Message Passing

The producer-consumer problem

```
1  #define N 100  /* number of slots in the buffer */
2  void producer(void)
3  {
4    int item;
5    message m;                /* message buffer */
6    while (TRUE) {
7      item = produce_item();   /* generate something to put in buffer */
8      receive(consumer, &m);   /* wait for an empty to arrive */
9      build_message(&m, item); /* construct a message to send */
10     send(consumer, &m);      /* send item to consumer */
11   }
12 }
13
14 void consumer(void)
15 {
16   int item, i;
17   message m;
18   for (i=0; i<N; i++) send(producer, &m);  /* send N empties */
19   while (TRUE) {
20     receive(producer, &m);    /* get message containing item */
21     item = extract_item(&m);  /* extract item from message */
22     send(producer, &m);       /* send back empty reply */
23     consume_item(item);       /* do something with the item */
24   }
25 }
```