“Deep Path Properties”
in Record literals

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```
// mutable objects

let simple = { foo: "foo", bar: "bar" };
simple.bar = "baz";

let complex = {
    foo: {
        arr: [{ counter: 0 }, { counter: -1 }]
    }
};
complex.foo.arr[0].counter = 1;
```

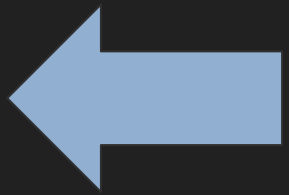
```
// with Immer

let complex2 = Immer.produce(complex, draft => {
    draft.foo.arr[0].counter = 1;
});
```

```
// with Immutable.js

let state2 = immutableState
    .setIn(["foo", "arr", 0, "counter"], 1)
```

```
// copy records, but only shallow

let simple = #{ foo: "foo", bar: "bar" };
let simple2 = #{ ...simple, bar: "baz" };

let complex = #{
    foo: {
        arr: #[ #{ counter: 0 }, #{ counter: -1 } ],
    },
};
let complex2 = #{ ...complex, ??? };
```

```
// verbose, error-prone

let complex2 = #{
    ...complex,
    foo: #{
        ...complex.foo,
        arr: #[ #{
            ...complex.foo.arr[0],
            counter: 1,
        }, ...complex.foo.arr.slice(1)],
    },
};
```

```
// new proposal

let complex = #{
    foo: {
        arr: #[#{ counter: 0 }, #{ counter: -1 }],
    },
};
let complex2 = #{
    ...complex,
    foo.arr[0].counter: 1,
};
```



```
let state1 = #{
    counters: #[
        #{ name: "Counter 1", value: 1 },
        #{ name: "Counter 2", value: 0 },
        #{ name: "Counter 3", value: 123 },
    ],
    metadata: #{
        lastUpdate: 1584382969000,
    },
};
```

```
let state1 = #{
    counters: #[
        #{ name: "Counter 1", value: 1 },
        #{ name: "Counter 2", value: 0 },
        #{ name: "Counter 3", value: 123 },
    ],
    metadata: #{
        lastUpdate: 1584382969000,
    },
};
```

```
let state2 = #{
    ...state1,
    counters: #[
        #{
            ...state1.counters[0],
            value: 2,
        },
        #{
            ...state1.counters[1],
            value: 1,
        },
        ...state1.counters,
    ],
    metadata: #{
        ...state1.metadata,
        lastUpdate: 1584383011300,
    },
}
```

```
let state1 = #{
    counters: #[
        #{ name: "Counter 1", value: 1 },
        #{ name: "Counter 2", value: 0 },
        #{ name: "Counter 3", value: 123 },
    ],
    metadata: #{
        lastUpdate: 1584382969000,
    },
};
```

```
let state2 = #{
    ...state1,
    counters[0].value: 2,
    counters[1].value: 1,
    metadata.lastUpdate: 1584383011300,
};
```

What happens if the deep path doesn’t already exist?

```
const one = #{ a: #{} };
#{ ...one, a.b.c: "foo" }; // throws TypeError

#{ ...one, a.b[0]: "foo" }; // throws TypeError

// both seem like reasonable results, hence ambiguity
#{ a: #{ b: #[123] } }
#{ a: #{ b: #{ 0: 123 } } }
```

What happens a deep path property attempts to set a non-number-like key on a Tuple?

```
const one = #{ a: #[1,2,3] };
#{ ...one, a.foo: 4 }; // throws TypeError
```

Tuples cannot have non-number-like keys, therefore invalid to create one via deep paths.

Open Question: What about objects?

Deep path properties would be useful for object creation, but semantics are harder to understand than for Record literals.

Interested in suggestions for design.

Open Question: Syntax?

Currently shares spread syntax.

Interested in alternative syntaxes that accomplish the same goals (possibly an alternative syntax that makes object semantics more obvious?)