

virt0_old.cpp

```
#include <iostream>
using namespace std;

class ratio {
private: long zaehl, nenn;
public:  ratio(long z=0L, long n=0L):zaehl(z),nenn(n){}
        virtual ~ratio(){ cout<<"Destruktor ratio\n"; }
        friend ostream &operator<<(ostream &, ratio &);
};

class object {
public: void aus(){};
        virtual ~object(){ cout<<"Destruktor object\n"; }
};

ostream &operator<<(ostream & cout, ratio &z){
    return cout<<z.zaehl<<" " <<z.nenn;
}

class intObject : public object {
public: intObject(int x=0):wert(x){};
        int wert;
        void aus(){ cout<<wert<<endl; }
        virtual ~intObject(){ cout<<"Destruktor intObject\n"; }
};

class charptrObject : public object {
public: charptrObject(char *s=""):
        adr(s?strcpy(new char[strlen(s)+1], s):0){}
        char *adr;
        void aus(){ cout<<(adr?adr:"0")<<endl;
                    cout<<typeid(*this).name()<<endl;
                }
        virtual ~charptrObject(){ delete [] adr; adr=0;
                                   cout<<"Destruktor charptrObject\n";
        }
};

class ratioObject : public ratio, public object {
public: ratioObject(long z=0L, long n=1L):ratio(z,n){};
        void aus(){ cout<<*this<<endl; }
        virtual ~ratioObject(){ cout<<"Destruktor ratioObject\n"; }
};

void main(){
    object *feld[3];

    feld[0]=new intObject(4711);
    feld[1]=new charptrObject("HTW");
    feld[2]=new ratioObject(3,4);

    //Nachteil zu virtual: spezifische casts notwendig
    ((intObject *)feld[0])->aus(); // 4711
    ((charptrObject *)feld[1])->aus(); // HTW class charptrObject
    ((ratioObject *)feld[2])->aus(); // 3 4

    //Allgemein mit dynamic_cast
    for(int i=0; i<3; i++){
        if(dynamic_cast<object *>(feld[i])) ((object *)feld[i])->aus();
        if(dynamic_cast<intObject *>(feld[i])) ((intObject *)feld[i])->aus();
        if(dynamic_cast<charptrObject *>(feld[i])) ((charptrObject *)feld[i])->aus();
        if(dynamic_cast<ratioObject *>(feld[i])) ((ratioObject *)feld[i])->aus();
    }

    delete feld[0]; feld[0]=0; delete feld[1]; feld[1]=0;
    delete feld[2]; feld[2]=0;
}
```