YOU CHOOSE

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Abstract. The audience gets to choose.

A. Soft compactifications of ω. A compactification $\gamma\omega$ of ω is *soft*, as defined by Taras Banakh, if whenever A and B are subsets of ω whose closures intersect (necessarily in the remainder $\gamma\omega\setminus\omega$) there is an autohomeomorphism h of $\gamma\omega$ that is the identity on the remainder and is such that $h[A]\cap B$ is infinite.

We show that the Continuum Hypothesis implies that every compact space of weight $\mathfrak{c}$ or less is a remainder in some soft compactification of ω. The compact space obtained from the sum of two copies of the ordinal space ω_1+1 by identifying the points corresponding to ω_1 is consistently *not* a remainder in a soft compactification of ω.

B. Machine learning and the Continuum Hypothesis. Recently a problem in machine learning was shown to be equivalent to a weak form of the Continuum Hypothesis. We comment on this result, in particular on the combinatorial translation of the problems, which involves functions between finite powers of the unit interval.

We show that this translation is related to a result of Kuratowski that characterizes the cardinals $\aleph_k$ in a way that does not metion well-orders.

We also show that the problem has a negative answer if one requires the desired functions to be Borel measurable.