

## Kinds of Emptiness

There are three types of emptiness

1. Undeclared
2. Undefined
3. Uninitialized aka TDZ(Temporarily Dead Zone)

Undeclared means it is never been created in any scope that we have access to. Undefined means there is definitely a variable but at this moment it has no value.

## Special Values

### NaN: Invalid Number

In JavaScript NaNs are not equal to each other. NaN is the only value that does not have the identity property i.e. it is not equal to itself.

```
var myAge = Number("38");
var myCatAge = Number("n/a");

console.log(myAge - "my son's age"); // NaN
console.log(isNaN(myAge)); // 38
console.log(isNaN(myCatAge)); // NaN

console.log(isNaN("my son's age"));
//NaN, here the string is coerced into number the number is NaN
```

In ES6 we have Number.isNaN. It does not coerces the value into numbers.

```
console.log(Number.isNaN(myCatAge)); //true
console.log(Number.isNaN("my son's age")); //false
```

### Negative Zero

Arithmetic operations: When you perform arithmetic operations involving negative zero, it behaves like regular zero.

```
const negativeZero = -0;
console.log(negativeZero + 0); // Output: 0
console.log(negativeZero * 10); // Output: 0
console.log(negativeZero / 5); // Output: 0
```

Equality and comparison: When comparing values, negative zero is considered equal to regular zero.

```
const zero = 0;
const negativeZero = -0;

console.log(zero === negativeZero); // Output: true
console.log(zero == negativeZero); // Output: true
console.log(zero > negativeZero); // Output: false
console.log(zero < negativeZero); // Output: false
```

However, there are some cases where negative zero is considered different from regular zero.

```
console.log(Object.is(zero, negativeZero)); // Output: false
```

String representation: When you convert negative zero to a string using `toString()` or `String()`, it is represented as `"-0"`.

```
const negativeZero = -0;  
console.log(negativeZero.toString()); // Output: "-0"  
console.log(String(negativeZero));   // Output: "-0"
```