Exercise 13.5: \textbf{H1} is independent of \textbf{H2} and \textbf{H3}: Let $S = \{[a, b] : a \leq b \wedge a, b \in \mathbb{Z}\}$ be the set of integer-bounded intervals in . For $M = [a, b] \in S$, let $H(M) = [a, b + 2]$, if $b$ is even, and $H(M) = [a - 1, b]$, if $b$ is odd. $H$ satisfies \textbf{H1}, but not \textbf{H2} and not \textbf{H3}. \textbf{H2}: $H([2, 4]) = [2, 6]$ and $H([1, 5]) = [0, 5]$. \textbf{H3}: $H(H([2, 4])) = H([2, 6]) = [2, 8]$.

\textbf{H2} is independent of \textbf{H1} and \textbf{H3}: Let $H$ be a translation in the plane.

\textbf{H3} is independent of \textbf{H1} and \textbf{H2}: Let $H$ be a mapping onto the centroid of a compact set.