

What makes one person more intellectually able than another? Can the entire distribution of human intelligence be accounted for by just one general factor? Is intelligence supported by a single neural system? Here, we provide a fresh perspective on human intelligence that takes into account how general abilities or 'factors' reflect the functional organization of the brain. By comparing factor models of individual differences in performance with factor models of brain functional organisation, we demonstrate that different components of intelligence have their analogues in distinct brain networks.

Using simulations based on neuroimaging data, we show that the higher order factor 'g' is entirely accounted for by cognitive tasks co-recruiting multiple networks. Finally, we confirm the independence of these components of intelligence, by dissociating them using questionnaire variables. We propose that intelligence is an emergent property of anatomically distinct cognitive systems, each of which has its own capacity.

Learn more: [Fractionating human intelligence](#) .

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