Sequence Complexity

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Presentation

- 1234...?
- 999 ... ?
- 122333...?
- 122334...?
- 1121231121231234...?
- 111122...?

Completing those sequences: easy for a human being (trivial notions in math)

What about computers?

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Constraints

- Two operators
 - Copy: C
 - Increment: I
- No combinatory explosion
- Work and think in a "human" way

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Implementation

Suffixed notation, close to Factor:

Copy:

What Times C Examples:

- \bullet 5 5 5 5 \rightarrow 5 4 C
- $\bullet \ 1 \ 2 \ 1 \ 2 \ 1 \ 2 \ \rightarrow \{1 \ 2\} \ 3 \ \textit{C}$
- Increment:

What Where Times I Examples:

- 1 2 3 4 \rightarrow 1 0 4 I
- 1 1 1 2 1 2 3 1 3 \rightarrow {1 1 1} {0 2} 3 I

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Extend a sequence

If we can compress a sequence to one operator and its arguments, we just have to increment its *Times* field and decompress



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Search order

We try:

- to remove from 0 up to (length 2) elements
- an operator
- a tested size

With all those choices, we try to compress the whole sequence. We try another one if complexity is too high.

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Possible improvements

- Solve "once applied operators" problem
- Find a Kantian model
- Respect "human" memory use

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Conclusion

Subject not that easy Factor is a powerful language Very enlightening project

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