OpenGeoProver Output for conjecture "geothm_zadatak"

Wu's method used

September 30, 2016

1 Invoking the theorem prover

The used proving method is Wu's method.

The input system is:

$$
\begin{aligned}
p_1 &= 2x_1 - \\
p_2 &= 4x_2^2 - 3 \\
p_3 &= 3x_3 - x_2 \\
p_4 &= 3x_4^2 - 2 \\
p_5 &= x_5 - x_2 \\
p_6 &= x_6 - x_4 x_2 \\
p_7 &= x_7 + x_4 x_1 \\
p_8 &= x_8 - x_3 x_1 + x_2 x_1 \\
p_9 &= x_{10} - x_3 \\
p_{10} &= -x_{12} x_5 + x_{11} - x_4 \\
p_{11} &= -x_{13} x_6 + x_9 - \\
p_{12} &= -x_{13} x_7 + x_{10} \\
p_{13} &= -x_{13} x_8 + x_{11} \\
p_{14} &= 2x_{14} - \\
p_{15} &= 2x_{15} - x_1 - \\
p_{16} &= 2x_{16} - x_2 \\
p_{17} &= 2x_{17} - x_1 \\
p_{18} &= 2x_{18} - x_2 \\
p_{19} &= x_{19} + x_{16} x_{10} - x_{15} x_{14} + x_{15} x_9 + x_{14} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{20} &= x_{22} - x_{18} x_{16} + x_{18} x_{10} - x_{17} x_{15} + x_{17} x_9 + x_{16} x_{10} + x_{15} x_9 - x_{11}^2 \\
&\quad - x_{10}^2 - x_9^2 \\
p_{21} &= x_{20} - x_{16}^2 + 2x_{16} x_{10} - x_{15}^2 + 2x_{15} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{22} &= x_{21} - x_{18}^2 + 2x_{18} x_{10} - x_{17}^2 + 2x_{17} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{23} &= x_{23} - x_{14}^2 + 2x_{14} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{24} &= x_{24} - x_{16}^2 + 2x_{16} x_{10} - x_{15}^2 + 2x_{15} x_9 - x_{11}^2 - x_{10}^2 - x_9^2
\end{aligned}
$$

1.1   Triangulation, step 1

Choosing variable: Trying the variable with index 24.

Variable x_{24} selected: The number of polynomials with this variable, with indexes from 1 to 24, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{24}. No reduction needed.

The triangular system has not been changed.

1.2   Triangulation, step 2

Choosing variable: Trying the variable with index 23.

Variable x_{23} selected: The number of polynomials with this variable, with indexes from 1 to 23, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{23}. No reduction needed.

The triangular system has not been changed.

1.3   Triangulation, step 3

Choosing variable: Trying the variable with index 22.

Variable x_{22} selected: The number of polynomials with this variable, with indexes from 1 to 22, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{20}. No reduction needed.

The triangular system has not been changed.

1.4   Triangulation, step 4

Choosing variable: Trying the variable with index 21.

Variable x_{21} selected: The number of polynomials with this variable, with indexes from 1 to 21, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{21}. No reduction needed.

The triangular system has not been changed.

1.5   Triangulation, step 5

Choosing variable: Trying the variable with index 20.

Variable x_{20} selected: The number of polynomials with this variable, with indexes from 1 to 20, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{20}. No reduction needed.

The triangular system has not been changed.

1.6   Triangulation, step 6

Choosing variable: Trying the variable with index 19.

Variable x_{19} selected: The number of polynomials with this variable, with indexes from 1 to 19, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{19}. No reduction needed.

The triangular system has not been changed.

1.7   Triangulation, step 7

Choosing variable: Trying the variable with index 18.

Variable x_{18} selected: The number of polynomials with this variable, with indexes from 1 to 18, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{18}. No reduction needed.

The triangular system has not been changed.

1.8   Triangulation, step 8

Choosing variable: Trying the variable with index 17.

Variable x_{17} selected: The number of polynomials with this variable, with indexes from 1 to 17, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{17}. No reduction needed.

The triangular system has not been changed.

1.9 Triangulation, step 9

Choosing variable: Trying the variable with index 16.

Variable x_{16} selected: The number of polynomials with this variable, with indexes from 1 to 16, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{16}. No reduction needed.

The triangular system has not been changed.

1.10 Triangulation, step 10

Choosing variable: Trying the variable with index 15.

Variable x_{15} selected: The number of polynomials with this variable, with indexes from 1 to 15, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{15}. No reduction needed.

The triangular system has not been changed.

1.11 Triangulation, step 11

Choosing variable: Trying the variable with index 14.

Variable x_{14} selected: The number of polynomials with this variable, with indexes from 1 to 14, is 1.

Single polynomial with chosen variable: Chosen polynomial is p_{14}. No reduction needed.

The triangular system has not been changed.

1.12 Triangulation, step 12

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 3.

Minimal degrees: 3 polynomial(s) with degree 1.

Polynomial with linear degree: Removing variable x_{13} from all other polynomials by reducing them with polynomial p_{11} from previous step.

Finished a triangulation step, the current system is:

$$
\begin{aligned}
p_1 &= 2x_1 - \\
p_2 &= 4x_2^2 - 3 \\
p_3 &= 3x_3 - x_2 \\
p_4 &= 3x_4^2 - 2 \\
p_5 &= x_5 - x_2 \\
p_6 &= x_6 - x_4 x_2 \\
p_7 &= x_7 + x_4 x_1 \\
p_8 &= x_8 - x_3 x_1 + x_2 x_1 \\
p_9 &= x_{10} - x_3 \\
p_{10} &= -x_{12} x_5 + x_{11} - x_4 \\
p_{11} &= -x_{10} x_6 + x_9 x_7 - x_7 \\
p_{12} &= -x_{11} x_6 + x_9 x_8 - x_8 \\
p_{13} &= -x_{13} x_6 + x_9 - \\
p_{14} &= 2x_{14} - \\
p_{15} &= 2x_{15} - x_1 - \\
p_{16} &= 2x_{16} - x_2 \\
p_{17} &= 2x_{17} - x_1 \\
p_{18} &= 2x_{18} - x_2 \\
p_{19} &= x_{19} + x_{16} x_{10} - x_{15} x_{14} + x_{15} x_9 + x_{14} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{20} &= x_{20} - x_{16}^2 + 2x_{16} x_{10} - x_{15}^2 + 2x_{15} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{21} &= x_{21} - x_{18}^2 + 2x_{18} x_{10} - x_{17}^2 + 2x_{17} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{22} &= x_{22} - x_{18} x_{16} + x_{18} x_{10} - x_{17} x_{15} + x_{17} x_9 + x_{16} x_{10} + x_{15} x_9 - x_{11}^2 \\
&\quad - x_{10}^2 - x_9^2 \\
p_{23} &= x_{23} - x_{14}^2 + 2x_{14} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{24} &= x_{24} - x_{16}^2 + 2x_{16} x_{10} - x_{15}^2 + 2x_{15} x_9 - x_{11}^2 - x_{10}^2 - x_9^2
\end{aligned}
$$

1.13 Triangulation, step 13

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_{10}. No reduction needed.

The triangular system has not been changed.

1.14 Triangulation, step 14

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.

1.15 Triangulation, step 15

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 2.

Minimal degrees: 2 polynomial(s) with degree 1.

Polynomial with linear degree: Removing variable x_{10} from all other polynomials by reducing them with polynomial p_9 from previous step.

Finished a triangulation step, the current system is:

$$
\begin{aligned}
p_1 &= 2x_1 - \\
p_2 &= 4x_2^2 - 3 \\
p_3 &= 3x_3 - x_2 \\
p_4 &= 3x_4^2 - 2 \\
p_5 &= x_5 - x_2 \\
p_6 &= x_6 - x_4 x_2 \\
p_7 &= x_7 + x_4 x_1 \\
p_8 &= x_8 - x_3 x_1 + x_2 x_1 \\
p_9 &= x_9 x_7 - x_7 - x_6 x_3 \\
p_{10} &= x_{10} - x_3 \\
p_{11} &= -x_{11} x_6 + x_9 x_8 - x_8 \\
p_{12} &= -x_{12} x_5 + x_{11} - x_4 \\
p_{13} &= -x_{13} x_6 + x_9 - \\
p_{14} &= 2x_{14} - \\
p_{15} &= 2x_{15} - x_1 - \\
p_{16} &= 2x_{16} - x_2 \\
p_{17} &= 2x_{17} - x_1 \\
p_{18} &= 2x_{18} - x_2 \\
p_{19} &= x_{19} + x_{16}x_{10} - x_{15}x_{14} + x_{15}x_9 + x_{14}x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{20} &= x_{20} - x_{16}^2 + 2x_{16}x_{10} - x_{15}^2 + 2x_{15}x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{21} &= x_{21} - x_{18}^2 + 2x_{18}x_{10} - x_{17}^2 + 2x_{17}x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{22} &= x_{22} - x_{18}x_{16} + x_{18}x_{10} - x_{17}x_{15} + x_{17}x_9 + x_{16}x_{10} + x_{15}x_9 - x_{11}^2 \\
&\quad - x_{10}^2 - x_9^2 \\
p_{23} &= x_{23} - x_{14}^2 + 2x_{14}x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{24} &= x_{24} - x_{16}^2 + 2x_{16}x_{10} - x_{15}^2 + 2x_{15}x_9 - x_{11}^2 - x_{10}^2 - x_9^2
\end{aligned}
$$

1.16   Triangulation, step 16

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.

1.17   Triangulation, step 17

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.

1.18   Triangulation, step 18

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.

1.19   Triangulation, step 19

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.

1.20 Triangulation, step 20

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.

1.21 Triangulation, step 21

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.

1.22 Triangulation, step 22

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.

1.23 Triangulation, step 23

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.

1.24 Triangulation, step 24

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:

$$
\begin{aligned}
p_1 &= 2x_1 - \\
p_2 &= 4x_2^2 - 3 \\
p_3 &= 3x_3 - x_2 \\
p_4 &= 3x_4^2 - 2 \\
p_5 &= x_5 - x_2 \\
p_6 &= x_6 - x_4 x_2 \\
p_7 &= x_7 + x_4 x_1 \\
p_8 &= x_8 - x_3 x_1 + x_2 x_1 \\
p_9 &= x_9 x_7 - x_7 - x_6 x_3 \\
p_{10} &= x_{10} - x_3 \\
p_{11} &= -x_{11} x_6 + x_9 x_8 - x_8 \\
p_{12} &= -x_{12} x_5 + x_{11} - x_4 \\
p_{13} &= -x_{13} x_6 + x_9 - \\
p_{14} &= 2x_{14} - \\
p_{15} &= 2x_{15} - x_1 - \\
p_{16} &= 2x_{16} - x_2 \\
p_{17} &= 2x_{17} - x_1 \\
p_{18} &= 2x_{18} - x_2 \\
p_{19} &= x_{19} + x_{16} x_{10} - x_{15} x_{14} + x_{15} x_9 + x_{14} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{20} &= x_{20} - x_{16}^2 + 2x_{16} x_{10} - x_{15}^2 + 2x_{15} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{21} &= x_{21} - x_{18}^2 + 2x_{18} x_{10} - x_{17}^2 + 2x_{17} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{22} &= x_{22} - x_{18} x_{16} + x_{18} x_{10} - x_{17} x_{15} + x_{17} x_9 + x_{16} x_{10} + x_{15} x_9 - x_{11}^2 \\
&\quad - x_{10}^2 - x_9^2 \\
p_{23} &= x_{23} - x_{14}^2 + 2x_{14} x_9 - x_{11}^2 - x_{10}^2 - x_9^2 \\
p_{24} &= x_{24} - x_{16}^2 + 2x_{16} x_{10} - x_{15}^2 + 2x_{15} x_9 - x_{11}^2 - x_{10}^2 - x_9^2
\end{aligned}
$$

2 Final Remainder

2.1 Final remainder for conjecture geothm_zadatak

Calculating final remainder of the conclusion:

$$g \quad = \quad -x_{24}x_{23}x_{22}^2 + x_{21}x_{20}x_{19}^2$$

with respect to the triangular system.

1. Pseudo remainder with p_{24} over variable x_{24}:

$$\begin{aligned} g \quad = \quad & -x_{23}x_{22}^2x_{16}^2 + 2x_{23}x_{22}^2x_{16}x_{10} - x_{23}x_{22}^2x_{15}^2 + \\ & 2x_{23}x_{22}^2x_{15}x_9 - x_{23}x_{22}^2x_{11}^2 - x_{23}x_{22}^2x_{10}^2 \\ & -x_{23}x_{22}^2x_9^2 + x_{21}x_{20}x_{19}^2 \end{aligned}$$

2. Pseudo remainder with p_{23} over variable x_{23}:

$$\begin{aligned} g \quad = \quad & -x_{22}^2x_{16}^2x_{14}^2 + 2x_{22}^2x_{16}^2x_{14}x_9 \\ & -x_{22}^2x_{16}^2x_{11}^2 - x_{22}^2x_{16}^2x_{10}^2 \\ & -x_{22}^2x_{16}^2x_9^2 + 2x_{22}^2x_{16}x_{14}^2x_{10} \\ & -4x_{22}^2x_{16}x_{14}x_{10}x_9 + 2x_{22}^2x_{16}x_{11}^2x_{10} + \\ & 2x_{22}^2x_{16}x_{10}^3 + 2x_{22}^2x_{16}x_{10}x_9^2 - x_{22}^2x_{15}^2x_{14}^2 + \\ & 2x_{22}^2x_{15}^2x_{14}x_9 - x_{22}^2x_{15}^2x_{11}^2 \\ & -x_{22}^2x_{15}^2x_{10}^2 - x_{22}^2x_{15}^2x_9^2 + \\ & 2x_{22}^2x_{15}x_{14}^2x_9 - 4x_{22}^2x_{15}x_{14}x_9^2 + \\ & 2x_{22}^2x_{15}x_{11}^2x_9 + 2x_{22}^2x_{15}x_{10}^2x_9 + 2x_{22}^2x_{15}x_9^3 \\ & -x_{22}^2x_{14}^2x_{11}^2 - x_{22}^2x_{14}^2x_{10}^2 \\ & -x_{22}^2x_{14}^2x_9^2 + 2x_{22}^2x_{14}x_{11}^2x_9 + \\ & 2x_{22}^2x_{14}x_{10}^2x_9 + 2x_{22}^2x_{14}x_9^3 - x_{22}^2x_{11}^4 \\ & -2x_{22}^2x_{11}^2x_{10}^2 - 2x_{22}^2x_{11}^2x_9^2 - x_{22}^2x_{10}^4 \\ & -2x_{22}^2x_{10}^2x_9^2 - x_{22}^2x_9^4 + x_{21}x_{20}x_{19}^2 \end{aligned}$$

3. Pseudo remainder with p_{22} over variable x_{22}:
   Polynomial too big for output (number of terms is 745)

4. Pseudo remainder with p_{21} over variable x_{21}:
   Polynomial too big for output (number of terms is 751)

5. Pseudo remainder with p_{20} over variable x_{20}:
   Polynomial too big for output (number of terms is 790)

6. Pseudo remainder with p_{19} over variable x_{19}:
   Polynomial too big for output (number of terms is 546)

10

7. Pseudo remainder with p_{18} over variable x_{18}:

    Polynomial too big for output (number of terms is 546)

8. Pseudo remainder with p_{17} over variable x_{17}:

    Polynomial too big for output (number of terms is 546)

9. Pseudo remainder with p_{16} over variable x_{16}:

    Polynomial too big for output (number of terms is 361)

10. Pseudo remainder with p_{15} over variable x_{15}:

    Polynomial too big for output (number of terms is 529)

11. Pseudo remainder with p_{14} over variable x_{14}:

    Polynomial too big for output (number of terms is 273)

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

    Polynomial too big for output (number of terms is 273)

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

    Polynomial too big for output (number of terms is 273)

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

    Polynomial too big for output (number of terms is 438)

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

    Polynomial too big for output (number of terms is 438)

16. Pseudo remainder with p_9 over variable x_9:

    Polynomial too big for output (number of terms is 291)

17. Pseudo remainder with p_8 over variable x_8:

    Polynomial too big for output (number of terms is 471)

18. Pseudo remainder with p_7 over variable x_7:

    Polynomial too big for output (number of terms is 471)

19. Pseudo remainder with p_6 over variable x_6:

    Polynomial too big for output (number of terms is 297)

20. Pseudo remainder with p_5 over variable x_5:

Polynomial too big for output (number of terms is 297)

21. Pseudo remainder with p_4 over variable x_4:

Polynomial too big for output (text size is 8177 characters, number of terms is 226)

22. Pseudo remainder with p_3 over variable x_3:

$$
\begin{aligned}
g \; = \; & -56623104x_2^{20}x_1^6 - 254803968x_2^{20}x_1^4 - 382205952x_2^{20}x_1^2 \\
& -191102976x_2^{20} - 56623104x_2^{18}x_1^8 - 835190784x_2^{18}x_1^6 + \\
& 1019215872x_2^{18}x_1^5 - 2123366400x_2^{18}x_1^4 + 3057647616x_2^{18}x_1^3 \\
& -1496973312x_2^{18}x_1^2 + 2293235712x_2^{18}x_1 - 1019215872x_2^{16}x_1^8 + \\
& 2165833728x_2^{16}x_1^7 - 5995855872x_2^{16}x_1^6 + 13345357824x_2^{16}x_1^5 \\
& -14121713664x_2^{16}x_1^4 + 15144910848x_2^{16}x_1^3 \\
& -11131748352x_2^{16}x_1^2 - 382205952x_2^{14}x_1^{10} + 1146617856x_2^{14}x_1^9 \\
& -6521389056x_2^{14}x_1^8 + 22024617984x_2^{14}x_1^7 \\
& -37169528832x_2^{14}x_1^6 + 52326383616x_2^{14}x_1^5 \\
& -59026931712x_2^{14}x_1^4 + 28092137472x_2^{14}x_1^3 \\
& -3081535488x_2^{12}x_1^{10} + 15479341056x_2^{12}x_1^9 \\
& -36882874368x_2^{12}x_1^8 + 74995974144x_2^{12}x_1^7 \\
& -122989694976x_2^{12}x_1^6 + 111616081920x_2^{12}x_1^5 \\
& -39020838912x_2^{12}x_1^4 - 644972544x_2^{10}x_1^{12} + \\
& 3869835264x_2^{10}x_1^{11} - 13114441728x_2^{10}x_1^{10} + \\
& 42890674176x_2^{10}x_1^9 - 104754290688x_2^{10}x_1^8 + \\
& 146355019776x_2^{10}x_1^7 - 102980616192x_2^{10}x_1^6 + \\
& 28378791936x_2^{10}x_1^5 - 967458816x_2^8x_1^{12} + 8707129344x_2^8x_1^{11} \\
& -32168005632x_2^8x_1^{10} + 62401093632x_2^8x_1^9 - 66754658304x_2^8x_1^8 + \\
& 37247164416x_2^8x_1^7 - 8465264640x_2^8x_1^6
\end{aligned}
$$

23. Pseudo remainder with p_2 over variable x_2:

$$
\begin{aligned}
g \; = \; & -481469424205824x_1^{12} + 3851755393646592x_1^{11} - 14564450082226176x_1^{10} + \\
& 34425063830716416x_1^9 - 56121279758991360x_1^8 + 66081678472249344x_1^7 \\
& -57287338520739840x_1^6 + 36696997676187648x_1^5 - 17208770435481600x_1^4 + \\
& 5762587170963456x_1^3 - 1308994997059584x_1^2 + 180551034077184x_1 - 11284439629824
\end{aligned}
$$

24. 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 963 terms.

Time Complexity: Time spent by the prover is 0.835 seconds.

4   NDG Conditions

NDG Conditions in readable form

- Failed to translate NDG Conditions to readable form