Custody in recomposed families is complex network problem

February 21 2014

Physics can provide insights into societal trends. Problems involving interactions between people linked in real-life networks can be better understood by using physical models. As a diversion from his normal duties as a theoretical physicist, Andrés Gomberoff from the Andres Bello University in Santiago, Chile, set out to resolve one of his real-life problems: finding a suitable weekend for both partners in his recomposed family to see all their children at the same time. He then joined forces with a mathematician and a complex systems expert. This resulted in a study published in *European Physical Journal B*, showing that solving this problem essentially equates to minimising the energy in a material model.

The authors assume that they deal with a network of people who are connected, either because they are in a current relationship or because they are ex-partners. Another assumption is that all involved in the network are willing to cooperate and communicate in an open manner.

They then attempt to verify whether it is possible to find a custody arrangement whereby all parents see all of their children together every other weekend, thus satisfying the expectations of all members of the network. The answer is that it is not possible, in general, to have such an agreement.

However, they also found that it is possible to have an arrangement in which one of the parents gets to see all of their children every other weekend. They also found an algorithm to maximise the level of

contentment of members of this extended family [network](#). Maximising the number of parents spending time with their own children and those of their current partners was akin to minimising the energy of a particular magnetic material called a spin glass. Who said that physics can't have real-life applications?