



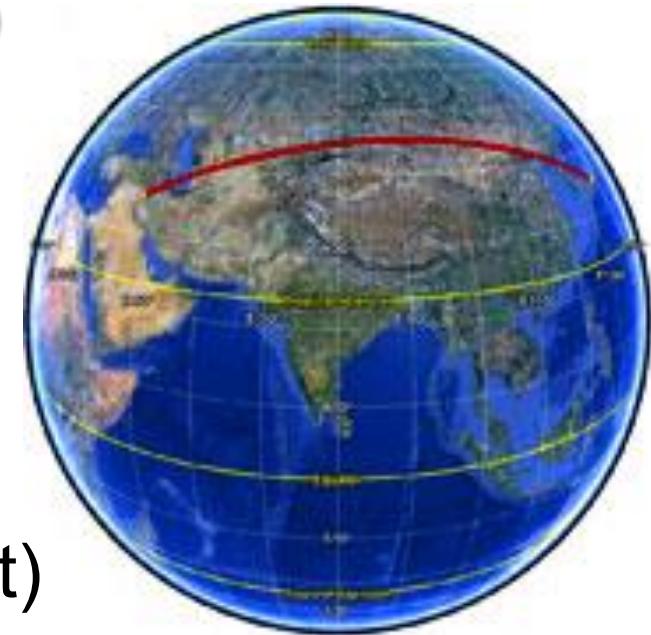
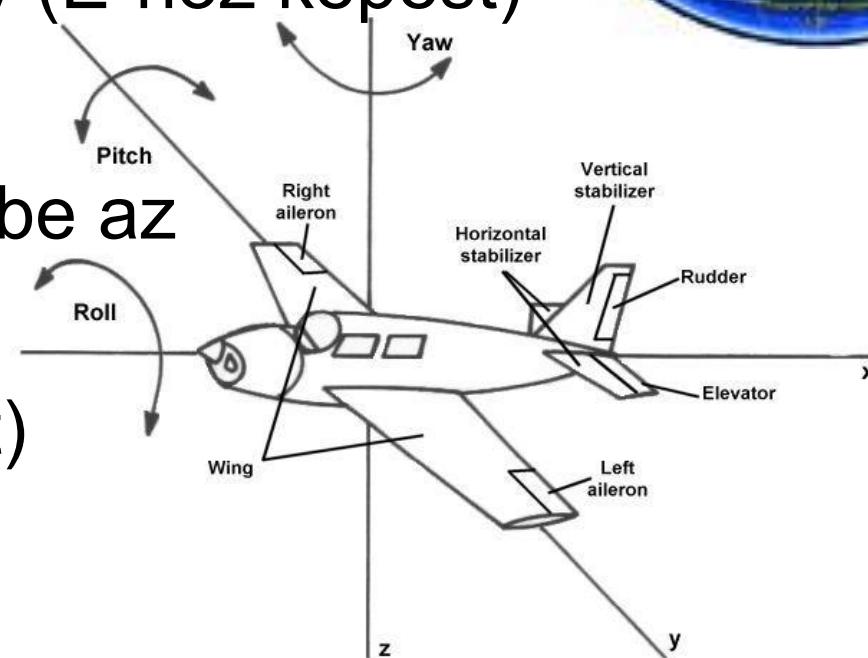
# Robotrepülőgépek útvonaltervezése

Intelligens Rendszerek  
*Gyakorlat*



# Navigáció

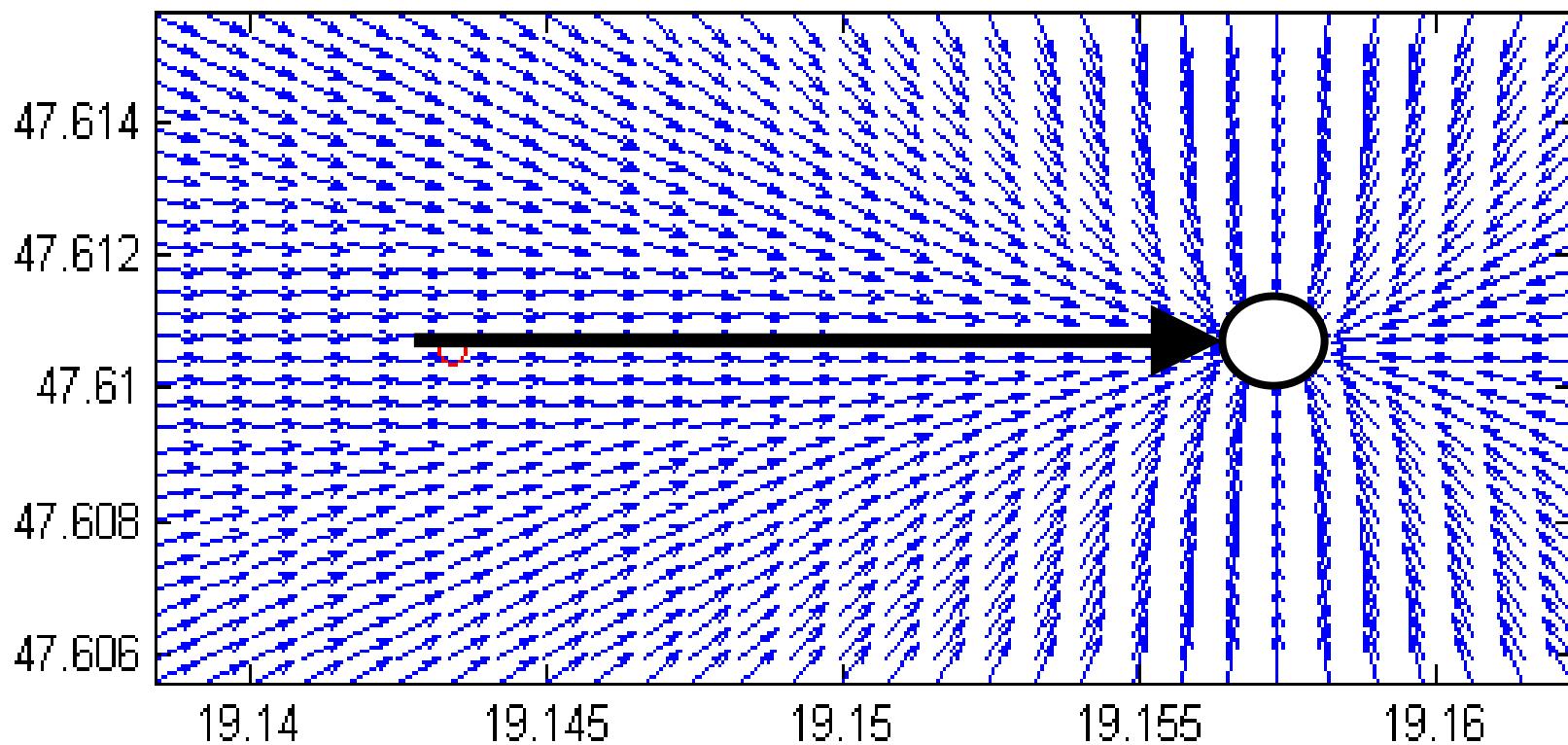
- Course
  - Tervezett útvonal
- Bearing
  - Haladási irány (É-hoz képest)
- Heading
  - A gép orra ebbe az irányba néz (É-hoz képest)





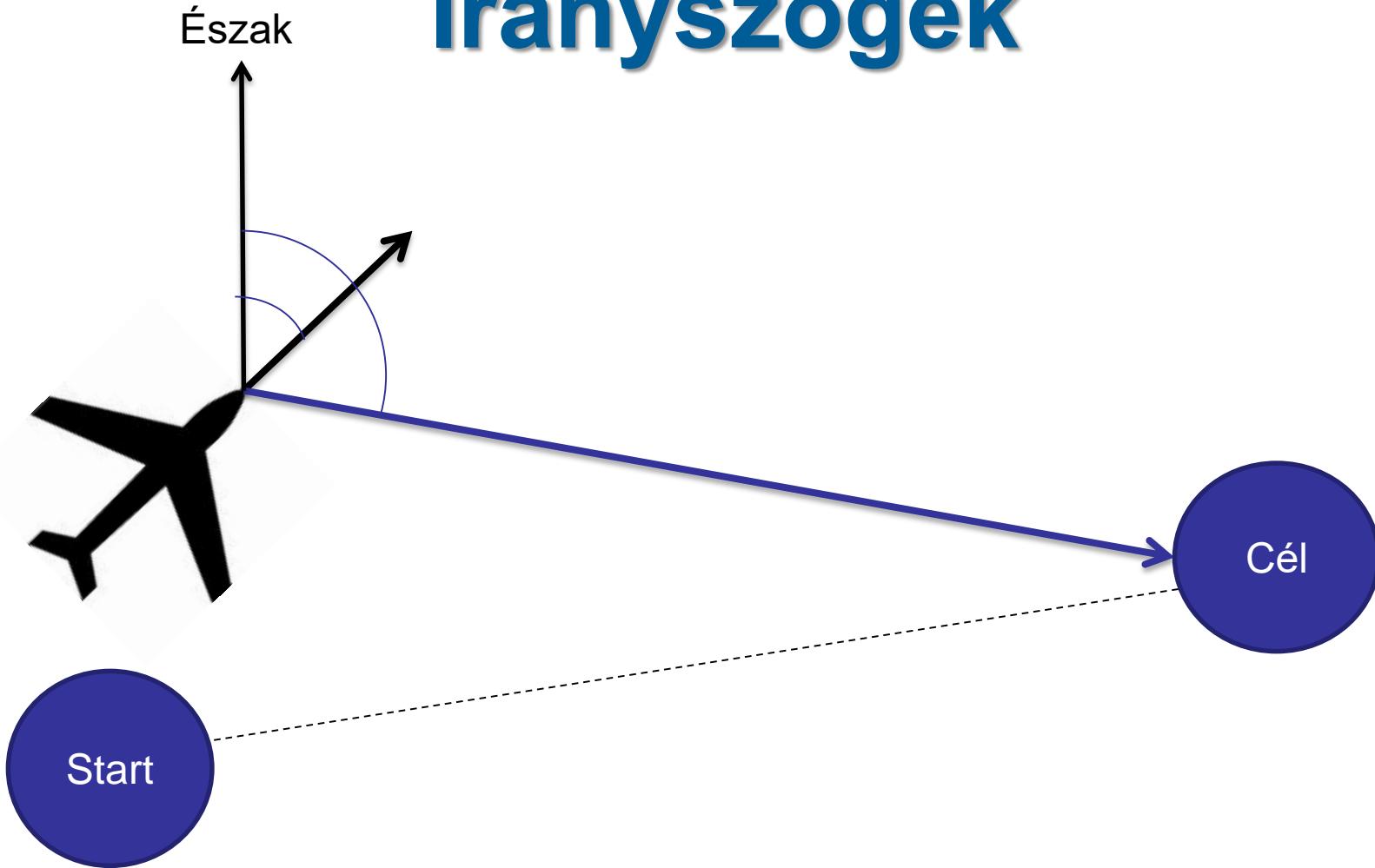
# Fordulópontok

- A gép minden egy koordináta párból álló pozíció felé halad





# Irányszögek

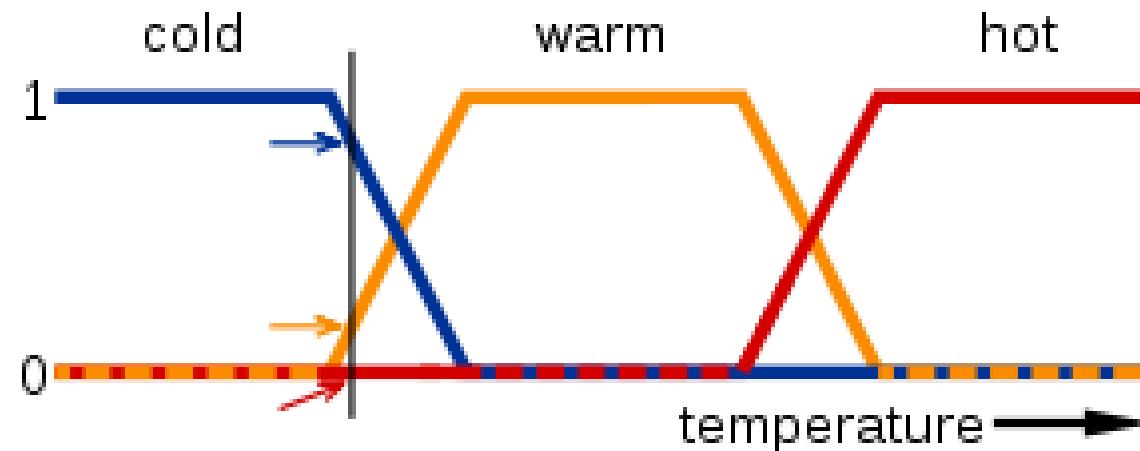


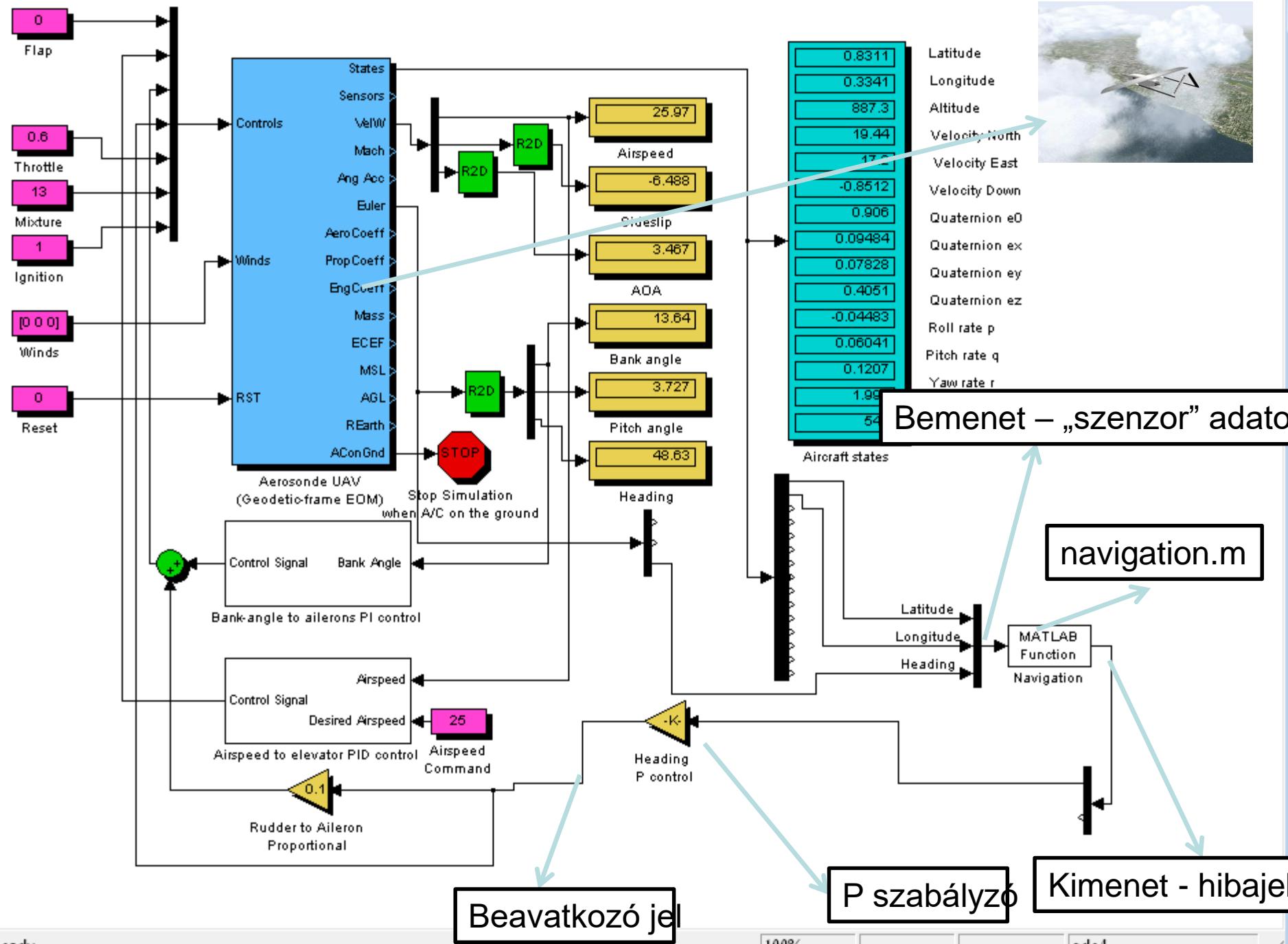
(Szöghiba: -pi és +pi között!)

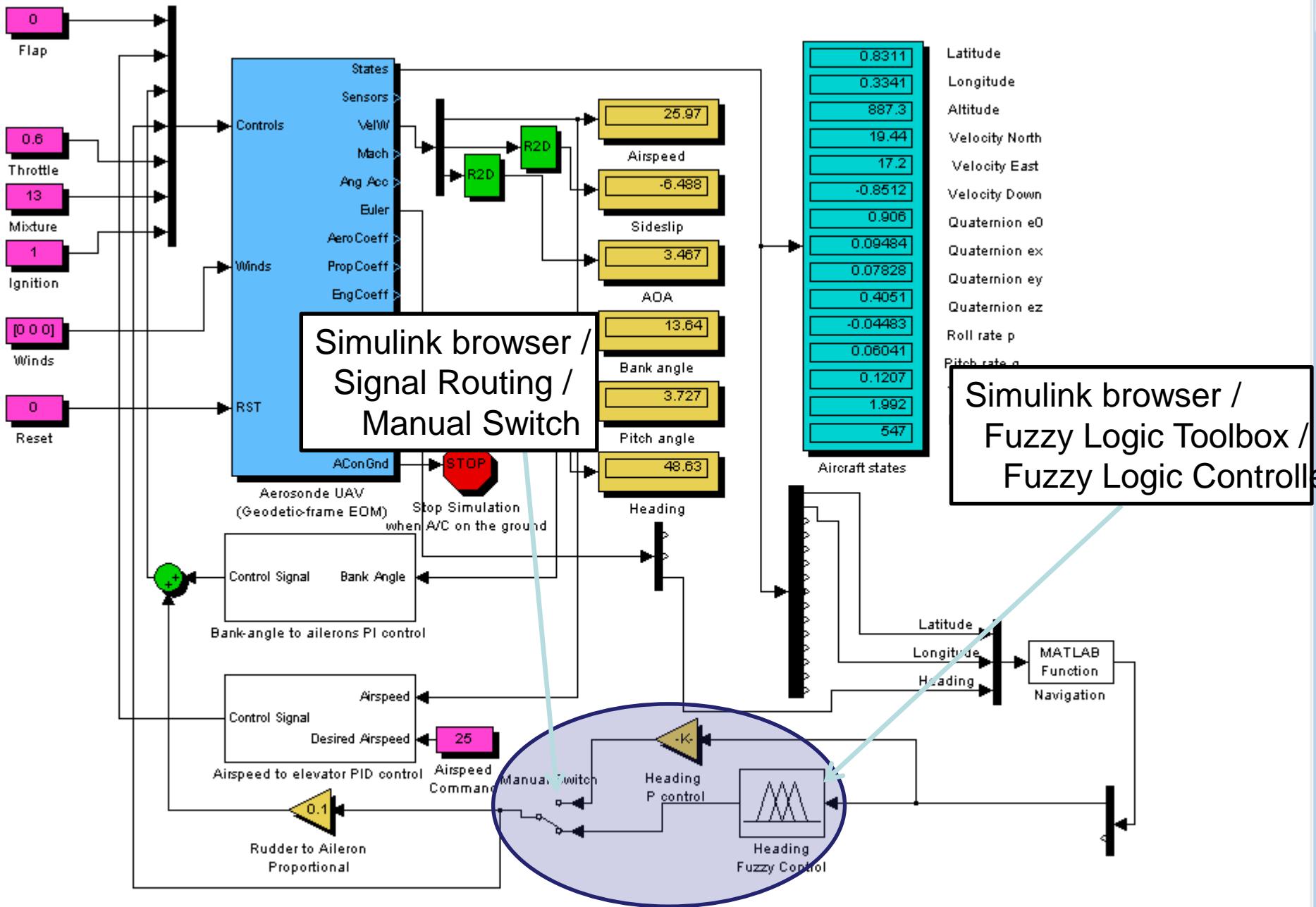


# Fuzzy logika: Mamdami szabályzó

- Átmenetes, nem határozott kijelentések



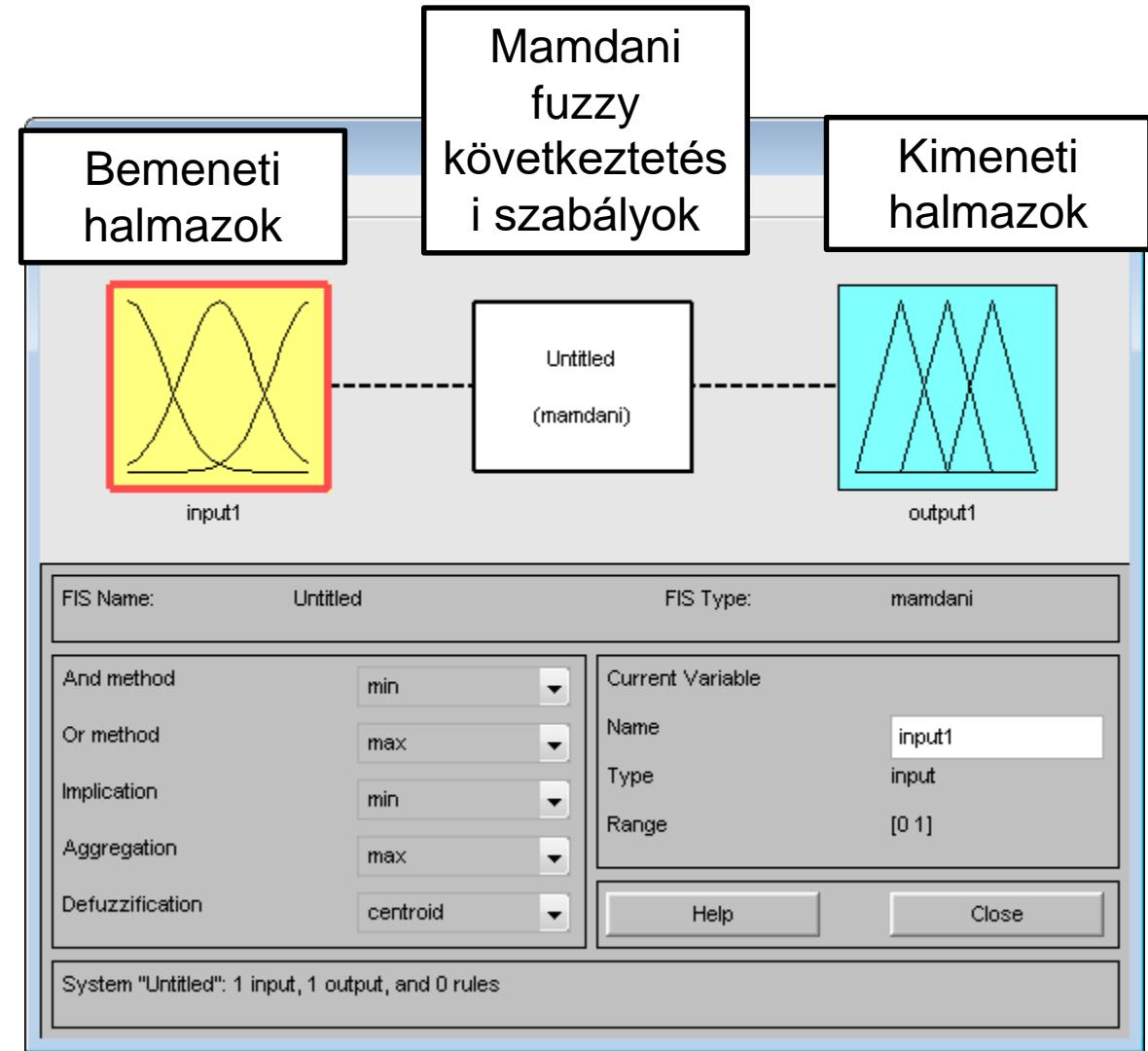






- Konzolban:  
„fuzzy”  
utasítás

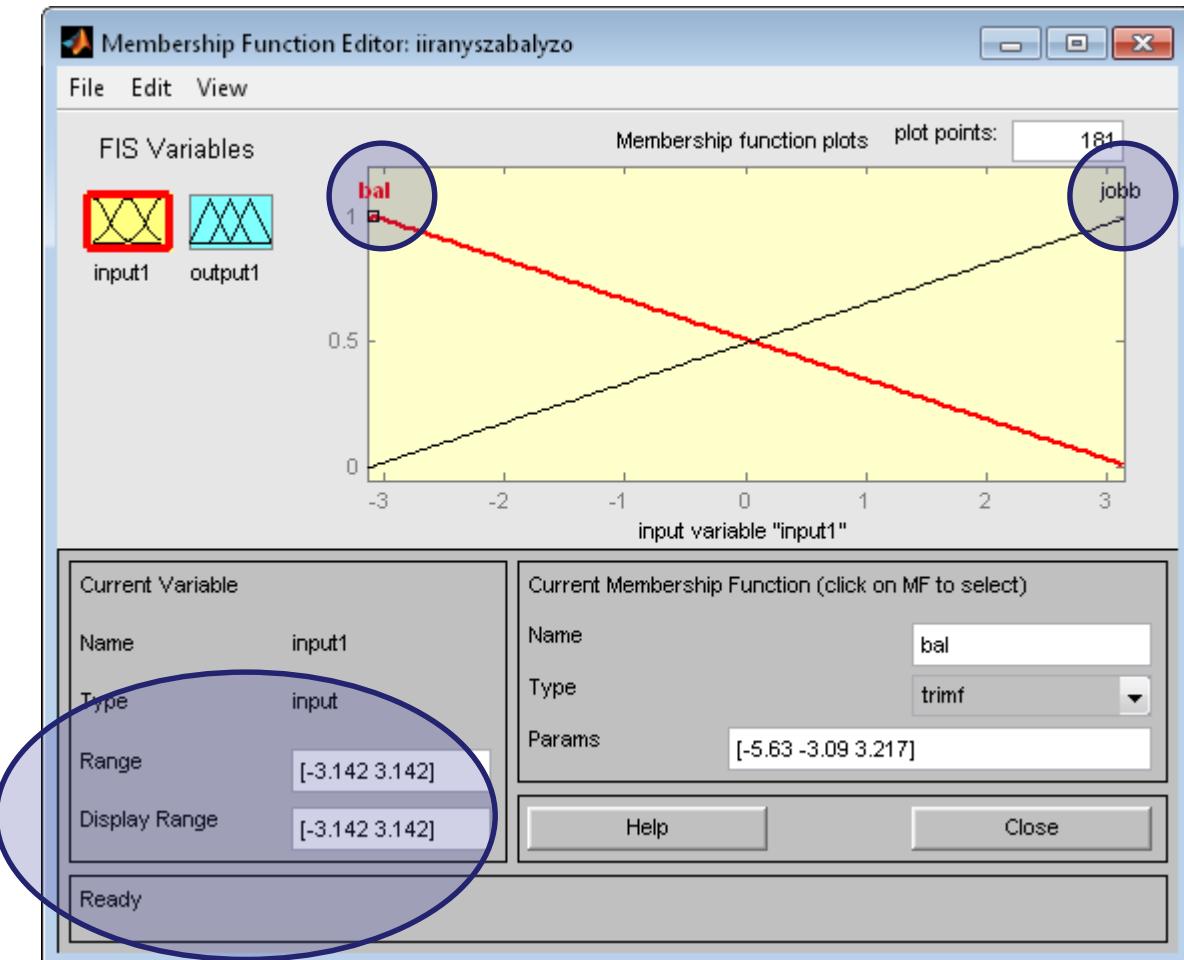
Fuzzy logikai  
szabályok





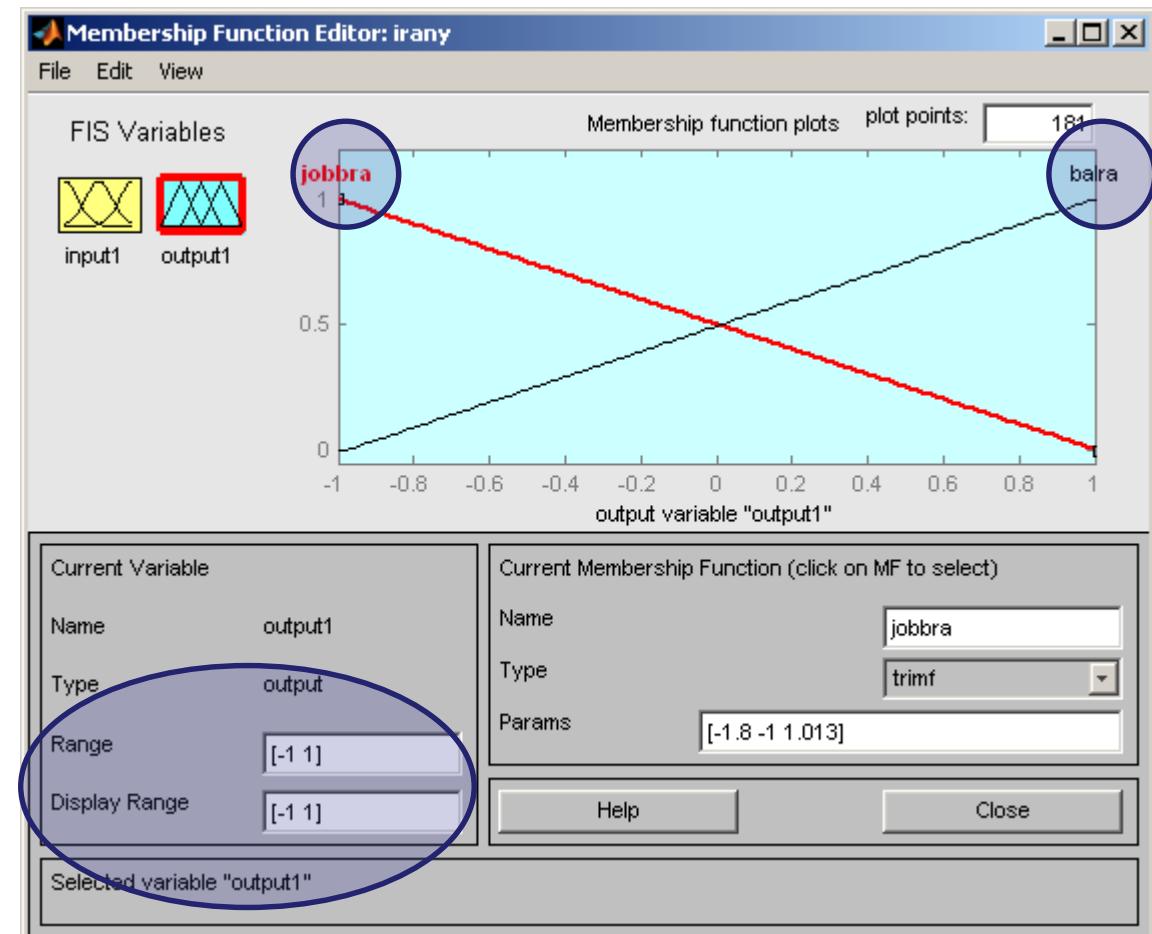
- -pi ... pi

# Input



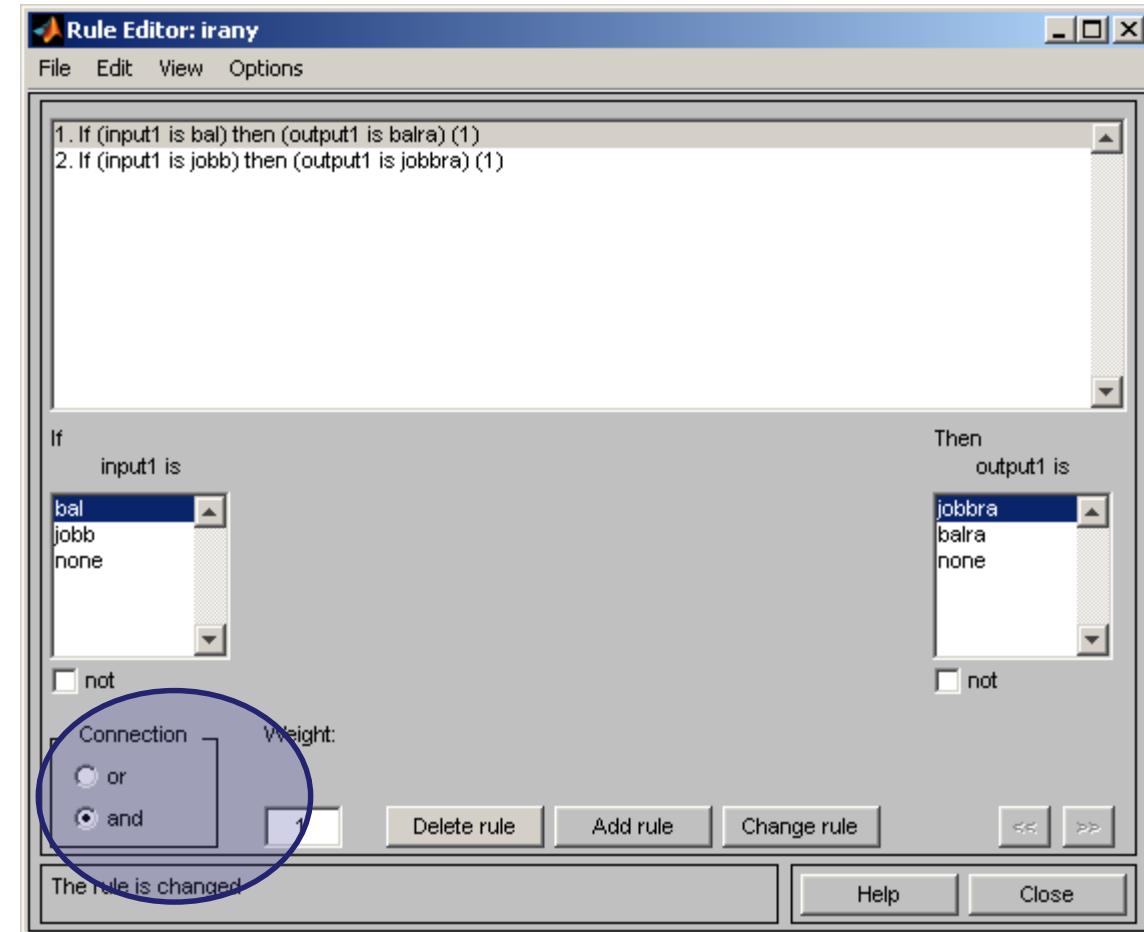


• -1 ... 1





# Mamdani control

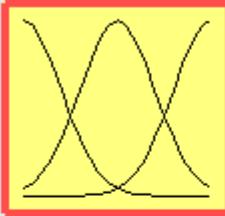




# Mamdani control

**FIS Editor: Untitled**

File Edit View



input1

FIS Name: Untitled

And method: min

Or method: max

Implication: min

Aggregation: max

Defuzzification: centroid

**Rule Editor: irany**

File Edit View Options

1. If (input1 is bal) then (output1 is balra) (1)  
2. If (input1 is jobb) then (output1 is jobbra) (1)

If input1 is

- bal
- jobb
- none

Then output1 is

- jobbra
- balra
- none

not

and

or

Weight: 1

Connection:

The rule is changed

Delete rule Add rule Change rule

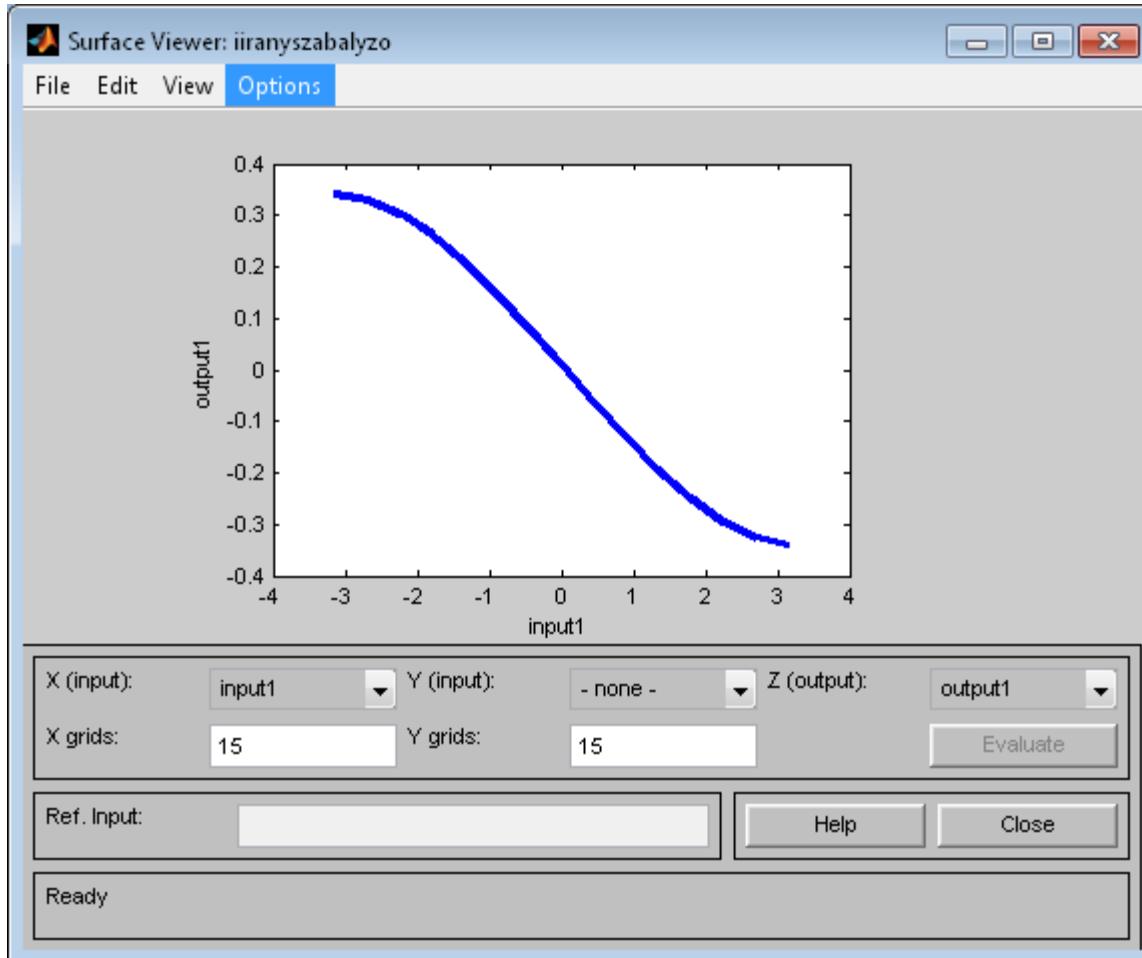
Help Close

System "Untitled": 1 input, 1 output, and 0 rules

A red box highlights the membership function plot for input1. A blue circle highlights the 'and' radio button under Connection in the Rule Editor.

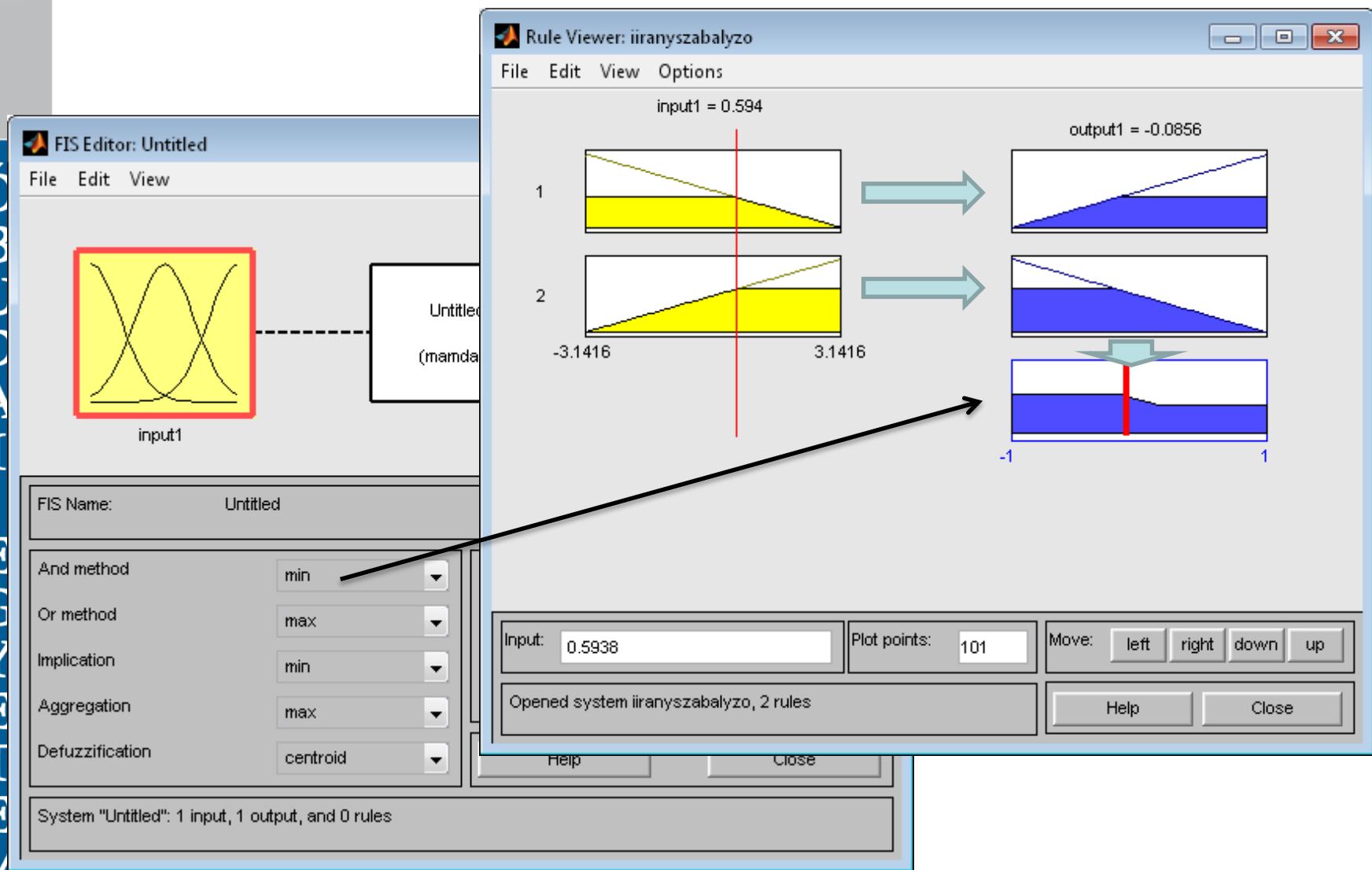


# View / surface





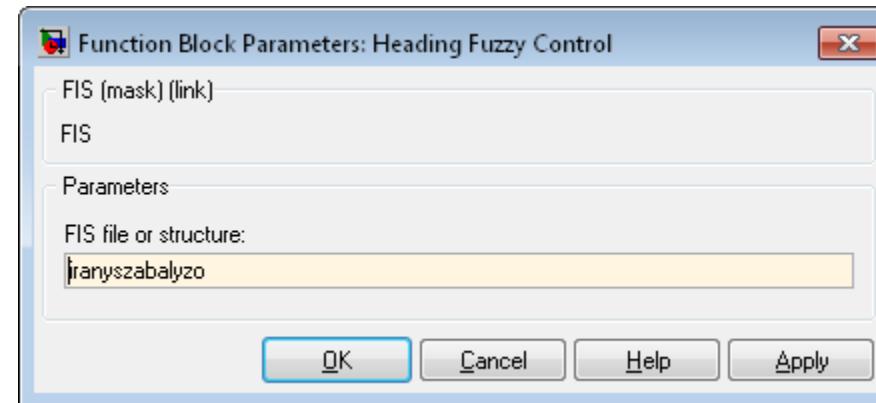
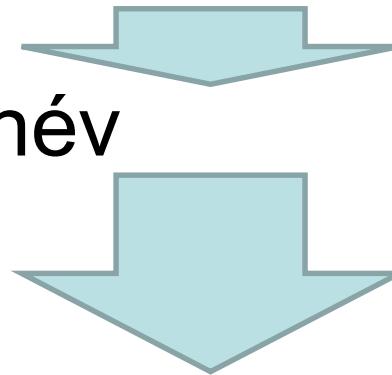
# View / rules

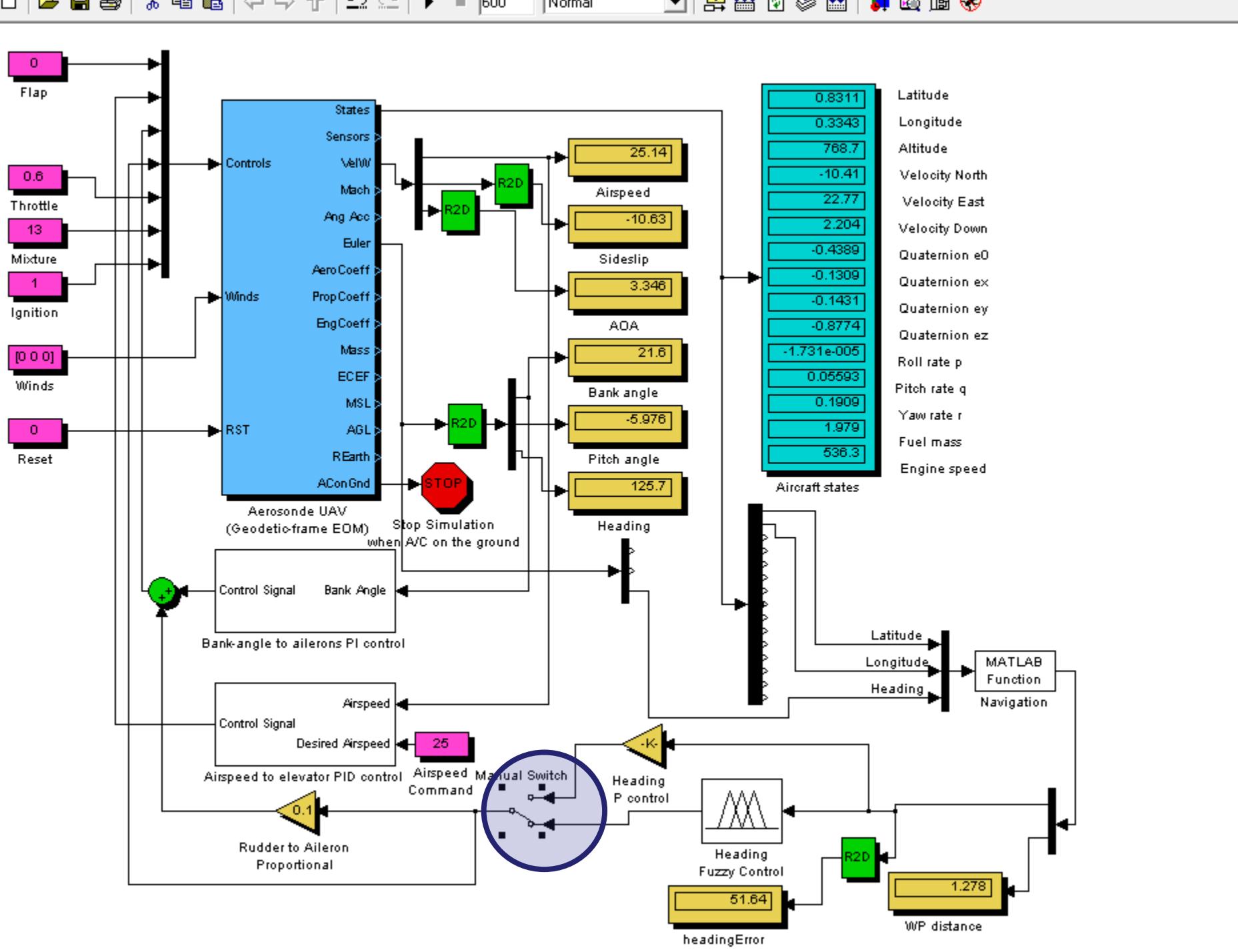




# File / export / to workspace

- „iranyszabalyzo” név







# Inicializálás (init.m)

```
1 %INIT
2 %!!!!!! RUN THIS FIRST !!!!!
3 clear all;
4 close all;
5
6 global target_waypoint
7 target_waypoint=2;    %Cél fordulópont sorszáma
8
9 global lat;
10 global lon;
11 lat=1;
12 lon=2;
13
14 %Dunakeszi reptér 4 * (kb)1000m
15 global waypoint_list
16 waypoint_list=[  
17     47.6206, 19.1434; %1. fordulópont 'Decimal Degree' formátumban  
18     47.6206, 19.1573; %2. fordulópont 'Decimal Degree' formátumban  
19     47.6092, 19.1573; %3. fordulópont 'Decimal Degree' formátumban  
20     47.6092, 19.1434 ];%4. fordulópont 'Decimal Degree' formátumban
21 waypoint_list=deg2rad(waypoint_list)
22 %1-től számoz, nem nullától!!!
23 %waypoint_list(1,lat) : 47.6206
24 %waypoint_list(1,lon) : 19.1434
25
26 plotMap();
27
```

