@decorator export Ordering

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Background

- In 2015, TypeScript implemented an early version of decorators behind a flag.
- TypeScript 5.0 implements decorators as per stage 3.
  - Becomes the default – "old" decorators are still available via the same flag.
  - Full support planned for stable release in March
- TypeScript's early version of decorators slightly differs in syntax from the current proposal's.

Decorators first

```
@decorator(
  // ...
)
export class C {
    // ...
}
```

export first

```
export @decorator(
  // ...
)
class C {
    // ...
}
```

Why the change?

- One reason: theoretical ability to decorate a local, but not an export
  - https://github.com/tc39/proposal-decorators/issues/135
  - Idea is that a future proposal could use the decorators-before syntax.

The issue with that

```
@decorator
export class Foo {
    static makeSpecialFoo() {
        return new Foo();
    }
}

let x = new Foo();
```

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@decorator
export class Foo {
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    }
}

let x = new Foo();
```

- We think this is **a major footgun**.
- It would be bad if **Foo** referred to the pre-decorated class.
- Too subtle.

Also: lack of positive feedback

- Feels like most of us preferred the original syntax
  - But we've resisted discussing it further.
  - Nobody wants to "deadlock" the proposal.
- TypeScript's syntax has shipped for almost 8 years.
  - Almost no demand for `export @decorator`
    - which was brought up at least 5 years ago.

So where are we?

- TypeScript would not support a semantic distinction between
  - `export @decorator`
  - and
  - `@decorator export`

- We are okay with expanding the syntax, but **not** differing semantics.

Can we make a change?

- We believe there's no future for differing semantics based on ordering.
- The previous syntax is already widely-used – it would make upgrades harder.
- Anecdotally, most library authors that shipped class decorators prefer the "old" ordering.

We would like to request one of the following changes to the decorators proposal.

- Option 1: Decorators are placed **before** the `export` keyword. *(preferred)*
- Option 2: Decorators can be placed **before *and*** **after** the `export` keyword.

Appendix: Abridged Syntactic Modifications

StatementListItem[Yield, Await, Return] :

Declaration[?Yield, ?Await, +Decorators]

Declaration[Yield, Await, Decorators] :

ClassDeclaration[?Yield, ?Await, ~Default, ?Decorators]

Appendix: Abridged Syntactic Modifications

ExportDeclaration[Yield, Await, Decorators] :

export *Declaration*[~Yield, ~Await, ~Decorators]

DecoratorList[~Yield, ~Await]
export *ClassDeclaration*[~Yield, ~Await, ~Default, ~Decorators]

DecoratorList[~Yield, ~Await]
export default *ClassDeclaration*[~Yield, ~Await, ~Default, ~Decorators]

Appendix: Abridged Syntactic Modifications

ClassDeclaration[Yield, Await, Decorators] :	
	class *BindingIdentifier ClassTail*[?Yield, ?Await]
[+Default]	**class** *ClassTail*[?Yield, ?Await]
[+Decorators]	*DecoratorList*[?Yield, ?Await] **class** *BindingIdentifier ClassTail*[?Yield, ?Await]
[+Decorators, +Default]	*DecoratorList*[?Yield, ?Await] **class** *ClassTail*[?Yield, ?Await]