~~Evaluators~~ new Global

status update

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Motivation

- Domain Specific Languages
- Test runners
- Principle of Least Authority
- Isolation of unreliable code

Example - DSL

```
const dslGlobal = const new Global();
dslGlobal.describe = () => {};
dslGlobal.before = () => {};
dslGlobal.after = () => {};

const source = await import.source(entrypoint);
await dslGlobal.eval('s => import(s)')(source);
```

```
dslGlobal.document = mockDomApi;
```

new Global

```
interface Global {
  constructor({
    keys?: string[],
    importHook?: ImportHook,
    importMetaHook?: ImportMetaHook,
  })
  // Unique to the new global:
  Global: typeof Global,
  eval: typeof eval,
  Function: typeof Function,
  // internal slots for *Function as well

  // + properties copied from globalThis filtered by keys
}
```

Conceptual changes

- latest incarnation of the `Evaluators` proposal, from `Compartments` (Stage 1)
- avoids adding new concept of `Evaluators`, reuses existing `Global` concept.
- no new categories of global object, just replicas
- host creates the global object
- not opinionated on minimal set of globals

> `Global` picks up from the previous proposal for `Evaluators` and results from an observation that an object conveniently containing all evaluators alreaedy exists in the spec and all we need to do is expose a constructor for it.
> It also eliminates the concern where evaluators accepting any globalThis to use would clash with the host implementation's desire to use special objects only the host can create.

Details

- allows mutating `(new Global()).globalThis` before evaluation
- by default copy all properties from `globalThis`
- properties: `Global` and all evaluators have their internal slots relating them to the new *global*, that includes all `*Function` slots.

```
(async () => {}).constructor !==
new Global().eval('async () => {}').constructor
```

Details - All properties grafted by default

```
globalThis.x = {};
const newGlobal = new globalThis.Global();
newGlobal.Object === globalThis.Object;
newGlobal.x === globalThis.x;
```

Details - Properties can be selectively grafted

```
globalThis.x = {};
globalThis.y = {};
const newGlobal = new Global({
  keys: ['y'],
});
newGlobal.x === undefined;
newGlobal.y === globalThis.y
```


Details - Some properties undeniable

Overlap with Module Harmony

```
const globalThat = new Global({
  importHook(specifier) {
    log(`global ${specifier}`);
    return new ModuleSource("");
  },
});
const source = new globalThat.ModuleSource(
  `
  import 'static-import';                              // local static-import
  eval('import("direct-eval-import")');                // local direct-eval-import
  globalThis.eval('import("indirect-eval-import")');   // global indirect-eval-import
  new Function('return import("function-import")');    // global function-import
`,
  {
    importHook(specifier) {
      log(`local ${specifier}`);
    },
  }
);
await import(source);
```