Datum d1 (1.201, 0.211) value- error- } double

Datum d2 (1.199, 0.209)

if (d1 == d2) {

}

if (a == b) ✗ not to do w/ double float

1/ just Compare value_

~~2/ just Compare error_~~

3/ Compare value_ && Compare error_ ✓

IDEAL: d1.value_ == d2.value_

abs (d1.value_ − d2.value_) <

statistical compatibility $\sqrt{d1.error\_^2 + d2.error\_^2}$

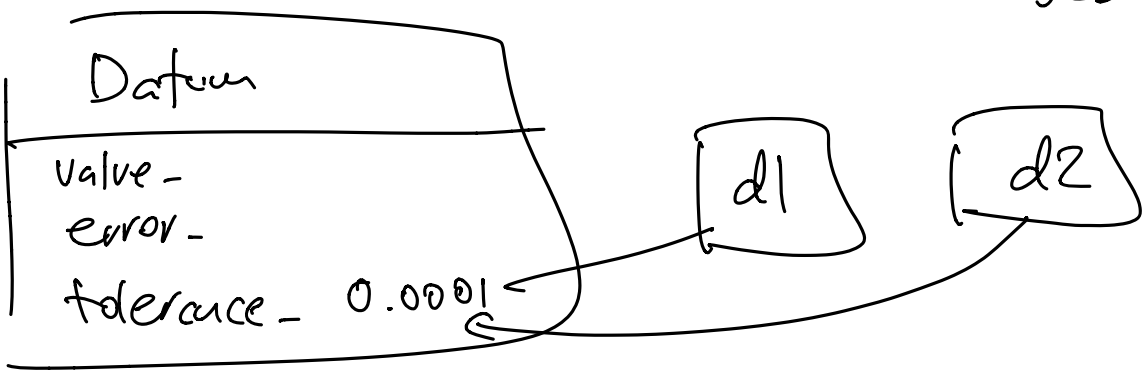
Reality: ε |a−b| < ε numerical. tolerance detector resolution.

d1 == d2: abs(d1.value_ - d2.value_) < epsilon

&&

abs(d1.error_ - d2.error_) < epsilon

epsilon: overall property of all Datum objects.



Enumerators

Red → 1

Black → 342

Blue → 45

association map

map: int → string

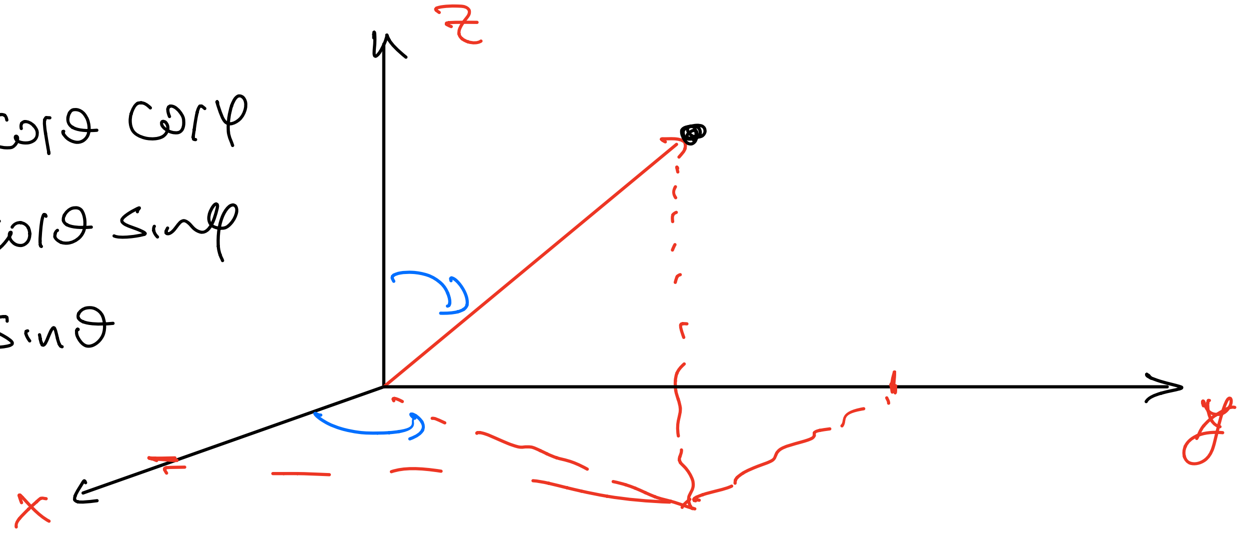
std::map<int, std::string> Colormap;

key

value

```
enum Language { eng = 0, it = 1 }

map<int, string> engName
map<int, string> itName

Language l = askUser()
    if (l == eng) { use engName }
    else if (l == it) { use itName }

map< Language, map<int, string> > names;
       ↑ key
map:   Language ⟶ map<int, string>
                        ↙

pair<string, int>        grade.
        ↕
vector< grade >          grades;
```

$$\begin{cases} x = r \cdot \cos\theta \cos\varphi \\ y = r \cdot \cos\theta \sin\varphi \\ z = r \cdot \sin\theta \end{cases}$$



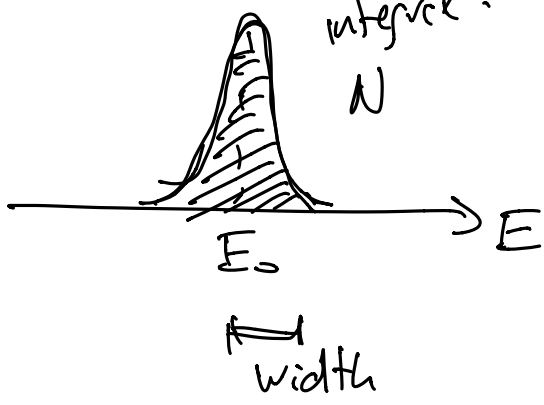
```
Vector3D v(1, 2, 10);
Vector3D w = 1.2 * v;
```

Convolution

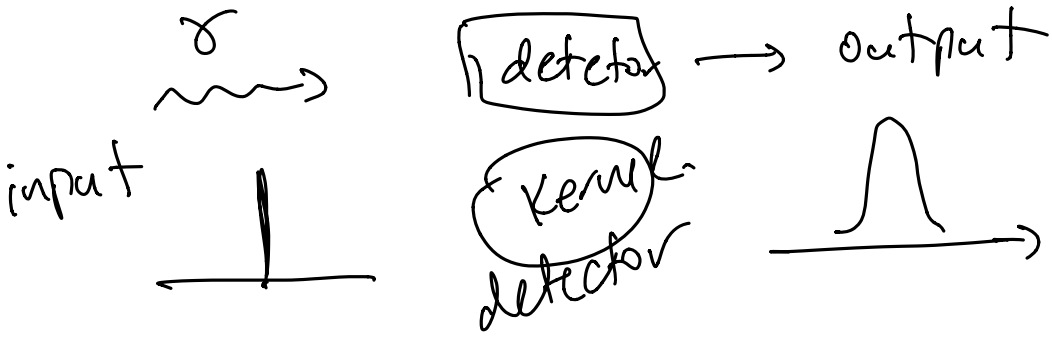
$f(x), g(x) \quad x \in \mathbb{R}$

$$h(x) = \int_{-\infty}^{+\infty} f(x') \, g(x - x') \, dx'$$

monochromatic photon beam: $E = E_0$



photons N : $E = E_0$

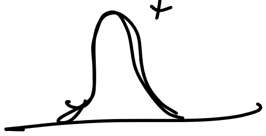


assumy no loss

N input

N output

$$N(E) = \int_{-\infty}^{+\infty} N_0(E')\, G(E'-E)\, dE'$$



input

Relou tion function

nome[col]

(mappa[lingue]) [col]

as

mp(it) (Red)

mep[en]

cout<< mp[it] [Red] << "Rosso"

mp[en][Red] << "Red"