

# Record & Tuple

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Concern: Records and Tuples need to be compared, but by which semantics should they be compared? **Identity? Contents? Does the language decide this, or does the developer?**

Question: Should Record & Tuple comparisons be implemented with a function/method or the `===` operator?

**“Unified equality” is an important property to uphold for records/tuples.**

# Unified equality, an important objective.

What does “unified equality” mean?

- One view of equality
- Equality is reliable
- Common operations share semantics
- Hiding identity for coherence.

# Invariant: one view of equality.

ECMA262 provides a single, coherent model of equality for every value.

Objects only define equality by “identity”

`{}` `!==` `{}`

Primitives only define equality by “contents”

`"foo"` `===` `"foo"`

# Invariant: Equality is reliable

ECMA262 does not describe other methods of determining equality:

- no operator overloading (for ===)
- no hash codes

This makes **Map** and **Set** possible, as they rely on stable equality.

**Developers have come to rely on the “reliability” of equality in a language where most builtins can be modified.**

# Invariant: common ops share equality semantics.

For example: strings are compared via the same equality semantics in all circumstances.

```
const a = "foo bar";
```

```
const b = "foo bar";
```

```
a === b; // true
```

```
const set = new Set();
```

```
set.add(a);
```

```
set.has(b); // true
```

# Invariant: Hiding identity for coherence.

Developers are often confused by accidental identity comparisons in other languages: <https://stackoverflow.com/questions/513832/how-do-i-compare-strings-in-java/513839#513839>

- Objects are “owned” by the things that point to them.
- Nothing “owns” a String, it’s existence is self-describing.

Identity is a Pandora’s Box; once it is exposed, it is impossible to remove, preventing future interning/optimization.

## Side Note: Read-Only Collections

Read-Only Collections and Record/Tuple can share design where the proposals overlap, but we don't think it makes sense to explain one in terms of the other.

Read-Only Collections have different usage patterns:

- Created, mutated, and snapshotted over time
- Uncommon to compare equality
- Tend to be larger than objects (in # of keys); interning less effective