**Title:** Exploring Preferential Attachment in Evolving Cryptocurrency Transaction Networks

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**Abstract:** Cryptocurrency transaction networks, exemplified by Bitcoin and Ethereum, represent intricate real-world complex systems with detailed temporal evolution. These networks have attracted extensive scrutiny from the network science, economic, and cryptographic research communities. In our previous analysis of early Bitcoin transactions, we elucidated the phenomenon of preferential attachment, where wealthier entities tend to accumulate more resources—an observation that has spurred ongoing interest. In this study, we revisit this phenomenon in the context of the drastically expanded Bitcoin network, which has grown nearly a hundredfold since our initial investigation. Moreover, we undertake a comparative analysis with Ethereum, the second-largest cryptocurrency, to discern commonalities and distinctions in their evolutionary patterns. Our research substantiates that preferential attachment continues to be a pivotal force shaping the trajectories of both Bitcoin and Ethereum transaction networks. To facilitate comprehensive analysis, we provide access to the latest versions of both transaction networks and an efficient software implementation. This tool empowers researchers to delve into the intricate linking statistics vital for understanding preferential attachment in networks comprising several hundred million edges. Our findings contribute valuable insights to understanding evolving cryptocurrency networks, shedding light on the enduring influence of preferential attachment in shaping their structures. This research advances our theoretical understanding and provides practical tools for further exploration in the realm of complex network dynamics.

**Keywords**: Cryptocurrency, Complex Networks, Preferential Attachment, Bitcoin, Ethereum, Network Evolution, Transaction Networks, Comparative Analysis.

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