8.3.2  [[SetInheritance]] (V)

When the [[SetInheritance]] internal method of O is called with argument V the following steps are taken:

1. Assert: Either Type(V) is Object or Type(V) is Null.
2. Let extensible be the value of the [[Extensible]] internal data property of O.
3. If extensible is false, then return false.
4. If V is not null, then
   a. Let p be V.
   b. Repeat, while p is not null
      i. If SameValue(p, O) is true, then throw a TypeError exception.
      ii. Let nextp be the result of calling the [[GetInheritance]] internal method of p with no arguments.
      iii. ReturnIfAbrupt(nextp).
      iv. Let p be nextp.
5. Set the value of the [[Prototype]] internal data property of O to V.
6. Return true.

8.4.1 Object Prototype Exotic Objects

An Object prototype object is an exotic object that is used as the Object.prototype built-in object. It uses alternative definitions of some of the essential internal methods to implement the special semantics of the __proto__ property.

Object prototype objects have the same internal data properties as ordinary objects. In addition it has a [[MutablePrototype]] internal data property whose value initial value is true.

Exotic Object.prototype objects provide alternative definitions for the following internal methods. All of the other exotic Object prototype object essential internal methods that are not defined below are as specified in 8.3.

8.4.1.1  [[DefineOwnProperty]] (P, Desc)

When the [[DefineOwnProperty]] internal method of an exotic Object prototype object O is called with property P, and Property Descriptor Desc the following steps are taken:

1. If P is the string value "__proto__", then
   a. Set the value of O’s [[MutablePrototype]] internal data property to false.
2. Return the result of calling the default ordinary object [[DefineOwnProperty]] internal method on O passing P and Desc as arguments.

8.4.1.2  [[Get]] (P, Receiver)

When the [[Get]] internal method of an exotic Object prototype object O is called with property key P and ECMAScript language value Receiver the following steps are taken:

1. Let enabled be the value of O’s [[MutablePrototype]] internal data property.
2. If P is the string value "__proto__" and enabled is true, then
   a. Return the result of calling the [[GetInheritance]] internal method of O with no arguments.
3. Return the result of calling the default ordinary object [[Get]] internal method on O passing P and Receiver as arguments.

8.4.1.3  [[Set]] ( P, V, Receiver)

When the [[Set]] internal method of an an exotic Object prototype object O is called with property key P, value V, and ECMAScript language value Receiver, the following steps are taken:

1. Let enabled be the value of O’s [[MutablePrototype]] internal data property.
2. If P is the string value "__proto__" and enabled is true and SameValue(P, Receiver) is false, then
   a. If Type(V) is neither Object or Null, then return false.
   b. Return the result of calling the [[SetInheritance]] internal method of O with argument V.
3. Return the result of calling the default ordinary object [[Set]] internal method on O passing P, V, and Receiver as arguments.

8.4.1.4  [[Delete]] (P)

When the [[Delete]] internal method of an exotic Object prototype object O is called with property name P the following steps are taken:

1. If P is the string value "__proto__", then
   a. Set the value of O’s [[MutablePrototype]] internal data property to false.
2. Return the result of calling the default ordinary object [[Delete]] internal method on O passing P as the argument.

8.4.1.5  [[Enumerate]] ()

The [[Enumerate]] internal method of an Object Prototype exotic object O performs exactly as described for the ordinary object [[Enumerate]] internal method with the exception that if O’s [[MutablePrototype]] internal data property has the value true, then the String "__proto__" is not included in the set of values produced by the iterator that is returned.

The above restriction concerning "__proto__" also applies when an the ordinary object [[Enumerate]] algorithm is processing an Object Prototype exotic object as the prototype of another object.

8.4.1.6  [[OwnPropertyKeys]] ()

The [[OwnPropertyKeys]] internal method of an exotic prototype object O performs exactly as described for the ordinary object [[OwnPropertyKeys]] internal method with the exception that if O’s [[MutablePrototype]] internal data property has the value true, then the String "__proto__" is not included in the set of values produced by the iterator that is return.

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**Runtime Semantics: Property Definition Evaluation**

With parameter object.

...
4. ReturnIfAbrupt(propValue).
5. If propName is the string value "__proto__", then
   a. If Type(v) is neither Object or Null, then throw a TypeError exception.
   b. Return the result of calling the [[SetInheritance]] internal method of object with argument propValue.
6. Let desc be the Property Descriptor{[[Value]]: propValue, [[Writable]]: true, [[Enumerable]]: true, [[Configurable]]: true}
7. Return the result of DefinePropertyOrThrow(object, propName, desc).

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15.2.4 Properties of the Object Prototype Object

The Object prototype object is an object prototype exotic object (8.4.1). The initial value of the [[MutablePrototype]] internal data property of the Object prototype object is true.

The value of the [[Prototype]] internal data property of the Object prototype object is null and the initial value of the [[Extensible]] internal data property is true.