Betweenness and betweenness preserving mappings

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This talk is about joint work with Wiesław Kubiś and Janusz Morawiec. Let me start with the definition of the concept of betweenness.

Definition 1 (betweenness). A *betweenness* on a set X is a ternary relation B satisfying

(B1) $B(x, x, y)$ and $B(x, y, y)$, and

(B2) $B(x, a, y)$ and $B(x, b, y)$ and $B(a, z, b)$ implies $B(x, z, y)$

for all $x, y, z, a, b \in X$.

In this talk, I will be interested in betweenness-preserving mappings, which we call *monotone*. It is amazing how few regularity properties we need to obtain very well-behaved mappings. The goal is to present some regularity results.