OpenGeoProver Output for conjecture "geothm_zadatak"

Wu's method used

October 1, 2016

1 Invoking the theorem prover

The used proving method is Wu's method.
The input system is:

$$
\begin{aligned}
p_1 &= 2x_1 - \\
p_2 &= 2x_2 - \\
p_3 &= 2x_3 - \\
p_4 &= 2x_4 - \\
p_5 &= 2x_5 - \\
p_6 &= 2x_6 - \\
p_7 &= x_7 + x_6x_2 + x_5x_4 - x_4x_2 \\
p_8 &= x_8 + x_6x_3 - x_6x_1 + x_4x_1 \\
p_9 &= x_9 - x_5x_3 + x_5x_1 + x_3x_2 \\
p_{10} &= x_{10} + x_8x_2 + x_7x_1 \\
p_{11} &= x_{11} + 1 \\
p_{12} &= x_{12} + 1 \\
p_{13} &= x_{13} + 1
\end{aligned}
$$

1.1 Triangulation, step 1

Choosing variable: Trying the variable with index 13.

Variable x_{13} selected: The number of polynomials with this variable, with indexes from 1 to 13, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{13}. No reduction needed.

The triangular system has not been changed.

1.2 Triangulation, step 2

Choosing variable: Trying the variable with index 12.

Variable x_{12} selected: The number of polynomials with this variable, with indexes from 1 to 12, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{12}. No reduction needed.

The triangular system has not been changed.

1.3 Triangulation, step 3

Choosing variable: Trying the variable with index 11.

Variable x_{11} selected: The number of polynomials with this variable, with indexes from 1 to 11, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{11}. No reduction needed.

The triangular system has not been changed.

1.4 Triangulation, step 4

Choosing variable: Trying the variable with index 10.

Variable x_{10} selected: The number of polynomials with this variable, with indexes from 1 to 10, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{10}. No reduction needed.

The triangular system has not been changed.

1.5 Triangulation, step 5

Choosing variable: Trying the variable with index 9.

Variable x_9 selected: The number of polynomials with this variable, with indexes from 1 to 9, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_9. No reduction needed.

The triangular system has not been changed.

1.6 Triangulation, step 6

Choosing variable: Trying the variable with index 8.

Variable x_8 selected: The number of polynomials with this variable, with indexes from 1 to 8, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_8. No reduction needed.

The triangular system has not been changed.

1.7 Triangulation, step 7

Choosing variable: Trying the variable with index 7.

Variable x_7 selected: The number of polynomials with this variable, with indexes from 1 to 7, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_7. No reduction needed.

The triangular system has not been changed.

1.8 Triangulation, step 8

Choosing variable: Trying the variable with index 6.

Variable x_6 selected: The number of polynomials with this variable, with indexes from 1 to 6, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_6. No reduction needed.

The triangular system has not been changed.

1.9 Triangulation, step 9

Choosing variable: Trying the variable with index 5.

Variable x_5 selected: The number of polynomials with this variable, with indexes from 1 to 5, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_5. No reduction needed.

The triangular system has not been changed.

1.10 Triangulation, step 10

Choosing variable: Trying the variable with index 4.

Variable x_4 selected: The number of polynomials with this variable, with indexes from 1 to 4, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_4. No reduction needed.

The triangular system has not been changed.

1.11 Triangulation, step 11

Choosing variable: Trying the variable with index 3.

Variable x_3 selected: The number of polynomials with this variable, with indexes from 1 to 3, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_3. No reduction needed.

The triangular system has not been changed.

1.12 Triangulation, step 12

Choosing variable: Trying the variable with index 2.

Variable x_2 selected: The number of polynomials with this variable, with indexes from 1 to 2, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_2. No reduction needed.

The triangular system has not been changed.

1.13 Triangulation, step 13

Choosing variable: Trying the variable with index 1.

Variable x_1 selected: The number of polynomials with this variable, with indexes from 1 to 1, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_1. No reduction needed.

The triangular system has not been changed.

The triangular system is:

$$
\begin{aligned}
p_1 &= 2x_1 - \\
p_2 &= 2x_2 - \\
p_3 &= 2x_3 - \\
p_4 &= 2x_4 - \\
p_5 &= 2x_5 - \\
p_6 &= 2x_6 - \\
p_7 &= x_7 + x_6x_2 + x_5x_4 - x_4x_2 \\
p_8 &= x_8 + x_6x_3 - x_6x_1 + x_4x_1 \\
p_9 &= x_9 - x_5x_3 + x_5x_1 + x_3x_2 \\
p_{10} &= x_{10} + x_8x_2 + x_7x_1 \\
p_{11} &= x_{11} + 1 \\
p_{12} &= x_{12} + 1 \\
p_{13} &= x_{13} + 1
\end{aligned}
$$

2 Final Remainder

2.1 Final remainder for conjecture geothm_zadatak

Calculating final remainder of the conclusion:

$$g = x_{13}x_8 - x_{12}x_9$$

with respect to the triangular system.

1. Pseudo remainder with p_{13} over variable x_{13}:

$$g = -x_{12}x_9 - x_8$$

2. Pseudo remainder with p_{12} over variable x_{12}:

$$g = x_9 - x_8$$

3. Pseudo remainder with p_{11} over variable x_{11}:

$$g = x_9 - x_8$$

4. Pseudo remainder with p_{10} over variable x_{10}:

$$g = x_9 - x_8$$

5. Pseudo remainder with p_9 over variable x_9:

$$g = -x_8 + x_5x_3 - x_5x_1 - x_3x_2$$

6. Pseudo remainder with p_8 over variable x_8:

$$g = x_6x_3 - x_6x_1 + x_5x_3 - x_5x_1 + x_4x_1 - x_3x_2$$

7. Pseudo remainder with p_7 over variable x_7:

$$g = x_6x_3 - x_6x_1 + x_5x_3 - x_5x_1 + x_4x_1 - x_3x_2$$

8. Pseudo remainder with p_6 over variable x_6:

$$g = 2x_5x_3 - 2x_5x_1 + 2x_4x_1 - 2x_3x_2 + x_3 - x_1$$

9. Pseudo remainder with p_5 over variable x_5:

$$g = 4x_4x_1 - 4x_3x_2 + 4x_3 - 4x_1$$

10. Pseudo remainder with p_4 over variable x_4:

$$g = -8x_3x_2 + 8x_3 - 4x_1$$

11. Pseudo remainder with p_3 over variable x_3:

$$g = -8x_2 - 8x_1 + 8$$

12. Pseudo remainder with p_2 over variable x_2:

$$g = -16x_1 + 8$$

13. Pseudo remainder with p_1 over variable x_1:

$$g = 0$$

3 Prover results

Status: Theorem has been proved.

Space Complexity: The biggest polynomial obtained during prover execution contains 6 terms.

Time Complexity: Time spent by the prover is 0.039 seconds.

4 NDG Conditions

NDG Conditions in readable form

- There are no NDG conditions for this theorem