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ISP Aufgabe 2

Gruppe 3

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# Constraint-Netz

xxx



xxx



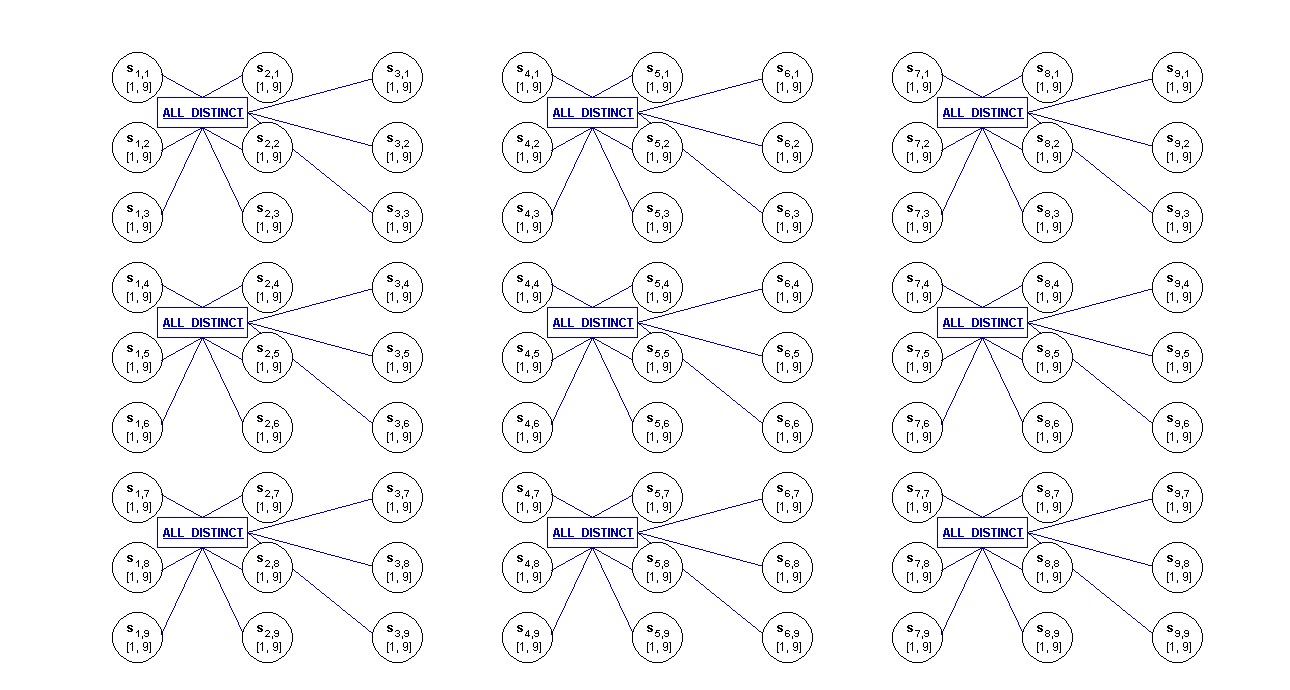
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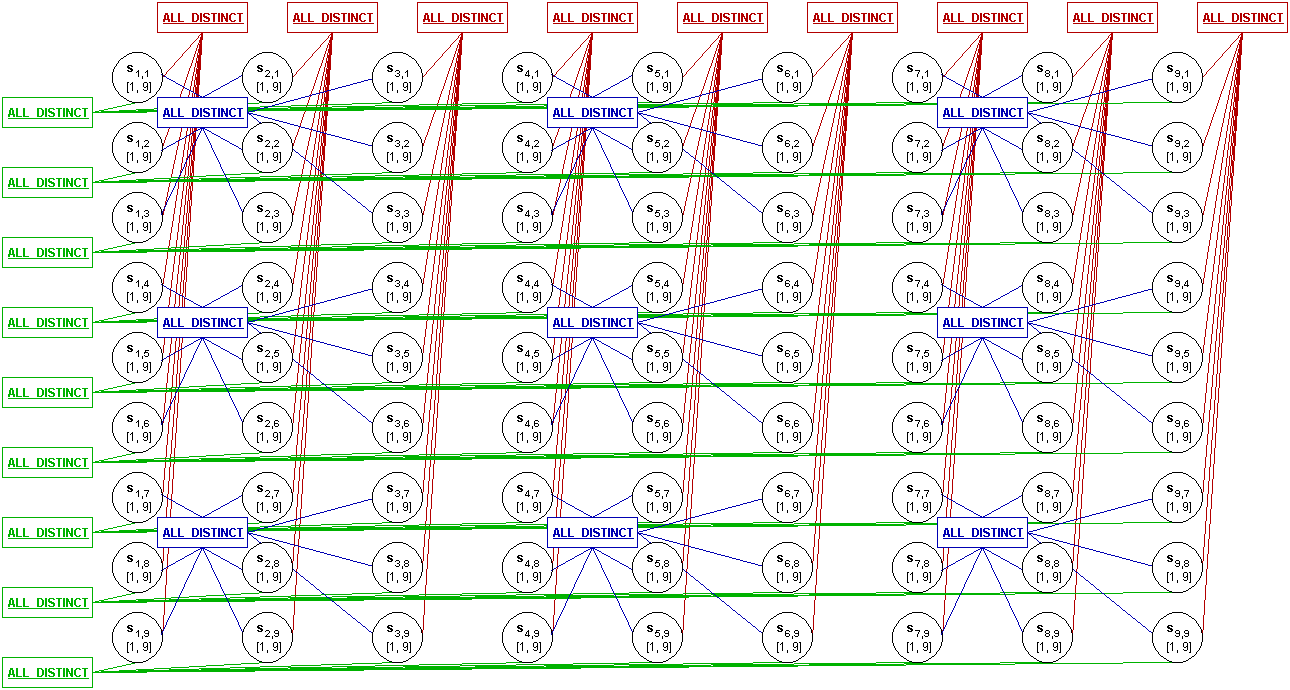
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xxx



xxx



xxx

# Lösung in Prolog

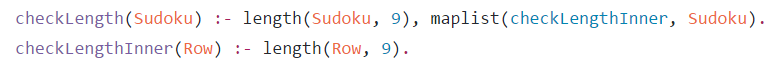
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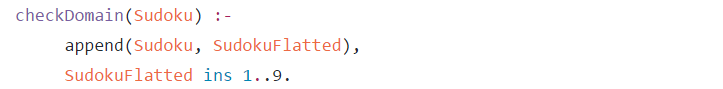
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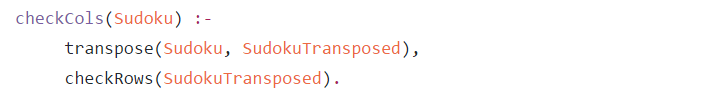
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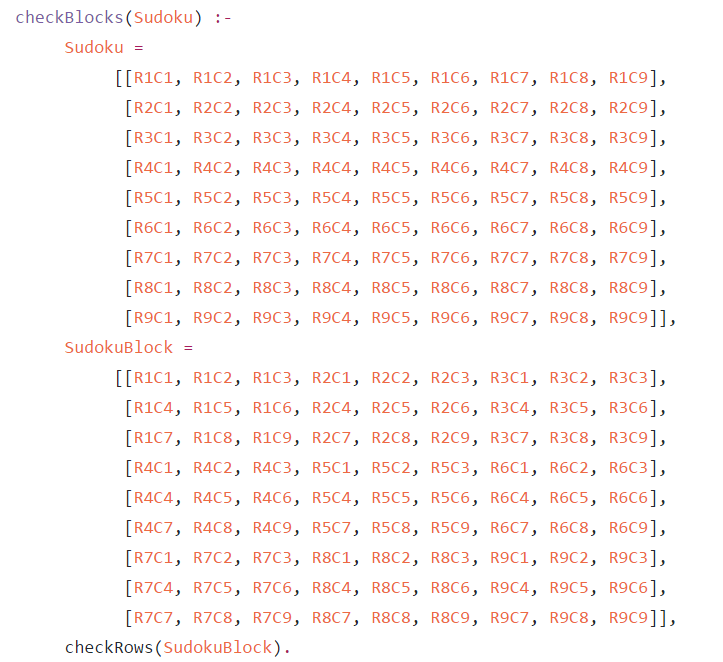
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xxx



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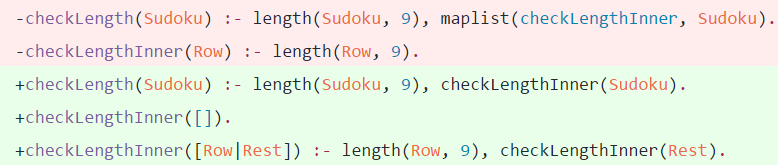


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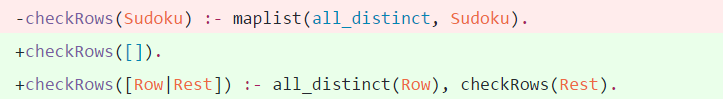
# Optimierung der Performance

## 3.1) Schritt 1: maplist durch Rekursion ersetzen

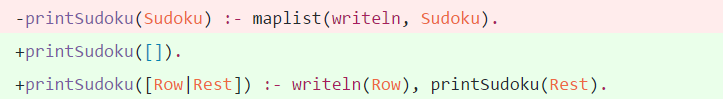
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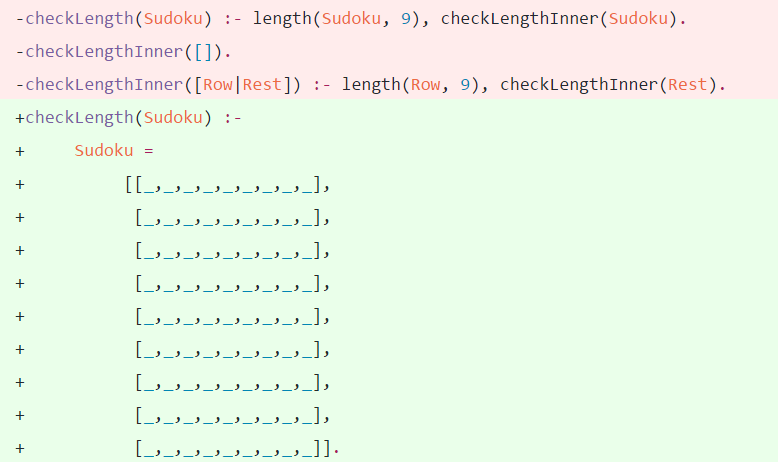
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|  |  |  |  |
| --- | --- | --- | --- |
| **Funktion** | **Inferenzen vorher** | **Inferenzen nachher** | **Differenz** |
| checkLength | 50 | 41 | -9 |
| checkDomain | 4010 | 4010 | 0 |
| checkRows | 42635 | 42634 | -1 |
| checkCols | 214651 | 214650 | -1 |
| checkBlocks | 276664 | 276663 | -1 |
| printSudoku | 20 | 19 | -1 |
| **Gesamt** | **538030** | **538017** | **-13** |

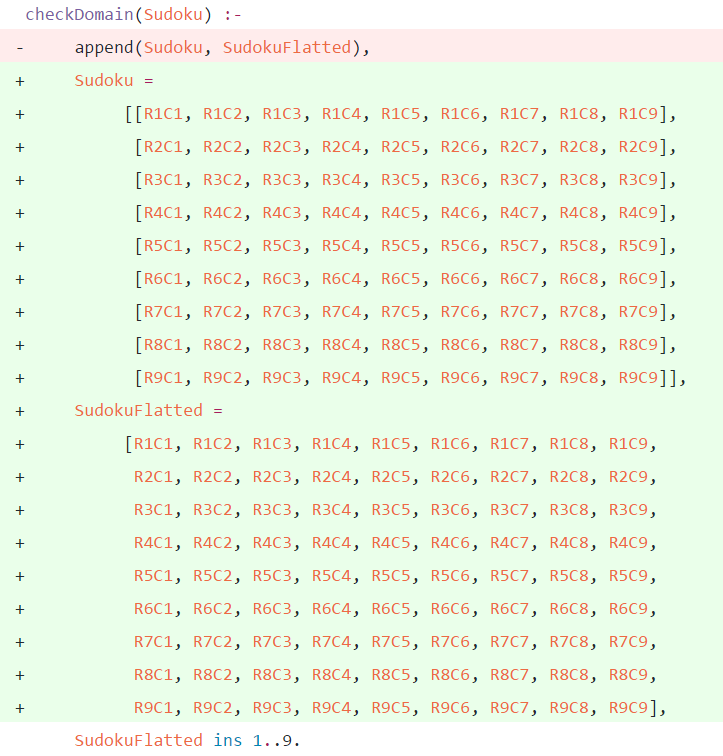
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## 3.2) Schritt 2: Rekursionen durch explizierte Unifikation ersetzen

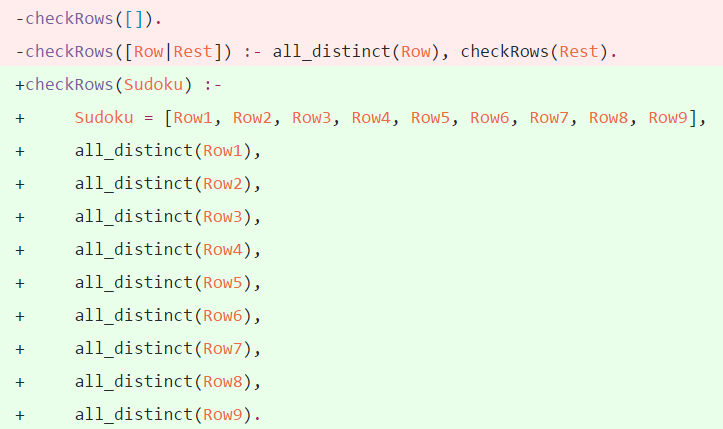
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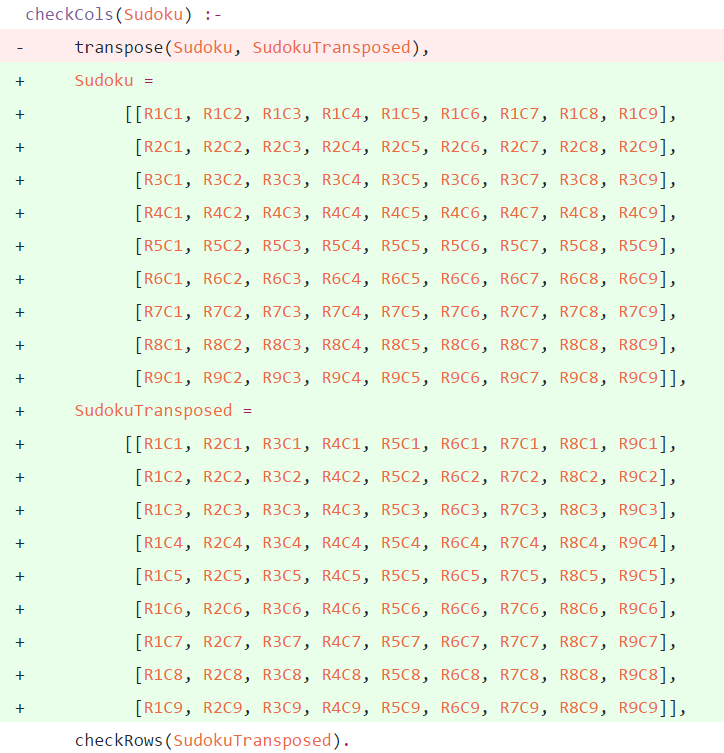
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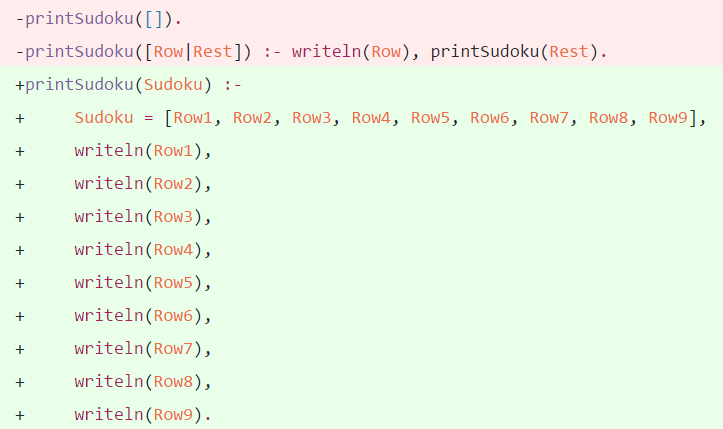
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xxx



xxx



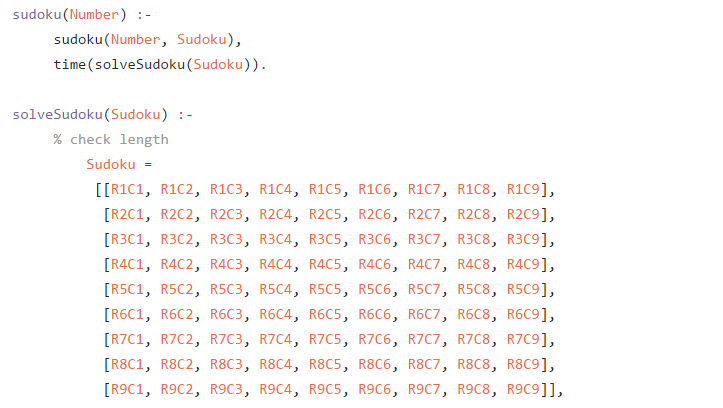
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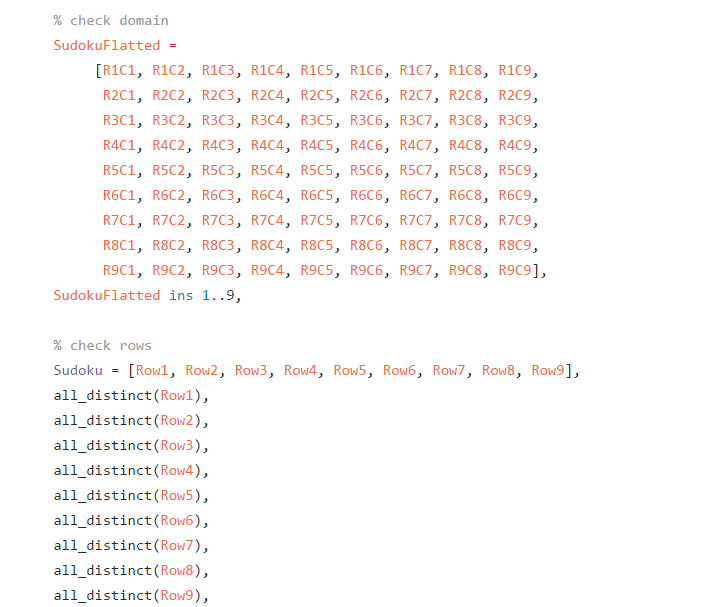
|  |  |  |  |
| --- | --- | --- | --- |
| **Funktion** | **Inferenzen vorher** | **Inferenzen nachher** | **Differenz** |
| checkLength | 41 | 1 | -40 |
| checkDomain | 4010 | 3906 | -104 |
| checkRows | 42634 | 42625 | -9 |
| checkCols | 214650 | 214417 | -233 |
| checkBlocks | 276663 | 276653 | -10 |
| printSudoku | 19 | 10 | -9 |
| **Gesamt** | **538017** | **537612** | **-405** |

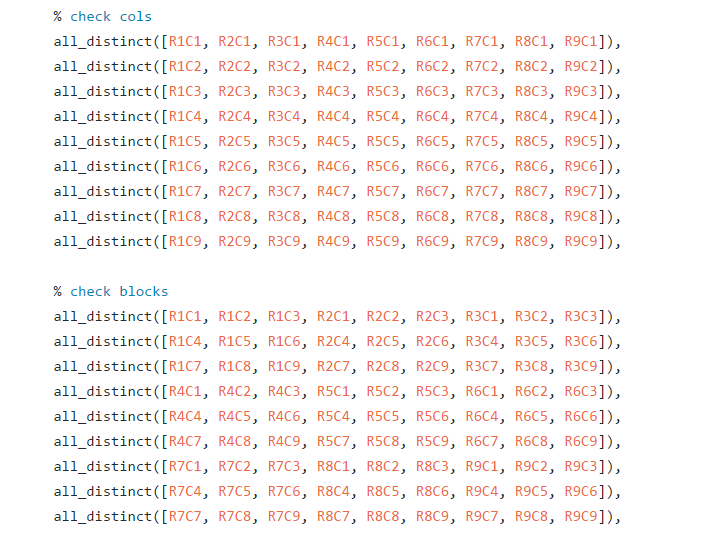
xxx

## 3.3) Schritt 3: Entfernen von Unterfunktionen

xxx









xxx

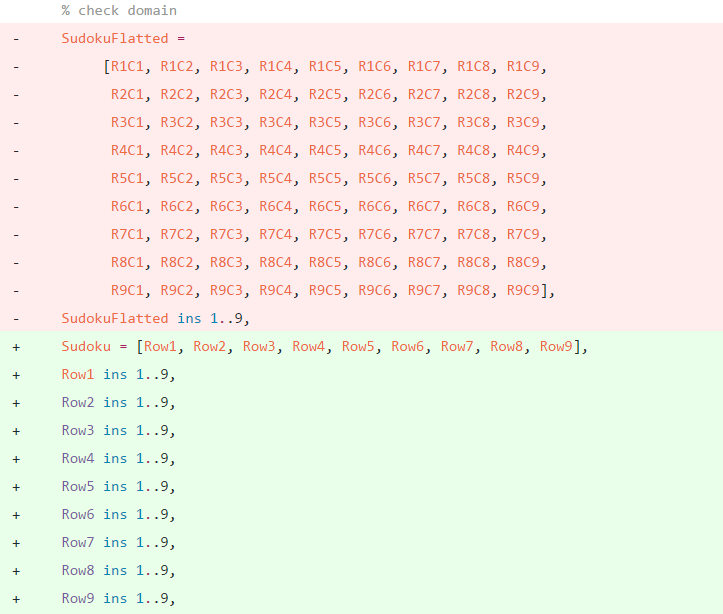
|  |  |  |  |
| --- | --- | --- | --- |
| **Funktion** | **Inferenzen vorher** | **Inferenzen nachher** | **Differenz** |
| checkLength | 1 |  |  |
| checkDomain | 3906 |  |  |
| checkRows | 42625 |  |  |
| checkCols | 214417 |  |  |
| checkBlocks | 276653 |  |  |
| printSudoku | 10 |  |  |
| **Gesamt** | **537612** | **537605** | **-7** |

xxx

## 3.4) Verworfene Schritte

### 3.4.1) Lösung 1: Ohne Nutzung von Flatten

xxx



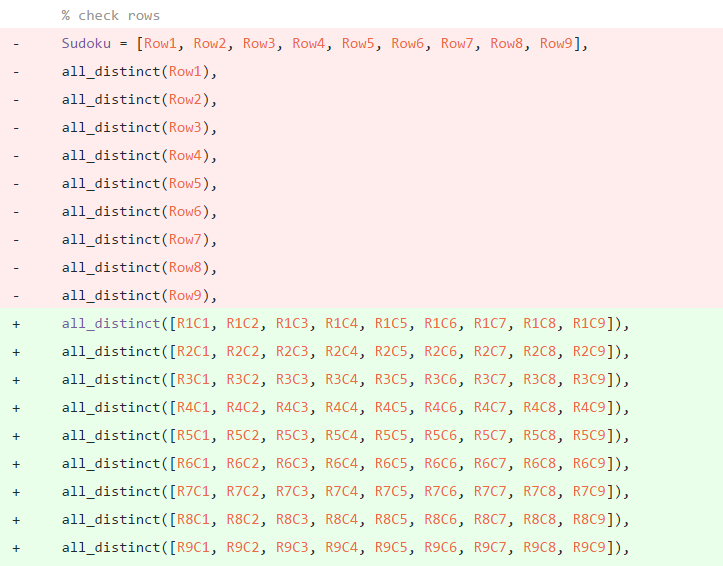
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|  |  |  |  |
| --- | --- | --- | --- |
|  | **Inferenzen vorher** | **Inferenzen nachher** | **Differenz** |
| **Gesamt** | **537605** | **537885** | **+280** |

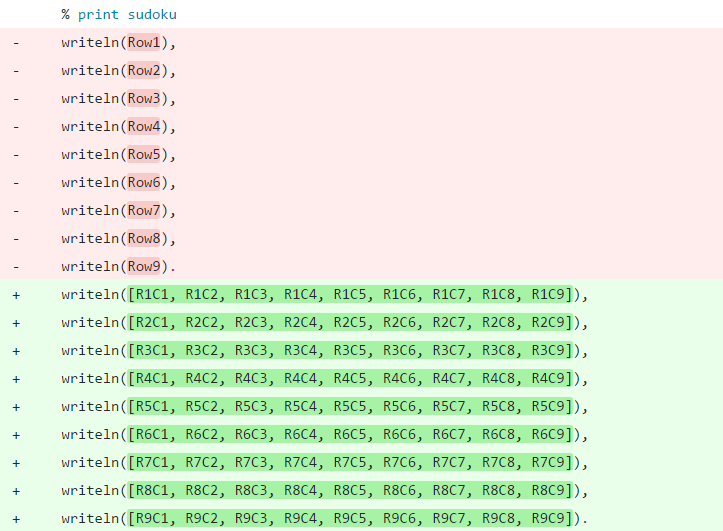
xxx

### 3.4.2) Lösung 2: Ohne Unifikation der Zeilen

xxx



xxx



xxx

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Inferenzen vorher** | **Inferenzen nachher** | **Differenz** |
| **Gesamt** | **537605** | **537605** | **0** |

xxx