

Transfer Example

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July 19 2019

1 The Input

In a hole in the ground there lived a Hobbit.

This reaches transfer as

```
^In<pr>/En<pr>$ ^a<det><ind><sg>/uno<det><ind><GD><sg>$ ^hole<n><sg>/agujero<n><m><sg>$  
^in<pr>/en<pr>$ ^the<det><def><sp>/el<det><def><GD><ND>$ ^ground<n><sg>/tierra<n><f><sg>$  
^there<adv>/allí<adv>$ ^live<vblex><past>/vivir<vblex><past>$  
^a<det><ind><sg>/uno<det><ind><GD><sg>$ ^Hobbit<n><sg>/Hobbit<n><m><sg>$  
^.<sent>/.<sent>$^.<sent>/.<sent>$
```

2 The Rules

```
gender = m f;
number = (ND sg) sg pl ND;
definite = def ind;
tense = past pres ifi;
person = (PD p3) p1 p2 p3 PD;
```

```
tense > tense : past ifi;
```

```
n: _.gender.number;
det: _.definite.gender.number;
pr: _;
vblex: _.tense.person.number;
adv: _;
```

```
NP: _.gender.number;
DP: _.gender.number;
PP: _;
VP: _.tense.person.number;
```

```
NP -> %n { 1 } |
      10: %n PP { 1 _1 2 } ;
```

```
PP -> pr DP { 1 _1 2 } ;
```

```
DP -> det %NP { 1[gender=2.gender, number=2.number] _1 2 } ;
```

```
VP -> %vblex DP { 1[tense=$tense, person=$person, number=$number] _1 2 } |
      adv %VP (if (1.lem/sl = there)
                { %2 }
                else
                { 1 _1 %2 } ) |
      PP %VP { 1 _1 %2 } ;
```

3 The Parsing

3.1 Read Some Input

In	a	hole
pr	det.ind.sg	n.sg
<i>En</i>	<i>uno</i>	<i>agujero</i>
pr	det.ind.GD.sg	n.m.sg

3.2 Fork the Stack

In	a	hole
pr	det.ind.sg	n.sg
<i>En</i>	<i>uno</i>	<i>agujero</i>
pr	det.ind.GD.sg	n.m.sg

In	a	hole
pr	det.ind.sg	n.sg
<i>En</i>	<i>uno</i>	<i>agujero</i>
pr	det.ind.GD.sg	n.m.sg

3.3 $NP \rightarrow n$

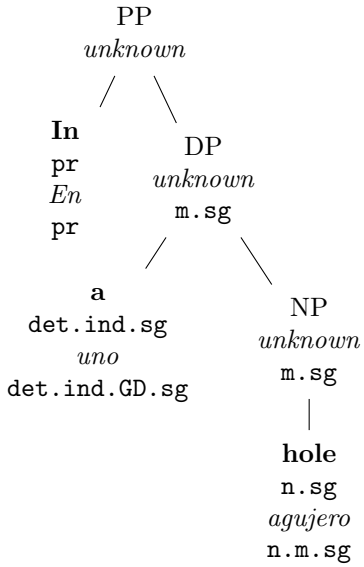
		NP
		<i>unknown</i>
		m.sg
In	a	hole
pr	det.ind.sg	n.sg
<i>En</i>	<i>uno</i>	<i>agujero</i>
pr	det.ind.GD.sg	n.m.sg
In	a	hole
pr	det.ind.sg	n.sg
<i>En</i>	<i>uno</i>	<i>agujero</i>
pr	det.ind.GD.sg	n.m.sg

3.4 $DP \rightarrow \text{det NP}$

		DP
		<i>unknown</i>
		m.sg
		/ \
	a	NP
	det.ind.sg	<i>unknown</i>
	<i>uno</i>	m.sg
	det.ind.GD.sg	
In		hole
pr		n.sg
<i>En</i>		<i>agujero</i>
pr		n.m.sg

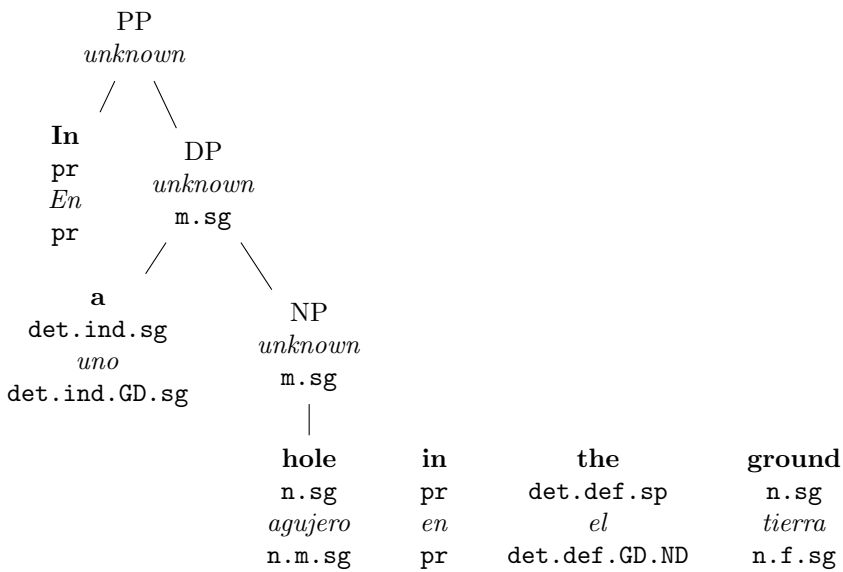
In	a	hole
pr	det.ind.sg	n.sg
<i>En</i>	<i>uno</i>	<i>agujero</i>
pr	det.ind.GD.sg	n.m.sg

3.5 PP → pr DP



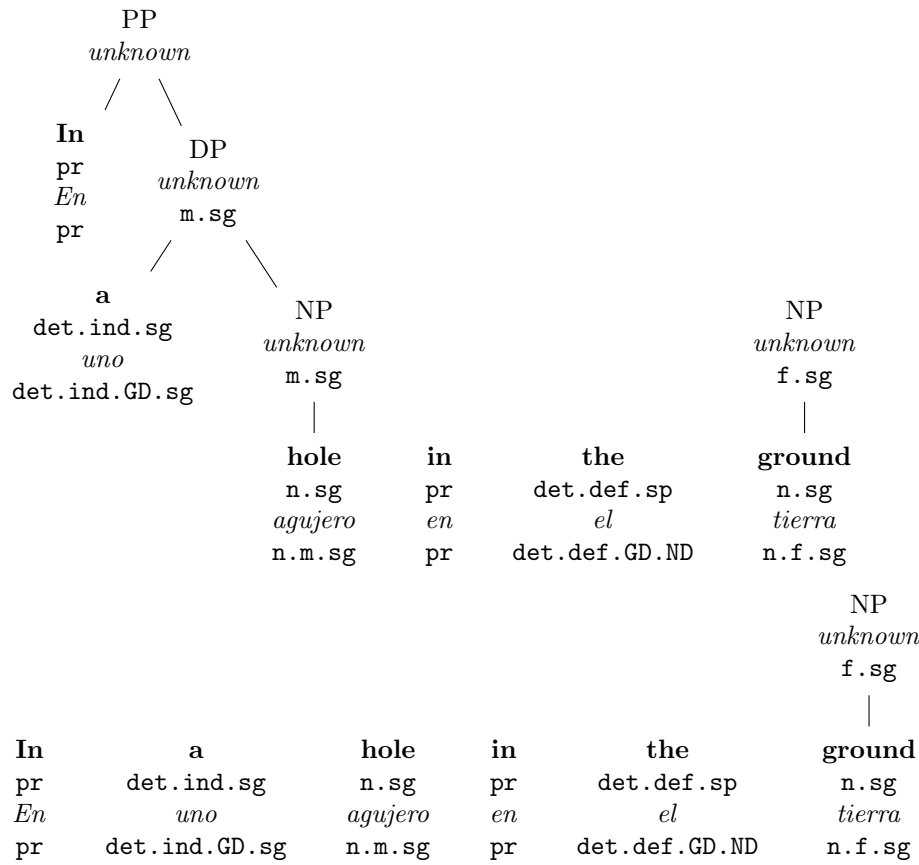
In	a	hole
pr	det.ind.sg	n.sg
<i>En</i>	<i>uno</i>	<i>agujero</i>
pr	det.ind.GD.sg	n.m.sg

3.6 Read Some Input

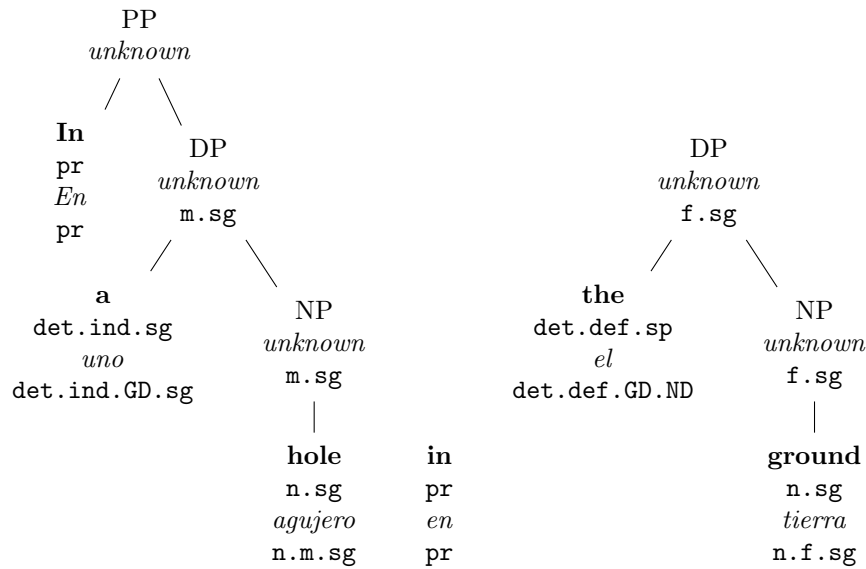


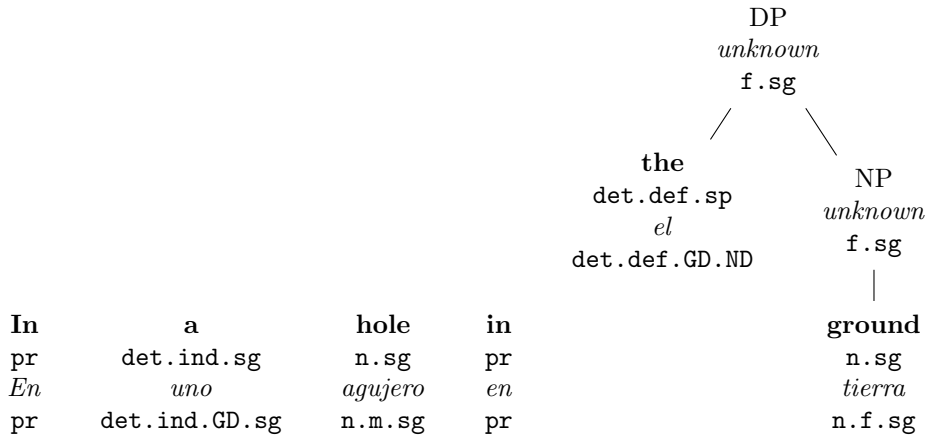
In	a	hole	in	the	ground
pr	det.ind.sg	n.sg	pr	det.def.sp	n.sg
<i>En</i>	<i>uno</i>	<i>agujero</i>	<i>en</i>	<i>el</i>	<i>tierra</i>
pr	det.ind.GD.sg	n.m.sg	pr	det.def.GD.ND	n.f.sg

3.7 NP → n

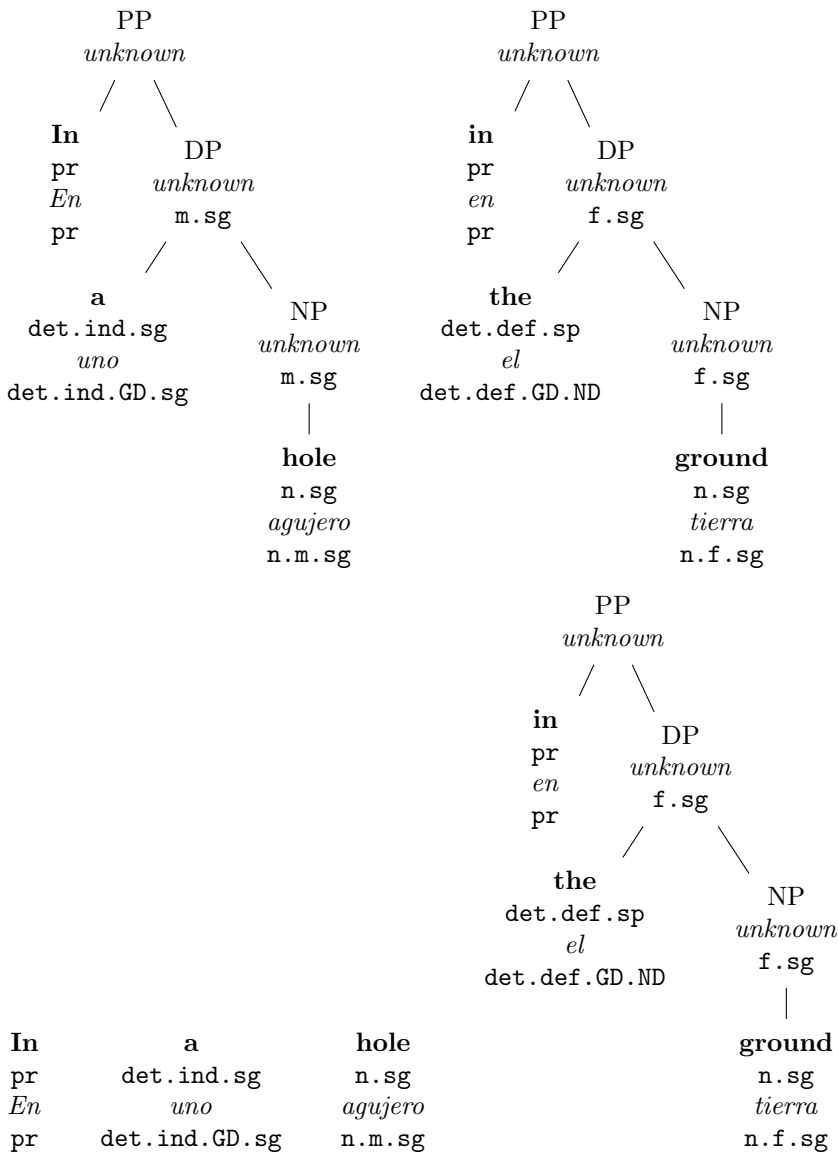


3.8 DP → det NP

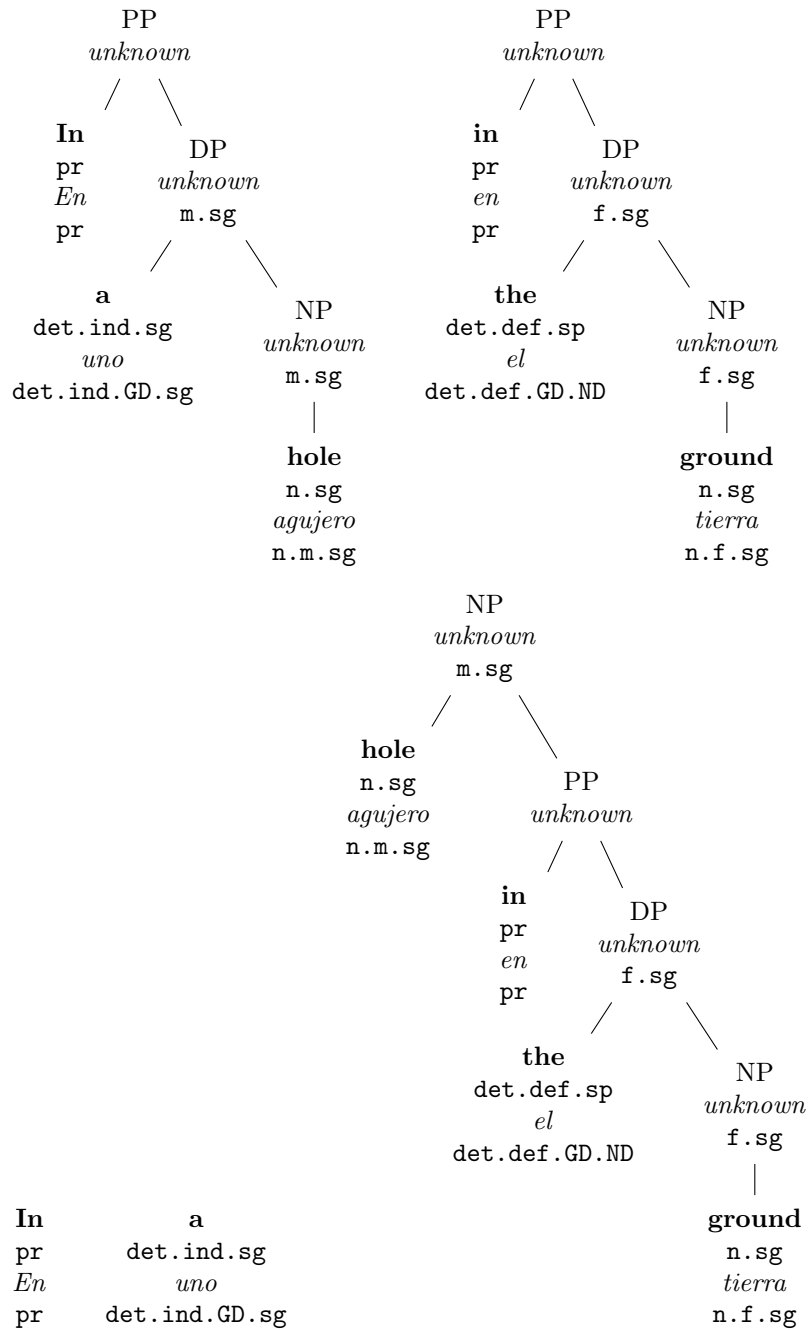




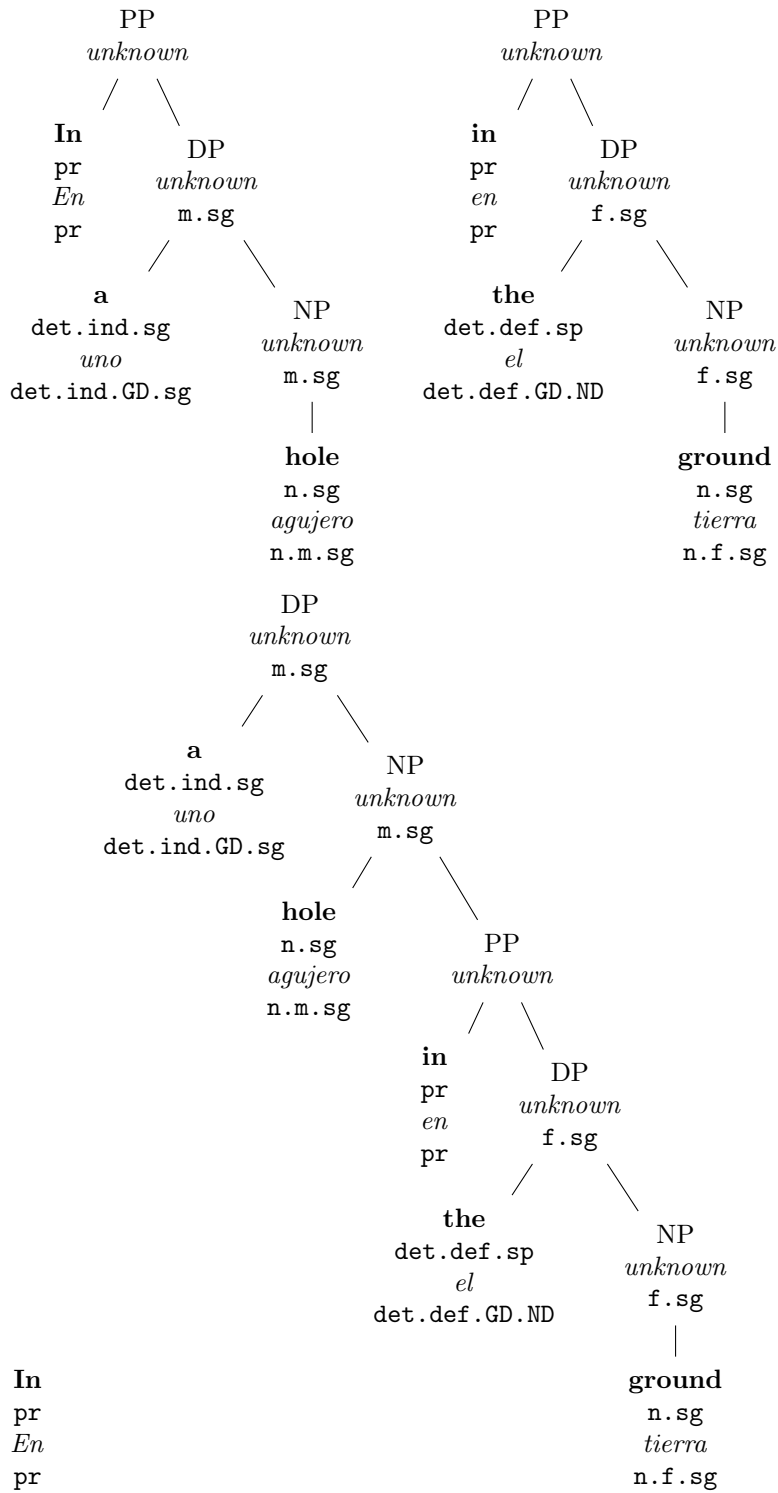
3.9 PP → pr DP



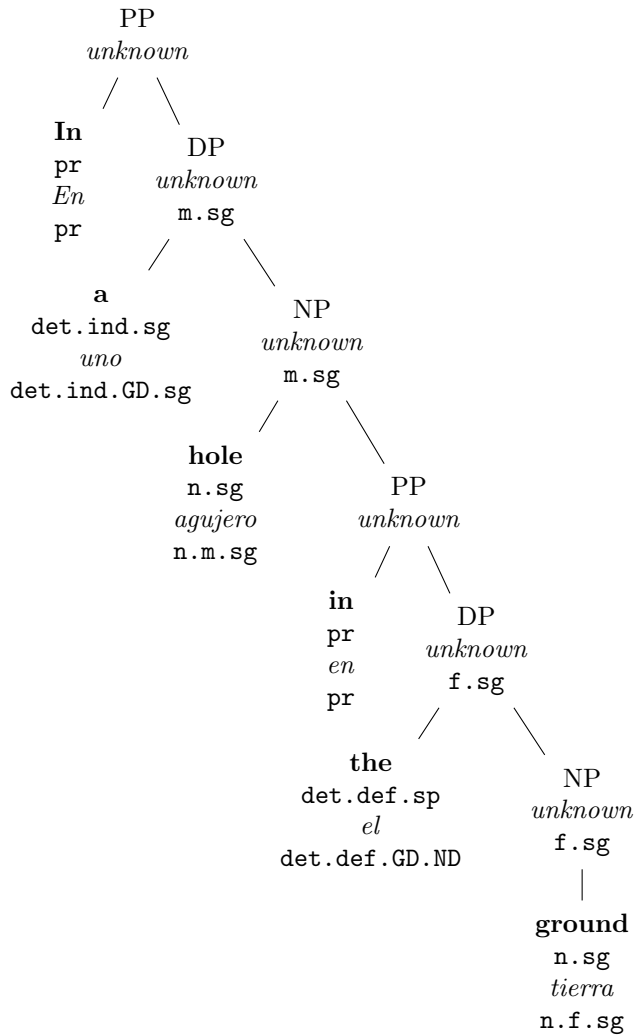
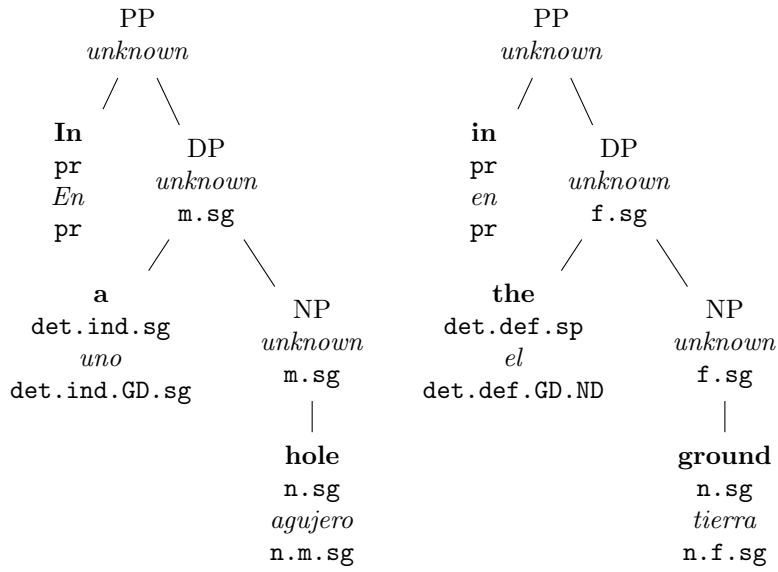
3.10 NP → n PP



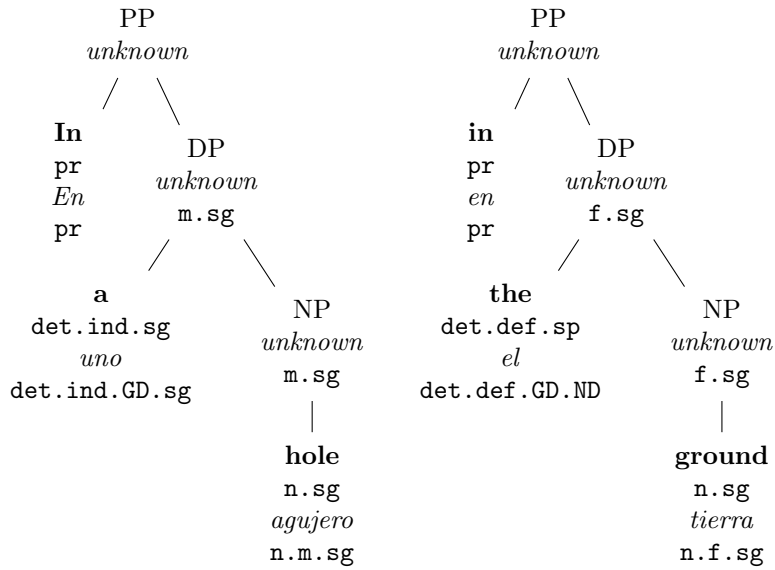
3.11 DP → det NP



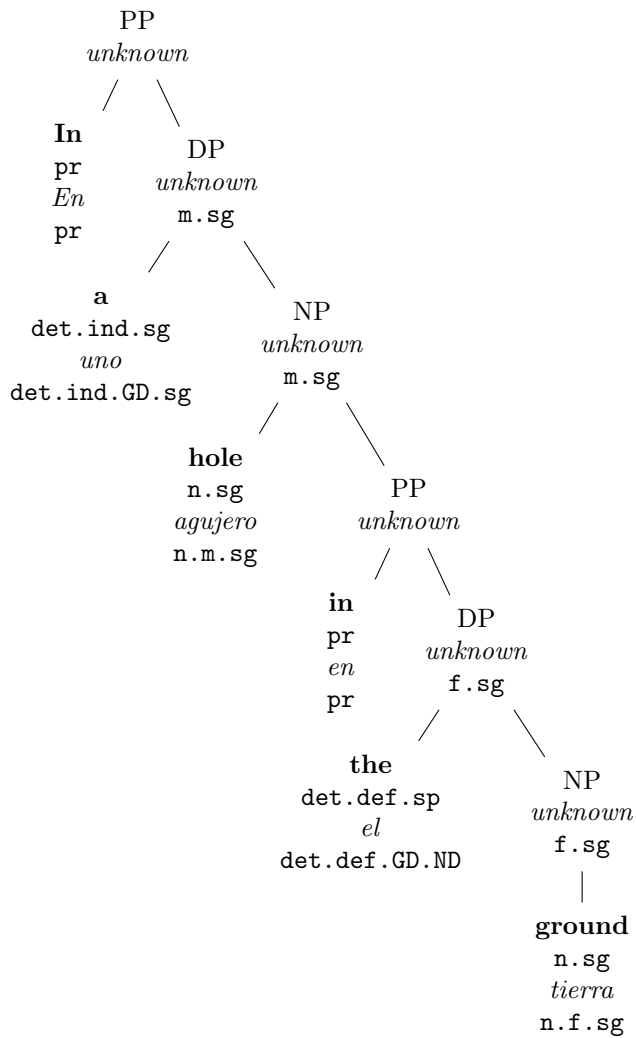
3.12 PP → pr DP



3.13 Read Some Input

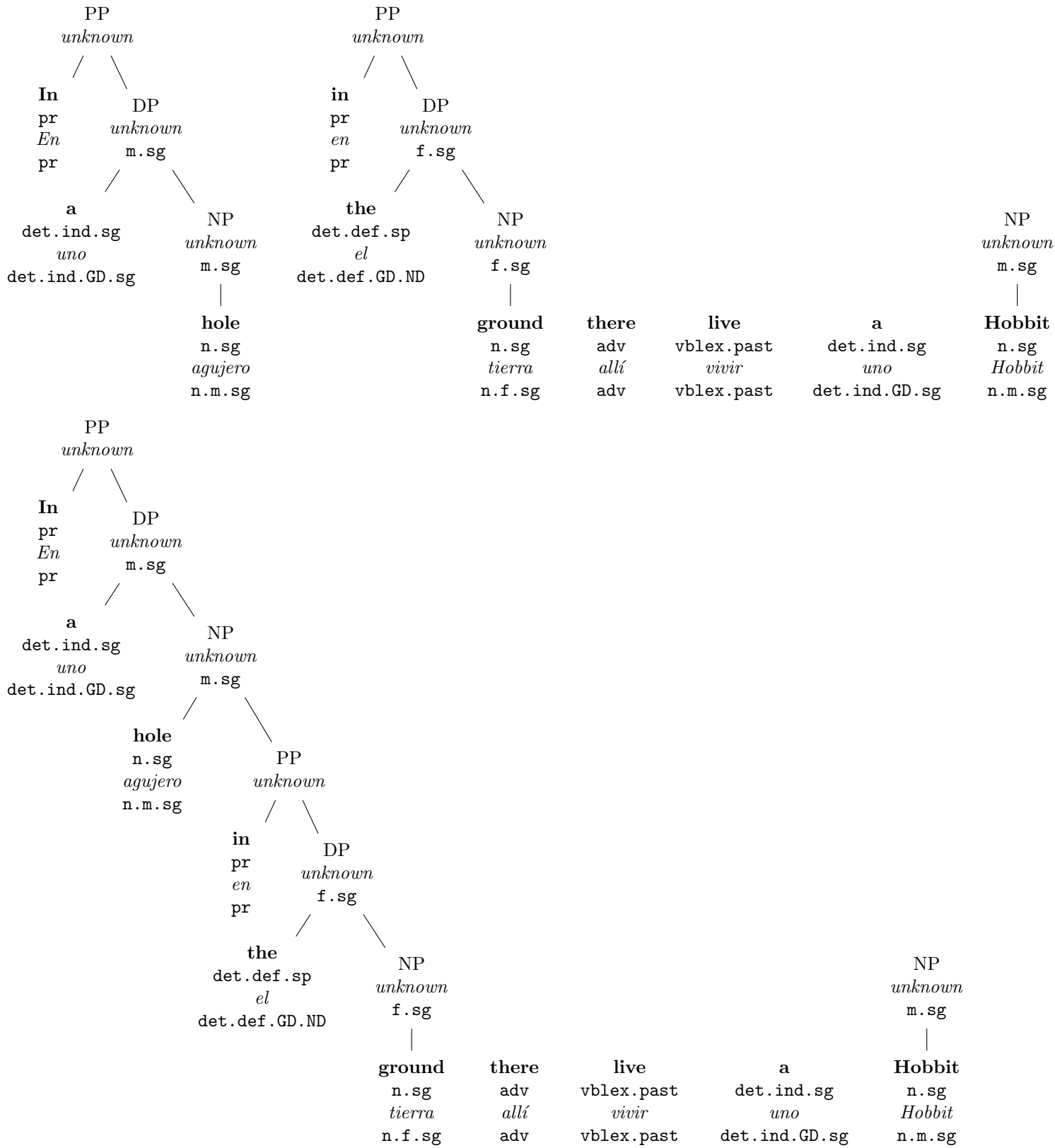


there	live	a	Hobbit
adv	vblex.past	det.ind.sg	n.sg
<i>allí</i>	<i>vivir</i>	<i>uno</i>	<i>Hobbit</i>
adv	vblex.past	det.ind.GD.sg	n.m.sg

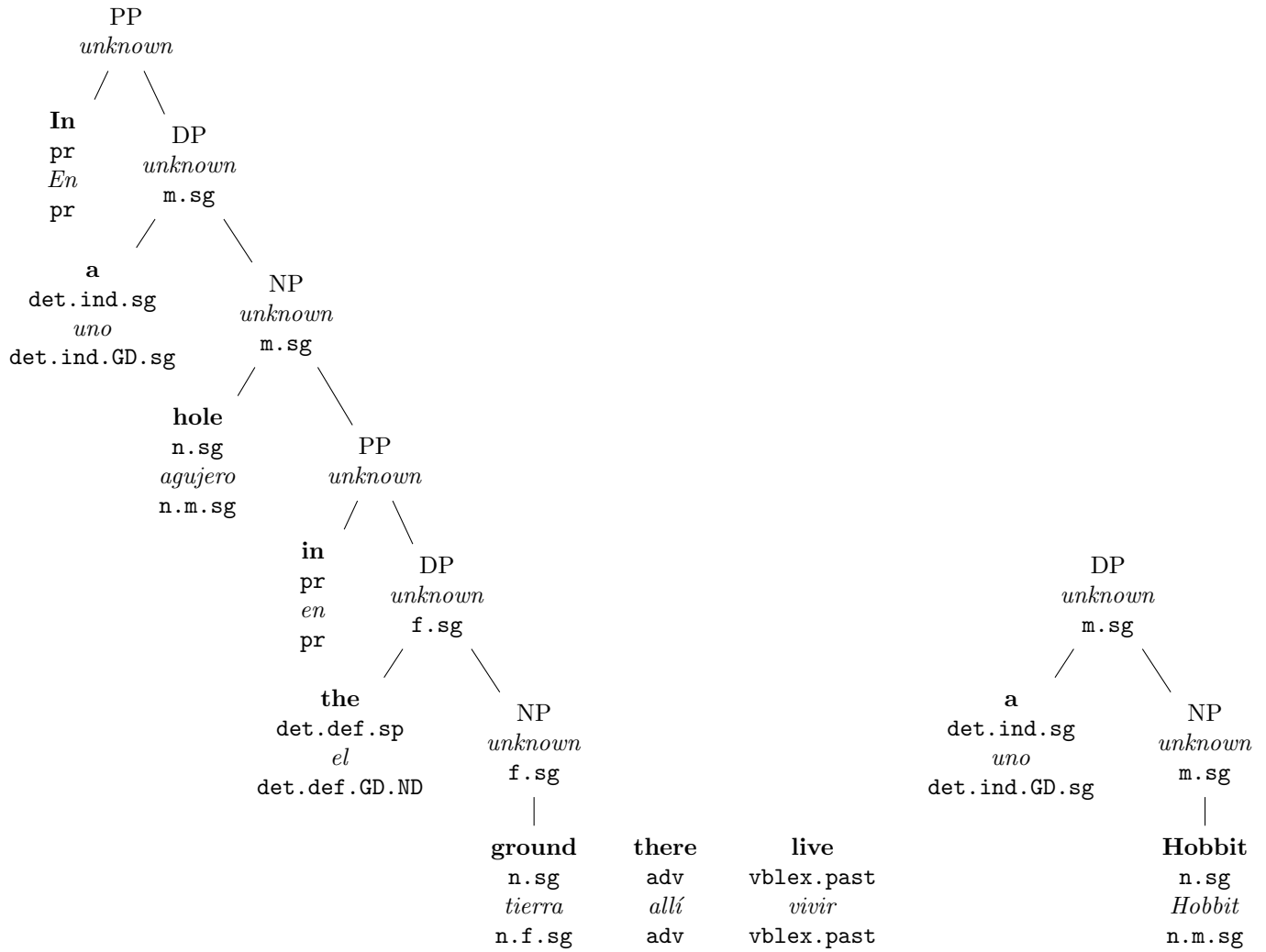
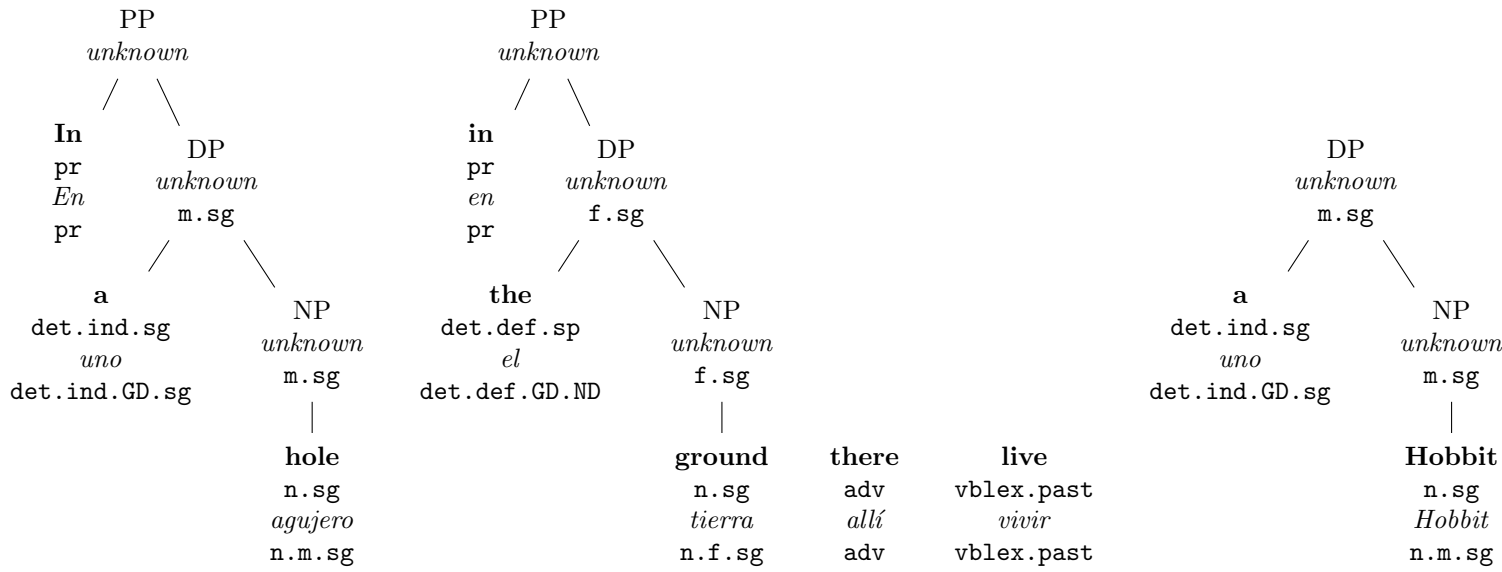


ground	there	live	a	Hobbit
n.sg	adv	vblex.past	det.ind.sg	n.sg
<i>tierra</i>	<i>allí</i>	<i>vivir</i>	<i>uno</i>	<i>Hobbit</i>
n.f.sg	adv	vblex.past	det.ind.GD.sg	n.m.sg

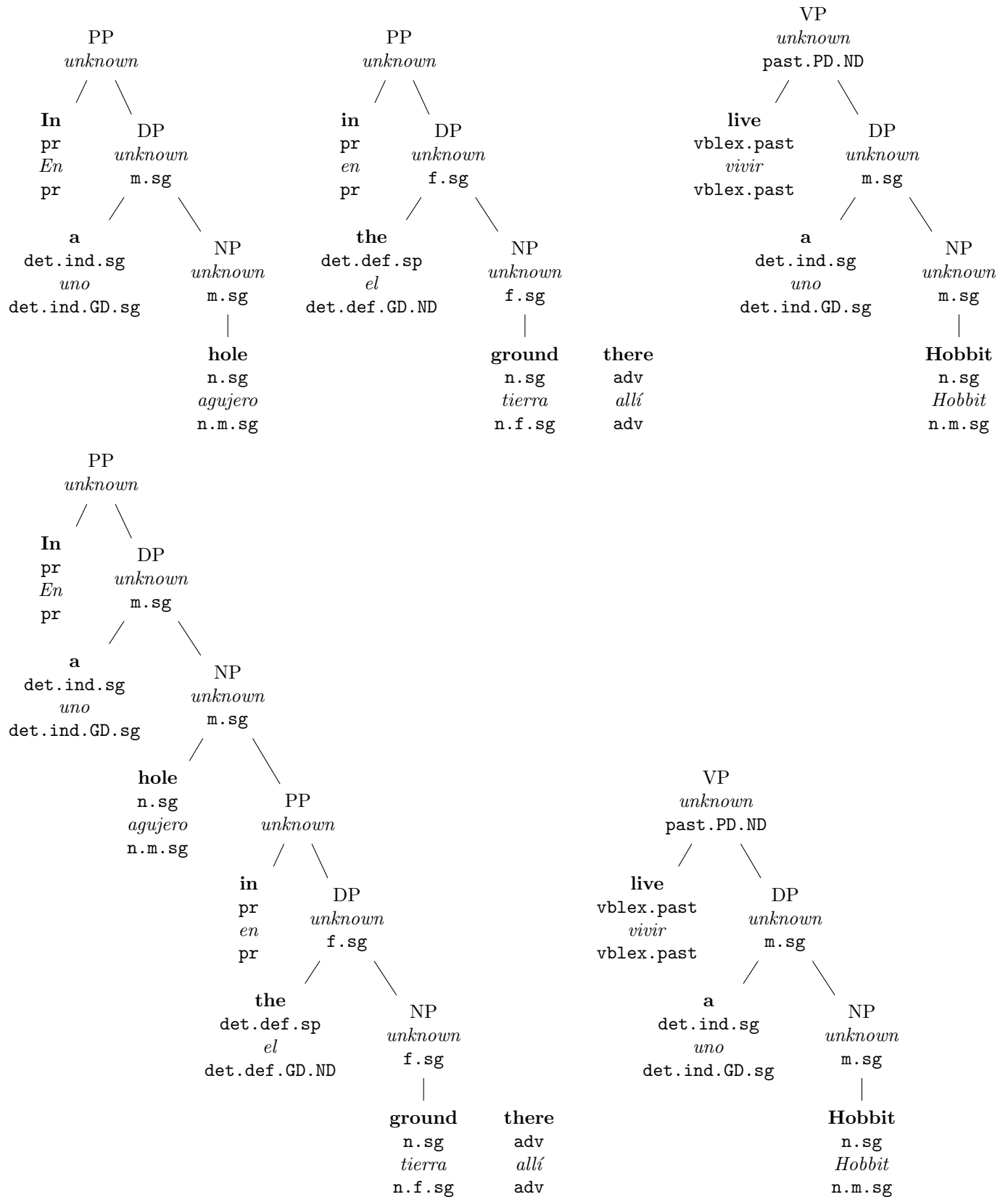
3.14 NP → n



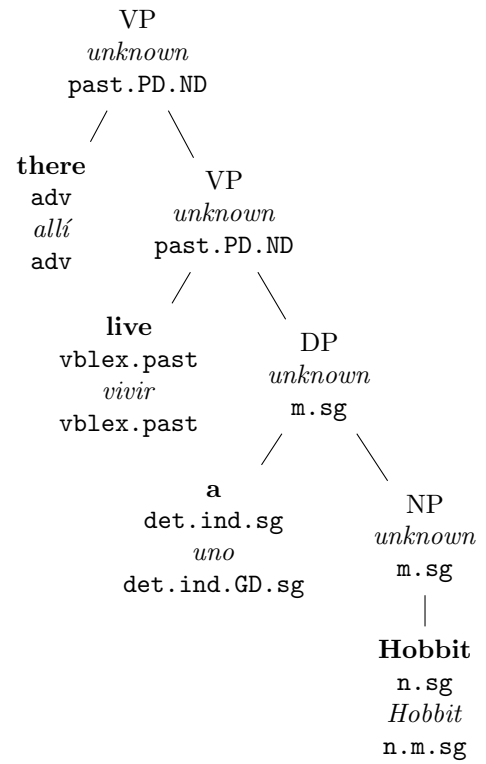
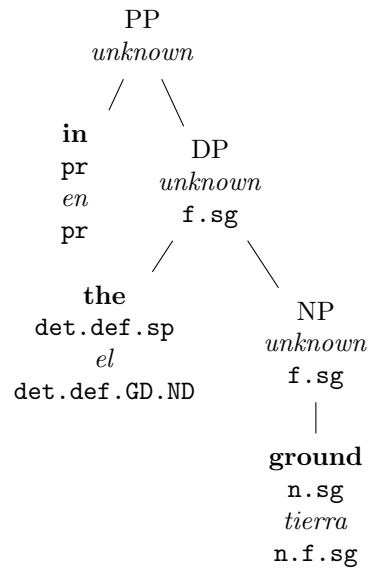
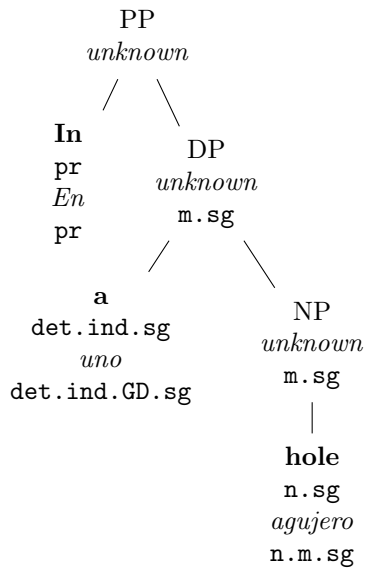
3.15 DP → det NP

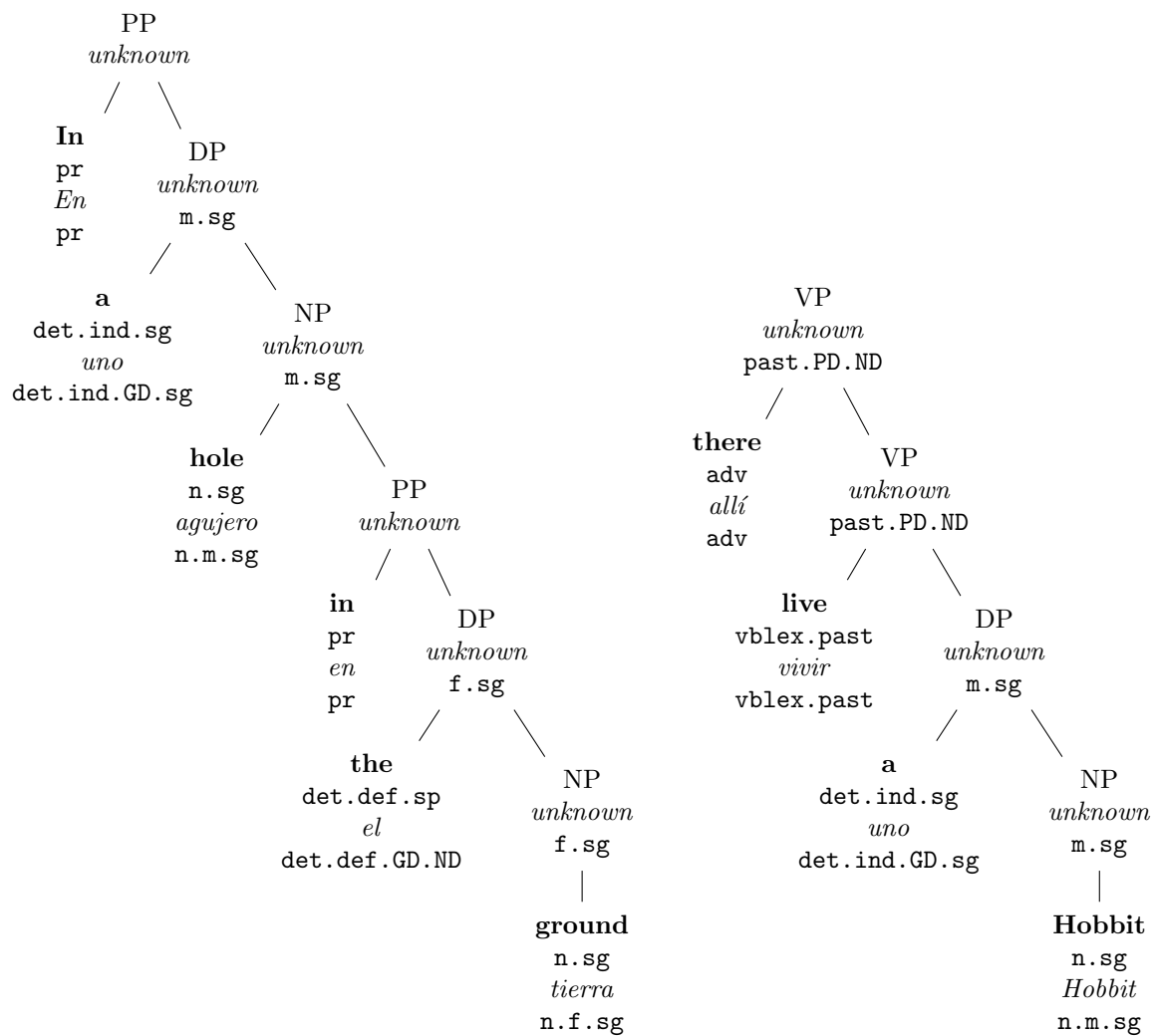


3.16 VP → vblex DP

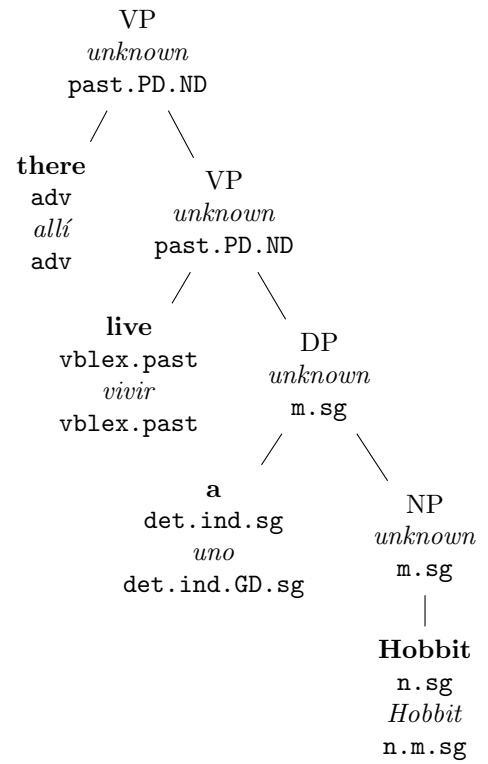
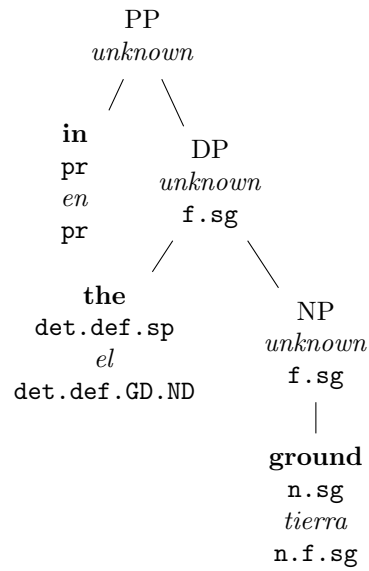
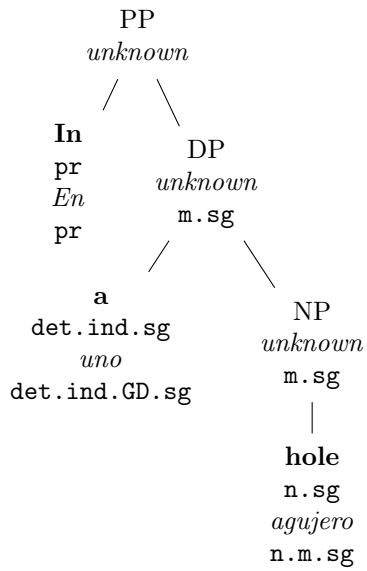


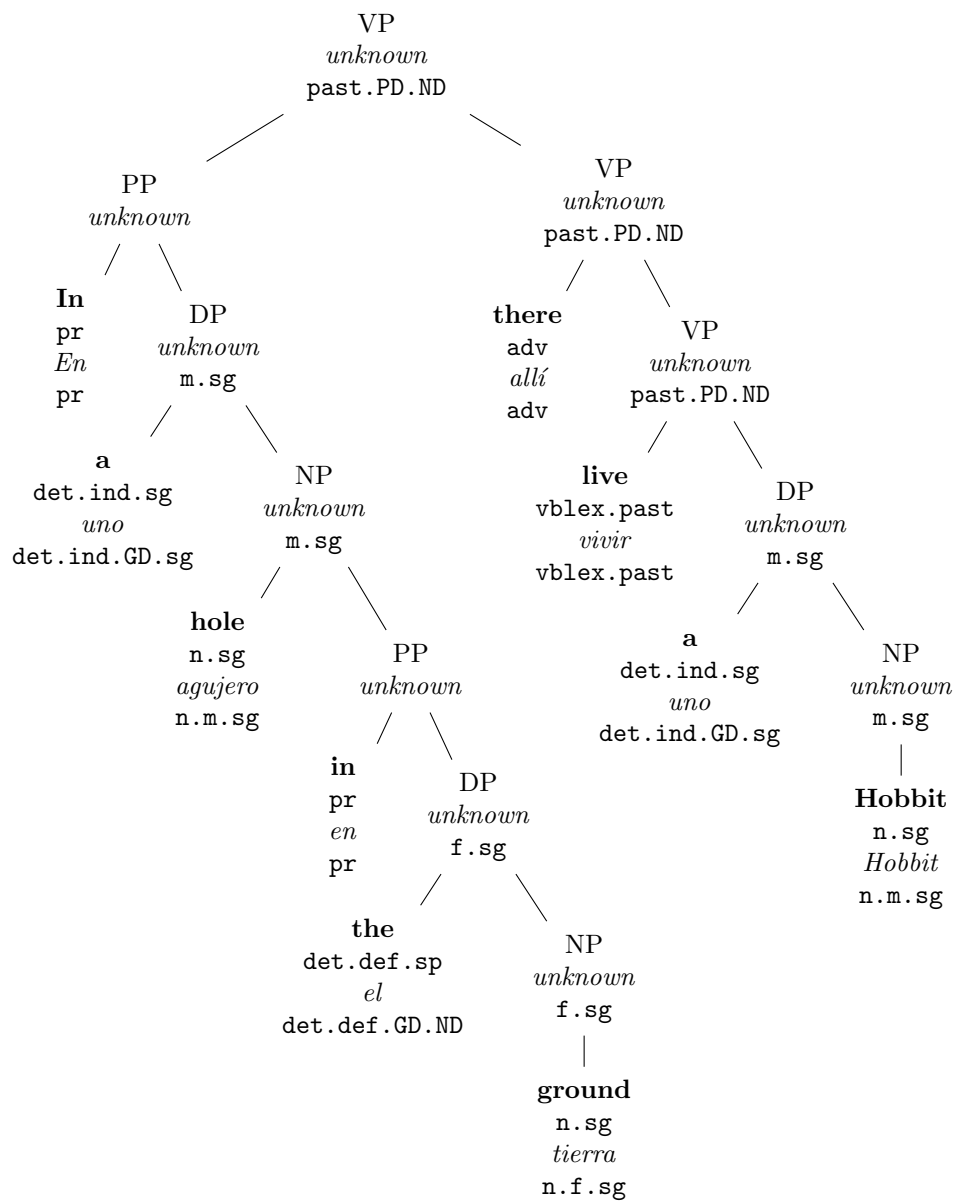
3.17 VP → adv VP



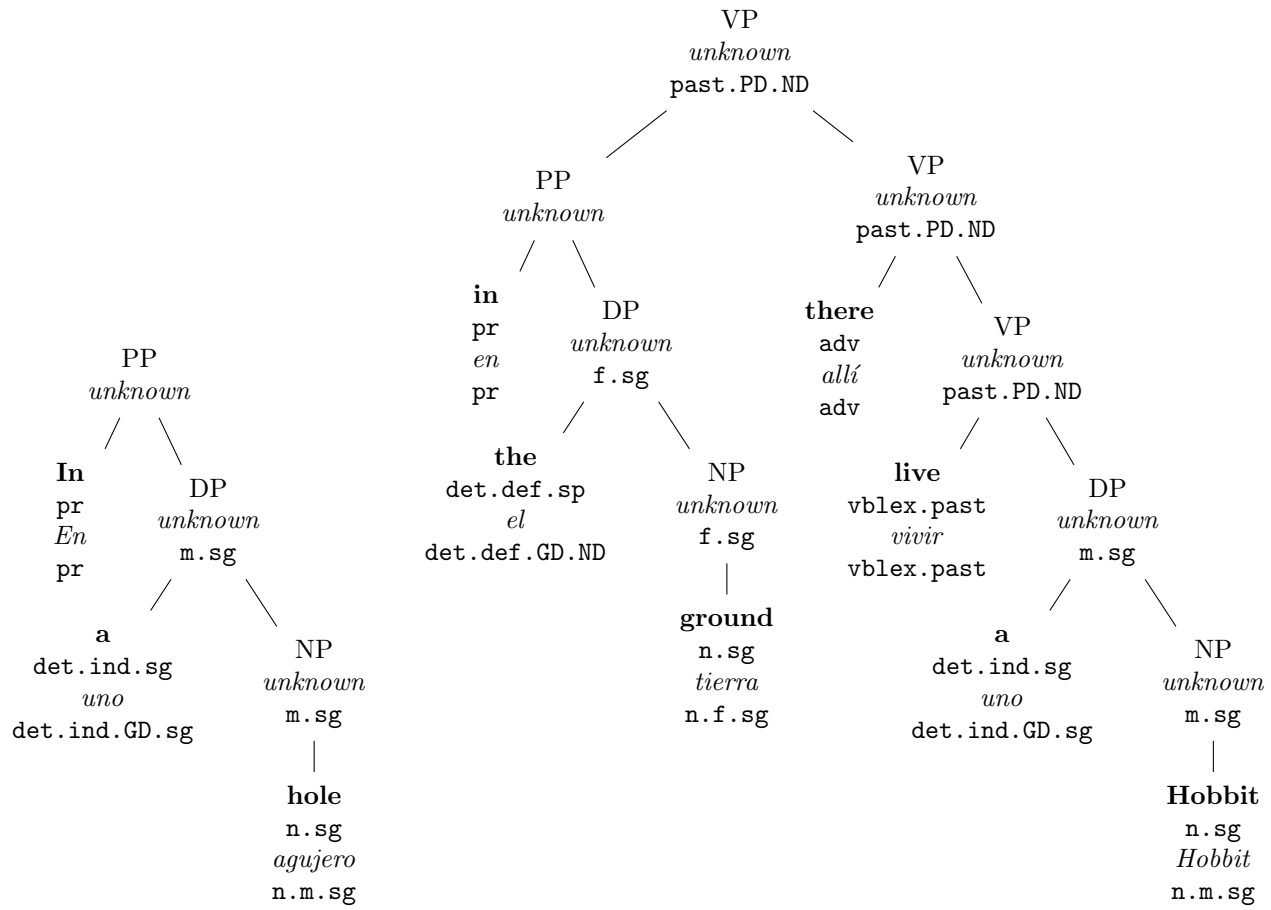


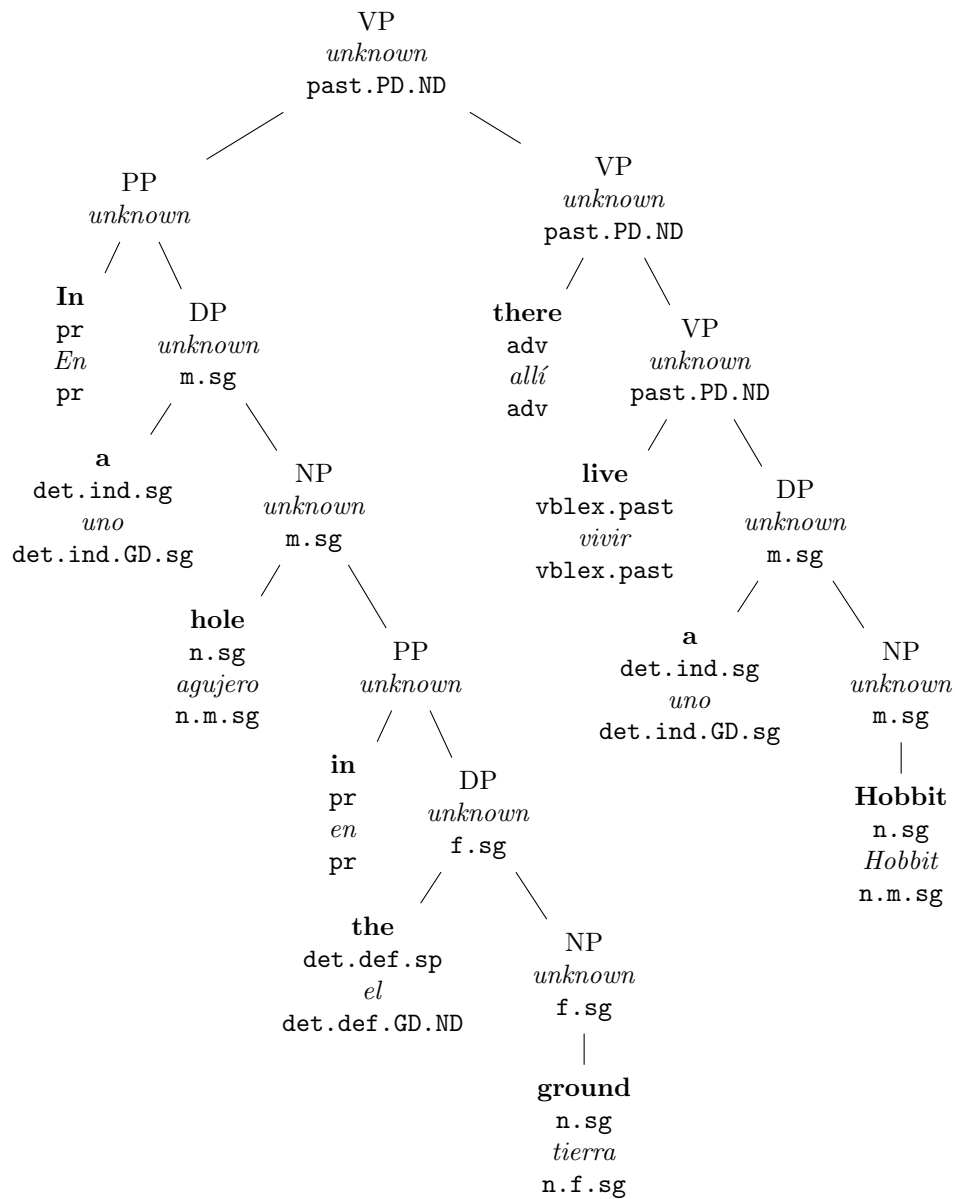
3.18 VP → PP VP



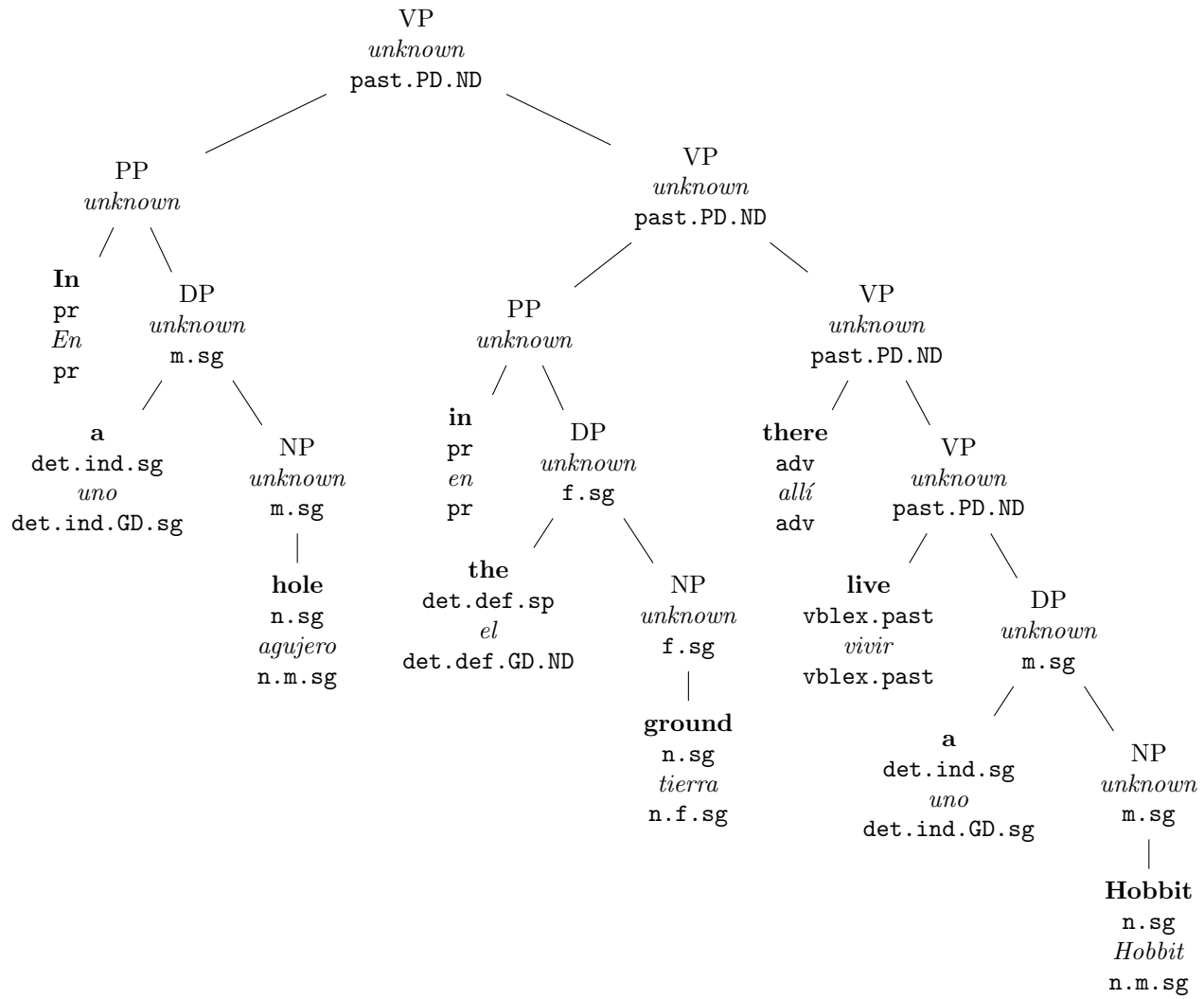


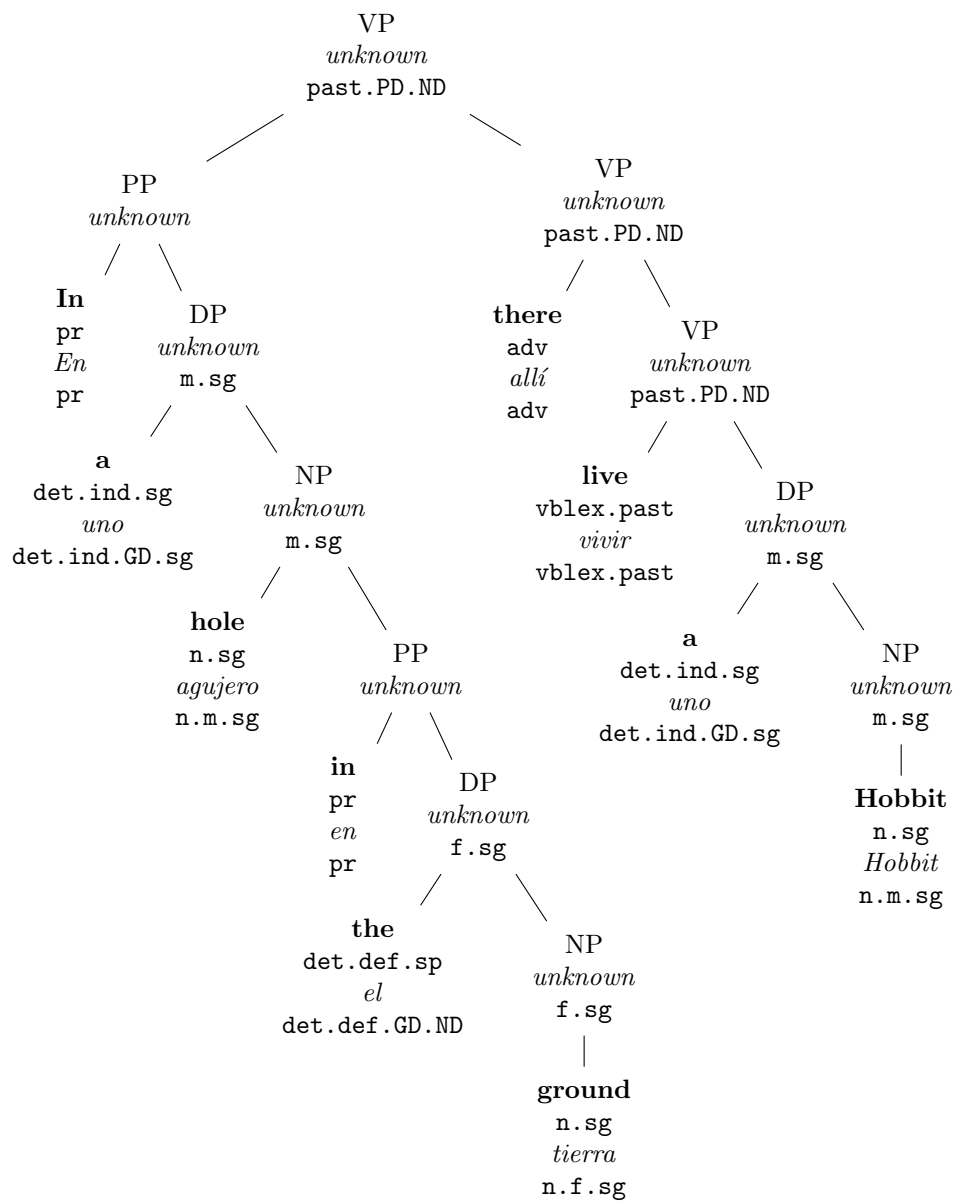
3.19 VP → PP VP



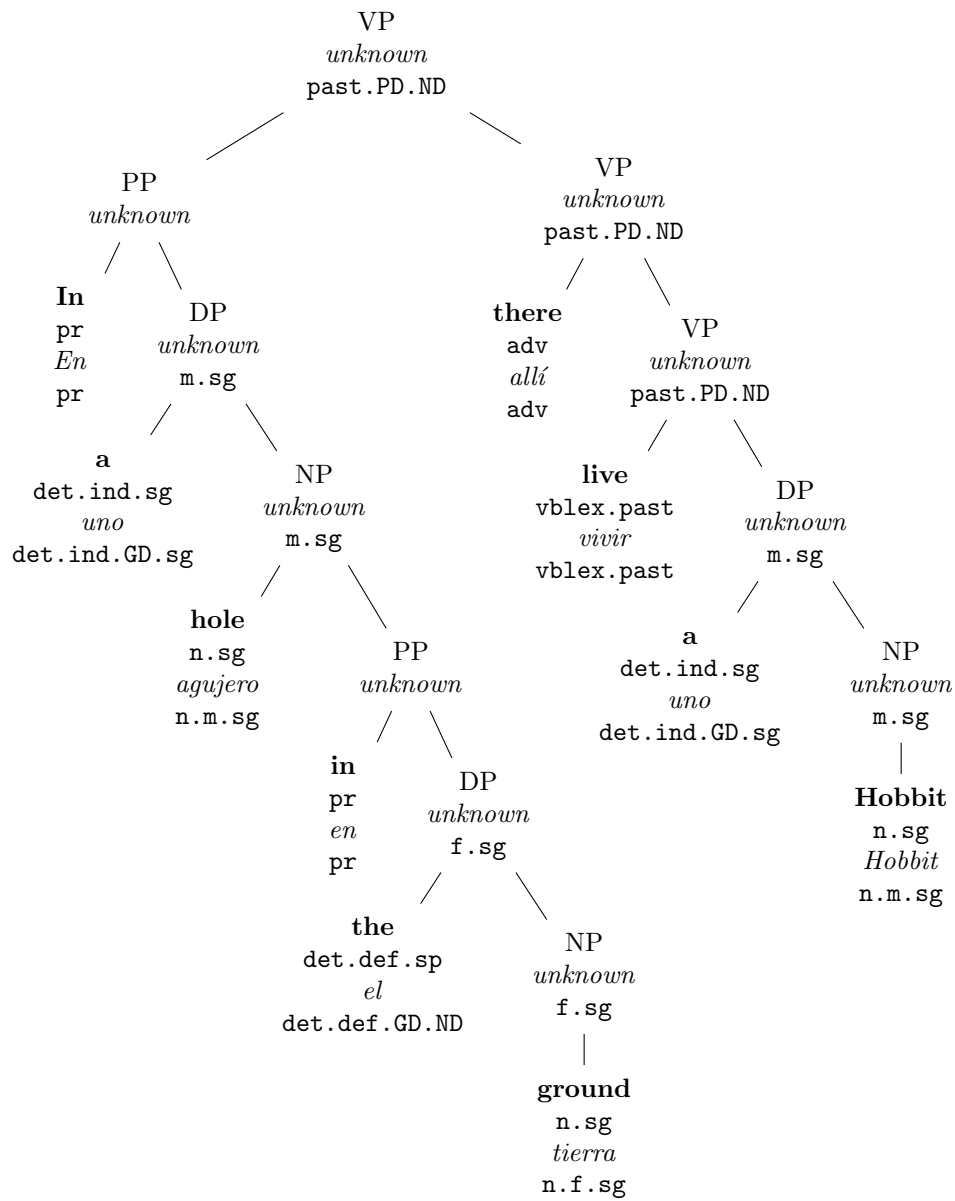


3.20 VP → PP VP



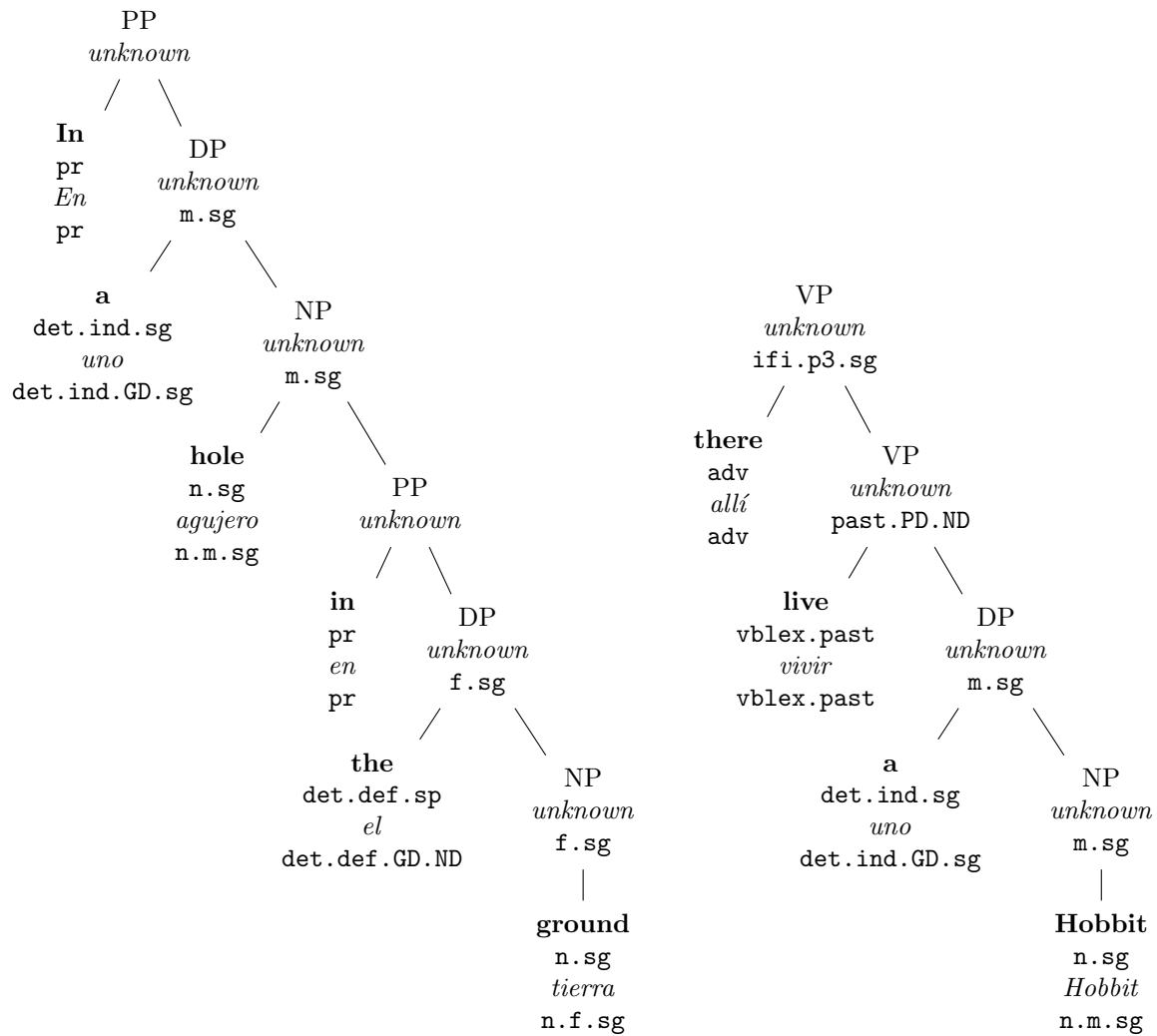


3.21 Prune Branches

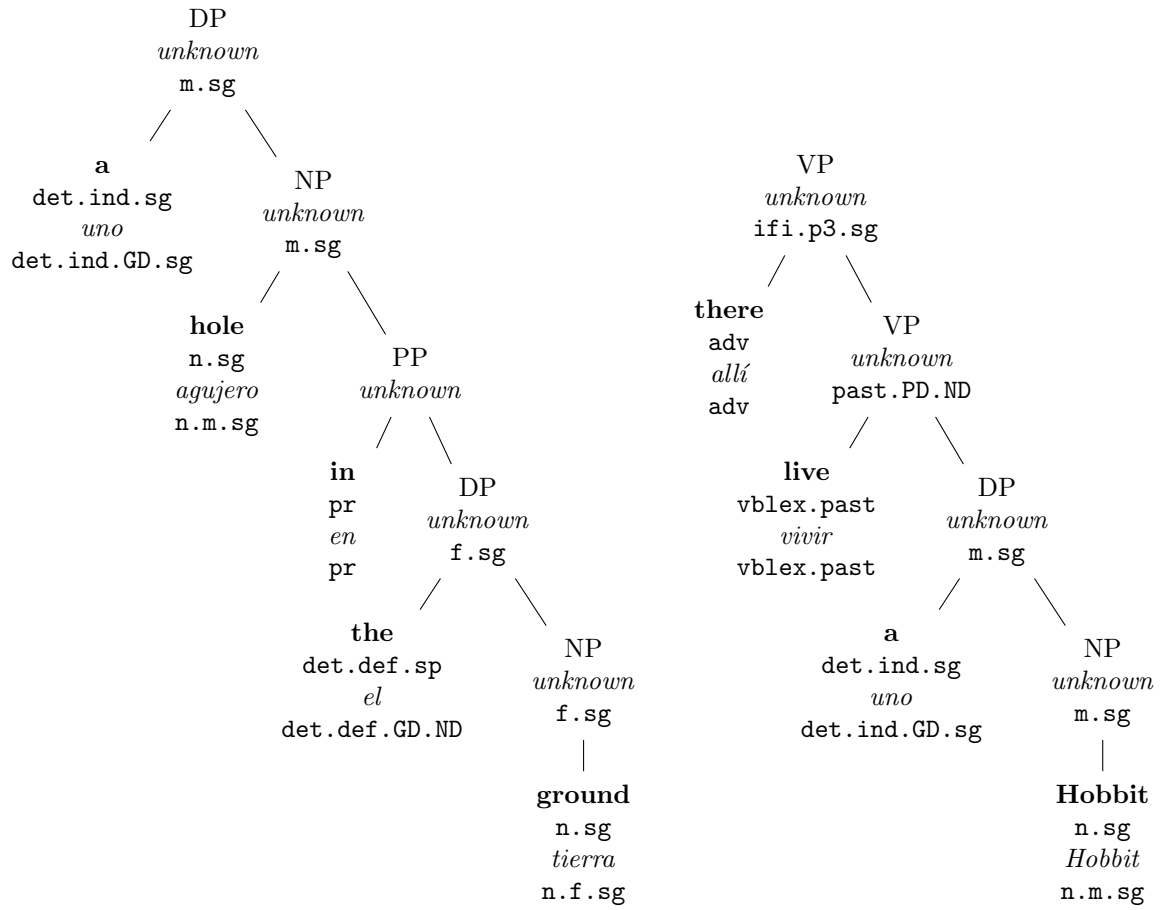


4 The Output

4.1 Output Step for VP → PP VP

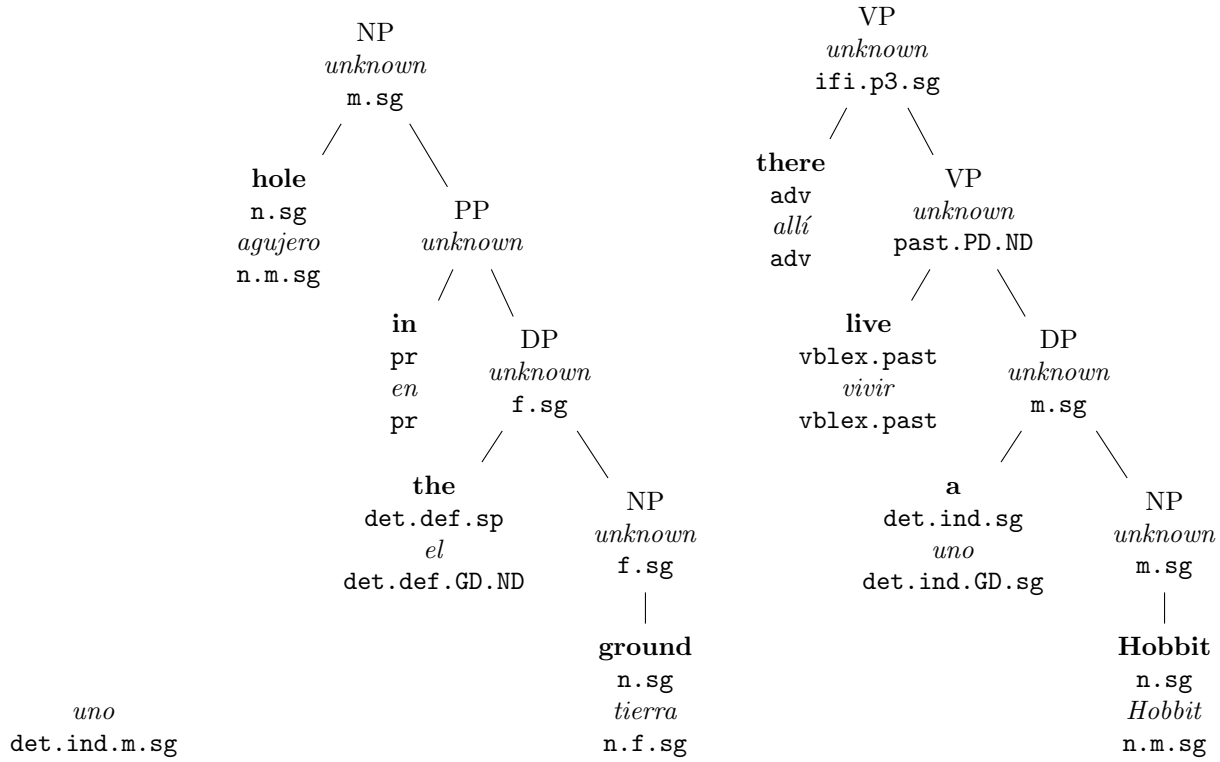


4.2 Output Step for PP → pr DP

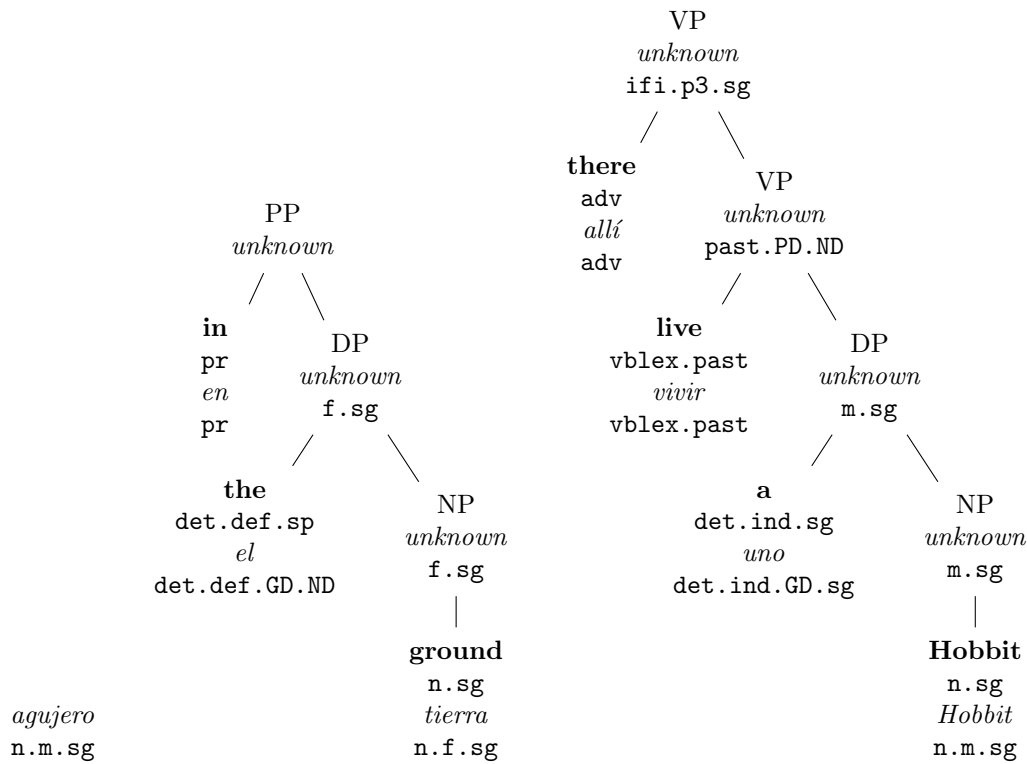


En
pr

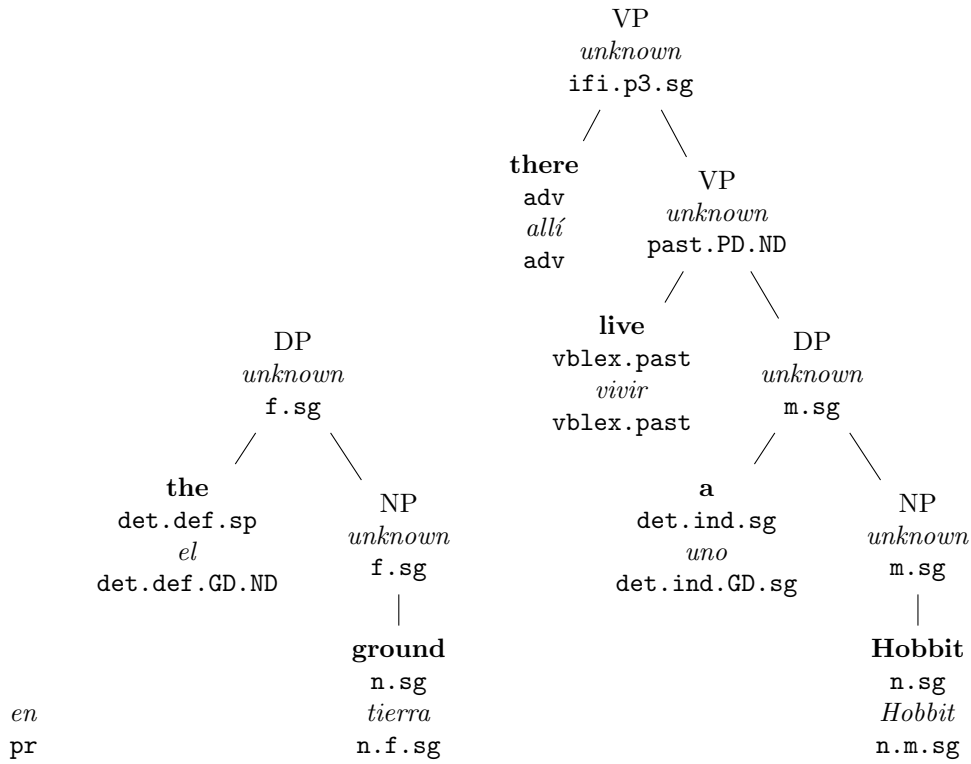
4.3 Output Step for DP → det NP



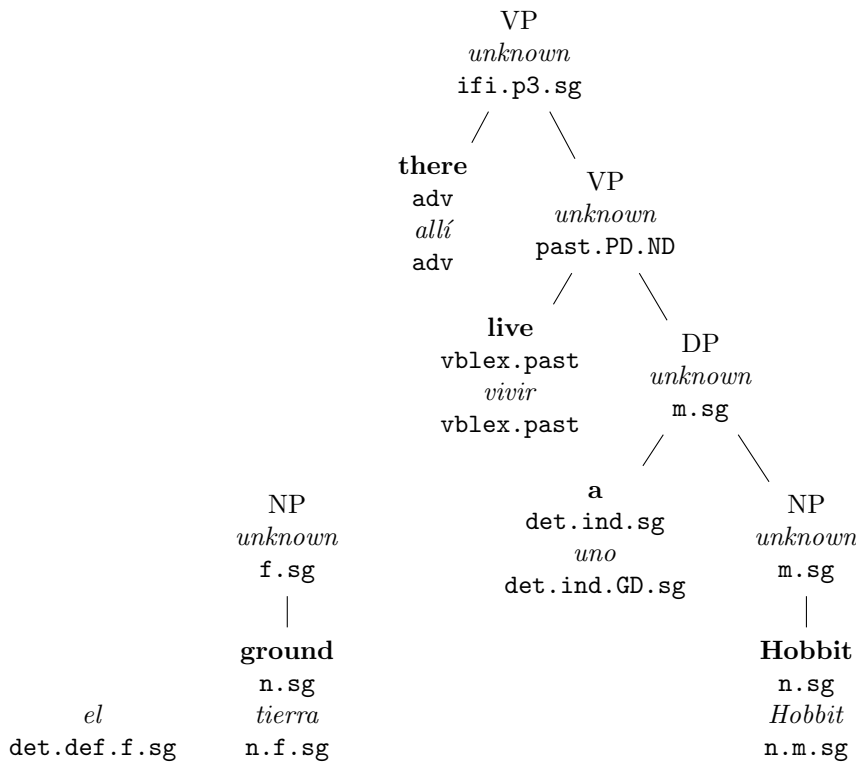
4.4 Output Step for NP → n PP



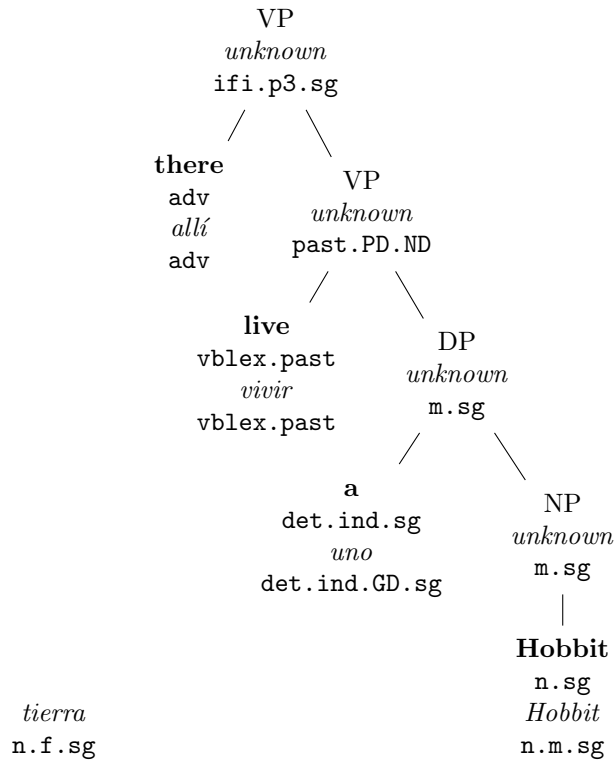
4.5 Output Step for PP → pr DP



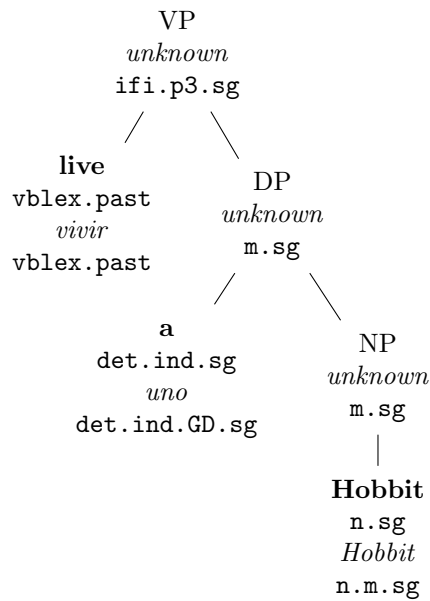
4.6 Output Step for DP → det NP



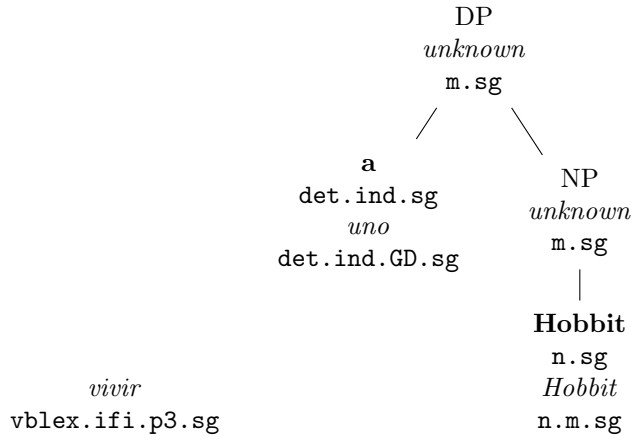
4.7 Output Step for NP → n



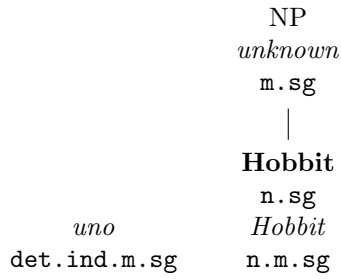
4.8 Output Step for VP → adv VP



4.9 Output Step for VP \rightarrow vblex DP



4.10 Output Step for DP \rightarrow det NP



4.11 Output Step for NP \rightarrow n

Hobbit
n.m.sg

5 The Result

The immediate result:

```
^En<pr>$ ^uno<det><ind><m><sg>$ ^agujero<n><m><sg>$ ^en<pr>$ ^el<det><def><f><sg>$ ^tierra<n><f><sg>$
^vivir<vblex><ifi><p3><sg>$ ^uno<det><ind><m><sg>$ ^Hobbit<n><m><sg>$^.<sent>$^.<sent>$
```

Final output:

En un agujero en la tierra vivió un Hobbit.