

COMMENTARY

Bouncing or streaming? A commentary on Scheier, Lewkowicz and Shimojo

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In their intriguing paper Scheier, Lewkowicz and Shimojo describe three experiments in which 4-, 6- and 8-month-old infants were familiarized to two identical objects (yellow circles on a computer screen) moving toward, through, and away from each other, and in all trials (both familiarization and test) a sound was presented at some point during the motion (either at the point where the two circles coincided, or 2.3 sec before or after the point of coincidence – the pre/post-coincidence conditions). With this stimulus arrangement, if the sound is presented at the point of coincidence many adults (but not all) perceive the circles as ‘bouncing’, rather than streaming through each other.

The findings from Experiments 1 and 3 are that the older infants clearly distinguished between the pre/post-coincidence events and the coincidence event. The interpretation that the authors prefer is that these infants perceived the ‘bouncing’ illusion. An equally plausible, and for me more likely, interpretation is that the infants were simply distinguishing between an event where the sound appeared at coincidence, and events where the sound appeared at the beginning or end of the event, with perception of ‘bouncing’ or streaming being indeterminate. That is, the results can be more simply and parsimoniously interpreted in terms of detection of the spatio-temporal relations between the sound and the moving visual objects.

Experiment 2 is the control condition, and produces non-significant differences. It is often difficult to know how to interpret non-significant findings, but these can perhaps be interpreted in terms of the sound momentarily distracting the infants’ attention away from the

visual display, so that the small differences between the familiarization and test displays were given minimal attention.

The authors point out that ‘previous research has shown that infants as young as 2 months of age can perceive the spatio-temporal relation between very similar moving visual stimuli and sounds (Lewkowicz, 1996, 2000)’, but argue that the current stimulus events are likely to be too complex for even the older infants to detect these relations. But, in the absence of direct experimental evidence we can’t be absolutely sure of this. The experimental findings, whatever their interpretation, are of great interest. If it turns out that the infants *do* perceive the bouncing illusion, then they have important implications for our understanding of infant attention and perceptual structure. But at the moment I’m not convinced. It is precisely because they are potentially so important that we need to be sure that the infants genuinely experience the illusion.

There are simple experiments that could be carried out to distinguish between the different interpretations. Here are three such conditions: (1) it would be possible to have a sound near, but not at coincidence; or (2) to have the moving circles slightly misaligned vertically and the sound presented at coincidence; or (3) to have the circles slightly different colours and the sound presented at coincidence. In these conditions adults (and, by implication, infants) would not perceive bouncing, and the critical test would be whether infants can distinguish between these events and the pre- and post-coincidence events. If the infants can’t do it then I’ll be a bouncer, otherwise I’ll flow with the stream.