
ARE WOMEN MORE SHEEPISH?:
GENDER DIFFERENCES IN BELIEF IN THE
PARANORMAL

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In popular stereotypes women are more involved than men in psychic activities. More women than men are clairvoyants, psychic readers, and fortune-tellers. Within traditions such as Spiritualism, there have always been more female than male mediums, even though a few of the most famous were men. Today women's magazines almost all have astrology columns, and articles on the paranormal feature frequently. There seems to be a general perception that women are more interested and involved in the paranormal and more likely to believe in it than men.

This paper surveys the evidence for gender differences in belief in the paranormal and explores some possible reasons for them.

Belief in the paranormal has most frequently been studied within parapsychology as part of the sheep/goat paradigm. Schmeidler (1943; see also Schmeidler & McConnell, 1958) first distinguished sheep (believers) from goats (disbelievers) and claimed that sheep scored higher in tests of ESP than goats did. This has been the subject of a large number of studies, reviewed by Palmer (1971). In many of these studies, subjects were classified into sheep and goats by a single question about belief or by a few questions devised for a particular study. More recently, various belief questionnaires have been compiled (e.g., Glicksohn, 1990; Jones, Russell, & Nickel, 1977; Thalbourne, 1981; Thalbourne & Haraldsson, 1980a; Tobacyk & Milford, 1983).

Some of these studies are concerned solely with paranormal phenomena, whereas others include questions on monsters, the occult, UFOs, and healing, to mention just a few items. Scales with a very wide range of questions include Otis and Alcock's (1982) Extraordinary Belief Inventory, the Belief in the Paranormal Scale (Jones et al., 1977), and Tobacyk's Paranormal Scale (Tobacyk & Milford, 1983). The latter consists of seven subscales measuring dimensions of belief: traditional religious belief, psi belief, witchcraft, superstition, Spiritualism, extraordinary life forms, and precognition. Zusne and Jones (1982) used

a scale with 11 questions, including ESP, ghosts, reincarnation, and even necromancy. They found positive correlations between all the questions, and many of the correlations were strong ones. Although these sorts of scales may be tapping quite different belief systems from the original sheep/goat distinction, there tends to be a fairly high correlation between scores on the scales. For example, Irwin (1985) used Tobacyk's and Thalbourne's scales as well as one adapted from Sheils and Berg (1977). Correlations between the scales were between .69 and .86.

Generally these scales have been used, not as further tests of the sheep-goat effect on psi scores, but to explore other correlates of belief in the paranormal in an attempt to understand its origins and implications. From these studies, the beginnings of a picture of the believer and disbeliever is emerging.

Several studies have found a correlation with various measures of dream recall or interest in interpreting dreams (see e.g., Glicksohn, 1990; Haraldsson, 1981; Irwin, 1985). A strong association has been found between belief and reporting personal psychic experiences (e.g., Glicksohn, 1990; Haight, 1979; Murphy & Lester, 1976). However, this may depend on the question asked. Someone who has declared no belief in ESP is unlikely to admit to having had an ESP experience even though he or she may have had experiences that other people would call ESP. In this way a person's experiences and their interpretations of their experiences will confuse the issue, and the wording of the question may be crucial. Irwin (1985) tried to avoid this problem by especially wording questions to imply that the experiences may (or may not be) interpreted as paranormal. He found correlations around .5 to .6 between personal experience measured this way and the three belief scales.

Personality variables have also been studied. Thalbourne (1981) reviews evidence showing that believers are more extraverted. Kanthamani, Haight, and Kennedy (1979) found no personality differences using the Cattell High School Personality Questionnaire. On the other hand, Sandford (1979) found that high psi-experiencers scored lower on scales of the California Personality Inventory relating to degree of socialization and maturity.

Thalbourne and Haraldsson (1980a, 1980b) found a weak but consistent association between two sheep-goat scales and extraversion-introversion using the Minnesota Multiphasic Personality Inventory and Cattell's 16PF Questionnaire. Thalbourne (1981) extended this by using

the Eysenck Personality Inventory, predicting that sheep would be more extraverted than goats. He used two scales, the Australian Sheep-Goat Scale, which consists of 10 forced-choice questions, mostly about personal psi experience, and the Icelandic Scale, which consists of three questions about reading psychic literature and belief in psi. When analyzed for both the Australian and Icelandic scales separately, sheep were significantly more extraverted than goats (and more neurotic, although this was not significant). He further explored the relationship between sex, personality, and belief using analysis of variance, but no significant interactions were found.

Zusne and Jones (1982, pp. 186-190) review studies showing a relationship between belief and neurotic tendencies, emotional maladjustment, fear and insecurity, poor social and personality adjustment, conservatism, and emotional stability. Using a very broad definition of paranormal belief, Alcock and Otis (1980) found that believers were relatively more dogmatic, although Tobacyk and Milford (1983) show that dogmatism is only correlated with the traditional religious belief and witchcraft subscales of their Paranormal Scale. In a relatively early study of authoritarianism, Adorno, Frenkel-Brunswick, Levinson, and Sanford (1950) found that authoritarian people were prone to superstition, apparently because their upbringing had been harsh, punitive, and arbitrary, leading them to feel that their lives were under the control of external forces.

This is related to the apparently rather consistent finding of a relationship between belief and external locus of control. Locus of control is a measure developed by Rotter (1966) of the extent to which a person sees the world as largely controlled by internal or external factors. Jones et al. (1977) and Scheidt (1973) found believers to be more external, although Haraldsson (1981) found no significant difference. Tobacyk and Milford (1983) found that locus of control was significantly correlated with their whole scale and with the subscales of traditional religious belief, witchcraft, and extraordinary life forms; in each case, believers were more external.

The illusion of control is also related to belief in the paranormal. First described by Langer (1975), this is the tendency for people to perceive random events as under their control. This illusion could easily lead to apparent experiences of psychokinesis and therefore be related to belief in the paranormal. Sheep have been found to be more prone than goats

to an illusion of control in psi tasks (Jones et al., 1977; Benassi, Sweeney, & Drevno, 1979), a computer game task (Blackmore & Troscianko, 1985), and a single probability judgment unrelated to the issue of the paranormal (Brugger, Regard, & Landis, 1991).

This might be seen as one aspect of a general tendency for believers to see connections where none are present or meaning and pattern in random events. A different approach to this is to compare sheep and goats for their tendency to see form in meaningless patterns. As expected, sheep have been found to see forms more readily (Blackmore, Galaud, & Walker, 1991). This difference was not in accuracy: When forms were there, they were seen equally easily by sheep and goats. In terms of signal detection theory, this might suggest that sheep have a lower criterion (respond less cautiously) but the same sensitivity. However, the only study comparing sheep and goats in this way found no differences (Gagne & McKelvie, 1990).

Believers have often been characterized as less intelligent than disbelievers. There are some indications that education may reduce belief in the paranormal (e.g., Haraldsson, 1985; Moss & Butler, 1978), although this is controversial and bound up with the issue of differences in intelligence. Many early studies found the expected correlation with IQ (see Zusne & Jones, 1982), but some failed to find it, and another study found a difference in the opposite direction (Jones et al., 1977). Wierzbicki (1985) reported that sheep did less well on reasoning tasks. Alcock and Otis (1980) found believers did worse on a scale of critical thinking. However, they did not perform worse on a special test devised for critical thinking.

Interest has recently increased in just what cognitive skills do relate to belief in the paranormal. Troscianko and I (Blackmore & Troscianko, 1985) suggested that many apparently paranormal events depend on a judgment of probability; typically, an event or coincidence is too unlikely to have occurred by chance, so a paranormal explanation is invoked. If this is so, we might expect believers to be more likely to underestimate coincidences and in general to do worse at probability judgments. This was confirmed (Blackmore & Troscianko, 1985). It has also been found that subjective random number generation is correlated with belief in the paranormal. It has long been known that when asked to produce a string of random numbers, people avoid repetitions. Sheep were found to do this more than goats by Brugger, Landis, and Regard

(1990), though not by Blackmore and Troscianko (1985) or Blackmore, Galaud, and Walker (1991). The theory underlying such studies is that everyone may experience chance events, but they interpret them in different ways. To those who badly misjudge chance, many more events are likely to seem "impossibly unlikely" and so lead them to invoke the paranormal. This means chance events become psychic experiences (or psychic illusions). On this view, the belief may arise secondarily in response to personal experience.

This, then, is the context in which we may try to understand gender differences in belief in the paranormal. First, are there any findings to back up the expectation of more frequent paranormal experiences and stronger belief among females? Some early studies found differences (see Zusne & Jones, 1982). More recent studies are reviewed here, and the overall conclusions are shown in Table 1 on the facing page.

Some studies have asked about experiences but not belief. Green (1966) surveyed 115 Southampton University students, asking five questions about their experiences of déjà vu, lucid dreaming, out-of-body experiences, hallucinations, and ESP. She found no sex differences for any of the questions and concluded that this runs "counter to the popular belief that women more often claim experiences of a 'paranormal' nature than do men" (Green, 1966, p. 360).

In 1979, Palmer conducted a representative survey of the students and townspeople of Charlottesville, Virginia, asking about a variety of psychic experiences (not beliefs) and psi-related experiences. Although he does not report sex differences in detail, he found no significant differences for any of the items. Given the large representative sample (354 townspeople and 268 students) and the large number of analyses carried out, this result should carry some weight as implying that women do not report more such experiences than men.

Kohr (1980) used Palmer's questionnaire but surveyed a very different group—members of the Association for Research and Enlightenment (organized around the teachings of Edgar Cayce). Of the 406 respondents, 68% were female. In contrast to Palmer's findings, Kohr found that females reported significantly more psi-related experiences than males, including waking ESP, OBES, apparitions, and past-life memories. He also constructed six psi and psi-related variables to cover different clusters of experiences and found that females reported more than males in all six categories.

TABLE 1
 Summary of Research on Gender Differences in
 Paranormal Belief and Experience

Study	Sample		Psi-rel Belief			Psi Experience		
	N	%W	W>M	M>W	n.s.	W>M	M>W	n.s.
Blackm 84	321	53			*			*
Clarke 91	1048	71	*				-	
Green 66	115			-				*
Harald 81	568	53	*				-	
	180	31			*			
	195	65	*					
Harald 85	896	50	?			?		
	751	34	?			?		
Irwin	136	50	*			*		
			*					
			*					
Kohr 80	406	68		-		*		
Mur&Le 76	149	52			*			
Palmer 79	354	60		-				*
	268	34		-				*
Thalbo 81	161	66			*		-	
			*				-	
Thalbo 84	75	41			*		-	
Tob&Mi 83	424	43	*				-	

W>M = Women significantly higher score than men
 M>W = Men significantly higher score than women
 ? = W>M but no significance reported

I (Blackmore, 1984) conducted a representative survey of residents of Bristol, England, asking about many psychic and psi-related experiences as well as two belief questions, one on ESP and one on survival. There were no significant sex differences for any of the experiences, with the exception of having feelings of floating (relevant to having OBEs but hardly related to psi). Of those who professed a belief in ESP, 46% were female, and of those believing in survival, 57% were female. These differences are also not statistically significant, though it is interesting to note that the difference for belief in ESP is in the direction of greater belief among males.

Other studies have been concerned primarily with beliefs, not experiences. For example, Murphy and Lester (1976) gave 149 subjects a questionnaire on belief in a wide variety of psychic and psi-related phenomena but found no sex differences. In a study of belief and locus of control, Scheidt (1973) found greater belief in the paranormal among females. He constructed a scale consisting of 32 items for response on a 7-point Likert scale and administered it to 43 students previously selected as extreme on locus of control from among 1,200 students tested. Females' mean score was 134 and that of males was 114. The sex difference in belief was greater in the external locus of control group, but analyses to explore this relationship further were not carried out.

Haraldsson (1981), who found no sheep-goat differences in locus of control, reported three studies using the Icelandic scale of three questions about belief and reading on psychic phenomena. In the first, in which there were 568 subjects, women expressed more belief, and there was a significant positive correlation between gender and belief ($r = .22$). In the second, with 120 students, the correlation was .12 and not significant. In the third, testing 195 students, a significant correlation ($r = .30$) was again found.

Thalbourne (1981), in the study of personality referred to above, does not report sex differences in belief. However, Haraldsson (1981) reports that in that study Thalbourne confirmed the Icelandic sex difference in his sample of 161 British students, but he found no differences when using the Australian scale. This is interesting because the Australian scale includes questions mostly about personal experience. This result may add weight to the impression that it is belief rather than experience that is stronger in females. Thalbourne (1984) also reports data for a small group (97) of American students who were given the Icelandic

scale. The difference was in the expected direction but not significant, with a correlation of .13.

Tobacyk and Milford's (1983) Paranormal Scale was administered to 424 students. For the overall scale, females reported stronger belief than males, but this was barely significant. However, separate analyses for the subscales show that all are stronger for females (traditional religious belief and precognition have significant differences) except for the extraordinary life forms subscale on which males scored higher than females. A similar difference was found by Messer and Griggs (1989): women had stronger belief in astrology and biorhythms, but men believed more in extraterrestrial visitation.

The most recent study to find something similar is by Clarke (1991) in New Zealand. He used a modified version of the Questionnaire on Anomalous Phenomena (Greenwell, 1980) and received completed questionnaires from 1,043 students. For the 17 items included in the questionnaire, women reported stronger belief than men in all but UFOs and the Loch Ness Monster. There were significant tests for telepathy, precognition, life after death, clairvoyance, astral projection, astrology, psychic healing, and reincarnation (women stronger) and for UFOs (men stronger). A factor analysis revealed three factors. Women scored significantly higher on two of them, psi-related belief and traditional religious belief, whereas men scored higher on the Extraordinary Life Forms factor.

In 1985, two surveys were published that studied both experiences and beliefs. Haraldsson reported analyses of several representative national surveys of paranormal experiences and beliefs. Some information on gender is given for two of them. In Great Britain, Audience Selection (1980) interviewed a quota sample of 896 people for the *News of the World* newspaper about psychic and occult beliefs and experiences. Females reported stronger belief and more experiences on all of the nine topics. The most commonly reported experience was psychic dreams, reported by 44% of the women and only 36% of the men: a significant difference. In Sweden, in 1978 a quota sample of 751 persons and in 1980 a further sample of 502, were asked six questions on paranormal beliefs. Women reported stronger belief in all categories, but no significance is reported.

Irwin (1985) carried out a systematic study comparing three methods of measuring belief in the paranormal: Thalbourne's Australian scale,

Tobacyk and Milford's scale, and a scale from Sheils and Berg (1977). He also added six items on personal paranormal experiences. The experiment was designed to manipulate cues to paranormal versus normal causality. Although the manipulation appeared to be successful, it did not affect results on the questionnaires, possibly reducing worries about the effects of some kinds of demand characteristics on the responses to such questionnaires. Women scored higher than men on all three belief questionnaires and the questions on personal experience. Correlations were between .21 and .29, and all were significant. Irwin makes the important point that such analyses cannot reveal which factors are reducible to others in their relationship to belief or experience. To explore this further, he carried out a multivariate multiple linear regression analysis. This revealed that the fundamental variables in belief were (in decreasing order of importance): personal experience, dream interpretation, and reading (Australian scale); personal experience, survival belief, reading, and religiosity (Tobacyk's scale); and personal experience, dream interpretation, reading, and survival belief (Sheils and Berg items). Sex made no significant additional contribution to the prediction of belief scores on any of the three scales.

In summary, these many diverse studies of sex differences in belief seem to show that women are more likely to believe in the paranormal than are men. But why?

Traditional comments on the reasons are not flattering, either to women or to anyone who believes in the paranormal. For instance, Zusne and Jones (1982, p. 189) indicate that believers are often characterized as female, unintelligent, misinformed, poorly educated, authoritarian, and emotionally unstable. (They go on to explain why the evidence does not entirely support this.) Brink (1978, p. 22) comments that off-the-cuff remarks of many psychologists run something like this: "Individuals who have defective reality-testing or who are driven by unconscious complexes are attracted to belief in psychic phenomena." And Scheidt (1973, p. 1161) offers the following explanation of the difference between the sexes: "Female college students may possess more 'ascientific' attitudes than males, thus reflecting a disposition toward believing more in supernatural phenomena than males." They do at least go on to say that this suggestion requires empirical research to back it up!

Why then do females generally express greater belief in the paranormal? We must remember first that the difference is not in all paranormal beliefs. We have already considered the recent evidence that men express stronger belief in extraordinary life forms. Zusne and Jones (1982) mention a possible reason for this that was proposed more than 70 years ago by Conklin (1919), who found that females were more superstitious in areas of greater concern for them (such as social relations), and males were more superstitious in typically masculine areas (such as sports). This tempts me to make some speculations. Could it be that what counts as paranormal has been defined by a male-dominated science so that kinds of explanation and ways of seeing the world that are preferred by females become defined as outside of science and hence paranormal? If so, we may expect changes in the definition of the paranormal as more women become scientists. Perhaps, more realistically, belief scales could be devised that take account of this kind of difference.

Another point is that many scales have confused belief and open-mindedness. In a sense, we cannot really decide whether the paranormal exists or not, what with its negative definition and equivocal evidence. The only truly honest conclusion is doubt. But where does doubt fit into the sheep-goat dichotomy? I think there may be two distinct variables here, one of belief-disbelief and the other of flexibility-dogmatism. As we have seen, there is some evidence linking disbelief and dogmatism, but this connection is not well researched. More importantly, in most of the questionnaires these two are not carefully distinguished. Questions may be of the "I believe telepathy definitely exists" variety or the "I believe people may be able to communicate with each other without using the senses" type. A believer would presumably answer "yes" to both, but a doubter would answer "no" to the first and "yes" to the second. I wonder whether women are more or less flexible in this sense? And incidentally, I wonder whether self-proclaimed skeptics are really disbelievers or doubters in this sense. I hope to find out in future research.

For the moment, however, let us ignore the few items on which men show more belief and the shortcomings of the scales and return to the question: Why do women have stronger belief in the paranormal than men?

As already mentioned, Irwin (1985) found that sex did not contribute significantly to differences in belief once other major variables had been taken into account. These were personal experience, dream interpretation, reading, survival belief, and religiosity. He concluded that sex can be omitted from future investigations of the primary correlates of belief in the paranormal. This means that it is other factors, perhaps correlated with gender, which affect belief. However, the causality involved here is not likely to be easily revealed. It seems more useful to consider all those variables likely to differ between sheep and goats and males and females and try to see how they are related. We have seen that the major factor predicting belief is having personal experience of the paranormal. From the results surveyed above, it seems that the sex difference is less marked and less reliable for experience than it is for belief. This has not been systematically studied, and those studies in which both beliefs and experiences were surveyed have not analyzed the results in such a way as to determine the relative contributions to the sex difference, although this may well be done in the future.

Females have also been shown to have more experiences, but why? One possibility is that they, more than males, misinterpret normal coincidences as paranormal, and therefore they seem to experience more paranormal events. This, in turn, increases their belief. If this is so, we would expect to find that females produce fewer random strings in subjective random number generation tasks and that they do less well in the probability tasks known to be related to belief in the paranormal. In fact, none of the studies relevant here has reported sex differences, so this cannot be answered. I have data available and intend to explore this further. Brugger (personal communication, 1991) has looked for sex differences in his own data and did not find any. From this minimal information, it appears that this is not the key to the difference, although further research is certainly warranted.

If this is not the reason for having more personal experiences, what is? This begs the whole difficult question of the relationship between experience and belief, and this I cannot untangle. On the one hand, belief in the paranormal may lead people to interpret normal events as paranormal. On the other, having experiences may increase belief. Of course, both effects may work together and be quite inextricable. Perhaps it is best not to try to separate experience from belief in trying to find reasons for the gender differences.

Both illusion of control and locus of control have been found to be related to belief, and as already mentioned, Scheidt (1973) found a greater sex difference in belief for the external group. A related variable that has not been explored to my knowledge (and surely should be), is field dependence. In the 1950s, Witkin (Witkin et al., 1954) distinguished people in terms of their tendency to be affected by the whole field involved in a situation rather than just by the specified task. For example, in a "rod and frame" test, the task is to detect the vertical rod in a darkened room while sitting in a tilted seat. Field-dependent people are more affected by the tilt, and they are less able to detect embedded figures in specially designed patterns. There is a strong gender difference here, with females being far more field dependent. I would predict that believers would also be field dependent.

Traditionally, field independence has been thought to be a "good thing," but we might speculate how much this is based on a masculine approach to the world. Field dependence means being influenced by a far wider range of things than just one narrow task. Perhaps it is a characteristically female ability to be able to respond globally and not within a narrow limit. We may also consider the greater female sensitivity to sounds, greater visual acuity, and greater involvement in emotional life and feelings. This arguably gives women a far richer, more complicated, and less predictable world in which to live.

Could this be related to belief in the paranormal? I think it could. To live in a world of one thing at a time and be able to shut off irrelevant details is very effective for carrying out some tasks well, but it means that events are more likely to be seen as linearly caused and separable into distinct units. On the other hand, perceiving the entire field, being highly sensitive to fine detail and to feelings and emotions means that everything is seen to be interconnected. That interconnectedness leads many people to conclude that paranormal events are only to be expected.

This perceived interconnectedness of the world does not logically favor the paranormal. It is, in a sense, a truism that everything in the world is connected to everything else. The realization that "no man is an island" can be both a profound mystical experience and an obvious logical deduction from understanding simple physical principles. But it does not imply that information and energy can travel about in such a universe in paranormal ways.

It is perhaps this confusion that has led to many popular ideas, such as "the holographic universe" (Talbot, 1991), in which the interconnectedness of all things is taken to indicate the possibility of many paranormal processes as well as personal survival after death. This step from interconnectedness to the possibility of the paranormal is not logically defensible. Nevertheless, one can easily see how perceiving the one can lead to believing in the other and also to related beliefs. For someone who sees all the world as connected, astrology, biorhythms, and telepathy do not seem so strange. And, of course, that person is more likely to be a woman.

For myself there is an interesting question here. I do not believe it likely that there are paranormal events. On the other hand, I can see the validity (and the pleasure) of the interconnected view of the world. Can one have the best of both worlds? I think the answer is yes if you see that the two ideas are only linked by a kind of analogy that can easily be dropped. It is perfectly possible to perceive the interconnectedness of oneself and the world, to see everything as affecting everything else and oneself as only a constructed fragment in a flowing universe, and simultaneously to have no need to invoke paranormal forces. Indeed, it seems to me the view that does most justice to the evidence I see around me.

What this is all about is different ways of living in the world. Perhaps women have a richer fantasy life and are more in touch with their dreams and other forms of imagination. This will give them more experience of living in worlds in which anything can happen and the normal and paranormal are not so clearly separated. This, in turn, may make paranormal events seem less prohibited by nature and so increase belief. Again, I don't think one needs to give up the rich fantasy and the (hard to come by) expertise in other worlds to believe that the paranormal does not actually occur in the measurable world.

This also relates to our experiments on seeing form in randomness (Blackmore, Galaud, & Walker, 1991). Believers more readily said they could see objects in largely formless patterns, and we hypothesized that this made them more likely to see nonexistent connections and so to interpret events as paranormal. This tendency to see things that are not there may be viewed as a failing (I expect Scheidt would call it "defective reality testing"!) or as an added richness. I hope to find out in future experiments whether men and women differ on this task. Again, it

ought to be possible to have the best of both worlds: in this case, to see the richness that comes with seeing much form in the randomness of the world without having to believe it is "real" and hence have to attribute it to paranormal forces.

I suppose this amounts to being able to accept the value and pleasure of fantasy, of living truly in a world of illusion without denying that there are measurable worlds and a body of scientific evidence that makes the paranormal seem extremely unlikely. In a male-dominated science, this is not acceptable. Rooting out the fantasy is thought to be the way to reveal the "real." I believe we can enjoy our rich fantasy life, our field dependence, and our interconnectedness without having to abandon the likelihood that there is no paranormal.

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DISCUSSION

HEINZE: It is not without humor to see that you want to have the cake and eat it too.

BLACKMORE: Yes, I know, I do too.

HEINZE: You gave a very interesting presentation, but at times you were contradicting yourself. You want to see a certain interconnectedness, although logically it cannot be established on all levels. I don't think this will work. As we are trying to perceive what wholeness actually is, we may not know what interconnectedness is. On the other hand, we should not deny its existence. It is also not logical to deny it because we cannot prove it. I personally know that we are interconnected though I cannot prove it. In trying to establish some proof, over time we may find ourselves to be interconnected in very different ways. It depends on our life experiences, our background, the disciplines we studied. So, if we realize that we cannot find a formula for interconnectedness, we can at least assume that we are interconnected in very different ways. When you mentioned that sheep see connections where none exist you didn't allow for the possibility of connections. This may relate to personal experiences. Something in this jungle of forms reminds them of personal experiences the other person did not have. We have to introduce complexity in our perception, then we will be in slightly better shape. But having the cake and eating it too doesn't work.

BLACKMORE: I'm sorry that I have been so unclear, that you have clearly misunderstood in both those comments what I was trying to say. When I was talking about them finding forms that weren't there, this was the whole point about looking at accuracy. They are seeing things that are not there in the sense that I didn't put them in there. In that sense

they're not there, but when I put things in there, the sheep and goats are equally good at finding them. It is not that one is better than the other. So, it's really a question of whether you want to see things or not. That richness can be there.

HEINZE: Not necessarily. That is not the point I wanted to make. It was not your test, as far as I know anyway. But, you see, the test was limited to random forms and you were testing for accuracy. Could you really test accuracy when you were using random forms?

BLACKMORE: No, what I was trying to do was to tackle the criticism that believers are seeing things that aren't there because they are bad at seeing things, because they are inaccurate.

HEINZE: Well, that is the stereotype.

BLACKMORE: Yes, exactly. So, that was the idea—to counteract that stereotype, to show that, yes, they do see things that aren't there but not because they are inaccurate or wrong, but just because they like to see things—that is just how they are.

The other point you made I think is more important. Interconnectedness does not logically imply the paranormal, and yet it is taken so often to do so. I think the problem is that in trying to understand interconnectedness or holism, it is taken by very many people that if the whole universe is interconnected, then clairvoyance and telepathy should be possible. It doesn't follow. That was my point.

HEINZE: Well, I would say if we wouldn't use the word paranormal, we might get over this hurdle a little bit more easily. I think there is nothing paranormal. Everything is normal; sometimes we only don't understand yet how it works.

BLACKMORE: Ah, but can information be communicated at a distance without any transfer of energy?

HEINZE: Oh yes. I have proof. I have documented proof.

BLACKMORE: I'm sure other people here would say they have, too.

HEINZE: Well, you can look at it.

SCHLITZ: Susan's been my dear friend for a long time and I also enjoyed her presentation, so I'll be bold and say I was disappointed in the paper in two ways. First, your review of the survey data didn't include surveys like the Gallup poll, for example, that deal with some of these educational factors. From these additional surveys, we find that level of belief is correlated with higher levels of education, not lower levels and not lower IQ.

Secondly, and probably more central to our discussion here, is that I would have liked to have heard an attempt to embed the survey data, some of this more male-oriented data, within a larger cultural framework. I would like some help in contextualizing what some of these data really mean. For example, in her book *Traditions of belief* (Penguin, 1987), folklorist Gillian Bennett looks at some of the very issues that you touch on having to do with types of beliefs that different people have. So, for example, she finds that women tend to want to believe in things that adhere to the stereotypical characterizations of femininity. So, for example, male belief in the Loch Ness monster fits very well with some of these larger issues having to do with values, morals, and how psychic beliefs fit within a culturally constructed conceptualization of gender identity. I would also like to know how some of the survey data, in this objective form, can help us to integrate ways in which psychic beliefs and attitudes influence the actual construction of gender or influence the stereotypes of gender in society. And finally, Bennett found that the way in which her questions were formulated definitely influenced the kind of answers she got when interpreting the survey data. We must consider the complications of people's perceptions of the questions. People from different cultures—such as men and women—frequently hear questions very differently. Likewise, women who adhere to a skeptical versus a sheepish type of perspective hear those questions differently. So, I think there is a real limitation in the survey data and how much light they shed on some of these questions.

BLACKMORE: Absolutely. I totally agree with you. I probably should have written back to Lisette and said, "I don't know anything about this. I'm not coming." But still, here I am and, I mean, that's a tall order to ask for those kinds of connections, and I certainly wasn't able to do it. As for the Gallup poll, the report that I've got of it says nothing at all about sex differences. And the education one is very messy, because some of the early studies show positive correlations. I mean, belief is negatively correlated with education, and the Gallup poll showed the opposite. So, I didn't see it as my task to go through all of those, and I didn't even mention it. It's as thorny as the intelligence one. I agree with you. I have not done a complete study of all those questionnaire studies.

BISCHOF: I have a comment in a similar direction as Ruth. Your use of language, for instance, you say "seeing connections that are genuinely there or that are not there," points to an underlying assumption

about some objective reality that is "out there," independent of your perceiving it or not, and the only choice you have is to get it right or wrong. In my opinion, there is a contradiction here with the idea of interconnectedness. And, I also do not see why interconnectedness should not imply paranormal information transfer.

BLACKMORE: O.K. Two questions there. The first one, yes, I do do that. I do it unashamedly. It was not a slip in language revealing something that I'm terribly embarrassed about. That is actually what I think about it, and it relates to what I was saying apropos Marilyn's comment this morning about doing science and relative truth, and so on. I think to do science as I see it, and you probably see it rather differently, I have to take on as a kind of working assumption, and I don't take it as anything more, that there is a world out there. Not a world of absolute truth that I can ultimately measure, but at least some world, and that there is some point in doing the kind of science that asks questions, sets up hypotheses, and tests them. I do that; I like doing it. I think it's interesting; and I think it has brought us all our technology and everything else. So I make that assumption, and I know that I cannot know the status of that assumption. I don't have an ontology that I can utterly defend. I simply make that assumption about the world, and I do my science in that context.

BISCHOF: There is one point I would like to add. I think interconnectedness means also that even if there is an objective reality out there, what we can talk about, and what science can deal with, is not a reality that is there, but only what is arising of the interaction between us and this reality. This means that when we talk about reality "out there," we always are dealing with something that is constantly changed and influenced by us, even just by perceiving it.

BLACKMORE: Well, you're doing a very interesting thing there. You are setting up an "us" and an "it." Now, I would say that all we have ever in immediate experience right now, or in science, is the present moment and this incomprehensible complex experience going from moment to moment. Now, lots of things can be done with that. We can choose to say, "I think there's probably an outside world there and I'll try and measure it." But, when you were talking about me as a scientist relating to the outside world, you are setting up an even more extreme version than I am because you are saying, "Not only am I going to believe there's an outside world, but I'm going to believe that there's a

separate me which interacts with it." I don't work from that assumption. I say—kind of close to idealism if you like—that all there is is experience, and we work with it. And assuming there's an outside world is one way of dealing with it, but it's a shaky assumption.

Now, I would like to go on to the second point about this business of interconnectedness and communication. You asked me, "Why do I say that if the whole universe is interconnected, that doesn't allow for telepathy, say?" Well, I would say that interconnectedness is not in conflict with most of what we know in physics or chemistry and biology. In fact, it is fundamental in evolutionary theory or in most biological sciences, that things evolve in the context they are in. They are what they are only by virtue of the context they are in, and in psychology even more so, but all of science works on the assumption that in order for any change to take place from one moment to the next, there are flows of energy and flows of information. We work in science on understanding those kinds of flows and their many forms. Now, in order to add telepathy to that you've got to throw that out. I don't want to throw that out. I think that is part of the interconnectedness—the moment-to-moment change, the flowing stream, the flying butterfly, whatever it is—is all about chaotic processes and energy changes from one moment to the next. Now, that is fine as part of interconnectedness. Telepathy, communication of information without energy flow, is a complete contradiction to that. And that is why I find it problematic. And that's one of the reasons why I think it's unlikely that it happens.

HEINZE: Can I say a little bit more? I have a question for you. You built up a scientific reality to feel safe in its limitations. Just to give one example, we have studied the environment but were unaware of environmental pollution. This is a reality created by science, but we left out very important facts that actually created a rather dangerous situation. I don't see any allowance in your model for other factors to come in. It looks very much like a closed model to me.

BLACKMORE: I don't think it need be, because there's nothing about that other than our own short-sightedness. There was nothing in our science that prohibited us from understanding the effects of pollution. Take the Gaia hypothesis, for example; there was enormous resistance to it. People, for really very bad reasons, didn't like the idea of the world, our planet, as an organism with its own feedback mechanisms. Yet there is nothing paranormal about that. It doesn't

violate the assumptions that I'm making about energy and information flow. So, it's quite different. I would say the Gaia hypothesis is very important in showing the interconnectedness in the relationships, but you don't need the paranormal.

HEINZE: I'm not talking about the Gaia hypothesis. I was actually heading toward telepathy again, where there is definite proof that information was transmitted without any sort of normal means.

BLACKMORE: Well, if there is, then I'm wrong. That is just how it is. I accept that.

WHITE: This interesting discussion will have to go on some other time.