

Supplementary Online Materials

Structure manipulation (Studies 1-3)

Structured condition (Studies 1-3)

Have you ever looked closely at a tree full of leaves? The next time you do, you might notice the patterns that the leaves grow in. The way trees produce leaves is one of the many examples of the orderly patterns created by nature. Scientists have studied how each tree structures its leaf patterns, and have documented how each species of tree differs in this regard. What unites them all, though, is that they each have their own intricate patterns of symmetry. Every species of tree grows its leaves in identifiable patterns, with a system of laws describing the relationships between the leaves in terms of position, size, and time of growth. The fact that nature seems to produce its beauty by obeying systematic laws is truly remarkable!

Random condition (Studies 1-3)

Have you ever looked closely at a tree full of leaves? The next time you do, you might notice the completely disordered way in which the leaves grow. The way trees produce leaves is one of the many examples of the natural randomness that surrounds us. Scientists have studied how each species of trees grows its leaves, and have documented how completely haphazard the process is. What unites all the species, though, is that they each produce leaves in a way that follows no systematic pattern. There seems to be no identifiable pattern, no system of laws describing the relationships between the leaves in terms of position, size, or time of growth. The fact that nature seems to produce its beauty through purely random processes is truly remarkable!

Neutral condition (Study 1)

Have you ever looked closely at a tree full of leaves and wondered about its role in our world? Trees are an important component of the natural landscape for a number of reasons. In terms of preserving the natural environment, they contribute to preventing erosion of the land, which helps maintain our natural water systems. In terms of enabling life on earth, trees provide shelter from weather to whole ecosystems that exist within their foliage, and play an important role in producing oxygen and reducing carbon dioxide in the atmosphere, as well as moderating ground temperatures. Finally, in terms of human civilization, trees are key elements in landscaping and agriculture, both for their aesthetic appeal and their orchard crops. Wood from trees is a building material, as well as a primary energy source in many developing countries.

Pilot testing the structure manipulation

A sample of 105 participants read one of the three paragraphs reproduced above and then completed manipulation check items tapping perceptions of structure (“how much do you believe that there is a systematic logic to how your world functions?” and “how much do you believe that things in your life happen randomly [reverse-coded]; both rated on 7-point scales ranging from 1 [*not at all*] to 7 [*very much*], $r=-.44$), as well as measures of affect (“how good do you feel right now?”, “how bad do you feel right now?”, and the PANAS [Watson, Clark, & Tellegen, 1988]). As expected, the manipulation significantly influenced perceptions of order, $F(2,102)=3.08$, $p<.05$. Participants in the order condition perceived more order ($M=4.60$, $SD=0.94$) than participants in the disorder condition ($M=3.86$, $SD=1.08$), $p<.02$; participants in the neutral condition reported intermediate levels of perceived order ($M=4.31$, $SD=1.58$) which did not differ from those reported by participants in either the order condition, $p=.34$ or the disorder condition, $p=.13$. The manipulation did not influence any of the affect measures, all $ps>.40$.

Scrambled sentence task (Study 4)

Order condition	Randomness condition
committee the door organized is	committee the door chaotic is
brown play desk the is	brown play desk the is
systematic create legislators order hurdle	everywhere sew anarchists disorder hurdle
orange students he systematically chose	orange at he random chose
easily paper store ripped the	easily paper store ripped the
ball the hoop toss normally	ball the hoop toss normally
the patterns fly in robins	the haphazardly flew for robin
athletes use perform method structured	athletes the perform confusion unpredictably
sky the seamless is ruddy	sky the seamless is ruddy
forget not try fool to	forget not try fool to
send I mail it over	send I mail it over
long the today is book seven	long the today is book seven

faith virtue is a logic	faith virtue is a mayhem
solid designed spoke structures Mary	that garbled spoke nonsense Mary
Dennis flat patterns regular makes	Dennis flat chance a takes
big chairs they box are	big chairs they box are