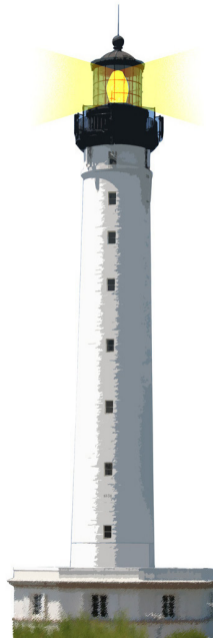


Inheritance and Lookup

About super

S Ducasse and L. Fabresse

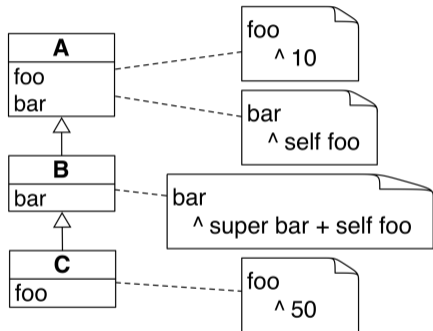


Goal

- Sending a message
- Method lookup
- super semantics and the differences with self



Define what super is!

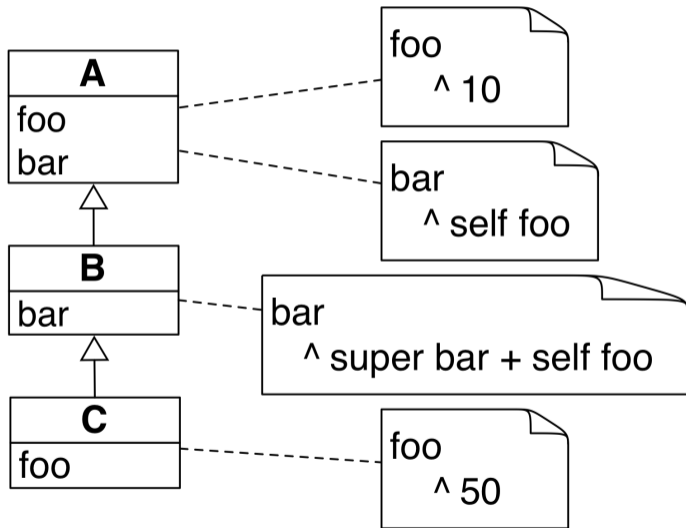


Take 5 min and write the definition of `super`

- your definition should have two points:
 - what does `super` represent?
 - how is a method looked up when a message is sent to `super`?

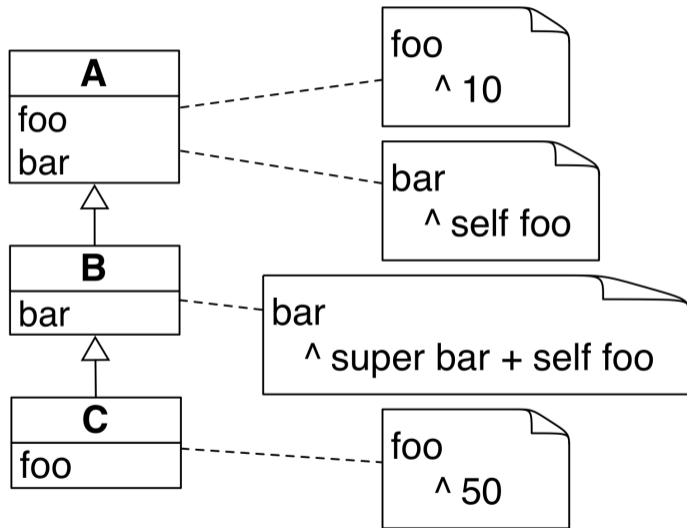


Challenge yourself with super!



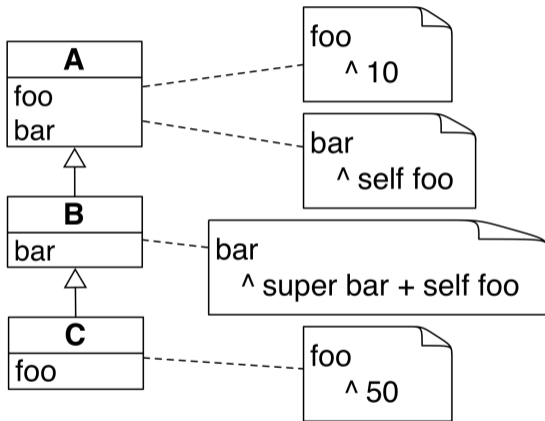
```
A new bar  
> ...  
B new bar  
> ...  
C new bar  
> ...
```

Challenge yourself with super!



A new bar
> 10
B new bar
> 20
C new bar
> 100

super changes where the lookup starts



Evaluation of aC bar

1. aC's class is C
2. no method bar in C
3. look up in B - bar is found
4. method bar is executed
5. bar is sent to super
6. super is aC but lookup starts in A
7. bar is found in A and executed
8. foo is sent to aC
9. foo is found in C

super changes where the lookup starts

- super refers to the **receiver** of the message (just like self)
- The method lookup starts (Take 1 min to fill the dots)

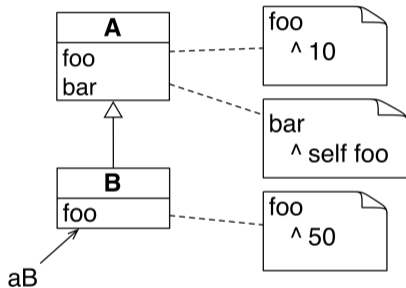


super in two sentences

- `super` refers to the receiver of the message (just like `self`)
- The method lookup starts in the superclass of **the class containing the `super` expression**



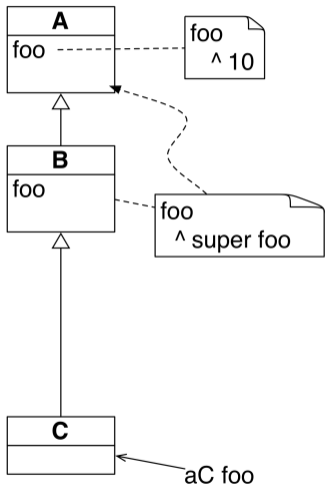
self is dynamic



- At compilation time, we **don't** know
- to which object `self` points to
- to which `foo` method `bar` refers to

Imagine that we load a new subclass **C** of **B** and do `C new bar`, `self` will be pointing to such instance

super is static

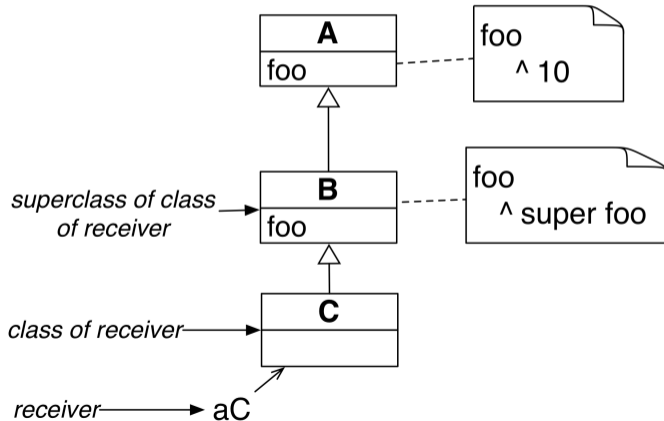


- At **compilation-time**, we know that B»foo refers to A»foo
- we should look above the class containing the **method** using super



Even somebooks got it wrong

- **Wrong** definition: *super looks for the method in the superclass of the receiver's class*
- With this definition, this example would loop forever:



What you should know

- `self` always represents the receiver
- `super` always represents the receiver
- `super` changes the lookup:
 - a `super` send starts the lookup in the class above it
- `self` sends act as a hook: code of subclasses may be invoked



A course by

S. Ducasse, L. Fabresse, G. Polito, and Pablo Tesone



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