Constructing continua from relations between finite graphs

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We consider a construction turning every poset into a compact space, preferably a metrizable continuum. The intention is that the elements of the poset correspond to special basic open sets of the space and that the order relation corresponds to actual containment of the open sets. Moreover, we build our posets from sequences of finite graphs and special bonding relations between the graphs. The desired situation is when the graphs encode certain basic open cover s and the edge-relation corresponds to actual overlapping of the induced basic open sets. Finally, we are interested in situations when the sequences of graphs are Fraïssé sequences in suitable categories of graphs, leading to an alternative construction of well-known continua like the pseudo-arc or the Lelek fan.

In the talk I shall give an overview of the construction, demonstrate it on several examples, and compare it to a more standard approach of taking quotients of inverse limits of graphs and homomorphisms.

(joint work with Tristan Bice, Alessandro Vignati)