Neural Turing Machine

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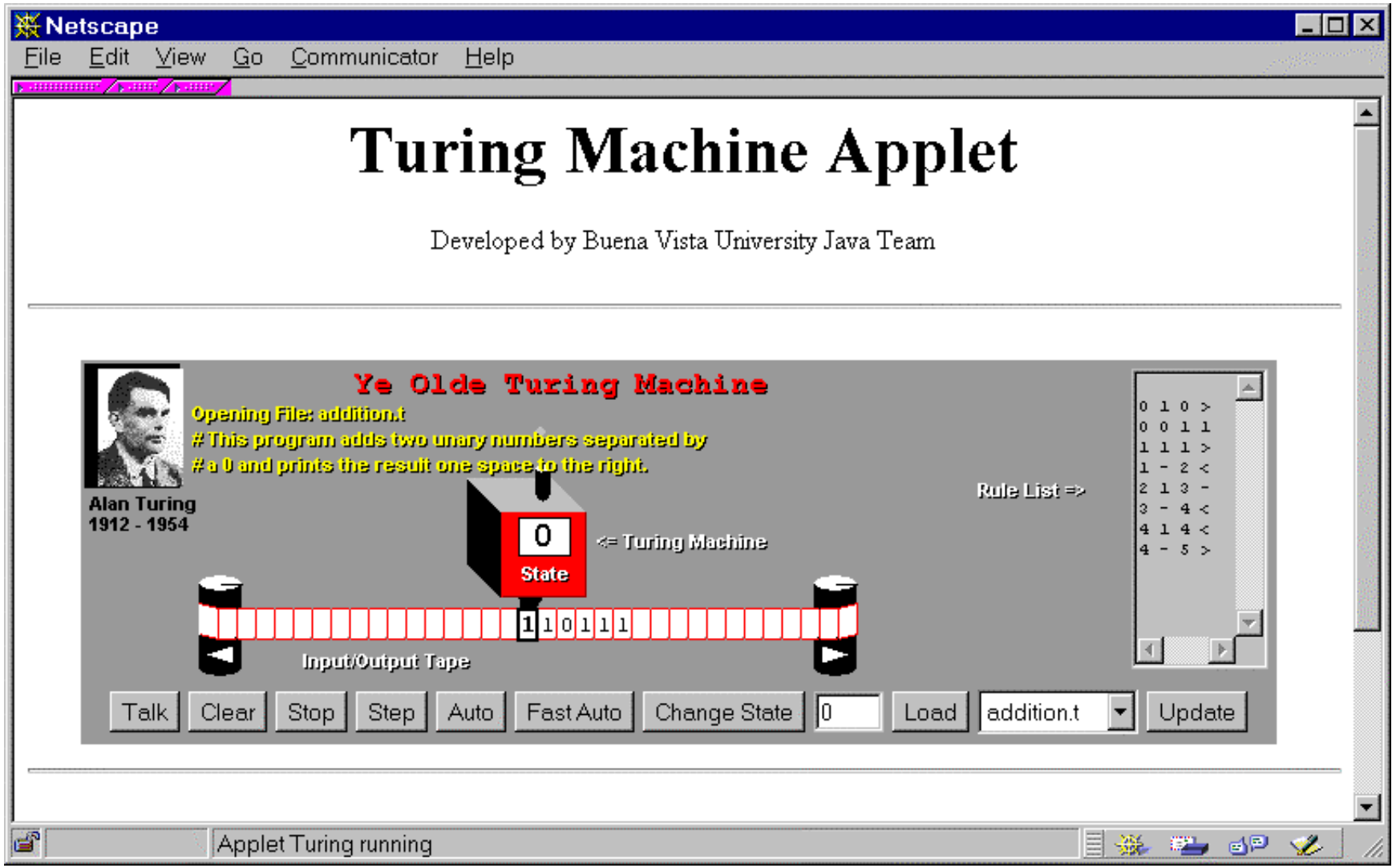
Project Goals

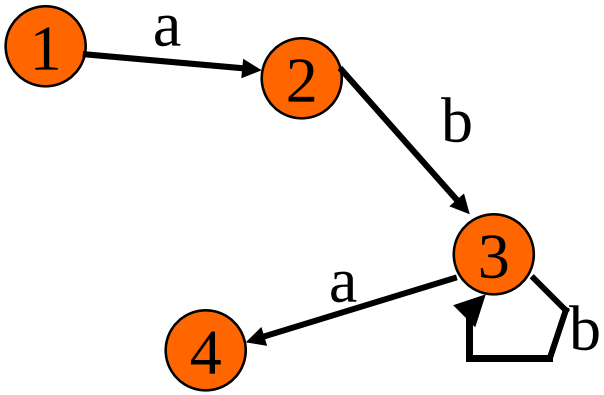
- What is Turing Machine?
- Why to build Neural TM?
  - NTM --> power of Universal Computer!!!
- How to build Neural Turing Machine?

Example of Turing Machine Java Applet



Example of simple program

- Words of regular language:
- a, aba , abba, abbba, ...

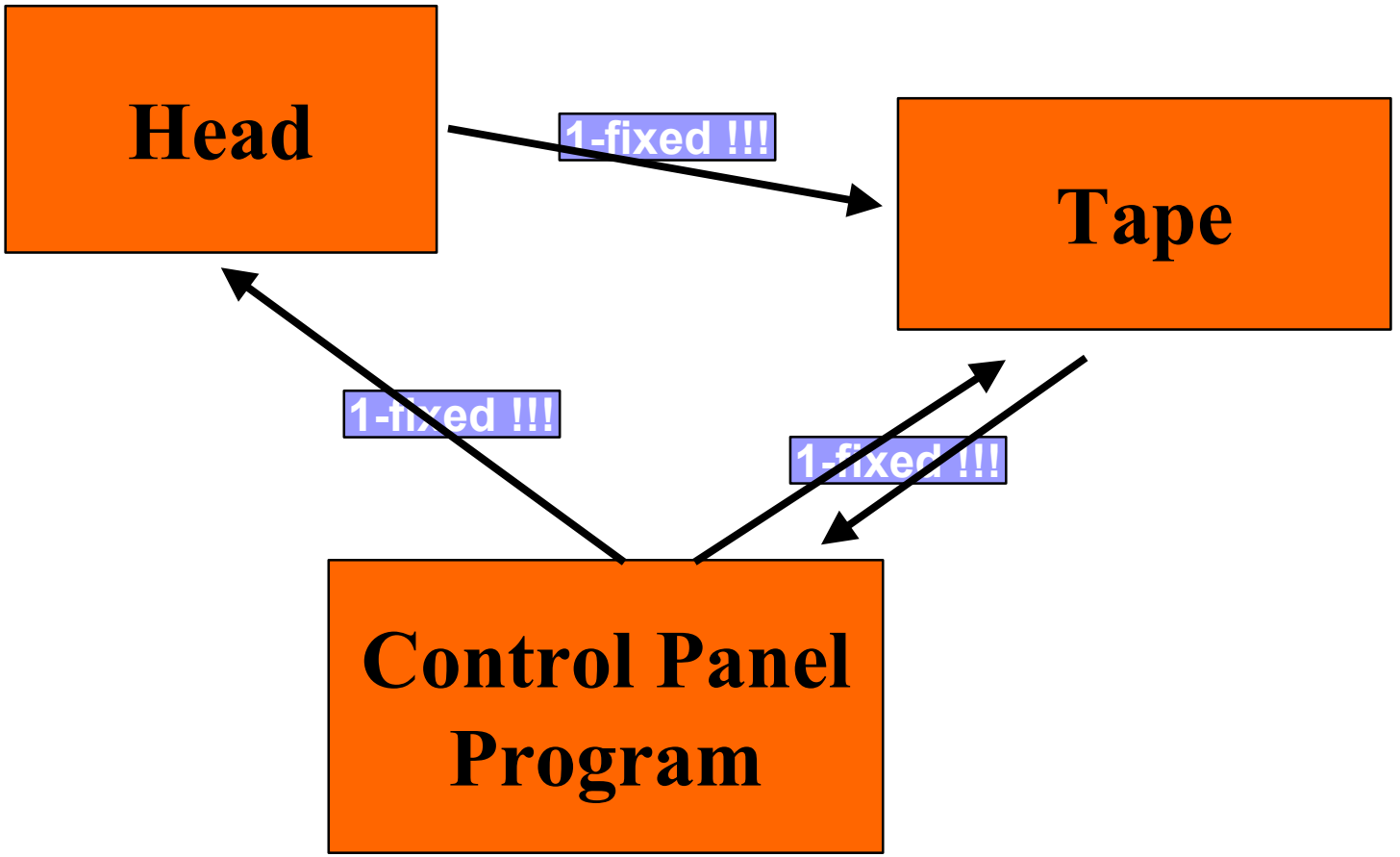


- What is the program?

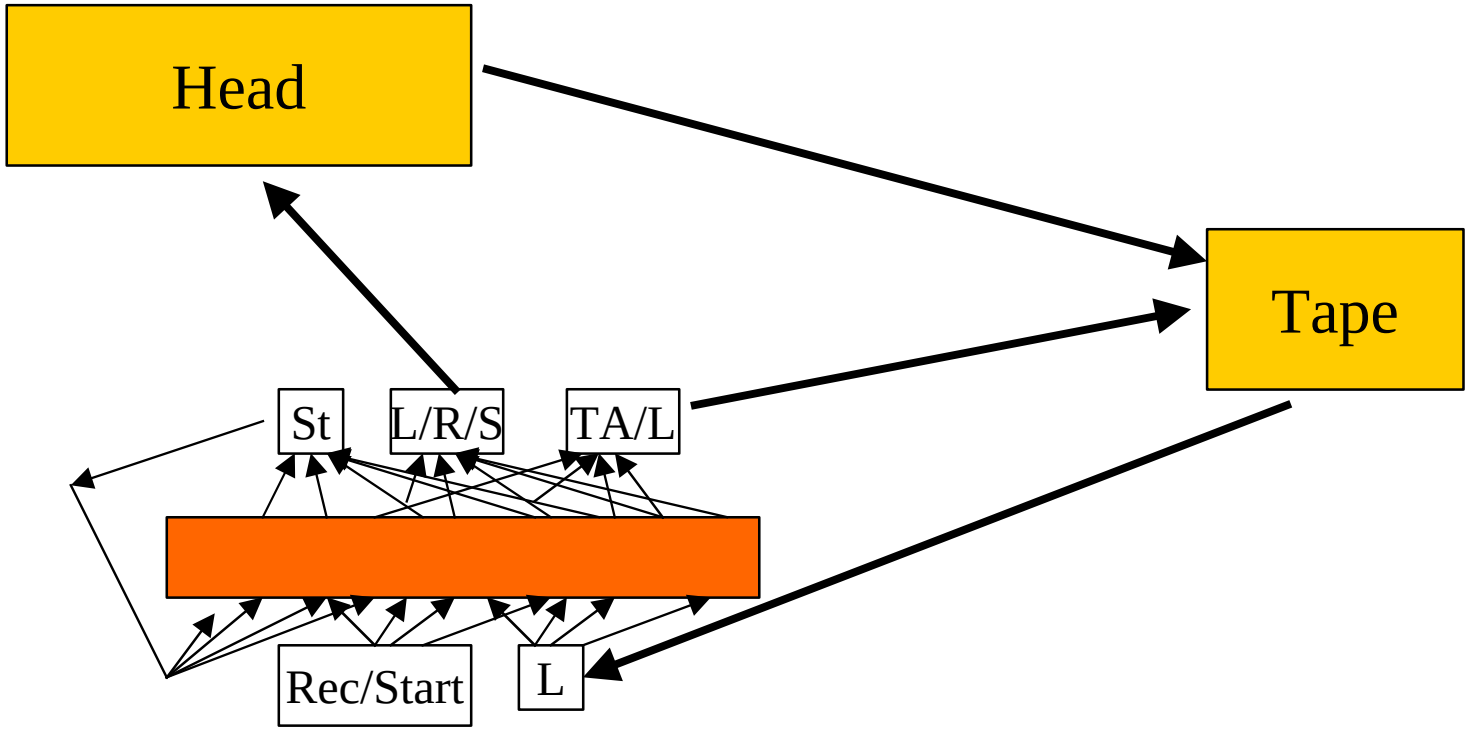
State	Head	New State	Head Action	Cell Act.
1	a	2	R	-
2	b	3	R	-
3	b	3	R	-
3	a	2	R	-

- OK if last state = 2 or 4

Neural Turing Machine

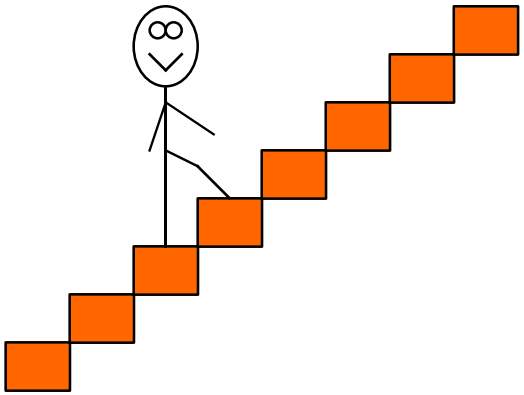


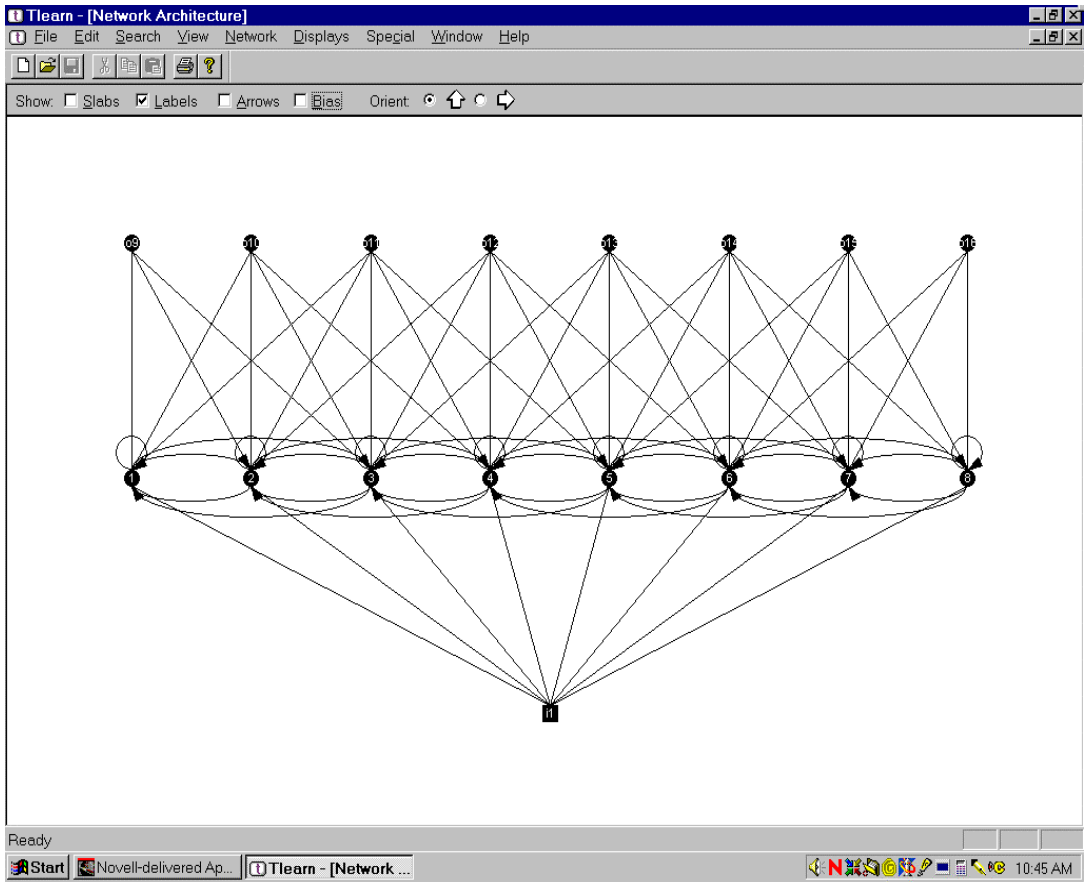
Control Panel & Program



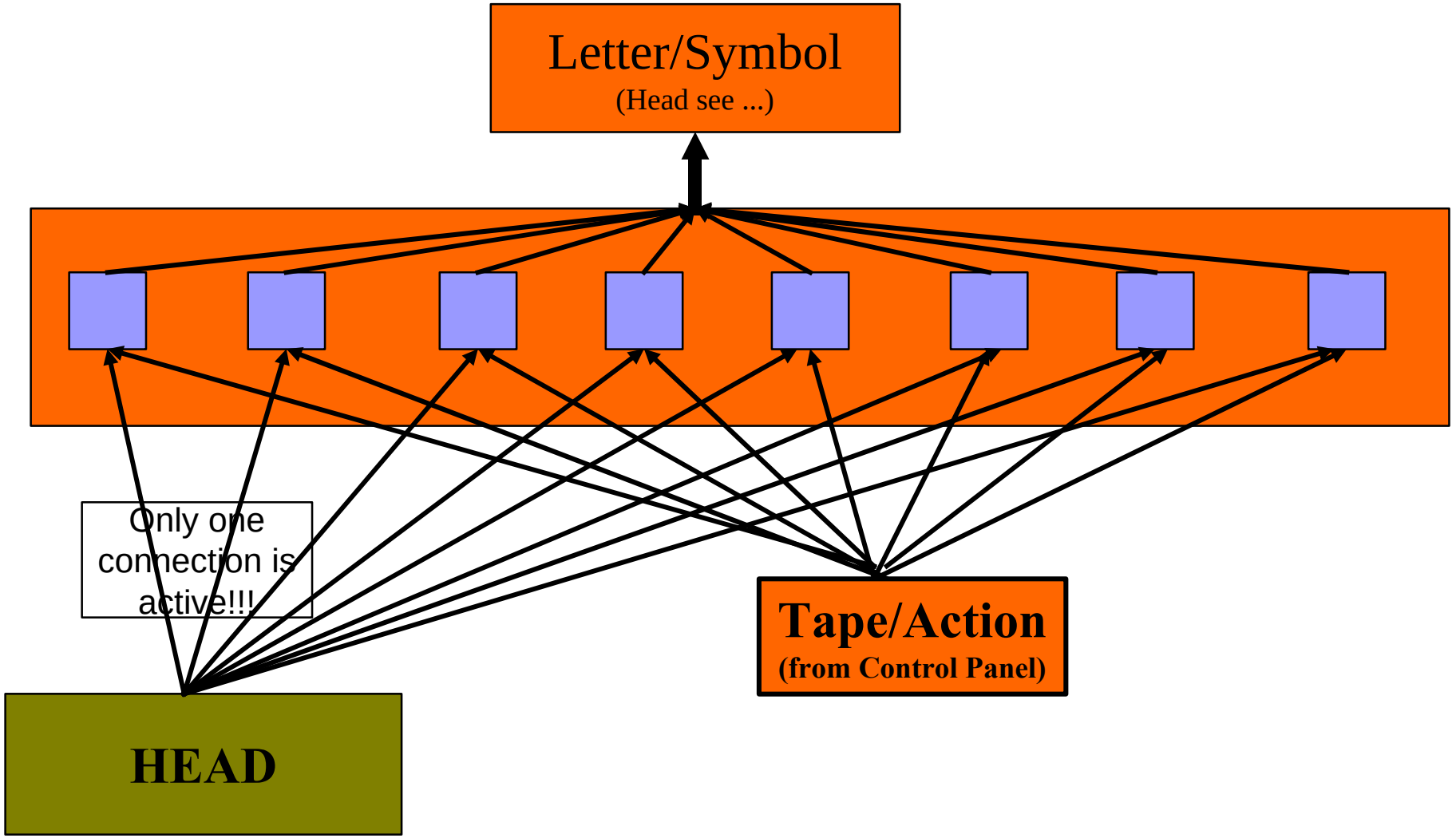
Head

- Head = Straits!
- Actions (input):
  - Up 1
  - Down -1
  - Stay 0



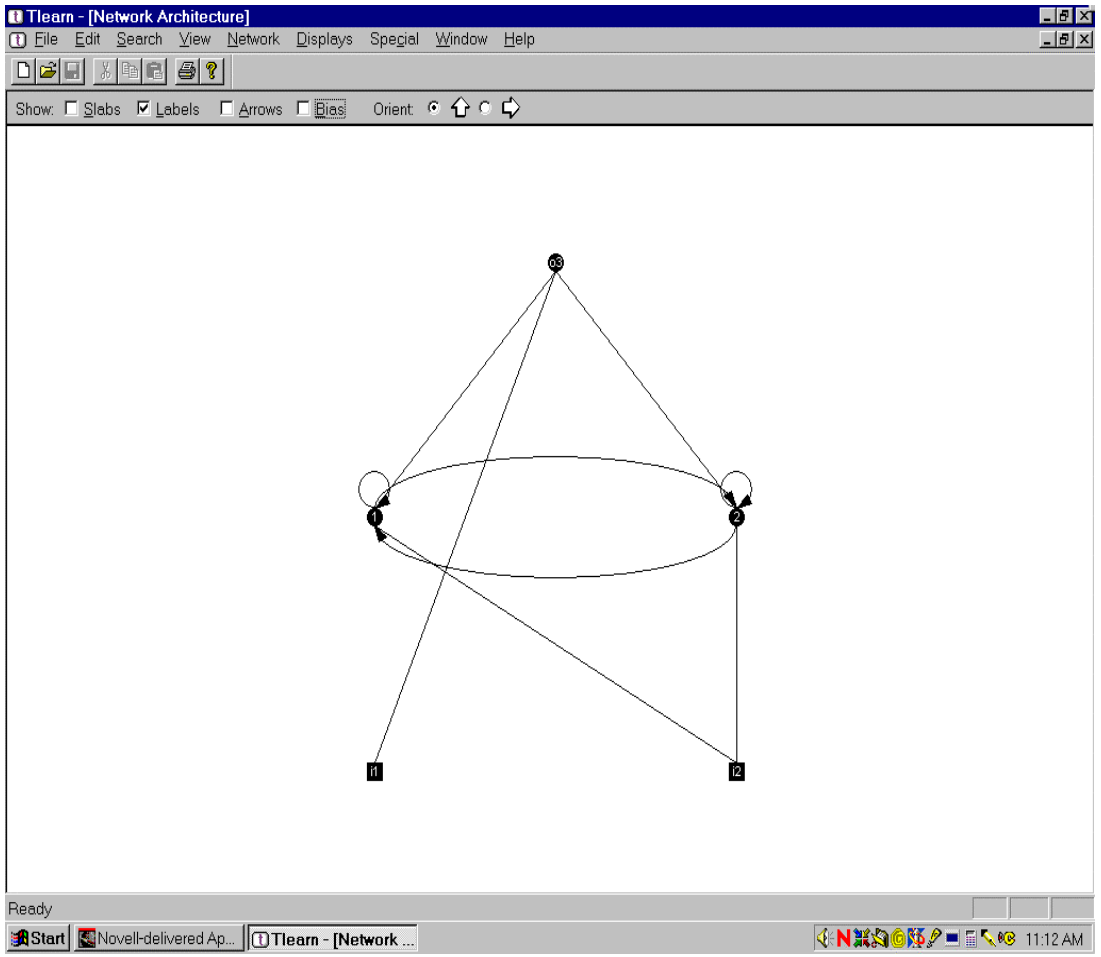


Tape = Cluster of Beatles

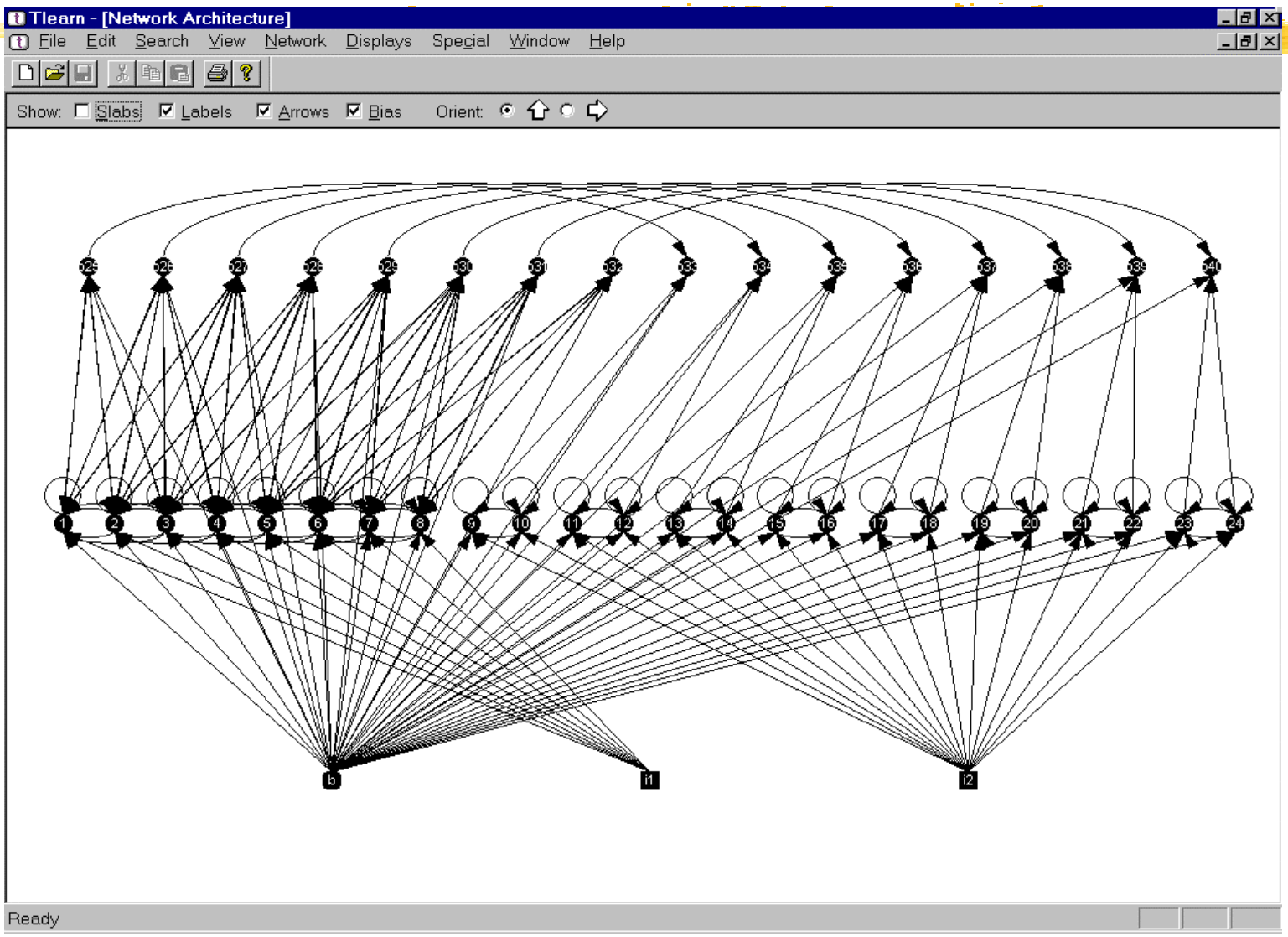


Beetle

- Goals:
  - keep state (letter or 0/1)
  - hide/show
- Actions:
  - 1 0 - show s.
  - 1 1/-1 - set s.
  - 0 ? - sleeeep



Head + Tape


Tlearn - [Network Architecture]
File Edit Search View Network Displays Special Window Help
Show: Slabs Labels Arrows Bias Orient:
b
i1
i2
Ready

Control Panel / Program