PRACTICA 4

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1 Ejercicio 1

Create the simplest WHILE program that computes the diverge function (with zero arguments) and compute the codification of its code.

$$Q = (0, s)$$

$$s :$$

$$X2 := X1 + 1;$$

$$while \quad X2 \neq 0 \quad do$$

$$X1 := 0;$$

$$od$$

Salida de Octave:

```
> CODE2N("X2:=X1+1; while X2!=0 do X1:=0 od")
ans = 10876
```

2 Ejercicio 2

Create an Octave script that enumerates all the vectors.

```
function printNvectors(N)
for i=0:N-1
disp([( num2str(godeldecoding(i)) )])
end

end
```

Salida de Octave:

```
>> printNvectors(3)
()
(0)
(0  0)
>> printNvectors(7)
()
(0)
(0  0)
(1)
(0  0  0)
(1  0)
(2)
>> printNvectors(5)
()
(0)
(0  0)
(1)
(0  0  0)
```

3 Ejercicio 3

Create an Octave script that enumerates all the WHILE programs.

```
function printNwhilePrograms(N)
for i=0:N-1
disp(N2WHILE(i))
end

end
```

Salida de Octave:

```
>> printNwhilePrograms(3)
(0, X1=0)
(1, X1=0)
(0, X1=0; X1=0)
>> printNwhilePrograms(5)
(0, X1=0)
(1, X1=0)
(0, X1=0; X1=0)
(2, X1=0)
(1, X1=0; X1=0)
>> printNwhilePrograms(7)
(0, X1=0)
(1, X1=0)
(0, X1=0; X1=0)
(2, X1=0)
(1, X1=0; X1=0)
(0, X1=X1)
(3, X1=0)
```