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**Sherry Sarkar\*** ([sherry.sarkar@outlook.com](mailto:sherry.sarkar@outlook.com)) and **Simon Rubinstein-Salzedo**. *A Stability Result for Take-Away Games*. Preliminary report.

We investigate the structure of a natural generalization of the following classical take-away game: There are two players who alternate turns and a pile of  $n$  stones in the middle. The first player may take up to  $n - 1$  stones. After that, a player may take up to twice the number of stones removed from the pile by the previous player. The player who takes the last stone wins. This game is better known as *Fibonacci Nim*. This is because the losing positions are the Fibonacci numbers: if a player starts a move in a pile with a Fibonacci number of stones, that player will lose with optimal play, and otherwise the first player will win. More generally, let  $\alpha > 1$ , and allow each player to take up to  $\alpha$  times as many stones as the previous player did. We show that the losing positions of this game satisfy a linear recurrence similar to that of the Fibonacci numbers, and also that there is a surprising stability in the losing positions as  $\alpha$  varies: the set of losing positions is constant on some half-open interval containing  $\alpha$ . (Received September 17, 2017)