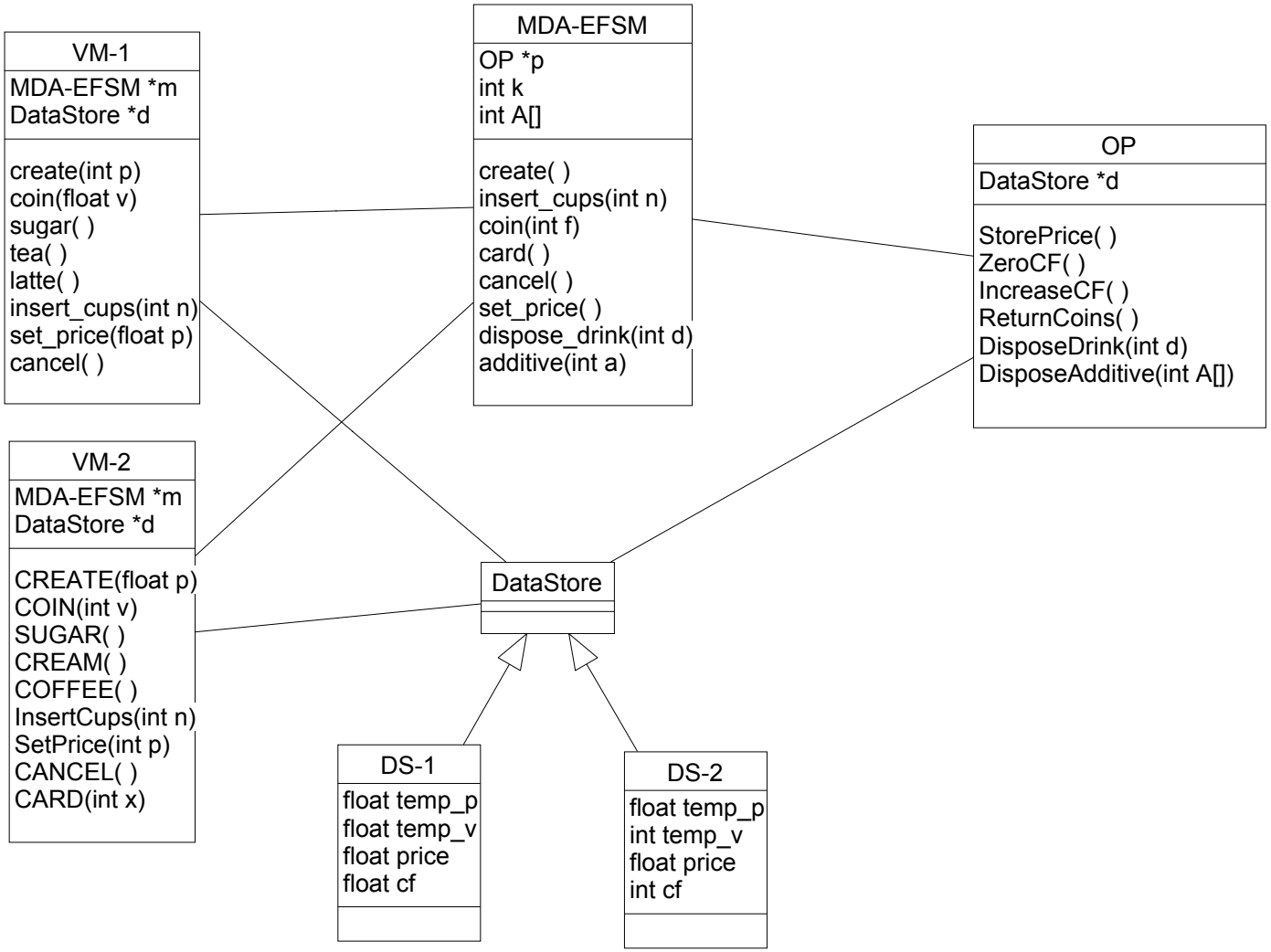
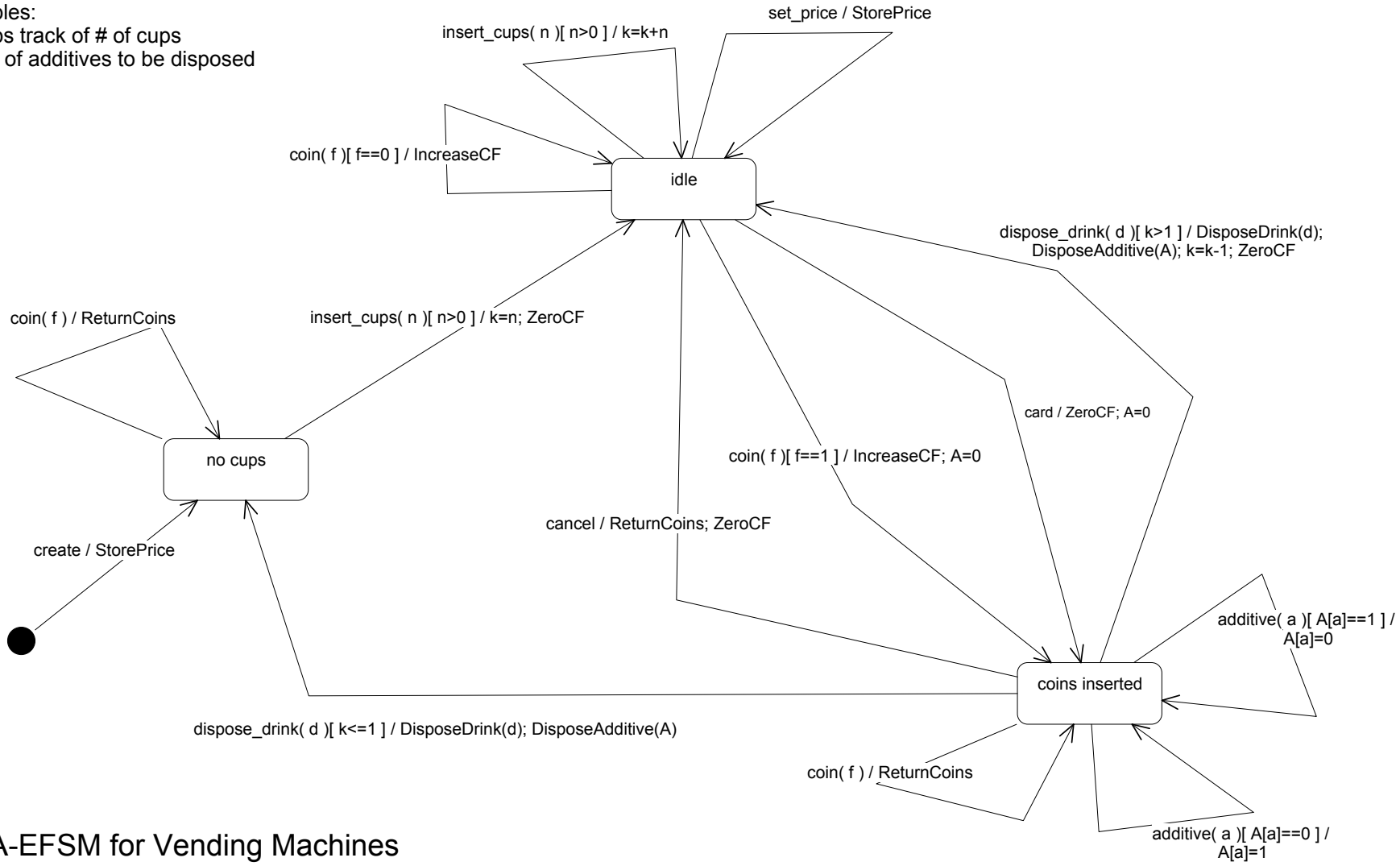

VM-1
MDA-EFSM *m
DataStore *d
create(int p)
coin(float v)
sugar( )
tea( )
latte( )
insert_cups(int n)
set_price(float p)
cancel( )
MDA-EFSM
OP *p
int k
int A[]
create( )
insert_cups(int n)
coin(int f)
card( )
cancel( )
set_price( )
dispose_drink(int d)
additive(int a)
OP
DataStore *d
StorePrice( )
ZeroCF( )
IncreaseCF( )
ReturnCoins( )
DisposeDrink(int d)
DisposeAdditive(int A[])
VM-2
MDA-EFSM *m
DataStore *d
CREATE(float p)
COIN(int v)
SUGAR( )
CREAM( )
COFFEE( )
InsertCups(int n)
SetPrice(int p)
CANCEL( )
CARD(int x)
DataStore
DS-1
float temp_p
float temp_v
float price
float cf
DS-2
float temp_p
int temp_v
float price
int cf

Internal Variables:
int k // keeps track of # of cups
int A[] // a list of additives to be disposed



Sample MDA-EFSM for Vending Machines

MDA-EFSM Events:

1. create()
2. insert_cups(int n) // *n* represents # of cups
3. coin(int f) // f=1: sufficient funds inserted for a drink
   // f=0: not sufficient funds for a drink
4. card()
5. cancel()
6. set_price()
7. dispose_drink(int d) // *d* represents a drink *id*
8. additive(int a) // *a* represents additive *id*

MDA-EFSM Actions:

1. StorePrice()
2. ZeroCF() // zero Cumulative Fund *cf*
3. IncreaseCF() // increase Cumulative Fund *cf*
4. ReturnCoins() // return coins inserted for a drink
5. DisposeDrink(int d) // dispose a drink with *d* id
6. DisposeAdditive(int A[]) //dispose marked additives in *A* list,
   // where additive with *i* id is disposed when A[i]=1

Vending-Machine-1

```
create(int p) {
        d->temp_p=p;
        m->create();
}

coin(float v) {
        d->temp_v=v;
        if (d->cf+v>=d->price) m->coin(1);
        else m->coin(0);
}

sugar() {
        m->additive(1);
}

tea() {
        m->dispose_drink(1);
}

latte() {
        m->dispose_drink(2);
}

insert_cups(int n) {
        m->insert_cups(n);
}

set_price(float p) {
        d->temp_p=p;
        m->set_price()
}

cancel() {
        m->cancel();
}
```

where,
m: pointer to the MDA-EFSM
d: pointer to the data store DS-1

In the data store:
cf: represents a cumulative fund
price: represents the price for a drink

Vending-Machine-2

```
CREATE(float p) {
        d->temp_p=p;
        m->create();
}

COIN(int v) {
        d->temp_v=v;
        if (d->cf+v>=d->price) m->coin(1);
        else m->coin(0);
}

CARD(int x) {
        if (x>=d->price) m->card();
}

SUGAR() {
        m->additive(2);
}

CREAM() {
        m->additive(1);
}

COFFEE() {
        m->dispose_drink(1);
}

InsertCups(int n) {
        m->insert_cups(n);
}

SetPrice(int p) {
        d->temp_p=p;
        m->set_price()
}

CANCEL() {
        m->cancel();
}
```

where,
m: pointer to the MDA-EFSM
d: pointer to the data store DS-2

In the data store:
cf: represents a cumulative fund
price: represents the price for a drink