Record & Tuple

Stage 1 Update @ TC39 June 2020

Robin Ricard & Rick Button
Bloomberg

Advisor: Daniel Ehrenberg
Igalia

A recap of last update

Syntax

```
const contents = #[
    #{
        text: "Record and Tuple",
        font: "Comic Sans",
    },
    #{
        text: "An ECMA TC39 Stage 1 Proposal",
    },
];
```

```
// no methods in records
#{
    method() {
        // not allowed
    },
};

// no holes in tuples
#[1,,2]; // not allowed
```

Equality Semantics

Discussed in issues #20 / #65

Chosen in order to not introduce more values for which === and Object.is() differ

== equivalent to ===

```
#[-0]  !== #[+0]
#[NaN] === #[NaN]

#[-0]  != #[+0]
#[NaN] == #[NaN]
```

New since the last update

Disallowing symbols as property keys in records

```
// Insertion order must not matter for equality.
const one = #{ a: 0, b: 1 };
const two = #{ b: 1, a: 0 };
assert(one === two);

// Solution: Record keys are sorted.
Object.keys(#{ a: 0, b: 1 }); // ["a", "b"]
Object.keys(#{ b: 1, a: 0 }); // ["a", "b"]
```

```
// What about symbol keys?
const sym1 = Symbol();
const sym2 = Symbol();

const rec = #{
    [sym1]: "foo",
    [sym2]: "bar",
};

Object.getOwnPropertySymbols(rec) // ???
```

No way to order symbol keys without a global order for unregistered symbols

However, concerns with global symbol order introducing side-channel (see issue #15)

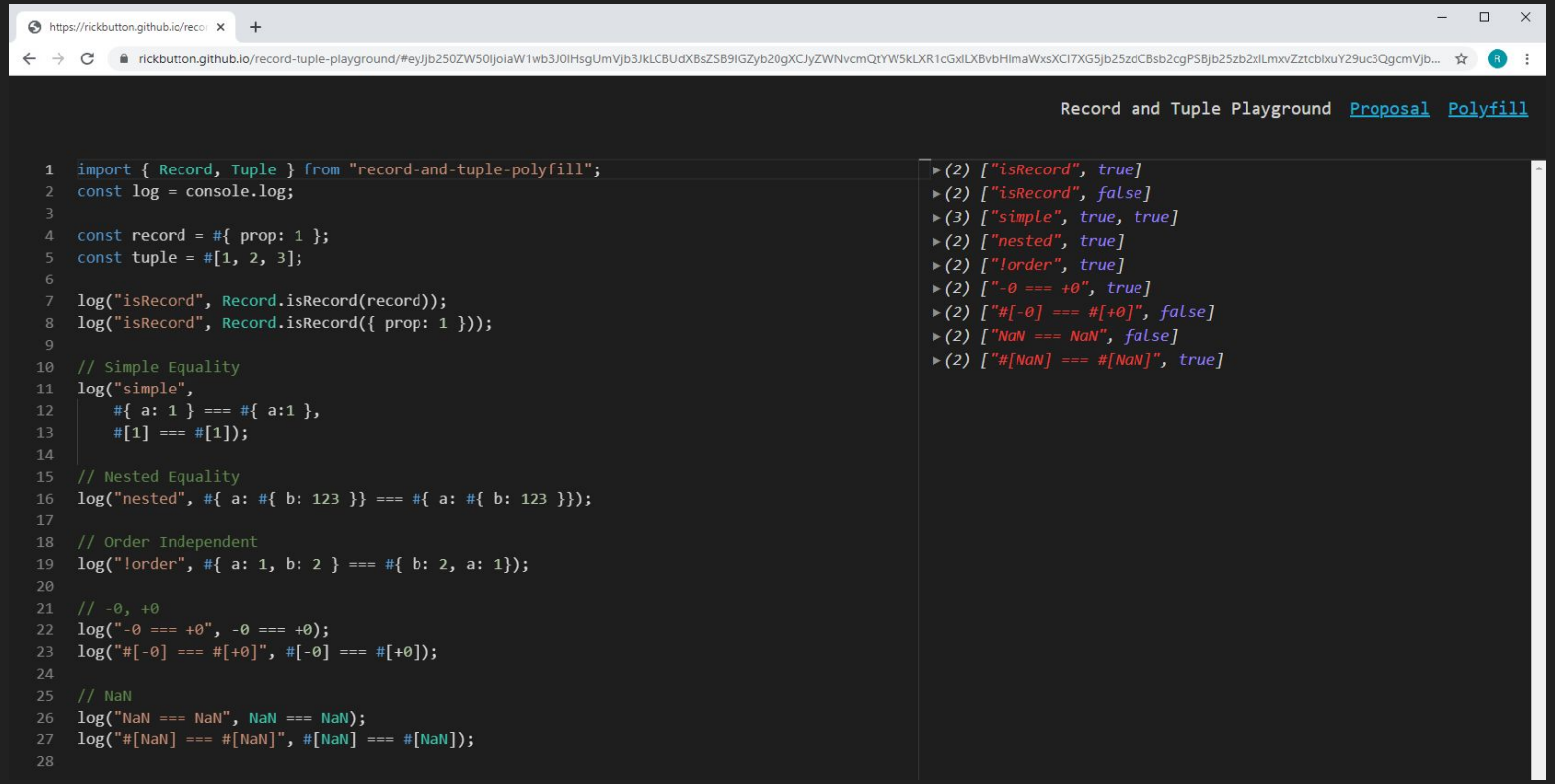
Thus, disallowing symbols as keys in Records is our solution.

```
// TypeError
const rec = #{ [Symbol("foo")]: "foo" };

// TypeError
const rec = #{ [Symbol.for("foo")]: "foo" };
```

Please try the Record and Tuple Playground!

https://tinyurl.com/RecordTupleFeedback



Seeking Stage 2 in July

- We believe we have a proper design for Record and Tuple
- Received good feedback on proposed solutions, hope to have more feedback on polyfill usage before Stage 2
- We have started spec work, intend to complete “first pass” before July meeting

Does anyone have additional considerations before Stage 2?

Discussion!

- Syntax/Grammar
- Equality Semantics
- Disallowing symbols as property keys in Records

Feedback before seeking Stage 2 in July?