

11.04.2013. ДУС-алгебра урлагчине (хэрэг на стунин)

$u' = 1 - v$   
 $u'v' = 0$   
 $F_1(x, y, z, u, v) = 0$   
 $F_2(x, y, z, u, v) = 0$   
 $F_3(x, y, z, u, v) = 0$

$\frac{1}{x} = 1/x$   
 $\frac{1}{x} + (x)^2 = 1/x^3$   
 $\frac{1}{x} + (x)^2 = 1/x^3$

$z(x, y) \quad u(x, y) \quad v(x, y)$

$F'_z$	$F'_u$	$F'_v$
$G'_z$	$G'_u$	$G'_v$
$H'_z$	$H'_u$	$H'_v$

$x = t + 1$   
 $y = t^2 + \frac{1}{t}$   
 $z = t^3 + \frac{1}{t^3}$

$y(x) \quad z(x) \quad t(x)$

$1 - \frac{1}{t^2}$	$2t - \frac{2}{t^3}$	$3t^2 - \frac{3}{t^4}$
0	-1	0
0	0	-1

$t + \frac{1}{t} - x = 0$   
 $t^2 + \frac{1}{t^2} + y = 0$   
 $t^3 + \frac{1}{t^3} + z = 0$

$x = t + \frac{1}{t}$   
 $y = \left(t + \frac{1}{t}\right)^2 - 2$

$z = \left(t + \frac{1}{t}\right)^3 - 3\left(t + \frac{1}{t}\right)$

$y(x) = x^2 - 2$

$z = x^3 - 3x$   
 $z(x) = x^3 - 3x$

$t^2 - tx + 1 = 0$

$t = \frac{x \pm \sqrt{x^2 - 4}}{2}$

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$$x = t|x| + \frac{1}{t|x|}$$

$$y|x| = t^2|x| + \frac{1}{t^2|x|}$$

$$z|x| = t^3|x| + \frac{1}{t^3|x|}$$

$$\begin{aligned} 0 &= \sqrt{v, u, \frac{1}{v, u, x}} \\ 0 &= \sqrt{v, u, \frac{1}{v, u, x}} \\ 0 &= \sqrt{v, u, \frac{1}{v, u, x}} \end{aligned}$$

$$\frac{y(x)}{v(x)} = \frac{1}{v(x)} \cdot \frac{y(x)}{v(x)}$$

$$y'(x) = \left( 2t - \frac{2}{t^3} \right) t'(x) = 2 \frac{t^4 - 1}{t^3} \cdot \frac{t^2}{t^2 - 1} = 2 \frac{t^2 + 1}{t} = 2 \left( t + \frac{1}{t} \right) = 2x$$

$$1 = t' - \frac{1}{t^2} \cdot t' \Rightarrow t' = \frac{t^2}{t^2 - 1}$$

$$y'' = \dots$$

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$$\begin{aligned} x &= u + v \\ y &= u^2 + v^2 \\ z &= u^3 + v^3 \end{aligned}$$

$$\begin{array}{ccc|ccc} 0 & = & x & \frac{1}{t} & t & \\ \hline 0 & = & y & \frac{1}{t^2} & t^2 & \\ \hline 0 & = & z & \frac{1}{t^3} & t^3 & \end{array}$$

$ x, y $	$\frac{1}{t}$	$u$	$v$	$z$	$1$	$1$	$0$	
$\frac{1}{t^2}$	$\frac{1}{t^2}$	$2u$	$2v$	$3u^2$	$2u$	$2v$	$0$	$-2v + 2u$
$\frac{1}{t^3}$	$\frac{1}{t^3}$	$3u$	$3v$	$-1$				

$$z(x, y) = u^3(x, y) + v^3(x, y)$$

$$z'_x = 3u^2(x, y)u'_x + 3v^2(x, y)v'_x$$

$$x = u(x, y) + v(x, y) \quad (no \ x')$$

$$y = u^2(x, y) + v^2(x, y)$$

$$1 = u'_x + v'_x$$

$$0 = 2u(x, y)u'_x + 2v(x, y)v'_x$$

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$$u'_x = 1 - v'_x$$

$$u - uv'_x + vv'_x = 0$$

$$F_1(x, u) = u - v = 0$$

$$F_2(x, u, v) = u - v = 0$$

$$u'_x = \frac{\begin{vmatrix} 0 & 1 & 1 \\ 1 & 1 & 1 \\ 2u & -v & 2v \end{vmatrix}}{\begin{vmatrix} 1 & 1 \\ 2u & 2v \end{vmatrix}} = \frac{v}{v-u}$$

$$v'_x = \frac{1-u}{v-u}$$

$$z'_x = \frac{3u^2v - 3v^2u}{v-u} = 3uv$$

$$z'_x = 3u^2 \cdot u'_x + 3v^2 \cdot v'_x = -3uv$$

$$z'_{xy} = -3u'_y v - 3v'_y u$$

$$0 = u'_y + v'_y \quad (', \text{ no } y)$$

$$1 = 2u \cdot u'_y + 2v \cdot v'_y = u'_y(2u - 2v)$$

$$u'_y = -v'_y = \frac{1}{2(u-v)}$$