Scientists show that language shapes perception

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(PhysOrg.com) -- Advances in cognitive neuroscience (the science of how the brain works when we think) have shown that what our eyes see and what our brain interprets are two different things. Professor Guillaume Thierry, Dr Panos Athanasopoulos and colleagues report in the prestigious journal *Proceedings of the National Academy of Sciences USA* that our language causes our brains to perceive colours differently.

Dr Athanasopoulos explains: “Our language forces us to cut up the world in different ways. Greek speakers systematically use two different terms to refer to blue: the sky is ghalazio (light blue), never ble (dark blue), and a blue pen is ble but can never be ghalazio. English speakers would have no problem calling both the sky and a pen blue in an instant.”

To see whether language shapes our biological and physiological processes of colour perception, the researchers used a technique called event related brain potentials (ERPs). This technique tracks activity in the brain millisecond by millisecond.

Professor Thierry explains: “We know that the visual system in our brain begins processing stimuli like colour a few tens of milliseconds after light has hit the retina of the eye. We also know that language consciously invades our thinking about 200 milliseconds later. Using ERPs, we are able to look at very early stages of visual analysis, well before conscious language information is accessed.”

The researchers found differences in visual processing of light and dark

blues between Greek and English speakers as early as 100 milliseconds, suggesting that indeed, speakers of different languages literally have differently structured minds.

More information: Unconscious effects of language-specific terminology on preattentive color perception, *PNAS* published online before print February 24, 2009, doi:10.1073/pnas.0811155106

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