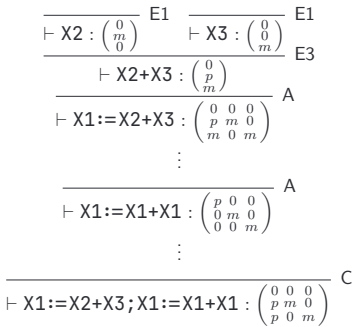
```
void main(int X1, int X2, int X3){
    // initial values  ↑

    // various commands involving
    // variables X1, X2, X3

    // X1', X2', X3' (final values)
}
```

$\forall n$, is $\mathsf{X}_n \rightsquigarrow \mathsf{X}'_n$ polynomially bounded in inputs?

```
void main(int X1, int X2, int X3){
    X1 = X2 + X3;
    X1 = X1 + X1;
}
```



$$\texttt{X1}' \leq \texttt{X2} + \texttt{X3} \;\wedge\; \texttt{X2}' \leq \texttt{X2} \;\wedge\; \texttt{X3}' \leq \texttt{X3}$$

```
void main(int X1; int X2){
    X1 = 1;
    loop X2 {
        X1 = X1 + X1;
    }
}
```

$$\dfrac{}{\vdash \texttt{X1:=1} : \binom{m}{0}}\ \text{E1}$$

$$\vdots$$

$$\dfrac{}{\vdash \texttt{X1:=X1+X1} : \begin{pmatrix} p & 0 \\ 0 & m \end{pmatrix}}\ \text{A}$$

$$\vdots$$

$$\times$$

Implicit
Computational
Complexity

theory and beyond!

$\longrightarrow$

Static program analysis

 `statycc/pymwp`

Program transformation

Formally verified complexity analysis