Zadanie3Lab4

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%typeset_mode True

A=([1,-1],[-1,1])
b=(1,2)
c=(1,0)
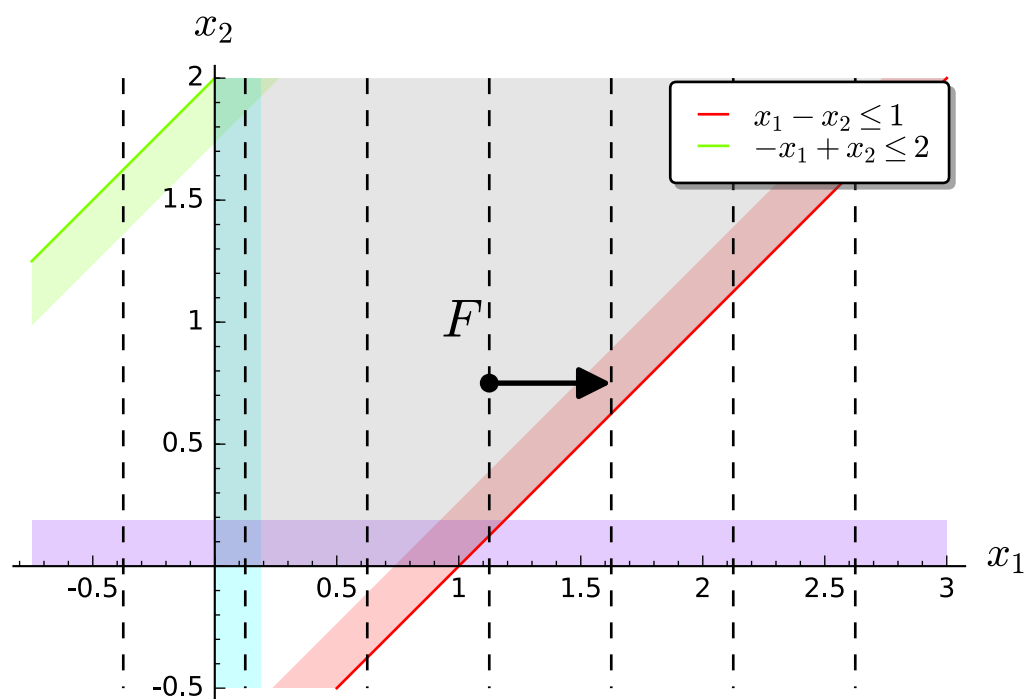P=InteractiveLPProblemStandardForm(A,b,c,["x1","x2"])
P.plot()
view(P)
D=P.initial_dictionary()
view(D)

$$\max \quad x_1$$
$$x_1 - x_2 \le 1$$
$$-x_1 + x_2 \le 2$$
$$x_1, x_2 \ge 0$$

$$x_3 = 1 - x_1 + x_2$$
$$x_4 = 2 + x_1 - x_2$$
$$z = 0 + x_1$$

```
print D.possible_entering()
```
[x1]

```
D.enter("x1")
```

```
print D.possible_leaving()
```
[x3]

```
D.leave("x3")
D.update()
```

```
view(D)
```

$$x_1 = 1 - x_3 + x_2$$
$$x_4 = 3 - x_3$$
$$z = 1 - x_3 + x_2$$

```
print D.possible_entering()
```
[x2]

```
D.enter("x2")
```

```
print D.possible_leaving()
```
[]

```
print "D jest dopuszczalne: "+ str(D.is_feasible())
print "D jest optmalne: " + str(D.is_optimal())
```
D jest dopuszczalne: True
D jest optmalne: False

```
P.run_simplex_method()
```

$$x_3 = 1 - x_1 + x_2$$
$$x_4 = 2 + x_1 - x_2$$
$$z = 0 + x_1$$

Entering: x_1. Leaving: x_3.

$$x_1 = 1 - x_3 + x_2$$
$$x_4 = 3 - x_3$$
$$z = 1 - x_3 + x_2$$

The problem is unbounded in x_2 direction.