Here is the typical enqueue code for a singly linked list. There is a special case when the queue is empty:

```c
if (q->head == NULL) //empty queue!
{
    q->head = newNode(v,NULL);
    q->tail = q->head;
}
else
{
    q->tail->next = newNode(v,NULL);
    q->tail = q->tail->next;
}
```

If we have a dummy head node (a node storing no value), then the queue starts out non-empty (i.e. the head pointer is not null and neither is the tail pointer) and never goes empty. Here is the modified constructor:

```c
q->head = newNode(NULL,NULL);   //dummy head node
q->tail = q->head;
```

And here is the new enqueue:

```c
q->tail->next = newNode(v,NULL);
q->tail = q->tail->next;
```

Can anybody tell me what dequeue would look like for a queue with a dummy head node?

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I changed my queue to use a dummy head node and came up with

```c
if(q->head->next == 0) {
    fprintf(stderr, "Dequeue from empty queue.");
    exit(-1);
}
```

```c
q->size--; 
node *n = q->head->next; 
q->head->next = n->next;  
if(q->head->next == 0) {
    q->tail = q->head;
```
} return n->v;

for my dequeue

Subject: Re: A simpler queue
Posted by lusth on Tue, 20 Sep 2016 23:33:10 GMT
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Looks good. Note that you still need a test for when the queue goes empty on dequeue. I don't know a way around that; a dummy tail node doesn't help.