▶ PATRICK LUTZ AND JAMES WALSH, *Descending sequences of hyperdegrees and the second incompleteness theorem.*
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It follows from classical results due to Spector that there is no sequence of reals $A_0, A_1, A_2, \ldots$ such that for each n, $A_n \geq_H \mathcal{O}^{A_{n+1}}$. We will give a new proof of this result using the second incompleteness theorem. We will then mention how this fact can be used to give an alternative proof of a result of Simpson and Mummert on a semantic version of the second incompleteness theorem for β_n models. Both of these results seem to suggest a more general connection between well-foundedness of certain partial orders and the second incompleteness theorem. We will mention several other examples of this connection.