Balancing Act: Achieving Time and Memory Efficiency in SVP

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Word Count: 750

Approach
This task seemed quite daunting at first, however I very quickly became fully immersed in this challenge. My approach stemmed entirely from my initial research into the most common methods of solving SVP. The three main approaches

- **Enumeration**
- **Sieving**
- **Voronoi**

Chosen Algorithm
While all of the above methods are valid ways of solving SVP they each had their own caveats.
- Enumeration is

Focus of exactness

All different combos

Accuracy
Double vs Long Double

Time & Memory
Memoisation

Delta

Overall Success

Bibliography

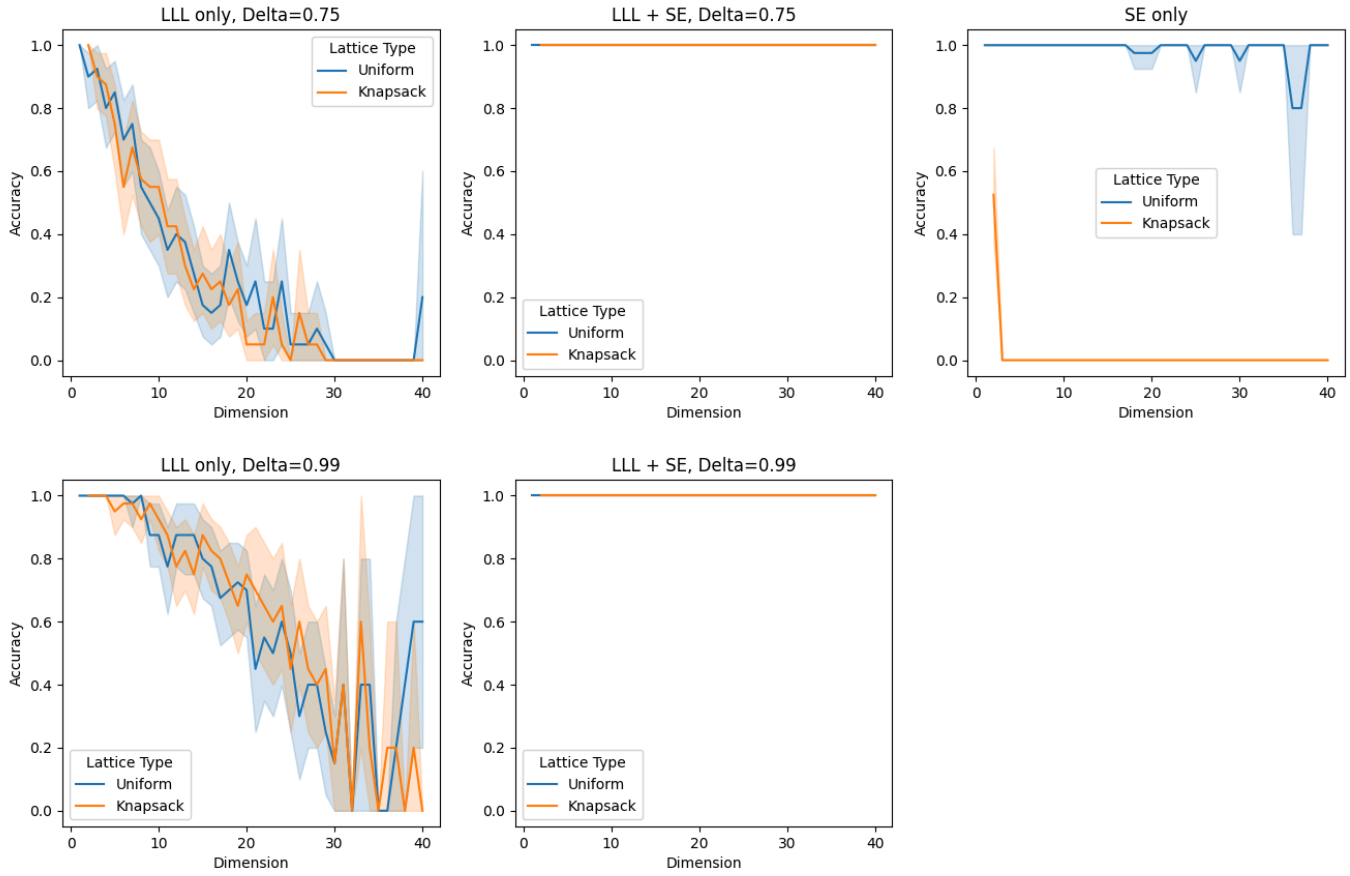

Figure 1: Accuracy vs. Dimension for various algorithm configurations

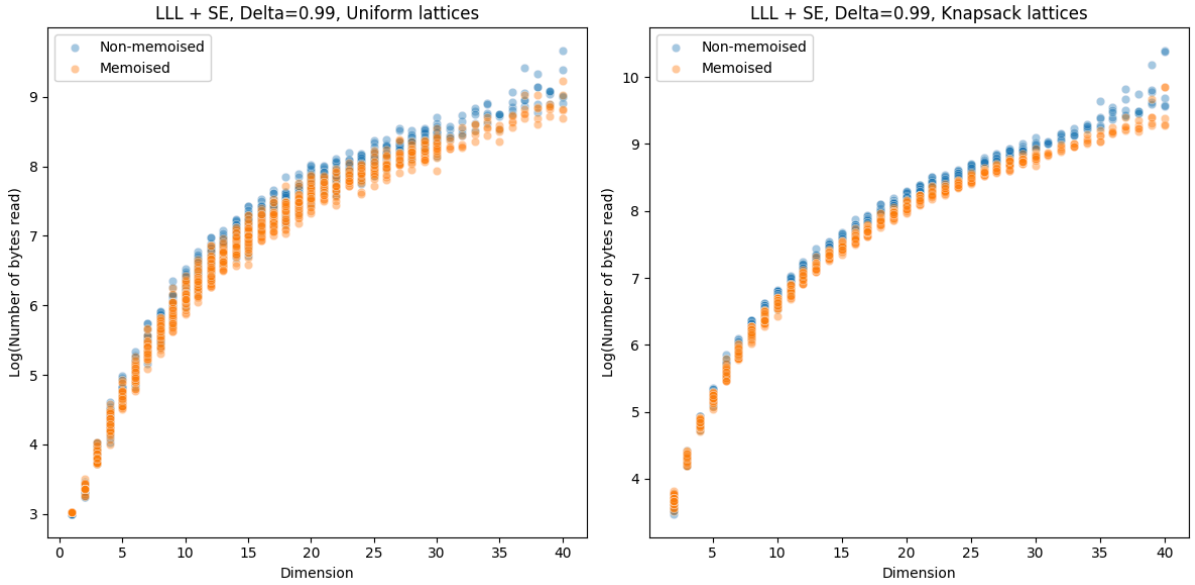

Figure 2: Effects of memoisation on the number of bytes read from memory

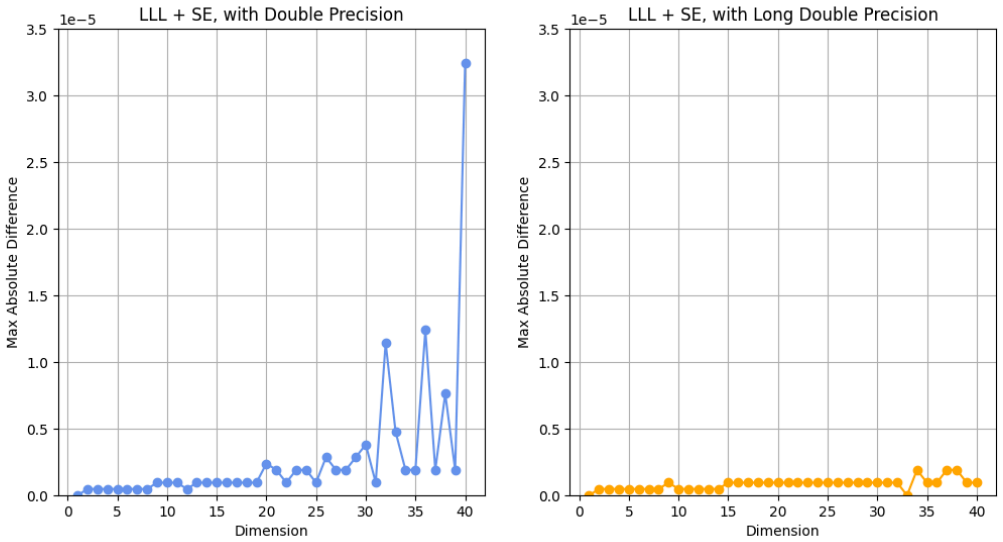

Figure 3: Maximum Absolute Difference vs. Dimension when using two different variable types.

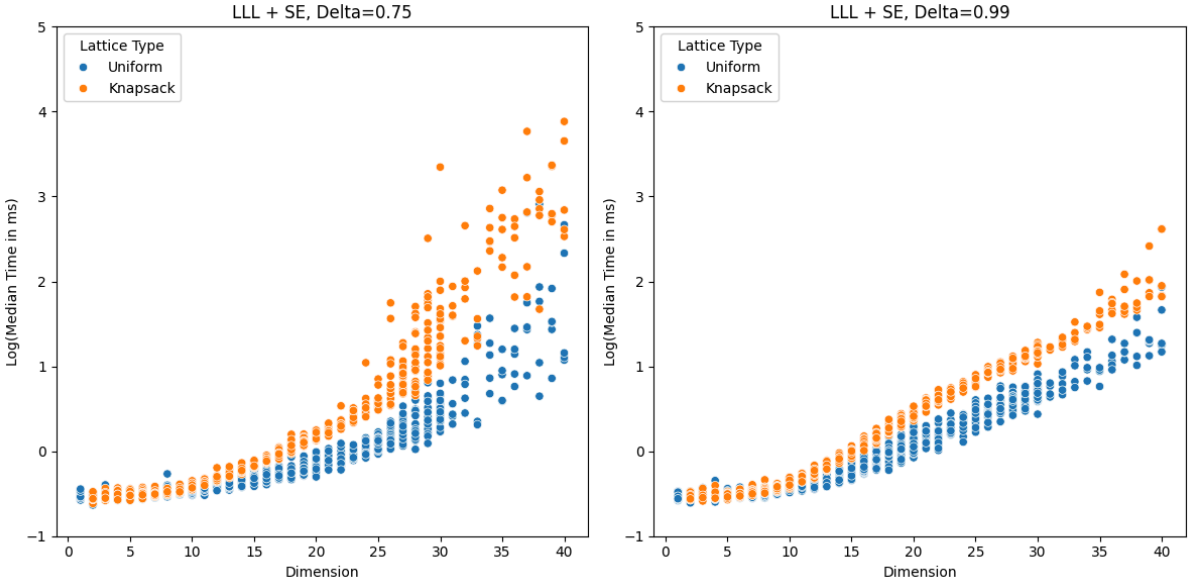

Figure 4: Effects of changing LLL's delta value on median run-time of LLL + SE

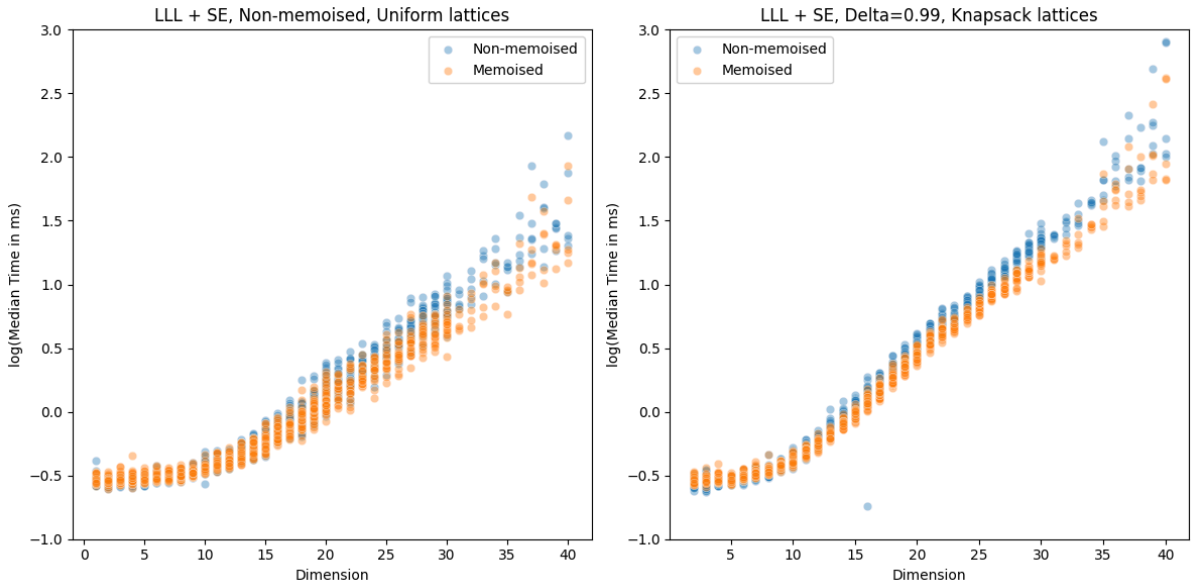

Figure 5: Effects of memoisation on median run-time of LLL + SE