

## **Time in motion: speed channels and the colour-motion asynchrony**

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Motion has intricate effects on time-related judgements. One of the most known effects is the colour motion asynchrony illusion (CMA): when colour and motion direction changes occur in synchrony at a high rate we perceive these changes as happening asynchronously. We have suggested (Linares et al, 2006 *Journal of Vision* **6** 974-981) that the opponency mechanisms that underlie motion perception are the cause of the CMA. Assuming little cross-talk between the processing of slow and fast speeds (van der Smagt et al, *Nature Neuroscience* **2** 585-596), our interpretation would gain support if the perceived CMA was reduced by using different speeds (e.g. slow-downwards and fast-upwards). To test this, observers had to pair colour (red/green) with direction (upwards/downwards) of moving plaids. We sampled ten phase differences between colour and motion within a cycle of 600 ms in three speed conditions: slow-slow, fast-fast and slow-fast. The results confirmed a perceptual effect that can be acknowledged by eye inspection only: the reduction of the CMA (about 40 ms) when the speeds in the two directions were different (slow-fast). These results not only provide support for the role of motion opponency in the CMA illusion, but also add further evidence for slow and fast speed segregation.

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