|  |  |  |  |
| --- | --- | --- | --- |
| **1B** | $$\begin{array}{c}A+X\rightarrow 2X\\X\rightarrow Y\\X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-x-xy\\\dot{y}=x+xy-y\end{array}$$ | $$J=\left[\begin{matrix}a-1-y&-x\\1+y&x-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a-1&0\\1&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=1-a\\trJ\_{1}=a-2\end{array}$$ |
| $$\frac{a-1}{a};a-1$$ | $$J\_{2}=\left[\begin{matrix}0&{(1-a)}/{a}\\a&{-1}/{a}\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2}=a-1\\trJ\_{2}={-1}/{a}\end{array}$$ |

a = 5

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}4&0\\1&-1\end{matrix}\right]$$ | detJ = –4trJ = 3 | nyereg |
| 0,8; 4 | $$\left[\begin{matrix}0&-0,8\\5&-0,2\end{matrix}\right]$$ | detJ = 4trJ = –0,2 | stabil fókusz |

|  |  |  |  |
| --- | --- | --- | --- |
| **1B** | $$\begin{array}{c}A+X\rightarrow 2X\\X\rightarrow Y\\X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-x-xy\\\dot{y}=x+xy-y\end{array}$$ | $$J=\left[\begin{matrix}a-1-y&-x\\1+y&x-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a-1&0\\1&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=1-a\\trJ\_{1}=a-2\end{array}$$ |
| $$\frac{a-1}{a};a-1$$ | $$J\_{2}=\left[\begin{matrix}0&{(1-a)}/{a}\\a&{-1}/{a}\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2}=a-1\\trJ\_{2}={-1}/{a}\end{array}$$ |

a = –1

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}-2&0\\1&-1\end{matrix}\right]$$ | detJ = 2trJ = –3 | stabil csomó |
| 2; –2 | $$\left[\begin{matrix}0&-2\\-1&1\end{matrix}\right]$$ | detJ = –2trJ = 1 | nyereg |

|  |  |  |  |
| --- | --- | --- | --- |
| **1B** | $$\begin{array}{c}A+X\rightarrow 2X\\X\rightarrow Y\\X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-x-xy\\\dot{y}=x+xy-y\end{array}$$ | $$J=\left[\begin{matrix}a-1-y&-x\\1+y&x-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a-1&0\\1&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=1-a\\trJ\_{1}=a-2\end{array}$$ |
| $$\frac{a-1}{a};a-1$$ | $$J\_{2}=\left[\begin{matrix}0&{(1-a)}/{a}\\a&{-1}/{a}\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2}=a-1\\trJ\_{2}={-1}/{a}\end{array}$$ |

a = –2

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}-3&0\\1&-1\end{matrix}\right]$$ | detJ = 3trJ = –4 | stabilcsomó |
| 1,5; –3 | $$\left[\begin{matrix}0&-1,5\\-2&0,5\end{matrix}\right]$$ | detJ = –3trJ = 0,5 | nyereg |

|  |  |  |  |
| --- | --- | --- | --- |
| **1C** | $$\begin{array}{c}A+X\rightarrow 2X\\2X\rightarrow 2Y\\X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-2x^{2}-xy\\\dot{y}=2x^{2}+xy-y\end{array}$$ | $$J=\left[\begin{matrix}a-4x-y&-x\\4x+y&x-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=-a\\trJ\_{1}=a-1\end{array}$$ |
| $$\frac{a}{a+2};\frac{a^{2}}{a+2}$$ | $$J\_{2}=\left[\begin{matrix}{-2a}/{(a+2)}&{-a}/{(a+2)}\\a{(4+a)}/{(a+2)}&{-2}/{(a+2)}\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2}=a\\trJ\_{2}=-2{(a+1)}/{(a+2)}\end{array}$$ |

a = 2

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}2&0\\0&-1\end{matrix}\right]$$ | detJ = –2trJ = 1 | nyereg |
| 0,5; 1 | $$\left[\begin{matrix}-1&-0,5\\3&-0,5\end{matrix}\right]$$ | detJ = 2trJ = –1,5 | stabil fókusz |

|  |  |  |  |
| --- | --- | --- | --- |
| **1C** | $$\begin{array}{c}A+X\rightarrow 2X\\2X\rightarrow 2Y\\X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-2x^{2}-xy\\\dot{y}=2x^{2}+xy-y\end{array}$$ | $$J=\left[\begin{matrix}a-4x-y&-x\\4x+y&x-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=-a\\trJ\_{1}=a-1\end{array}$$ |
| $$\frac{a}{a+2};\frac{a^{2}}{a+2}$$ | $$J\_{2}=\left[\begin{matrix}{-2a}/{(a+2)}&{-a}/{(a+2)}\\a{(4+a)}/{(a+2)}&{-2}/{(a+2)}\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2}=a\\trJ\_{2}=-2{(a+1)}/{(a+2)}\end{array}$$ |

a = –3

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}-3&0\\0&-1\end{matrix}\right]$$ | detJ = 3trJ = –4 | stabil csomó |
| 3; –9 | $$\left[\begin{matrix}-6&-3\\3&2\end{matrix}\right]$$ | detJ = –3trJ = –4 | nyereg |

|  |  |  |  |
| --- | --- | --- | --- |
| **1C** | $$\begin{array}{c}A+X\rightarrow 2X\\2X\rightarrow 2Y\\X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-2x^{2}-xy\\\dot{y}=2x^{2}+xy-y\end{array}$$ | $$J=\left[\begin{matrix}a-4x-y&-x\\4x+y&x-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=-a\\trJ\_{1}=a-1\end{array}$$ |
| $$\frac{a}{a+2};\frac{a^{2}}{a+2}$$ | $$J\_{2}=\left[\begin{matrix}{-2a}/{(a+2)}&{-a}/{(a+2)}\\a{(4+a)}/{(a+2)}&{-2}/{(a+2)}\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2}=a\\trJ\_{2}=-2{(a+1)}/{(a+2)}\end{array}$$ |

a = 3

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}3&0\\0&-1\end{matrix}\right]$$ | detJ = –3trJ = 2 | nyereg |
| 0,6; 1,8 | $$\left[\begin{matrix}-1,2&-0,6\\4,2&–0,4\end{matrix}\right]$$ | detJ = 3trJ = –1,6 | stabilfókusz |

|  |  |  |  |
| --- | --- | --- | --- |
| **7A** | $$\begin{array}{c}A+2X\rightarrow 3X\\X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax^{2}-xy\\\dot{y}=xy-y\end{array}$$ | $$J=\left[\begin{matrix}2ax-y&-x\\y&x-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}0&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=0\\trJ\_{1}=-1\end{array}$$ |
| 1; *a* | $$J\_{2}=\left[\begin{matrix}a&-1\\a&0\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2}=a\\trJ\_{2}=a\end{array}$$ |

a = 2

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $\left[\begin{matrix}0&0\\0&–1\end{matrix}\right]$  | detJ = 0trJ = –1 | stabil nyeregcsomó |
| 1; 2 | $$\left[\begin{matrix}2&-1\\2&0\end{matrix}\right]$$ | detJ = 2trJ = 2 | instabil fókusz |

|  |  |  |  |
| --- | --- | --- | --- |
| **7A** | $$\begin{array}{c}A+2X\rightarrow 3X\\X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax^{2}-xy\\\dot{y}=xy-y\end{array}$$ | $$J=\left[\begin{matrix}2ax-y&-x\\y&x-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}0&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=0\\trJ\_{1}=-1\end{array}$$ |
| 1; *a* | $$J\_{2}=\left[\begin{matrix}a&-1\\a&0\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2}=a\\trJ\_{2}=a\end{array}$$ |

a = –1

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $\left[\begin{matrix}0&0\\0&–1\end{matrix}\right]$  | detJ = 0trJ = –1 | stabil nyeregcsomó |
| 1; –1 | $$\left[\begin{matrix}-1&-1\\-1&0\end{matrix}\right]$$ | detJ = –1trJ = –1 | nyereg |

|  |  |  |  |
| --- | --- | --- | --- |
| **7A** | $$\begin{array}{c}A+2X\rightarrow 3X\\X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax^{2}-xy\\\dot{y}=xy-y\end{array}$$ | $$J=\left[\begin{matrix}2ax-y&-x\\y&x-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}0&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=0\\trJ\_{1}=-1\end{array}$$ |
| 1; *a* | $$J\_{2}=\left[\begin{matrix}a&-1\\a&0\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2}=a\\trJ\_{2}=a\end{array}$$ |

a = 5

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $\left[\begin{matrix}0&0\\0&–1\end{matrix}\right]$  | detJ = 0trJ = –1 | stabil nyeregcsomó |
| 1; 5 | $$\left[\begin{matrix}5&-1\\5&0\end{matrix}\right]$$ | detJ = 5trJ = 5 | instabil csomó |

|  |  |  |  |
| --- | --- | --- | --- |
| **3A** | $$\begin{array}{c}A+X\rightarrow 2X\\X+2Y\rightarrow 3Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-xy^{2}\\\dot{y}=xy^{2}-y\end{array}$$ | $$J=\left[\begin{matrix}a-y^{2}&-2xy\\y^{2}&2xy-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=-a\\trJ\_{1}=a-1\end{array}$$ |
| $$\begin{array}{c}{1}/{\sqrt{a}};\sqrt{a}\\{-1}/{\sqrt{a}};-\sqrt{a}\end{array}$$ | $$J\_{2}=J\_{3}=\left[\begin{matrix}0&-2\\a&1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2,3}=2a\\trJ\_{2,3}=1\end{array}$$ |

a = 1

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}1&0\\0&-1\end{matrix}\right]$$ | detJ = –1trJ = 0 | nyereg |
| 1; 1 | $$\left[\begin{matrix}0&-2\\1&1\end{matrix}\right]$$ | detJ = 2trJ = 1 | instabil fókusz |
| –1; –1 | $$\left[\begin{matrix}0&-2\\1&1\end{matrix}\right]$$ | detJ = 2trJ = 1 | instabil fókusz |

|  |  |  |  |
| --- | --- | --- | --- |
| **3A** | $$\begin{array}{c}A+X\rightarrow 2X\\X+2Y\rightarrow 3Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-xy^{2}\\\dot{y}=xy^{2}-y\end{array}$$ | $$J=\left[\begin{matrix}a-y^{2}&-2xy\\y^{2}&2xy-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=-a\\trJ\_{1}=a-1\end{array}$$ |
| $$\begin{array}{c}{1}/{\sqrt{a}};\sqrt{a}\\{-1}/{\sqrt{a}};-\sqrt{a}\end{array}$$ | $$J\_{2}=J\_{3}=\left[\begin{matrix}0&-2\\a&1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2,3}=2a\\trJ\_{2,3}=1\end{array}$$ |

a = 4

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}4&0\\0&-1\end{matrix}\right]$$ | detJ = –4trJ = 0 | nyereg |
| 0,5; 2 | $$\left[\begin{matrix}0&-2\\4&1\end{matrix}\right]$$ | detJ = 8trJ = 1 | instabilfókusz |
| –0,5; –2 | $$\left[\begin{matrix}0&-2\\4&1\end{matrix}\right]$$ | detJ = 8trJ = 1 | instabilfókusz |

|  |  |  |  |
| --- | --- | --- | --- |
| **3B** | $$\begin{array}{c}A+X\rightarrow 2X\\X\rightarrow Y\\X+2Y\rightarrow 3Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-x-xy^{2}\\\dot{y}=x+xy^{2}-y\end{array}$$ | $$J=\left[\begin{matrix}a-1-y^{2}&-2xy\\1+y^{2}&2xy-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a-1&0\\1&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=1-a\\trJ\_{1}=a-2\end{array}$$ |
| $$\begin{array}{c}{\sqrt{a-1}}/{a};\sqrt{a-1}\\{-\sqrt{a-1}}/{a};-\sqrt{a-1}\end{array}$$ | $$J\_{2}=J\_{3}=\left[\begin{matrix}0&-2{(a-1)}/{a}\\a&{(a-2)}/{a}\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2,3}=2(a-1)\\trJ\_{2,3}={(a-2)}/{a}\end{array}$$ |

a = 5

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}4&0\\1&-1\end{matrix}\right]$$ | detJ = –4trJ = 3 | nyereg |
| 0,4; 2 | $$\left[\begin{matrix}0&-1,6\\5&0,6\end{matrix}\right]$$ | detJ = 8trJ = 0,6 | instabil fókusz |
| –0,4; –2 | $$\left[\begin{matrix}0&-1,6\\5&0,6\end{matrix}\right]$$ | detJ = 8trJ = 0,6 | instabil fókusz |

|  |  |  |  |
| --- | --- | --- | --- |
| **3B** | $$\begin{array}{c}A+X\rightarrow 2X\\X\rightarrow Y\\X+2Y\rightarrow 3Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-x-xy^{2}\\\dot{y}=x+xy^{2}-y\end{array}$$ | $$J=\left[\begin{matrix}a-1-y^{2}&-2xy\\1+y^{2}&2xy-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a-1&0\\1&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=1-a\\trJ\_{1}=a-2\end{array}$$ |
| $$\begin{array}{c}{\sqrt{a-1}}/{a};\sqrt{a-1}\\{-\sqrt{a-1}}/{a};-\sqrt{a-1}\end{array}$$ | $$J\_{2}=J\_{3}=\left[\begin{matrix}0&-2{(a-1)}/{a}\\a&{(a-2)}/{a}\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2,3}=2(a-1)\\trJ\_{2,3}={(a-2)}/{a}\end{array}$$ |

a = 10

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}9&0\\1&-1\end{matrix}\right]$$ | detJ = –9trJ = 8 | nyereg |
| 0,3; 3 | $$\left[\begin{matrix}0&-1,8\\10&0,8\end{matrix}\right]$$ | detJ = 18trJ = 0,8 | instabilfókusz |
| –0,3; –3 | $$\left[\begin{matrix}0&-1,8\\10&0,8\end{matrix}\right]$$ | detJ = 18trJ = 0,8 | instabilfókusz |

|  |  |  |  |
| --- | --- | --- | --- |
| **5A** | $$\begin{array}{c}A+X\rightarrow 2X\\2X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-2x^{2}y\\\dot{y}=x^{2}y-y\end{array}$$ | $$J=\left[\begin{matrix}a-4xy&-2x^{2}\\2xy&x^{2}-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=-a\\trJ\_{1}=a-1\end{array}$$ |
| $$\begin{array}{c}1;{a}/{2}\\-1;-{a}/{2}\end{array}$$ | $$J\_{2}=J\_{3}=\left[\begin{matrix}-a&-2\\a&0\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2,3}=2a\\trJ\_{2,3}=-a\end{array}$$ |

a = 4

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}4&0\\0&-1\end{matrix}\right]$$ | detJ = –4trJ = 3 | nyereg |
| 1; 2 | $$\left[\begin{matrix}-4&-2\\4&0\end{matrix}\right]$$ | detJ = 8trJ = –4 | stabil fókusz |
| –1; –2 | $$\left[\begin{matrix}-4&-2\\4&0\end{matrix}\right]$$ | detJ = 8trJ = –4 | stabil fókusz |

|  |  |  |  |
| --- | --- | --- | --- |
| **5A** | $$\begin{array}{c}A+X\rightarrow 2X\\2X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-2x^{2}y\\\dot{y}=x^{2}y-y\end{array}$$ | $$J=\left[\begin{matrix}a-4xy&-2x^{2}\\2xy&x^{2}-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=-a\\trJ\_{1}=a-1\end{array}$$ |
| $$\begin{array}{c}1;{a}/{2}\\-1;-{a}/{2}\end{array}$$ | $$J\_{2}=J\_{3}=\left[\begin{matrix}-a&-2\\a&0\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2,3}=2a\\trJ\_{2,3}=-a\end{array}$$ |

a = 10

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}10&0\\0&-1\end{matrix}\right]$$ | detJ= –10trJ = 9 | nyereg |
| 1; 5 | $$\left[\begin{matrix}-10&-2\\10&0\end{matrix}\right]$$ | detJ = 20trJ = –10 | stabilcsomó |
| –1; –5 | $$\left[\begin{matrix}-10&-2\\10&0\end{matrix}\right]$$ | detJ = 20trJ = –10 | stabilcsomó |

|  |  |  |  |
| --- | --- | --- | --- |
| **5A** | $$\begin{array}{c}A+X\rightarrow 2X\\2X+Y\rightarrow 2Y\\Y\rightarrow \end{array}$$ | $$\begin{array}{c}\dot{x}=ax-2x^{2}y\\\dot{y}=x^{2}y-y\end{array}$$ | $$J=\left[\begin{matrix}a-4xy&-2x^{2}\\2xy&x^{2}-1\end{matrix}\right]$$ |

|  |  |  |
| --- | --- | --- |
| 0; 0 | $$J\_{1}=\left[\begin{matrix}a&0\\0&-1\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{1}=-a\\trJ\_{1}=a-1\end{array}$$ |
| $$\begin{array}{c}1;{a}/{2}\\-1;-{a}/{2}\end{array}$$ | $$J\_{2}=J\_{3}=\left[\begin{matrix}-a&-2\\a&0\end{matrix}\right]$$ | $$\begin{array}{c}detJ\_{2,3}=2a\\trJ\_{2,3}=-a\end{array}$$ |

a = –2

|  |  |  |  |
| --- | --- | --- | --- |
| 0; 0 | $$\left[\begin{matrix}-2&0\\0&-1\end{matrix}\right]$$ | detJ = 2trJ = –3 | stabil csomó |
| 1; –1 | $$\left[\begin{matrix}2&-2\\-2&0\end{matrix}\right]$$ | detJ = –4trJ = 2 | nyereg |
| –1; 1 | $$\left[\begin{matrix}2&-2\\-2&0\end{matrix}\right]$$ | detJ = –4trJ = 2 | nyereg |