Statistical Consulting @LiRI

Research Question

How many COVID-19 symptoms could Swiss students list spontaneously in June 2020 and 2021?

Model

```r
model <- glmer(number ~ year + faculty + language + year:faculty + year:language + (1|university) + (1|postcode) , data=symptoms, family=poisson)
```

Model Output

Random effects:

<table>
<thead>
<tr>
<th>Groups</th>
<th>Name</th>
<th>Variance</th>
<th>Std.Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>postcode</td>
<td>(Intercept)</td>
<td>0.001868</td>
<td>0.04322</td>
</tr>
<tr>
<td>university</td>
<td>(Intercept)</td>
<td>0.000000</td>
<td>0.00000</td>
</tr>
</tbody>
</table>

Number of obs: 2200, groups: postcode, 220; university, 11

Fixed effects:

|                     | Estimate | Std. Error | z value | Pr(>|z|) |
|---------------------|----------|------------|---------|----------|
| (Intercept)         | 0.53013  | 0.03913    | 13.548  | < 2e-16 *** |
| year2021            | 1.00387  | 0.04798    | 20.922  | < 2e-16 *** |
| facultyscience      | 0.05600  | 0.04086    | 1.371   | 0.1705   |
| facultymedicine     | 0.26622  | 0.03951    | 6.738   | 1.6e-11 *** |
| languageF            | 0.95334  | 0.04170    | 22.864  | < 2e-16 *** |
| languageI            | 1.17848  | 0.04408    | 26.733  | < 2e-16 *** |
| year2021:facultyscience | -0.10224 | 0.05292    | -1.932  | 0.0534 . |
| year2021:facultymedicine | -0.11173 | 0.05051    | -2.212  | 0.0270 *  |
| year2021:languageF   | -0.80092 | 0.05294    | -15.128 | < 2e-16 *** |
| year2021:languageI   | -0.92656 | 0.05791    | -16.000 | < 2e-16 *** |

AIC      BIC    logLik   deviance   df.resid
9214.5   9282.9  -4595.3     9190.5     2188

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Figure

June 2020

June 2021

Question 1

What distribution of the response variable does the model assume and what type of data is it typically used for?

Question 2

What is the name of the blue shaded terms and what do they measure?

Question 3

Why are the yellow shaded terms written in a different way?

Question 4

What link function does the model use and why is it needed?

Question 5

Were arts students from the Italian speaking part able to list more symptoms than from the German speaking part in 2020?

Question 6

What exactly do the green shaded numbers represent?

Question 7

What can we learn from the two orange shaded numbers?

Question 8

How would you calculate the size of the blue arrow?

So, do I need statistical support?

I am lost / only managed to answer 0-2 questions

Contact us: langstats@linguistik.uzh.ch

I have some idea / I answered 3-6 questions

Well done, maybe contact us to discuss or double check your analysis

This is pretty easy / I answered 7-8 questions

Stats wizard, you don't need our help