

## NAME

Class::ISA - report the search path for a class's ISA tree

## SYNOPSIS

```
# Suppose you go: use Food::Fishstick, and that uses and
# inherits from other things, which in turn use and inherit
# from other things. And suppose, for sake of brevity of
# example, that their ISA tree is the same as:

@Food::Fishstick::ISA = qw(Food::Fish Life::Fungus Chemicals);
@Food::Fish::ISA = qw(Food);
@Food::ISA = qw(Matter);
@Life::Fungus::ISA = qw(Life);
@Chemicals::ISA = qw(Matter);
@Life::ISA = qw(Matter);
@Matter::ISA = qw();

use Class::ISA;
print "Food::Fishstick path is:\n ",
      join(", ", Class::ISA::super_path('Food::Fishstick')),
      "\n";
```

That prints:

```
Food::Fishstick path is:
Food::Fish, Food, Matter, Life::Fungus, Life, Chemicals
```

## DESCRIPTION

Suppose you have a class (like Food::Fish::Fishstick) that is derived, via its @ISA, from one or more superclasses (as Food::Fish::Fishstick is from Food::Fish, Life::Fungus, and Chemicals), and some of those superclasses may themselves each be derived, via its @ISA, from one or more superclasses (as above).

When, then, you call a method in that class (\$fishstick->calories), Perl first searches there for that method, but if it's not there, it goes searching in its superclasses, and so on, in a depth-first (or maybe "height-first" is the word) search. In the above example, it'd first look in Food::Fish, then Food, then Matter, then Life::Fungus, then Life, then Chemicals.

This library, Class::ISA, provides functions that return that list -- the list (in order) of names of classes Perl would search to find a method, with no duplicates.

## FUNCTIONS

the function Class::ISA::super\_path(\$CLASS)

This returns the ordered list of names of classes that Perl would search thru in order to find a method, with no duplicates in the list. \$CLASS is not included in the list. UNIVERSAL is not included -- if you need to consider it, add it to the end.

the function Class::ISA::self\_and\_super\_path(\$CLASS)

Just like super\_path, except that \$CLASS is included as the first element.

the function Class::ISA::self\_and\_super\_versions(\$CLASS)

This returns a hash whose keys are \$CLASS and its (super-)superclasses, and whose values are the contents of each class's \$VERSION (or undef, for classes with no \$VERSION).

The code for self\_and\_super\_versions is meant to serve as an example for precisely the kind

of tasks I anticipate that `self_and_super_path` and `super_path` will be used for. You are strongly advised to read the source for `self_and_super_versions`, and the comments there.

## CAUTIONARY NOTES

- \* `Class::ISA` doesn't export anything. You have to address the functions with a "`Class::ISA::`" on the front.
- \* Contrary to its name, `Class::ISA` isn't a class; it's just a package. Strange, isn't it?
- \* Say you have a loop in the ISA tree of the class you're calling one of the `Class::ISA` functions on: say that `Food` inherits from `Matter`, but `Matter` inherits from `Food` (for sake of argument). If Perl, while searching for a method, actually discovers this cyclicity, it will throw a fatal error. The functions in `Class::ISA` effectively ignore this cyclicity; the `Class::ISA` algorithm is "never go down the same path twice", and cyclicities are just a special case of that.
- \* The `Class::ISA` functions just look at `@ISAs`. But theoretically, I suppose, `AUTOLOADs` could bypass Perl's ISA-based search mechanism and do whatever they please. That would be bad behavior, tho; and I try not to think about that.
- \* If Perl can't find a method anywhere in the ISA tree, it then looks in the magical class `UNIVERSAL`. This is rarely relevant to the tasks that I expect `Class::ISA` functions to be put to, but if it matters to you, then instead of this:

```
@supers = Class::Tree::super_path($class);
```

do this:

```
@supers = (Class::Tree::super_path($class), 'UNIVERSAL');
```

And don't say no-one ever told ya!

- \* When you call them, the `Class::ISA` functions look at `@ISAs` anew -- that is, there is no memoization, and so if `ISAs` change during runtime, you get the current ISA tree's path, not anything memoized. However, changing `ISAs` at runtime is probably a sign that you're out of your mind!

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