In 1965, Halin showed that if a graph contains $k$ many disjoint rays for every $k$, then it contains infinitely many disjoint rays. We show that a natural formalization of Halin’s theorem (which we call IRT) is closely connected to the notion of hyperarithmetic reduction, namely, IRT is a theorem of hyperarithmetic analysis. We also introduce a $\Sigma^1_1$ axiom of finite choice and show how it is related to IRT. (Received February 04, 2019)