

Operating Systems

Project 15

Haukur Óskar Þorgeirsson
hth152@hi.is

Matthías Páll Gissurarson
mpg3@hi.is

6. mars 2013

```
initialize()
{
    semaphore pc := pc.init(0) //plain bolla and cream
    semaphore chc := chc.init(0) //chocolate and cream
    semaphore pch := pch.init(0) //plain bolla and chocolate
    semaphore mast := mast.init(0) //semaphore for the master baker while
                                   //offering ingredients

    parallel
    {
        master_baker(); assist_baker(plain_bolla, chc);
        assist_baker(cream, pch); assist_baker(chocolate, pc);
    }
}

Thread master_baker()
{
    while(true)
    {
        ingredients := rand_ingredients(); //get two random ingredients
        offer_ingredients(ingredients); //put them on the table
        switch(ingredients)
        {
            case (plain_bolla, chocolate): pch.signal(); break;
            case (plain_bolla, cream): pc.signal(); break;
            case (chocolate, cream): chc.signal(); break;
        } //signal the correct assistant
        mast.wait(); //wait until the assistant takes
                    //the ingredients off the table
    }
}

Thread assist_baker(ingredient ingr, semaphore ingrs)
{
    while(true)
    {
        ingrs.wait(); //wait until the correct ingredients are on the table
        ingreds:=fetch_ingredients();
        mast.signal(); //Tell the master he can now offer more ingredients
        assemble_bolla(ingr, ingreds);
    }
}
```