief initially associated with the appraisals. The future appraisal will normally produce maximum belief, since the future event is known to have happened when the appraisal is carried out. The ESP contact will therefore depend on the assessment of probability in the present being such as to produce a relatively low level of belief. Furthermore, the 'extra' belief arriving from the future could be more likely to be noticed if it is compared with a low level of belief initially associated with the present appraisal.

There is also another factor which might influence the ESP contact. The 'belief' arriving from the future may have to be shared amongst many appraisals made at consecutive moments in the present. We shall deal with these factors separately.

#### *Effect of Varying the 'Expectation' Towards the Future Event*

The initial belief, or degree of 'expectation' towards the future event, will depend first of all on whether a forecast can be made, based on information available in the present. We could take a scenario in which a percipient "sees a dark cloud approaching" and would like ESP to provide confirming knowledge as to "whether or not it is going to rain". In this case, the percipient might assess, say, an 80% probability of rain in the present and 100% probability in the future, after the rain has been experienced. Since there is relatively little difference between the corresponding 'belief' in the present and in the future, an ESP contact would seem very unlikely.

However, a correctly controlled target-guessing experiment eliminates the possibility of any kind of forecast due to changing conditions in the present.

The symbols appear on a basis of pure chance and the probability of a given symbol appearing will depend only on the number of target options available. If two options are available (e.g. tossing a coin), the probability of either one appearing is 50%. In the case of ESP cards, the probability is 20%, since five different symbols are used. ESP contacts should be easier to obtain when five options are used, because the initial belief will be much lower than in the case of two options. In fact, as pointed out by Palmer (1986, pp.121–122), most researchers use four or five options, which might well combine the psychological advantage of working with a smaller number with the increased amount of 'belief transfer' to be expected when a larger number is used. We shall return to the discussion of the number of options later.

Interestingly, the situations in which spontaneous precognition most frequently occurs are those in which the percipient feels a 'hunch' that something is going to happen. The initial assessment of probability in such cases is usually extremely low. For example, in the case of "Uncle Tom" (Taylor, 1998, p.292), who hasn't made contact with the percipient for several years, the probability of him calling on the telephone during the next few minutes would be very much less than 1%. This very low probability leads to a very low initial belief. The 'extra' belief arriving from the future will easily be noticed and this could explain why precognitions often do occur in situations of this kind.

Notice that the probability figures are quoted for illustrative purposes only. I do not suggest that a precise quantitative assessment is attempted each time an ESP contact is made. A percipient might, for example, deduce that an event seems "fairly likely" to happen, and then she perceives the emotion and notices that the event, in fact, seems "more likely than would have been expected". It is the difficulty in quantifying the likelihood of the event happening, combined with the difficulty in assessing the 'amount' of belief produced, which make the ESP contact so elusive in the first place.

Furthermore, if a percipient has already performed a number of trials in a target-guessing experiment, and she has just obtained a run of 'hits', then her overall belief pattern will begin to change. She will predict that she is going to score anyway, and she will initially appraise her thoughts about whichever symbol comes to mind with a high level of belief that it will turn out to be "the correct one". Thus, when such a symbol does turn out to be correct, she will not notice the small amount of additional belief coming from her future appraisal (see Taylor, 1998, pp.302–303). Further scoring no longer generates any 'surprise' and her ESP ability will have fallen considerably.

To summarize, there must initially be *minimal* belief towards the event happening, in order to maximize the amount of 'extra' belief arriving from the future. However, it is important to notice that the initial belief must not be directed towards the possibility of the event "not happening". In this case, as discussed earlier, a different association would be activated and resonance would not occur.

Finally, as noted in my previous paper (1998, p.301), in situations where there is a high degree of expectancy in the present, ESP will be more useful to detect the absence of a future outcome. In this case, there will be a high level of belief in the present and minimum belief in the future (once the future event

is known not to have happened). The 'flow' of belief will be from present to future. The reduction in the level of perceived 'belief' in the present is just as likely to produce an ESP contact (such as an intuitive warning) as when the situation is in reverse.

*Effect of Sharing the Transferred 'Belief' Amongst Several Appraisals*

Suppose that a percipient, Mary, thinks about the possibility that a highly desirable future event (caused by circumstances) might happen. Thoughts about the event will be predominant in her mind and she will appraise them at frequent intervals. We will assume that, with each appraisal, she assesses a 50% probability of the event happening, which in turn produces average belief and the corresponding emotion of 'hope'.

If Mary is really concerned about the event, she may also appraise her thoughts about the possibility of the event "not happening" (i.e. about an undesirable event "happening"). The feeling towards this event will be 'fear'. Thus she might find herself 'worrying' about the event, alternately thinking about the event "happening" and the event "not happening", to produce the emotions of 'hope' and 'fear'. I would suggest that such a mechanism might account for the feeling of 'anxiety'.

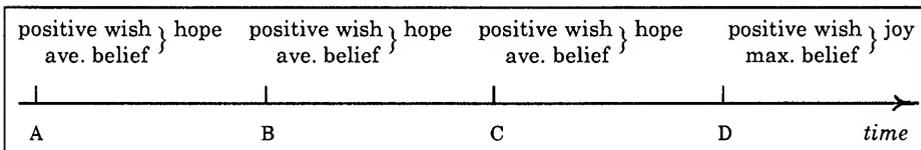


Figure 4. Appraisals corresponding to a Highly Desirable Future Event

Figure 4 illustrates a simpler scenario, in which Mary thinks only about the possibility of the event "happening". She makes a total of four appraisals which are shown along a time scale. Three of the appraisals are made in the present (before the event happens), at moments represented by A, B and C. Then, after the event has happened, one more appraisal is made at D, Mary's strong belief now producing the emotion of 'joy'. Only one appraisal is shown in the future, in order to exemplify the kind of situation in which the future appraisals rapidly turn 'cold', and cease to generate further emotion, once the future benefit has been enjoyed.

The fields due to all four appraisals resonate together and the field originating at D, which contains a high level of 'belief', will impart some of this belief to the fields originating at A, B and C. Since the transferred belief is shared between the three (and possibly many more) fields originating in the present, then its effect on any one of these fields will be reduced. If Mary wishes to make an ESP contact, say, at the moment represented by A, such a contact will be difficult because she is unlikely to notice the small difference between the expected belief and the actual belief produced at this moment.

If we now take a scenario in which Mary is relatively indifferent towards the future event happening, she might think about the event and appraise her thoughts just once in the present, at point A (Figure 5). It is easy to see that

the field at D is more likely to have a noticeable effect on the field at A, and therefore result in an ESP contact.

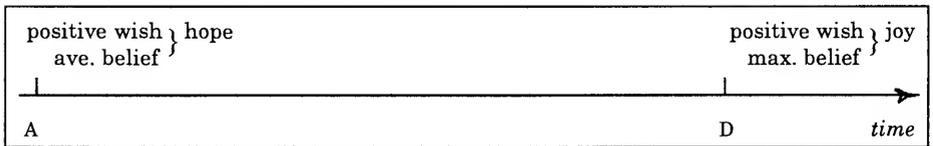


Figure 5. Appraisals when Percipient is Relatively Indifferent to Event

This 'dilution effect', in which the transferred belief is shared amongst a number of appraisals, could impose a severe restriction on the usefulness of ESP, preventing its occurrence when it is most needed, that is, when the percipient is most concerned about the event happening.

Notice that when the appraisals refer to an event caused by a person, the appraisal is shared between the 'cause' (along with any 'sub-causes') and the 'effect'. This is essentially a variation of the 'dilution effect', in which one appraisal refers to several items, rather than one item being appraised several times. In this case, weaker emotions such as 'anticipation' and 'satisfaction' are produced, rather than the stronger emotions of 'hope' and 'joy'.

We can now see that, in the case of target-guessing experiments, the detection of ESP will require a compromise between two conflicting conditions. There must be sufficient interest in scoring for the fields to be produced which resonate together and create the bridge over which the 'belief' can be transferred. At the same time, the desire to score must not be so strong that the appraisals are repeated unnecessarily in the present and the 'dilution effect' occurs.

#### THE ELEMENT OF SURPRISE

The experience of ESP often seems to be accompanied by the feeling of 'surprise', especially when the future event is unexpected (appraised with low initial belief) and the 'extra' belief arriving from the future is more noticeable.

The feeling of surprise is a difficult one to place within the structural models for the determinants of emotion. Lazarus, for example, considers it to be a 'pre-emotion' (1991, p.83) and Roseman also questions its status as a basic emotion (1984, p.29). In fact, if an unexpected event were suddenly to happen, knowledge of the event would immediately be re-appraised to produce a higher level of 'belief'. This would explain how the belief had become stronger, but it would not necessarily explain the specific quality associated with 'surprise'.

I would therefore suggest that the 'surprise' does, in fact, relate to a situation in which ESP is occurring. The percipient appraises knowledge of an event to produce a corresponding level of belief, but the level of belief actually experienced is higher than expected. It is the 'surprise' which draws the percipient's attention to the underlying thoughts.

Furthermore, there is no need to restrict this explanation to the traditional kind of ESP scenario. It is possible that whenever surprise occurs it is a manifestation of ESP. Suppose, for example, that an unexpected event is

experienced quite suddenly. During the first moments, just as the experience is beginning to be felt, it will be appraised with a low level of belief. A few moments later, as the experience is approaching its point of maximum impact, it will again be appraised, this time with a much higher level of belief. An ESP contact occurs, with some of the belief being transferred back to the earlier appraisal. The increase in belief associated with the earlier appraisal would again account for the surprise. Of course, since the appraisals take place in rapid succession, the person assumes that causation has followed its 'normal' direction in time and that the surprise has come after the experience of the event. In reality, it occurred just as the experience was beginning to be felt.

Notice also that in any ESP contact, once the percipient has noted the 'extra' belief coming from the future, this extra belief will be taken into consideration when the next appraisal is made a few moments later. The 'expectation' towards the event is now higher and the amount of any further belief arriving from the future will be reduced.

This explains the fleeting nature of both ESP and of the surprise which accompanies it. Subsequent appraisals will already have adapted themselves to the new level of probability with which the event is assessed.

#### THE SUBJECTIVE ATTITUDE TO ESP RESPONSE

In the early days of ESP testing, subjects were encouraged to develop a specific state of mind in preparation for responding to ESP targets. Later, the emphasis turned to mere guessing, the statistical evaluation of large numbers of trials being used to provide evidence for ESP. Rhea White (1964) carried out a comprehensive survey of what at that time were considered to be the old and new methods of response to ESP targets. She suggested that the earlier methods, although involving the deliberate and conscious preparation for the ESP task, were more conducive to producing a spontaneous response. By examining reports from both subjects and experimenters, she gathered evidence for the success of these early techniques and recommended a procedure which she divided into four main steps. It is worth reviewing the procedure briefly, in order to determine the extent to which the present theory is supported by her recommendations.

##### *Step 1. Relaxation*

This first step involves a definite ritual to systematically relax the body and achieve a state in which the mind is blank and free of all intruding thoughts. Nowadays, these techniques are more widely known, especially amongst exponents of yoga.

Such a relaxation would seem to constitute a logical starting point, irrespective of the mechanism for ESP. By minimizing interference from sensory input and intruding thoughts, the brain is operating at maximum sensitivity to the relatively weak extrasensory signals with which we are concerned.

##### *Step 2. Engaging the Conscious Mind*

Nowadays, this step would be described as 'meditation'.

Typically, it involves visualizing some familiar object, such as a "yellow rose". The aim is to engage one's conscious attention, which would otherwise

tend to wander. White suggests that this process prevents the conscious mind from interfering with the paranormal process, which is carried out unconsciously. Such interference is "eliminated or diminished, not by suppressing it, but by deploying it elsewhere" (p.32).

The step is very interesting, because it invites the subject to concentrate on a simple thought without appraising it. It involves the activation of one half of the association and avoids the creation of unwanted emotions. Thus it serves to create a mental 'working area' in time, free from extraneous emotional fields, which might interfere with experimental results. The point about avoiding emotion is actually raised by one of the subjects, Sinclair, who suggests visualizing "some pleasant, familiar thing which does not arouse emotional memory-trains" (p.31).

### *Step 3. The Waiting, the Tension and the Release*

In this step, the subject has to wait as long as necessary until the answer spontaneously comes into consciousness. The apparent aim is to allow tension to build up, whilst the mind continues to concentrate on the familiar object and whilst at the same time it is aware of the void in which the answer is going to appear. When the answer does come, it seems to be associated with a sudden release of tension, although it is not quite clear whether the answer coming causes the release of tension, or vice-versa. Either way, White emphasizes the importance of keeping one's attention away from the target, so that the target information is free to come spontaneously.

This is the more difficult step to interpret, since it is impossible to know exactly what is happening subconsciously. However, in my previous paper, I showed that, in order to avoid a causation loop, the target has to be selected by the systematic elimination of alternatives which happen to be incorrect (1998, p.303). It is possible that it may be quite easy for this process to take place subconsciously. In a forced-choice target-guessing experiment, for example, the items corresponding to the alternative options may be connected directly to the item corresponding to the idea of "being correct" on the associational network. It would thus be easy for these associations to be activated and scanned.

Furthermore, the subconscious mind may already be accustomed to carrying out a scanning of options, as an aid to survival. I referred in my previous paper to Stanford's PMIR hypothesis (Taylor, 1998, p.301; Stanford, 1990), which suggests that living organisms do constantly scan the environment, looking for information related to the fulfilment of their needs. If this scanning does serve as a survival aid, it would be reasonable to suppose that Nature has already evolved an efficient way of carrying it out.

But why the build-up of tension and deliberate distraction? Let us suppose that an animal hears the sound of a predator. It is immediately put "on guard" and tension will build up whilst it looks for further sensory clues about the whereabouts of the predator. It is possible that this tension activates the paranormal process in which the animal starts to scan a number of options concerning possible ways of avoiding the danger. However, whilst the scanning takes place, the animal's conscious attention is directed towards the sensory clues and thus the paranormal information is allowed to come spontaneously. It would appear that the technique of allowing tension to build up, and of

keeping attention away from the target, may be adopting in the laboratory a process which takes place quite normally in Nature.

#### *Step 4. The Way the Response Enters Consciousness*

When the point of highest tension has been reached, the answer usually seems to come quite spontaneously and accompanied by a feeling of conviction that it is the right one. Interestingly, several of the subjects even reported the feeling of 'joy' which accompanied the correct impressions. Carlson, for example, reported that when the image was correct "she always knew it was correct because it was accompanied by a burst of joy" (p. 39).

This suggests that twin appraisals are taking place subconsciously. First, the alternative options are scanned, until the one which produces the effect of "being correct" has been identified. The option itself is then dropped from the appraisal and the subject appraises the 'effect' only—that of "being correct". However, since the subject 'knows' that the correct selection has been made, this 'effect' is initially appraised with a high level of belief. This produces the stronger emotion of 'joy', which rises to the subject's conscious attention and also brings with it an awareness of the option which produced the effect in the first place.

Finally, it is interesting to note that one of the subjects, Sinclair, reported that "mental visions appear and disappear with lightning rapidity, never standing still unless quickly fixed by a deliberate effort of consciousness" (p. 42). Was she consciously aware of the scanning process as it took place?

The theory does appear to offer reasonable explanations for all the steps proposed in White's remarkable paper and this would certainly suggest a possible revival of these techniques in present-day research.

#### TOWARDS REPEATABILITY IN THE RESULTS OF ESP EXPERIMENTS

With an understanding of the factors which might inhibit ESP performance and of the ways in which percipients seem to respond to targets, it should be possible to design experiments which ensure better repeatability in their results.

First, it will be useful to make a distinction between 'spontaneous' and 'controlled' precognition. Spontaneous precognition usually refers to circumstantial events, in which it is the event itself which leads to the emotional response. Such an event might be a disaster, which evokes emotion by implying a threat to one's personal well-being. Alternatively, it might be a trivial event, such as one which has been caused by the action of a family member (cf. the "Uncle Tom" hunch, discussed earlier). In either case, the event itself has a personal significance for the percipient and that is what leads to the emotion being produced.

Situations of this kind would be difficult to reproduce in the laboratory. The future event would have to be created artificially. One might, for example, show the percipient a film about a disaster; but the emotion would not be as strong as that produced when the percipient knows that a disaster has really happened. The future 'belief' would be lower than maximum.

The laboratory would therefore be much better suited to the study of controlled precognitions. These usually refer to events caused by oneself, in

which it is the appraisal of the complete 'cause-and-effect' sequence which leads to the emotional response. Now, whether the experiment is of the forced-choice or free-response type, this appraisal refers to "a given option causing the effect of knowing that it is the correct one". The emotion is therefore related entirely to the subject's success in the experiment. This predicts the well-known 'decline effect', in which results fall to non-significance due to a bored subject trying to appraise 'cold' cognitions, which do not generate any emotional response. One of the advantages of White's technique is that it aims to obtain maximum statistical significance with just a few trials, whilst the subject's interest can still be maintained.

Another factor to consider is the number of options to be used. As discussed earlier, the higher the number of different items, the lower will be the initial belief that any particular item is the correct one. The subject will be more likely to notice the 'extra' belief arriving from the future. In a free-response experiment, for example, the number of items is almost unlimited; any one of them would be appraised with extremely low belief. This would increase the chances of an ESP contact and explain the apparent success of this kind of experiment (e.g. Honorton, et al., 1990). However, in any free-response test, the subject has the additional task of drawing up a large inventory of items in the first place (Taylor, 1998, pp.304-305). Scoring would not be possible unless the target item was included in the inventory.

In view of this, an experiment could perhaps be designed to measure the effect of increasing the number of items in a forced-choice experiment. Best results might be obtained with the largest 'vocabularly of items' which can readily be accessed within the subject's long-term memory. (Notice that the number of items traditionally used in forced-choice experiments lies within the limit of capacity of a person's short-term memory, which is from five to nine items).

Having determined a suitable number of items, the next question concerns the way in which they are 'scanned'. I referred to this question in the discussion of White's Step No.3, but it is worthwhile considering whether an attempt should be made to carry out the process *consciously*. The process involves making intuitive decisions to systematically eliminate the incorrect options. The selection is made, not by looking for feedback from the correct option, but by looking for the absence of feedback when the option is incorrect. There must, however, be a definite intention to go ahead with the option in order to produce a *meaningful* absence of feedback when it is incorrect. Since the absence of feedback may not be noticed until the very last instant before the option is registered, it would be easy for the subject to leave it until it was "too late" for him to stop himself from going ahead with that option. Thus it may still be better to allow the process to take place spontaneously (using the "tension-building and distraction" technique), even if a limited number of options are used. Furthermore, there may be less risk of repeating the same appraisals and producing a 'dilution effect' when the process is allowed to take place spontaneously.

A dilution effect will also occur if the experimenter repeats the same appraisals. The experimenter should therefore avoid reappraising individual trials, and instead confine his or her activity to adding up the total scores.

At present, we do not know whether or not telepathic communication is affected by distance (Taylor, 1998, p.300). It will therefore be important for a new telepathy experiment to be carried out, similar to the one discussed in my previous paper (1998, pp.307–308). Thus, if the significance of results does fall with increasing distance, it should be possible to determine the 'safe distance' at which any observers of a precognition experiment should be situated, so as to avoid interference due to telepathy.

Finally, one of the most important reasons for the non-repeatability of many past experiments may have been the assumption by investigators that contacts were being made directly with the ESP targets. In any 'clairvoyance' experiment, the percipient must be given feedback about the target so that he or she can generate the future emotion which is necessary for the ESP contact to be made. The clairvoyance experiment described in my previous paper is assumed to have been carried out and to have eliminated the possibility that ESP signals might be transmitted directly from inanimate objects or events (1998, pp.305–307).

#### DISCUSSION

The proposal of resonating fields corresponding to the appraisals of thoughts about an event does enable us to put forward a simple mechanism for ESP, which not only explains its elusive nature but also allows it to occur without the intervention paradox arising.

However, we still need an explanation for the fields themselves, and for their tendency to replicate one another, thus permitting a transfer of information between them.

Notice that such a tendency towards replication must apply not only to the fields, but also to the brain structures associated with them. The fields may act as the medium which communicates the thoughts and emotions to subjective consciousness, but a change in the brain structure is necessary to allow the communication of information to the brain, so that it can take whatever action is necessary.

In fact, any tendency towards replication of brain structures is actually a manifestation of PK in the brain. A corresponding effect on larger-scale external structures would explain macro-PK and also suggest why it is usually associated with the emotional states of people located in the vicinity of its manifestation.

The suggestion of 'resonance' and a tendency towards replication of structure is reminiscent of the 'morphic resonance' proposed by Rupert Sheldrake (1988). It is possible that the 'emotional field' is a special kind of morphogenetic field, which, by virtue of containing information generated by living brains, allows this information to be transferred through resonance. However, the mechanism proposed by David Bohm (Bohm & Weber, 1982) would seem not to impose any limits at all to the range of the effect through space and time.

I would suggest that if the range of telepathy and precognition were really to be unlimited, this would create a serious problem in selectivity, not only in target-guessing experiments, but also in the spontaneous perception of these phenomena. One way of overcoming this would be to suggest that whilst the

range of the influence in space and time might be theoretically unlimited, there could be other factors which produce an attenuating effect as the range increases.

However, the results of any experiments which definitely establish the limits to the range of ESP are eagerly awaited (Taylor, 1998, pp.305–308). Such experiments will clearly lay the foundations for a reliable physical theory for the mechanism involved.

*Puertomar 11–5–D, Valdelagrana  
11500 Puerto de Santa Maria  
Cadiz, SPAIN*

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