Counting in Austrian Solitaire

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Bulgarian Solitaire was popularized by Martin Gardner in 1983 as an example of "tasks you cannot help finishing no matter how hard you try to block finishing them." It can be studied as an operation on integer partitions of a given number, making a finite dynamical system. We will survey major Bulgarian Solitaire results (in addition to its history and name). Austrian Solitaire was introduced by Akin & Davis in 1985 at the end of an article otherwise dedicated to Bulgarian Solitaire; the name comes from a (tenuous?) connection to Austrian Capital Theory in economics. We explore this little-studied variant, including characterizing and counting total states in the system (there are more than just the partitions of a given number) and also states with no predecessor under the Austrian Solitaire operation (known as Garden of Eden states). We will conclude with several open questions about both of these examples of "partition dynamics" (also known as "moving dots around in different ways"). Some of the results are from joint work with James Sellers and Robson da Silva.