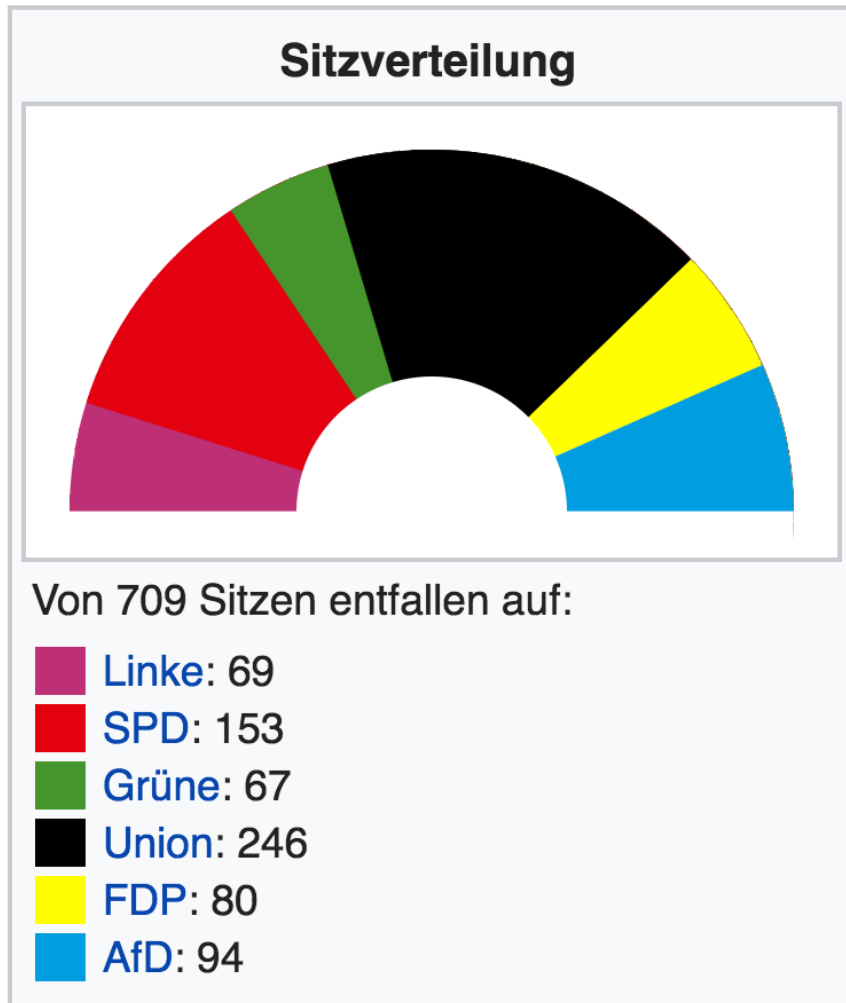


So there is only 1 possible world?



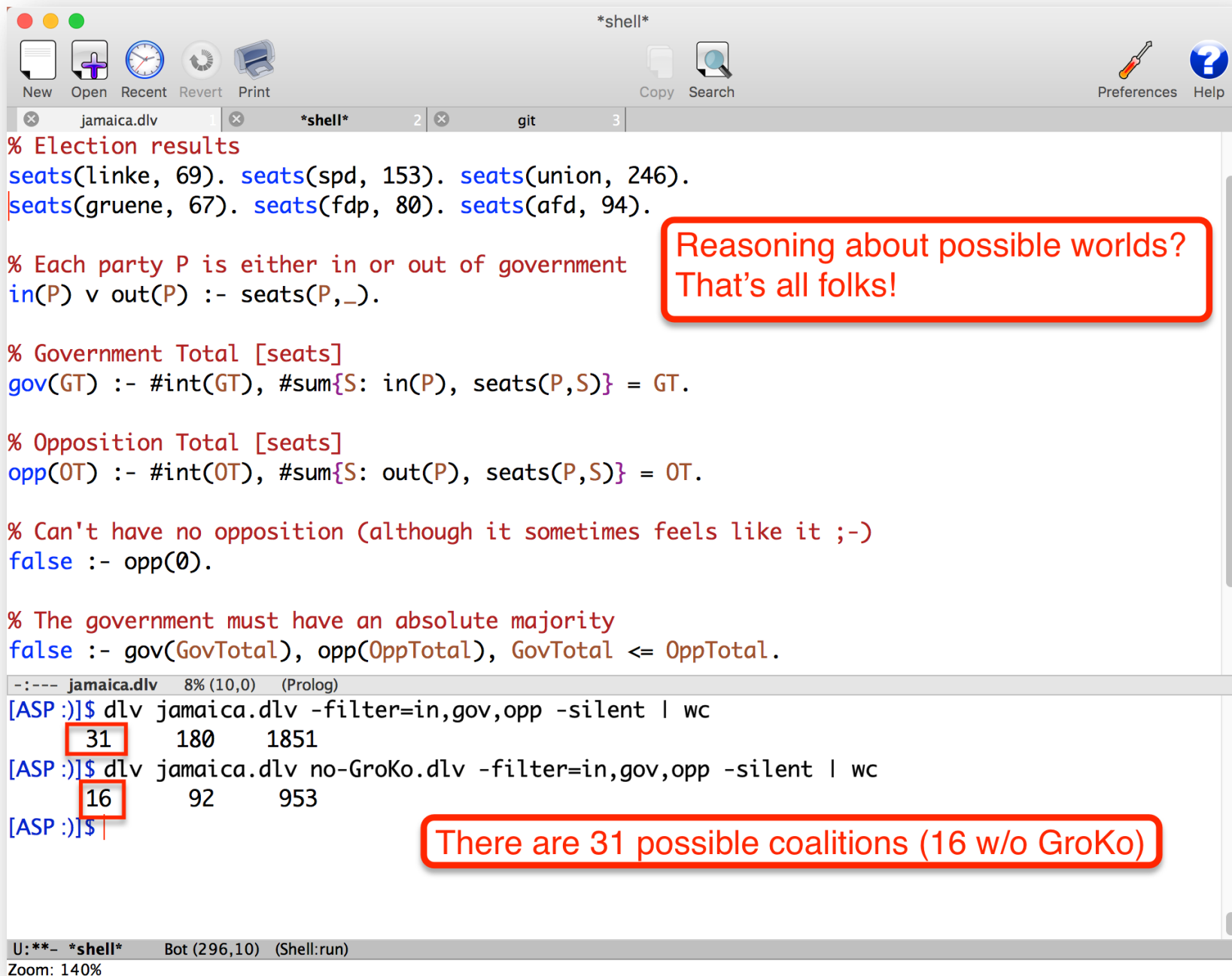
- If you believe what you hear, there **only seems to be one possible government coalition** after German parliamentary elections:

- **Jamaica!**
 - CDU + **FDP** + **Grüne**



Map data ©2017 Google

No: there are 31 possible worlds!



The screenshot shows a Prolog shell window titled '*shell*' with a menu bar (New, Open, Recent, Revert, Print, Copy, Search, Preferences, Help) and a tab bar (jamaica.dlv, *shell*, git). The main text area contains Prolog code defining election results and coalition rules. A red box highlights the text 'Reasoning about possible worlds? That's all folks!'. The bottom of the window shows the execution of two queries, with the results '31' and '16' highlighted in red boxes. A red box at the bottom right states 'There are 31 possible coalitions (16 w/o GroKo)'. The status bar at the bottom shows 'U:** *shell* Bot (296,10) (Shell:run) Zoom: 140%'.

```
% Election results
seats(linke, 69). seats(spd, 153). seats(union, 246).
seats(gruene, 67). seats(fdp, 80). seats(afd, 94).

% Each party P is either in or out of government
in(P) v out(P) :- seats(P,_).

% Government Total [seats]
gov(GT) :- #int(GT), #sum{S: in(P), seats(P,S)} = GT.

% Opposition Total [seats]
opp(OT) :- #int(OT), #sum{S: out(P), seats(P,S)} = OT.

% Can't have no opposition (although it sometimes feels like it ;-)
false :- opp(0).

% The government must have an absolute majority
false :- gov(GovTotal), opp(OppTotal), GovTotal <= OppTotal.

-:--- jamaica.dlv 8% (10,0) (Prolog)
[ASP:)]$ dlv jamaica.dlv -filter=in,gov,opp -silent | wc
31      180      1851
[ASP:)]$ dlv jamaica.dlv no-GroKo.dlv -filter=in,gov,opp -silent | wc
16       92       953
[ASP:)]$
```

Reasoning about possible worlds?
That's all folks!

There are 31 possible coalitions (16 w/o GroKo)

U:** *shell* Bot (296,10) (Shell:run)
Zoom: 140%

```
*shell*
New Open Recent Revert Print Copy Search Preferences Help

[ASP :)]$ dlv jamaica.dlv -filter=in,gov,opp -silent | wc
      31      180      1851
[ASP :)]$ dlv jamaica.dlv no-GroKo.dlv -filter=in,gov,opp -silent | wc
      16       92       953
[ASP :)]$ dlv jamaica.dlv no-GroKo.dlv -filter=in,gov,opp -silent
{in(union), in(fdp), in(afd), opp(289), gov(420)}
{in(linke), in(union), in(fdp), in(afd), opp(220), gov(489)}
{in(union), in(gruene), in(fdp), in(afd), opp(222), gov(487)}
{in(linke), in(union), in(gruene), in(fdp), in(afd), opp(153), gov(556)}
{in(union), in(gruene), in(afd), opp(302), gov(407)}
{in(linke), in(union), in(gruene), in(afd), opp(233), gov(476)}
{in(linke), in(union), in(afd), opp(300), gov(409)}
{in(union), in(gruene), in(fdp), opp(316), gov(393)}
{in(linke), in(union), in(gruene), in(fdp), opp(247), gov(402)}
{in(linke), in(union), in(fdp), opp(314), gov(395)}
{in(linke), in(union), in(gruene), opp(327), gov(382)}
{in(spd), in(gruene), in(fdp), in(afd), opp(315), gov(394)}
{in(linke), in(spd), in(gruene), in(fdp), in(afd), opp(246), gov(463)}
{in(linke), in(spd), in(fdp), in(afd), opp(313), gov(396)}
{in(linke), in(spd), in(gruene), in(afd), opp(326), gov(383)}
{in(linke), in(spd), in(gruene), in(fdp), opp(340), gov(369)}
[ASP :)]$ |
```

Jamaica + 15 other coalitions
(not counting GroKo variants!)

U:**_ *shell* Bot (313,10) (Shell:run)