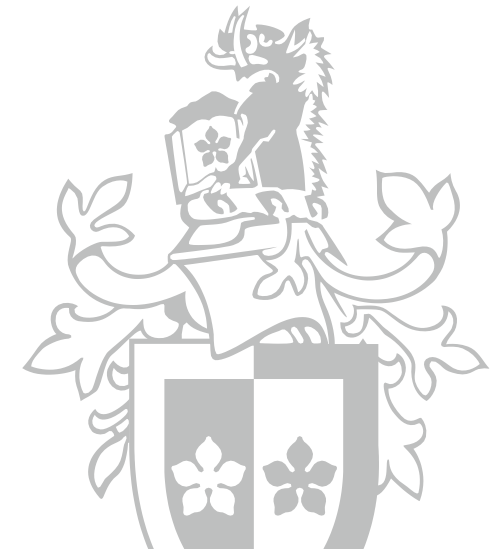


Inheritance

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Object oriented programs contain objects that know and can do things



Remember there are three main kinds of relationships



Association

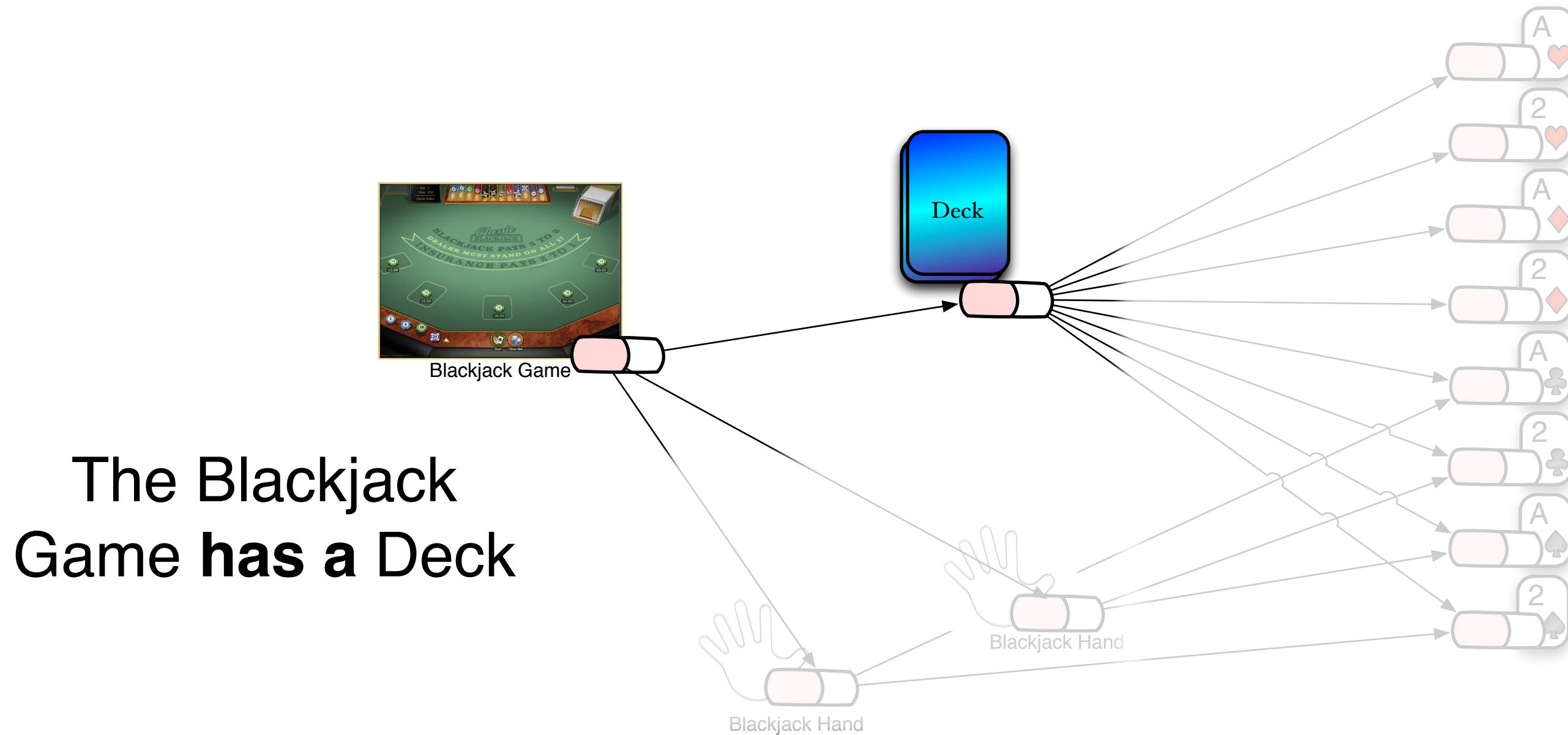


Aggregation

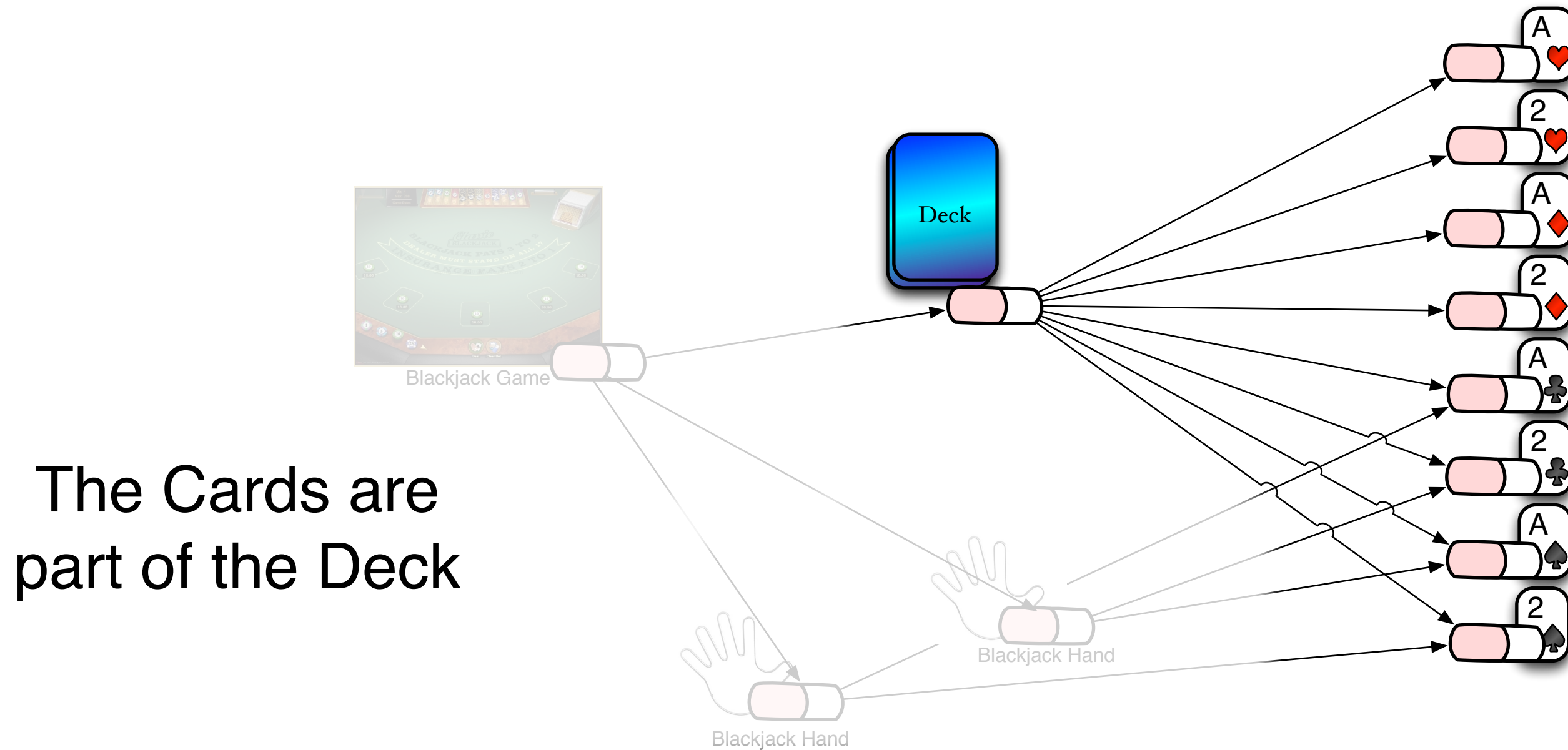


Dependence

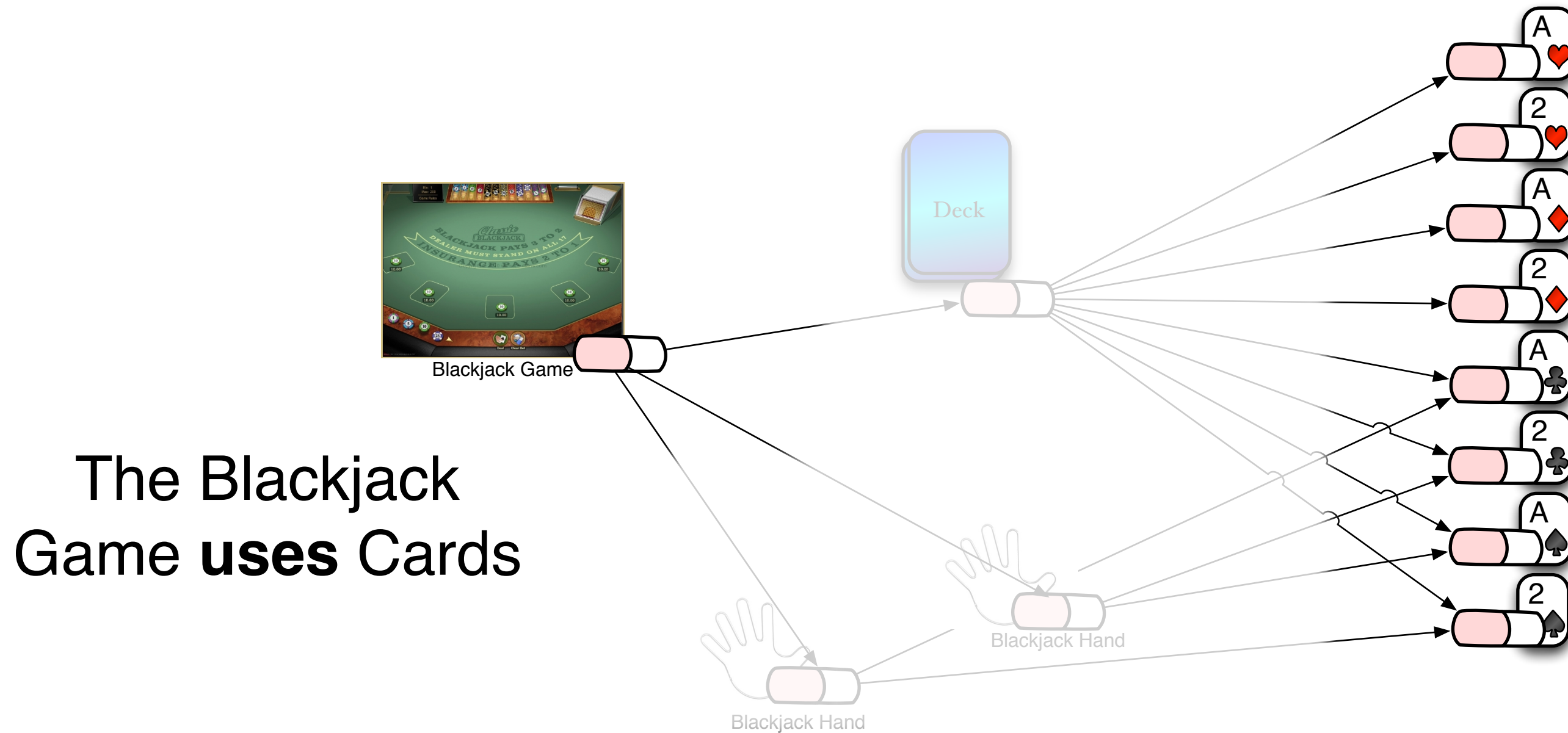
Use association for "has-a" kind relationship



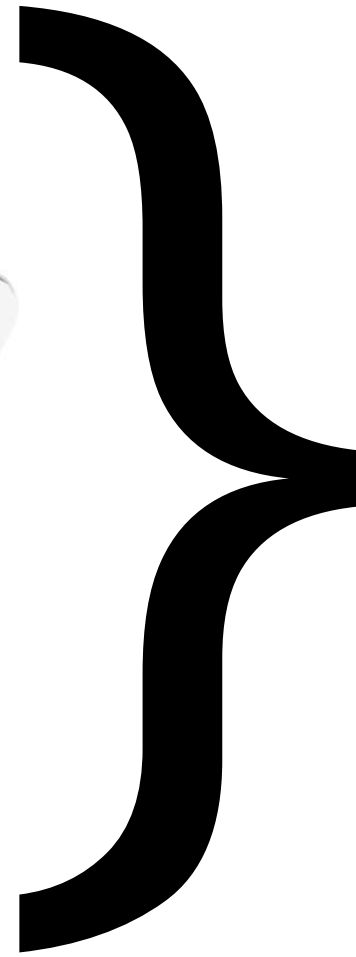
Use "aggregation" for whole-part or container



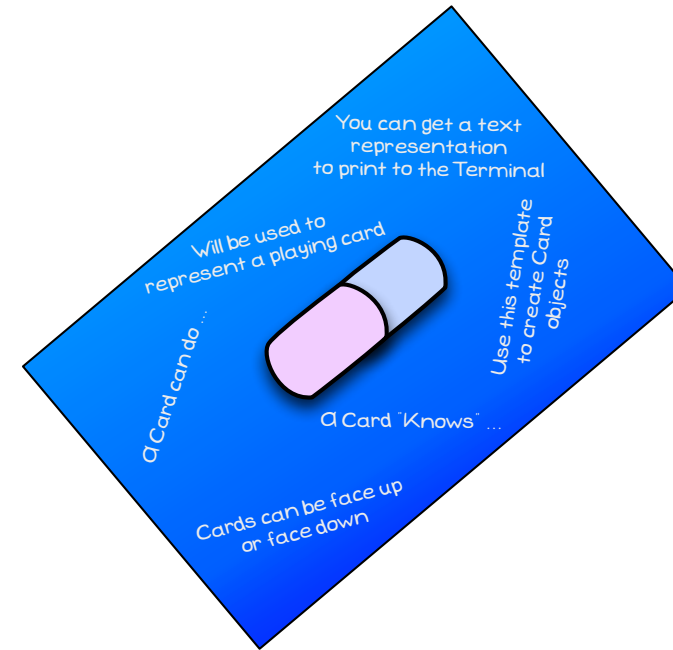
Use dependency for temporary "uses" style relationships



Developers use the process of abstraction to define object classes

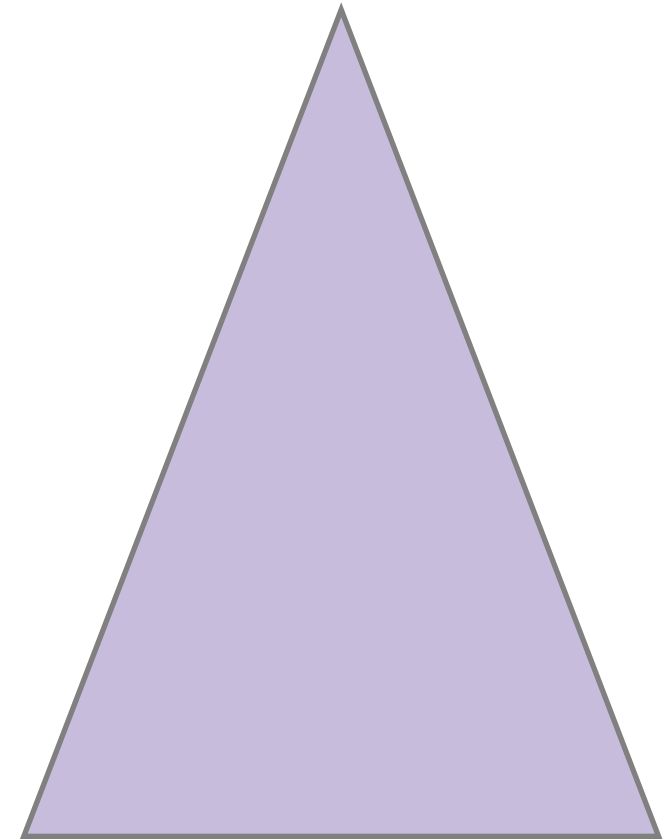
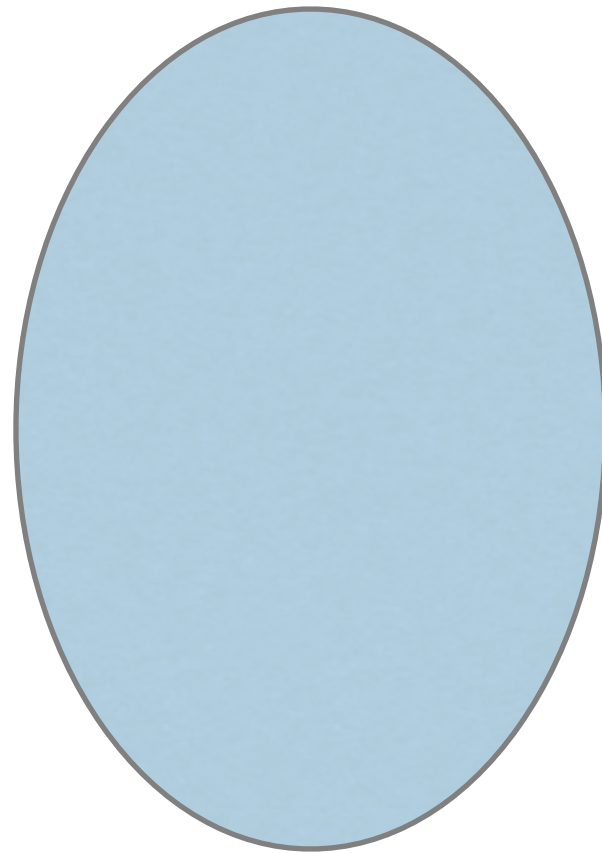


Specification
for a Card



Classification

Abstraction also includes generalisation and specialisation

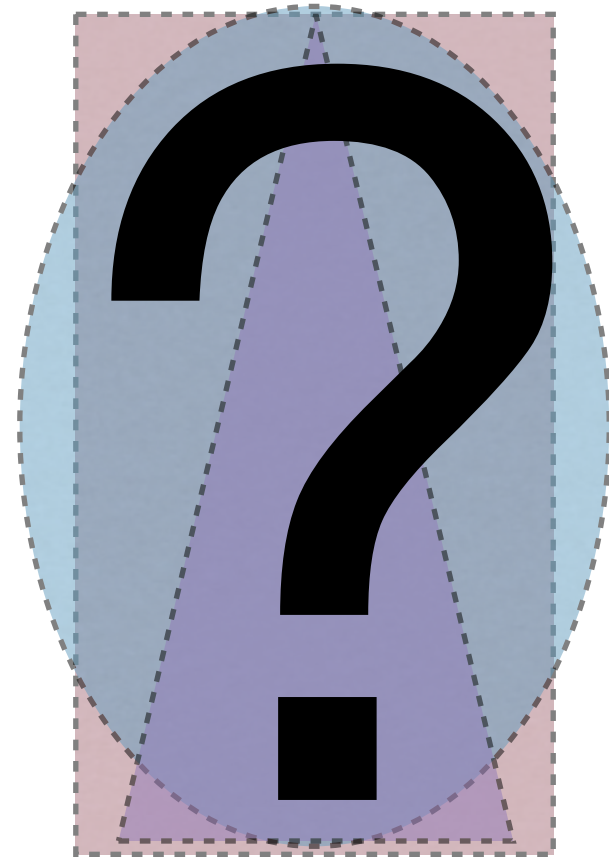


What are these?

Use generalisation and specialisation to create families of classes

What do you want to do with shape?

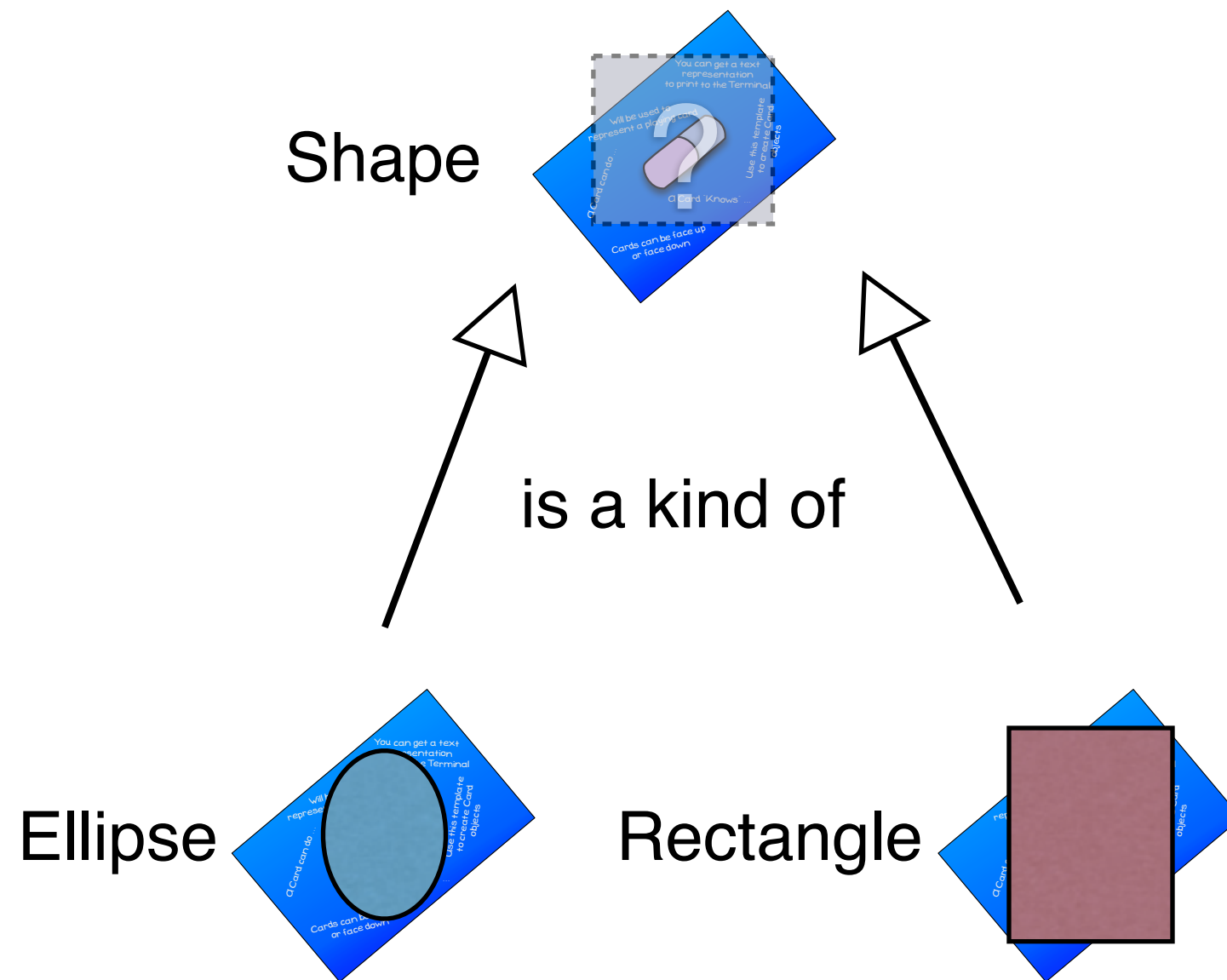
Do you care if they are ellipses,
rectangles, triangles?



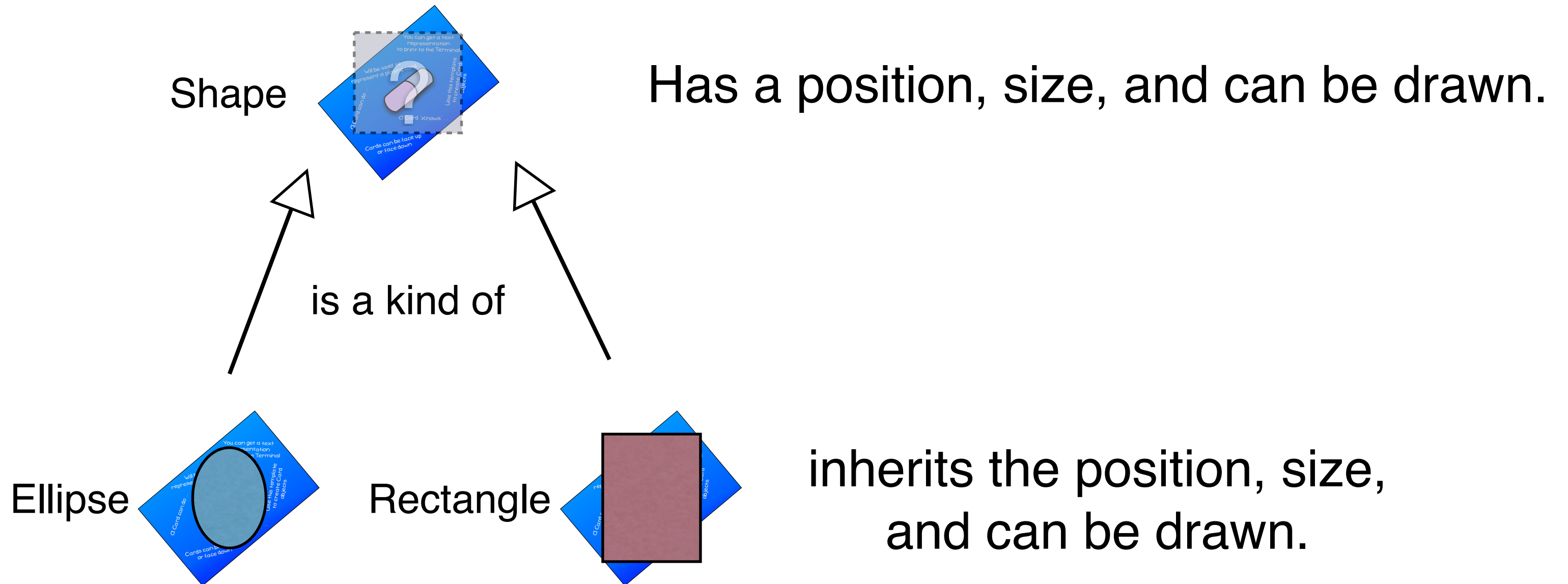
Use inheritance to model
generalisation and
specialisation
in your OO code

**Inherit attributes and
behaviour from a parent
class**

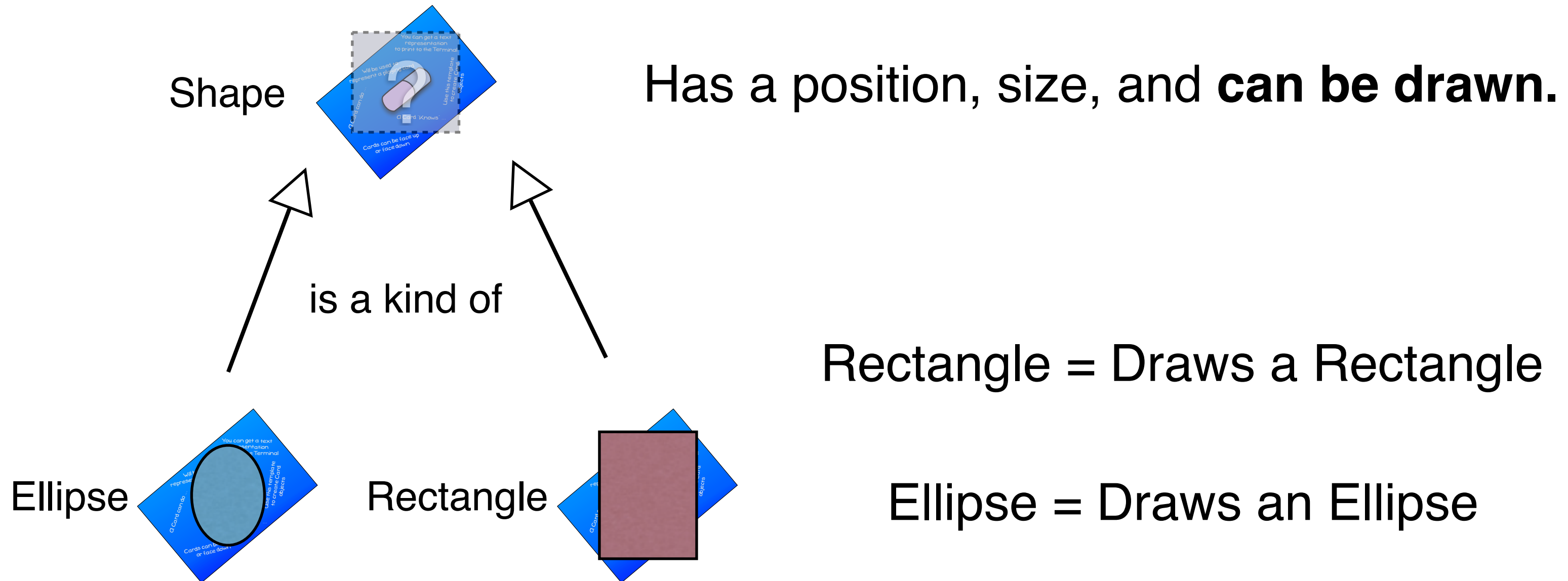
Use inheritance to model is-a kinds of relationships



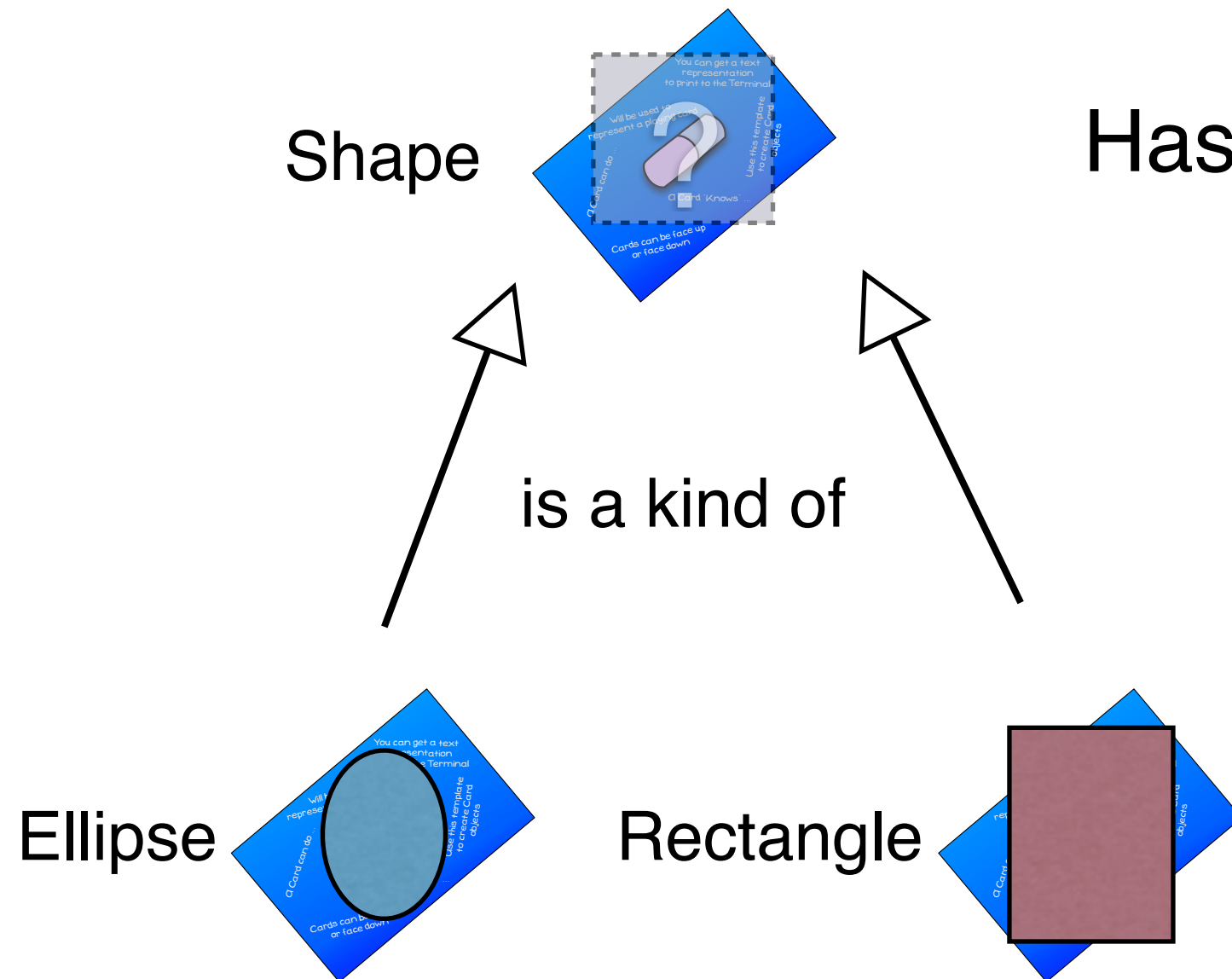
The child class **inherits** all of the features of the parent...



Change how inherited methods behave in the child class (**overriding** the parent)



Add additional features in the child class

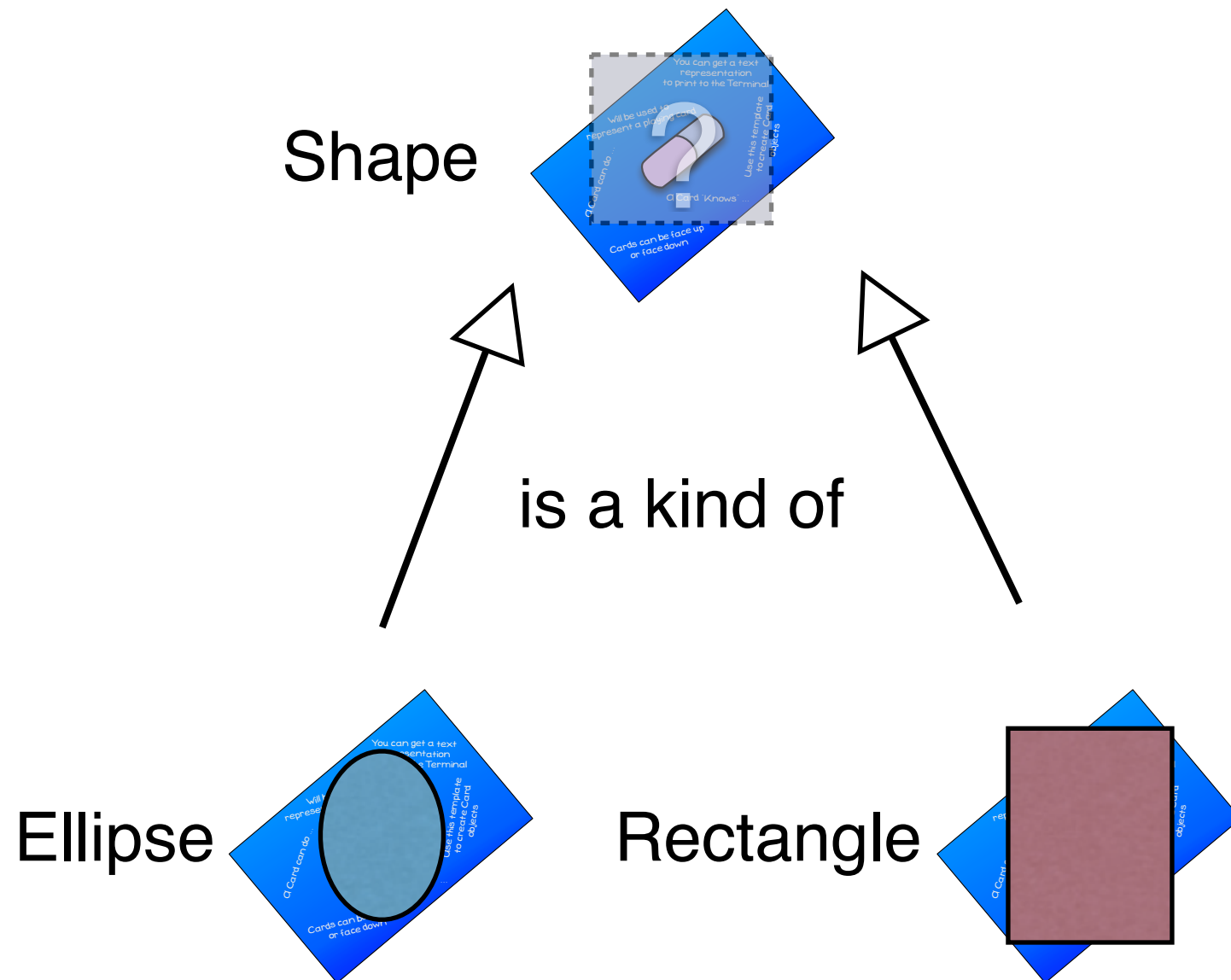


Has a position, size, and **can be drawn**.

Rectangle = MakeSquare()

Ellipse = MakeCircular()

The child class can see public and protected members of the parent



Access levels

public: anyone

protected: only derived classes

private: nobody else

Inheritance declared by derived classes

C++

```
class Rectangle : public  
Shape
```

C#

```
class Rectangle : Shape
```

Java

```
class Rectangle extends  
Shape
```

Objective-C

```
@interface Rectangle :  
Shape
```

Will inheritance help you
create object oriented
programs?

Abstraction is much more
than just classification

Use inheritance to model
generalisation and
specialisation

Inheritance helps bring flexibility,
extensibility, and adaptability to
your OO programs