The non–fixity of a poset

Simone Hazan
CINVESTAV–IPN

Let P be a finite poset. We define the *non–fixity* of P to be $\mu(P) = \max_{f \in End\,P} \min_{x \in P} d[x, f(x)]$ where $End\,P$ is the set of order–preserving maps of P and the distance $d(a, b)$ between two elements of P is their distance in the comparability graph of P. Thus $\mu(P) = 0$ if and only if P has the fixed point property and μ can be seen as a measure of the lack of the fixed point property in P.

We prove properties of μ and discuss the product problem for μ: if P and Q are two finite posets, is it true that $\mu(P \times Q) = \max\{\mu(P), \mu(Q)\}$? This has been proved in 1994 by Roddy in the case $\mu(P) = \mu(Q) = 0$.