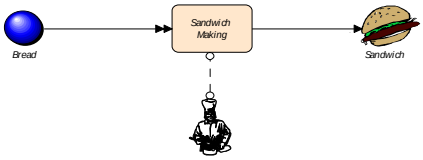
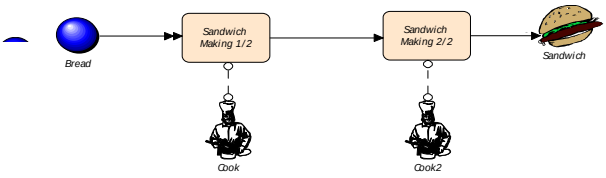
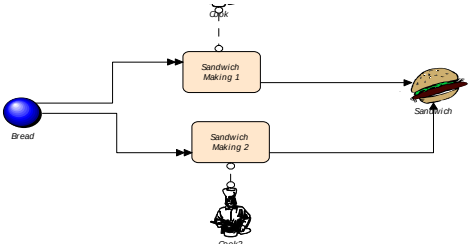
Exercise: Flow Time as a function of activity organization in a sandwich making process



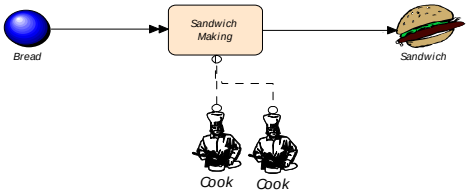
Simulation in Sandwich1



Simulation in Sandwich2



Simulation in Sandwich3



Simulation in Sandwich4

Objective of exercise
The object of the exercise is to understand the effect of activity organization on flow time.

Setting
A sandwich making activity satisfies a certain demand by making on average a sandwich every 11 minutes. After a promotion we expect demand to double, how would you reorganize to satisfy this new demand? There are three alternative organizations. One possibility is to hire another cook and to work in series. Each cook specializes, the first puts all the ingredients together and the second one puts them in a sandwich with sauce. It takes them on average 5.5 minutes each. The second alternative is to hire another cook and to work in parallel. Each cook independently makes a whole sandwich. It takes them on average 11 minutes each. The last alternative consists of two cooks working together, simultaneously on the same sandwich. Together it takes them on average 5.5 minutes to make the sandwich.

Which process do you predict will do best in terms of flow time? Simulate each of the processes and compare the flow times (*average cycle time*) in each process to your predictions. To really compare the different processes you should vary the mean processing time (*ave)* in the simulations and compare again the flow times.

Simulation instructions in ProcessModel
Load the file *Sandwich1.flo* (or *Sandwich2.flo, 3 or 4)*

1) Check the flowchart: First close the little box that automatically appears *Process Finished*. You can understand the flowchart by clicking on each element and reading the *General* features of the entity being processed, activity, routing, or resource on the properties dialog box which appears as you click on these elements.
2) To simulate: in the *Simulation* menu choose the *Save and Simulate chart*. You can accelerate simulation time with the horizontal Speed Control Bar on top of the frame You can also turn

the *animation off* in the *options menu*. If you cannot see the simulation you should zoom to 75% in the *options menu*.

3) To view results: respond that you want to *view the results of the simulation* at the end of the simulation. In the *general report* you will see the flow time of the sandwich called *average cycle time*.
4) To change parameter value: from the *Simulation* menu, choose *Scenarios* and then choose Scenario parameters. You can give another default value to *ave*, the average processing time.