September 2018 - Challenge

This month, we revisit the GDPR subject we mentioned in the December 2016 challenge.

Once again, we'd like to chose a mono-gender group, this time of only three persons.

We have 26 people, whose names start with letters A to Z (Alex, Bailey, Chris, ...) and if we choose three with the same gender - we win. If not - we pay a GDPR fine and try again.

To make it more interesting, the only teams you are allowed to test are those whose initials form a word found in the dictionary with three different letters.

Find the shortest list (hint: less than 10 words) of three-letter words that ensure you'd get a mono-gender team.

As an example, if you want to do this for teams of two, the following five words will work: (OF,RF,IR,IN,NO).

Note that there is a shorter solution for the example challenge.

A bonus '*' will be given for more solutions in other (non-English) languages.

Solution:

Hi Oded,

The seven words: **eat, son, sol, lan, sot, ton, sel** yield a mon-gender team according to the Minizinc program posted below:

%Declare 7 integer variables with ranges 1 to 10 (the range is not important)

```
var 1..10: e;
var 1..10: a;
var 1..10: t;
var 1..10: s;

var 1..10: o;
var 1..10: n;
var 1..10: l;
```

%Constrain the variables to the discrete values 3 or 7 (any pair of distinct values would work here)

```
constraint e == 3 \/ e ==7; %  \/ means logical or
constraint a == 3 \/ a ==7;
constraint t == 3 \/ t ==7;
constraint s == 3 \/ s ==7;
constraint o == 3 \/ o ==7;
constraint n == 3 \/ n ==7;
constraint l == 3 \/ l ==7;
```

%The four rope pulling contests

```
constraint e+a+t== s+o+n;
constraint e+a+t== s+o+l;
constraint l+a+n== s+o+t;
constraint t+o+n== s+e+l;

solve satisfy;

%Output either is all 3s or 7s, which implies a mono-gender team.
==========
Finished in 546msec
Compiling Sept IBM.mzn
Running Sept IBM.mzn
e = 3;
a = 3;
t = 3;
s = 3;
o = 3;
n = 3;
l = 3;
----------
e = 7;
a = 7;
t = 7;
s = 7;
o = 7;
n = 7;
l = 7;
----------
==========
Finished in 564msec
```

Thanks for considering.

Charles Joscelyne