



# Atomicity

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# Xfer

---

`n xfer(A, B, amt)`

`A <- A - amt;`

`B <- B + amt;`



# all or nothing put

---

```
all_or_nothing_put(data,X)
  flag <- careful_get(X.D0,buff);
  if flag = ok {
    careful_put(X.D1,data);
    careful_put(X.D0,data); }
  else {
    careful_put(X.D0,data);
    careful_put(X.D1,data); }
```



# all or nothing get

---

```
all_or_nothing_get(data,X)
  flag <- careful_get(X.D0,data);
  if flag = ok return;
  careful_get(X.D1,data);
```



# salvage

---

salvage(X)

```
flag0<- careful_get(X.D0,buff0);
```

```
flag1 <- careful_get(X.D1, buff1);
```

```
if (flag0 = bad) {careful_put(X.D0,buff1);}
```

```
if (flag1 = bad) {careful_put(X.D1, buff0);}
```