Segunda práctica

1. <S> 🡪 <T><rS>
2. <rS> 🡪 |<T><rS>
3. <rS> 🡪 .<T><rS>
4. <rS> 🡪 <T><rS>
5. <rS> 🡪 λ
6. <T> 🡪 (<I>)<E>
7. <T> 🡪 <I>
8. <I> 🡪 I<rI>
9. <rI> 🡪 <rS>
10. <rI> 🡪 <E>
11. <rI> 🡪 λ
12. <E> 🡪 +<rS>
13. <E> 🡪 \*<rS>
14. <E> 🡪 λ

No es posible hacer reconocedor descendente porque la gramática no es LL(1)

Se debe hacer reconocedor ascendente shift-reduce con producciones nulas:

Gramática Ocurrencias

<S>0

1. <S> 🡪 <T><rS> <T>1 <rS>1

2. <rS> 🡪 |<T><rS> |<T>2 <rS>2

3. <rS> 🡪 .<T><rS> .<T>3 <rS>3

4. <rS> 🡪 <T><rS> <T>4 <rS>4

5. <rS> 🡪 λ

6. <T> 🡪 (<I>)<E> ( <I>6 )<E>6

7. <T> 🡪 <I> <I>7

8. <I> 🡪 I<rI> I <rI>8

9. <rI> 🡪 <rS> <rS>9

10. <rI> 🡪 <E> <E>10

11. <rI> 🡪 λ

12. <E> 🡪 +<rS> +<rS>12

13. <E> 🡪 \*<rS> \*<rS>13

14. <E> 🡪 λ

N anulables={<rS>,<rI>,<E>}

P/n s anulables ={5, 9,11, 14}

Prim(<S>)={<T>1 , (, <I>7, I}

Prim(<rS>)={|, ., <T>4 , (, <I>7, I}

Prim(<T>)={(, <I>7, I}

Prim(<I>)={I}

Prim(<rI>)={<rS>9, |, ., <T>4 , (, <I>7, I, <E>10, +,\*}

Prim(<E>)={+, \*}

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | <S>0 | <T>1 | <rS>1 | | | <T>2 | <rS>2 | . | <T>3 | <rS>3 | <T>4 | <rS>4 | ( | <I>6 | ) | <E>6 | <I>7 | I | <rI>8 | <rS>9 | <E>10 | + | <rS>12 | \* | <rS>13 |
| ▼ | **1** | **1** |  |  |  |  |  |  |  |  |  | **1** |  |  |  | **1** | **1** |  |  |  |  |  |  |  |
| <S>0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <T>1 |  |  |  | **1** |  |  | **1** |  |  | **1** |  | **1** |  |  |  | **1** | **1** |  |  |  |  |  |  |  |
| <rS>1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| | |  |  |  |  | **1** |  |  |  |  |  |  | **1** |  |  |  | **1** | **1** |  |  |  |  |  |  |  |
| <T>2 |  |  |  | **1** |  | **1** | **1** |  |  | **1** |  | **1** |  |  |  | **1** | **1** |  |  |  |  |  |  |  |
| <rS>2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| . |  |  |  |  |  |  |  | **1** |  |  |  | **1** |  |  |  | **1** | **1** |  |  |  |  |  |  |  |
| <T>3 |  |  |  | **1** |  |  | **1** |  | **1** | **1** |  | **1** |  |  |  | **1** | **1** |  |  |  |  |  |  |  |
| <rS>3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <T>4 |  |  |  | **1** |  |  | **1** |  |  | **1** | **1** | **1** |  |  |  | **1** | **1** |  |  |  |  |  |  |  |
| <rS>4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ( |  |  |  |  |  |  |  |  |  |  |  |  | **1** |  |  |  | **1** |  |  |  |  |  |  |  |
| <I>6 |  |  |  |  |  |  |  |  |  |  |  |  |  | **1** |  |  |  |  |  |  |  |  |  |  |
| ) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **1** |  |  |  |  |  | **1** |  | **1** |  |
| <E>6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <I>7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| I |  |  |  | **1** |  |  | **1** |  |  | **1** |  | **1** |  |  |  | **1** | **1** | **1** | **1** | **1** | **1** |  | **1** |  |
| <rI>8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <rS>9 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <E>10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| + |  |  |  | **1** |  |  | **1** |  |  | **1** |  | **1** |  |  |  | **1** | **1** |  |  |  |  | **1** |  |  |
| <rS>12 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| \* |  |  |  | **1** |  |  | **1** |  |  | **1** |  | **1** |  |  |  | **1** | **1** |  |  |  |  |  |  | **1** |
| <rS>13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | <S> | <rS> | <T> | <I> | <rI> | <E> | | | . | ( | I | ) | + | \* | acción |
| ▼ | <S>0 |  | <T>1 | <I>7 |  |  |  |  | ( | I |  |  |  | Cont. |
| <S>0 |  |  |  |  |  |  |  |  |  |  |  |  |  | Acepte |
| <T>1 |  |  | <T>4 | <I>7 |  |  | | | . | ( | I |  |  |  | Cont. |
| <rS>1 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(1) |
| | |  |  | <T>2 | <I>7 |  |  |  |  | ( | I |  |  |  | Cont. |
| <T>2 |  | <rS>2 | <T>4 | <I>7 |  |  | | | . | ( | I |  |  |  | Cont. |
| <rS>2 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(2) |
| . |  |  | <T>3 | <I>7 |  |  |  |  | ( | I |  |  |  | Cont. |
| <T>3 |  | <rS>3 | <T>4 | <I>7 |  |  | | | . | ( | I |  |  |  | Cont. |
| <rS>3 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(3) |
| <T>4 |  | <rS>4 | <T>4 | <I>7 |  |  | | | . | ( | I |  |  |  | Cont. |
| <rS>4 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(4) |
| ( |  |  |  | <I>6 |  |  |  |  |  | I |  |  |  | Cont. |
| <I>6 |  |  |  |  |  |  |  |  |  |  | ) |  |  | Cont. |
| ) |  |  |  |  |  | <E>6 |  |  |  |  |  | + | \* | Cont. |
| <E>6 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(6) |
| <I>7 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(7) |
| I |  | <rS>9 | <T>4 | <I>7 | <rI>8 | <E>10 | | | . | ( | I |  | + | \* | Cont. |
| <rI>8 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(8) |
| <rS>9 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(9) |
| <E>10 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(10) |
| + |  | <rS>12 | <T>4 | <I>7 |  |  | | | . | ( | I |  |  |  | Cont. |
| <rS>12 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(12) |
| \* |  | <rS>13 | <T>4 | <I>7 |  |  | | | . | ( | I |  |  |  | Cont. |
| <rS>13 |  |  |  |  |  |  |  |  |  |  |  |  |  | Rdc(13) |

Tabla de apilamiento

Gramática Ocurrencias

<S>0

1. <S> 🡪 <T><rS> <T>1 <rS>1

2. <rS> 🡪 |<T><rS> |<T>2 <rS>2

3. <rS> 🡪 .<T><rS> .<T>3 <rS>3

4. <rS> 🡪 <T><rS> <T>4 <rS>4

5. <rS> 🡪 λ

6. <T> 🡪 (<I>)<E> ( <I>6 )<E>6

7. <T> 🡪 <I> <I>7

8. <I> 🡪 I<rI> I <rI>8

9. <rI> 🡪 <rS> <rS>9

10. <rI> 🡪 <E> <E>10

11. <rI> 🡪 λ

12. <E> 🡪 +<rS> +<rS>12

13. <E> 🡪 \*<rS> \*<rS>13

14. <E> 🡪 λ

Sig(<S>)={┤}

Sig(<rS>)={), ┤, |, ., (, I}

Sig(<T>)={┤, |, ., (, I}

Sig(<I>)={), ┤, |, ., (, I }

Sig(<rI>)={), ┤, |, ., (, I}

Sig(<E>)={), ┤, |, ., (, I}

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | . | ( | I | ) | + | \* | ┤ |
| ▼ |  |  | S | S |  |  |  |  |
| <S>0 |  |  |  |  |  |  |  |  |
| <T>1 | S | S | S | S |  |  |  |  |
| <rS>1 |  |  |  |  |  |  |  | Rdc(1) |
| | |  |  | S | S |  |  |  |  |
| <T>2 | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | Rdc(5) |  |  | Rdc(5) |
| <rS>2 | Rdc(2) | Rdc(2) | Rdc(2) | Rdc(2) | Rdc(2) |  |  | Rdc(2) |
| . |  |  | S | S |  |  |  |  |
| <T>3 | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | Rdc(5) |  |  | Rdc(5) |
| <rS>3 | Rdc(3) | Rdc(3) | Rdc(3) | Rdc(3) | Rdc(3) |  |  | Rdc(3) |
| <T>4 | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | Rdc(5) |  |  | Rdc(5) |
| <rS>4 | Rdc(4) | Rdc(4) | Rdc(4) | Rdc(4) | Rdc(4) |  |  | Rdc(4) |
| ( |  |  |  | S |  |  |  |  |
| <I>6 |  |  |  |  | S |  |  |  |
| ) |  |  |  |  |  | S | S |  |
| <E>6 | Rdc(6) | Rdc(6) | Rdc(6) | Rdc(6) |  |  |  | Rdc(6) |
| <I>7 | Rdc(7) | Rdc(7) | Rdc(7) | Rdc(7) |  |  |  | Rdc(7) |
| I | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | Rdc(5) | S | S | Rdc(5) |
| <rI>8 | Rdc(8) | Rdc(8) | Rdc(8) | Rdc(8) | Rdc(8) |  |  | Rdc(8) |
| <rS>9 | Rdc(9) | Rdc(9) | Rdc(9) | Rdc(9) | Rdc(9) |  |  | Rdc(9) |
| <E>10 | Rdc(10) | Rdc(10) | Rdc(10) | Rdc(10) | Rdc(10) |  |  | Rdc(10) |
| + | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | Rdc(5) |  |  | Rdc(5) |
| <rS>12 | Rdc(12) | Rdc(12) | Rdc(12) | Rdc(12) | Rdc(12) |  |  | Rdc(12) |
| \* | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | S/Rdc(5) | Rdc(5) |  |  | Rdc(5) |
| <rS>13 | Rdc(13) | Rdc(13) | Rdc(13) | Rdc(13) | Rdc(13) |  |  | Rdc(13) |

S: Apile según tabla de apilamiento, avance.

Rdc(1): Desapile(2), Apile(<S>) según tabla de apilamiento, Retenga.

Rdc(2): Desapile(3), Apile(<rS>) según tabla de apilamiento, Retenga.

Rdc(3): Desapile(3), Apile(<rS>) según tabla de apilamiento, Retenga.

Rdc(4): Desapile(2), Apile(<rS>) según tabla de apilamiento, Retenga.

Rdc(5): Apile(<rS>) según tabla de apilamiento, Retenga.

Rdc(6): Desapile(4), Apile(<T>) según tabla de apilamiento, Retenga.

Rdc(7): Desapile(1), Apile(<T>) según tabla de apilamiento, Retenga.

Rdc(8): Desapile(2), Apile(<I>) según tabla de apilamiento, Retenga.

Rdc(9): Desapile(1), Apile(<rI>) según tabla de apilamiento, Retenga.

Rdc(10): Desapile(1), Apile(<rI>) según tabla de apilamiento, Retenga.

Rdc(11): Apile(<rI>) según tabla de apilamiento, Retenga.

Rdc(12): Desapile(2), Apile(<E>) según tabla de apilamiento, Retenga.

Rdc(13): Desapile(2), Apile(<E>) según tabla de apilamiento, Retenga.

Rdc(14): Apile(<E>) según tabla de apilamiento, Retenga.

Hay conflictos, no entiendo nada :’’v

Cambiando de gramática:

1. <S> 🡪 <T><C> Sel(1)={(, I}
2. <C> 🡪 |<T><C> Sel(2)={|}
3. <C> 🡪 .<T><C> Sel(3)={.}
4. <C> 🡪 <T><C> Sel(4)={(, I}
5. <C> 🡪 λ Sel(5)={), ┤}
6. <T> 🡪 (<T><C>)<E> Sel(6)={(}
7. <T> 🡪 I<E> Sel(7)={I}
8. <E> 🡪 + Sel(8)={+}
9. <E> 🡪 \* Sel(9)={\*}
10. <E> 🡪 λ Sel(10)={ |, ., (, I , ), ┤}

N anulables = {<C>, <E>}

P/n s anulables = {5, 10}

Prim(<S>)={(, I} Sig(<S>)={┤}

Prim(<C>)={|, ., (, I} Sig(<C>)={), ┤}

Prim(<T>)={(, I} Sig(<T>)={|, ., (, I , ), ┤}

Prim(<E>)={+, \*} Sig(<E>)={|, ., (, I , ), ┤}

Todos los conjuntos de selección de p/n s con el mismo N del lado izquierdo son disyuntos. Esta gramática SÍ es LL(1)

Construcción de reconocedor descendente:

Símbolos de entrada = {|, ., (, I , ), +, \*, ┤}

Símbolos en la pila = {<S>, <C>, <T>, <E>, ), ▼}

Configuración inicial de la pila = ▼<S>

1. <S> 🡪 <T><C> Sel(1)={(, I}
2. <C> 🡪 |<T><C> Sel(2)={|}
3. <C> 🡪 .<T><C> Sel(3)={.}
4. <C> 🡪 <T><C> Sel(4)={(, I}
5. <C> 🡪 λ Sel(5)={), ┤}
6. <T> 🡪 (<T><C>)<E> Sel(6)={(}
7. <T> 🡪 I<E> Sel(7)={I}
8. <E> 🡪 + Sel(8)={+}
9. <E> 🡪 \* Sel(9)={\*}
10. <E> 🡪 λ Sel(10)={ |, ., (, I , ), ┤}

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | . | ( | I | ) | + | \* | ┤ |
| <S> | #E1 | #E1 | #1-4 | #1-4 | #E1 | #E1 | #E1 | #E2 |
| <C> | #2-3 | #2-3 | #1-4 | #1-4 | #5-10 | #E3 | #E3 | #5-10 |
| <T> | #E4 | #E4 | #6 | #7 | #E4 | #E4 | #E4 | #E5 |
| <E> | #5-10 | #5-10 | #5-10 | #5-10 | #5-10 | #8-9 | #8-9 | #5-10 |
| ) | #E6 | #E6 | #E6 | #E6 | #8-9 | #E6 | #E6 | #E5 |
| ▼ | #E7 | #E7 | #E7 | #E7 | #E7 | #E7 | #E7 | A |

#1-4: Replace(<C><T>), Retenga.

#2-3: Replace(<C><T>), Avance.

#5-10: Desapile, Retenga.

#6: Replace( <E>)<C><T> ), Avance.

#7: Replace(<E>), Avance.

#8-9: Desapile, Avance.

#E1: Escriba(“Toda ER debe comenzar con ( o un símbolo de entrada, se ingresó: “, símbolo), Apile(<E>), Retenga.

#E2: Escriba(“Expresión vacía”), Exit.

#E3: Escriba(“Se esperaba una concatenación, unión o un ) pero se ingresó: “, símbolo), Apile(<E>), Retenga.

#E4: Escriba(“Se esperaba un término pero se ingresó: “, símbolo), Apile(<E>), Retenga.

#E5: Escriba(“Expresión incompleta”), Exit.

#E6: Escriba(“Se esperaba ) pero se ingresó: “, símbolo), Apile(<E>), Retenga.

#E7: Escriba(“Se ingresaron más símbolos después de una expresión correcta”), Apile(<E>), Retenga.