Cognitive Penetration

A recent wave of theoretical and review papers argues that perceptual experience is cognitively penetrable.

For example, consider the images below. The depicted faces are equiluminant, yet the white face seems lighter than the black face (Levin & Banaji, 2006). Defenders of cognitive penetration explain this illusion by appeal to our beliefs about the relation between race and color.

Yet the proposed best evidence for cognitive penetration does not seem to withstand proper empirical scrutiny.

For example, consider blurred versions of the above images that obscure race information for most observers. The originally white face on the right is still perceived as lighter (Firestone & Scholl, in press). This suggests that the source of the effect is more plausibly perceptual.

Of course, not all candidates of cognitive penetration can be explained away by intra perceptual mechanisms.

But where the source is cognitive, the effects are typically artifacts of demand compliance or response biases.

So, perhaps the evidence proposed so far is not the best after all? I propose but ultimately resist a prima facie much better candidate: hypnotic hallucination.

Hypnotic Hallucination

In hypnosis, when given suggestions to perceive the world in a certain way, some people apparently undergo relevant perceptual hallucinations.

For example, see the Mondrian-like images below. Some people seem able to perceive the multicolor image as if grayscale and the grayscale image as if multicolored (Kosslyn et al., 2000).

Skeptical Accounts

Traditional skeptics doubt that the effect is genuine. In their view, hypnotic hallucination can be explained (away) by role play, demand compliance, and attention.

But, in addition to first-person reports, there is also lots of experimental and clinical evidence that hypnotic subjects undergo genuine (neuro)psychological changes.

For example, hypnotic analgesia is not only more effective than attention diversion, but it is occasionally the only (!) anesthetic used in major surgery or extensive dental work. Is it plausible that subjects are merely role playing or complying with demands in such situations?

Credulous Accounts

Based on such considerations, the general consensus is: “conscious color experience . . . can be modulated, at least in some individuals, by top-down factors such as hypnotic suggestions.” (Koivisto et al., 2013)

Yet hypnosis does not eliminate the perceptual processing of the actual sensory stimuli.

In fact, using certain techniques, many subjects in hypnotic analgesia can even provide “automatic reports” of the location, duration, intensity, and quality of pain stimuli.

A common explanation of such phenomena is that a “hidden observer” part of the mind can still unconsciously access and report on the actual sensory state of affairs.

But many subjects recall their hidden observer experiences as conscious experiences.

So, perhaps hidden observer scenarios essentially involve switching between normal and hypnotized experiences?

Probably not, as subjects tend to recall hidden observer experiences as simultaneous with hypnotic experiences.

Bayne (2007) thinks that the only remaining alternative is a dissociation of consciousness. I disagree (see below).

Mixed Accounts

Hypnotic subjects may just be deluded about the current state of affairs, including their very perceptual experiences.

Granted, some subjects are introspectively aware of the nonveridical or inaccurate nature of their experiences.

So, perhaps some cases are better explained by a dissociation between perception and emotive feelings?

This meshes with findings that hypnotic analgesia only influences the affective-motivational component of pain.

Perhaps still further cases may be explained by “aliefs”?

In either case, COGNITIVE PENETRATION DOES NOT FOLLOW!