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Muslim teachers' conceptions of evolution in several countries

Pierre Clément

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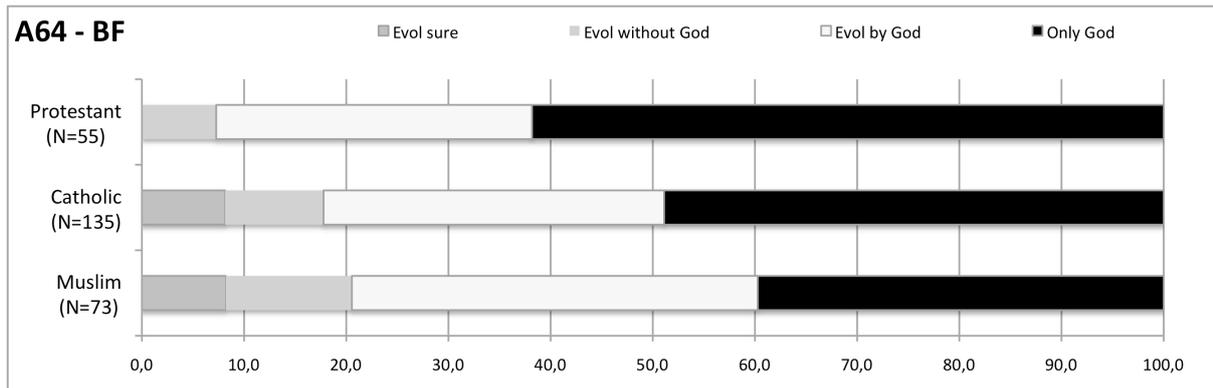
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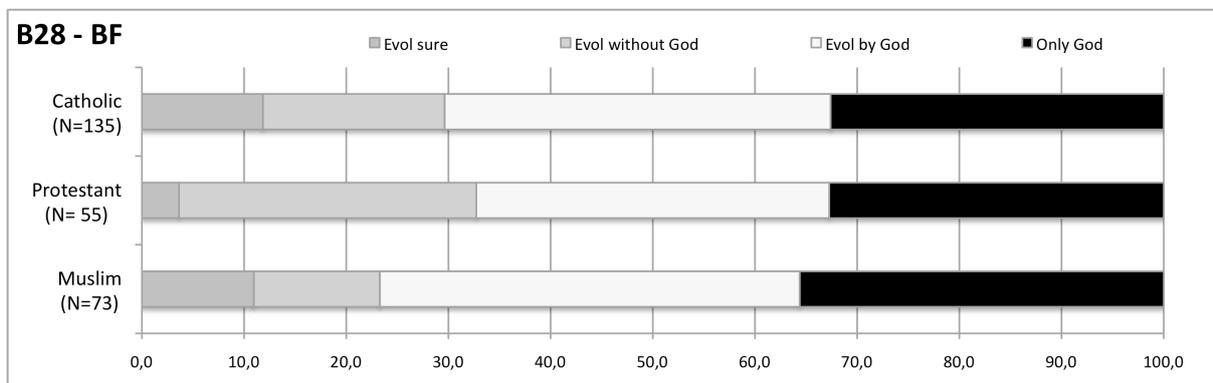
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Muslim teachers' conceptions of evolution in several countries

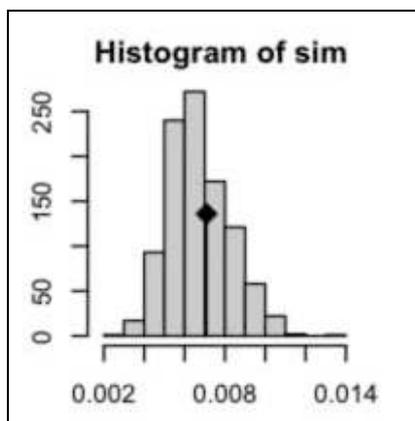
Pre-Print of APPENDIX (A1 → A14)



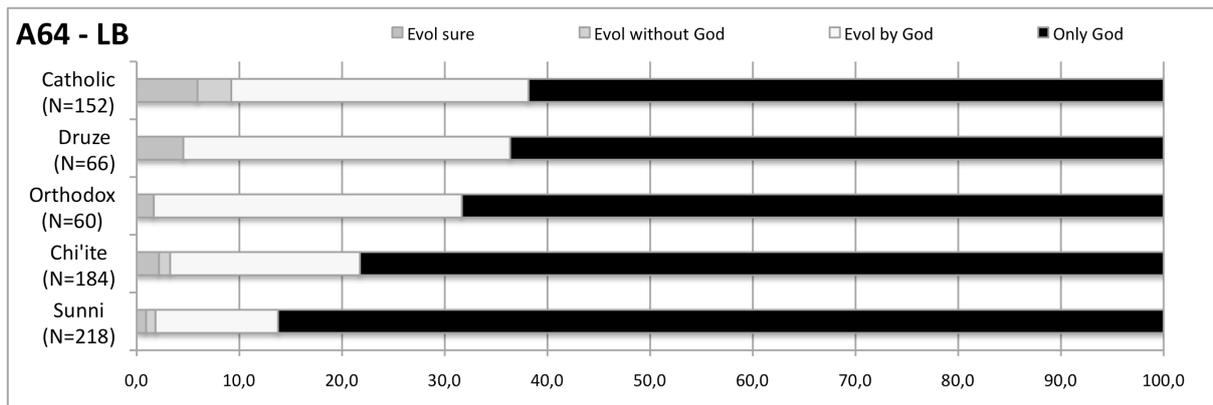
Appendix A1. Burkina Faso: Teachers' answers (grouped by religion) to the question A64 (the origin of life): in grey, evolutionist answers; in white: evolutionist and creationist answers; in black: more radical creationist answers.



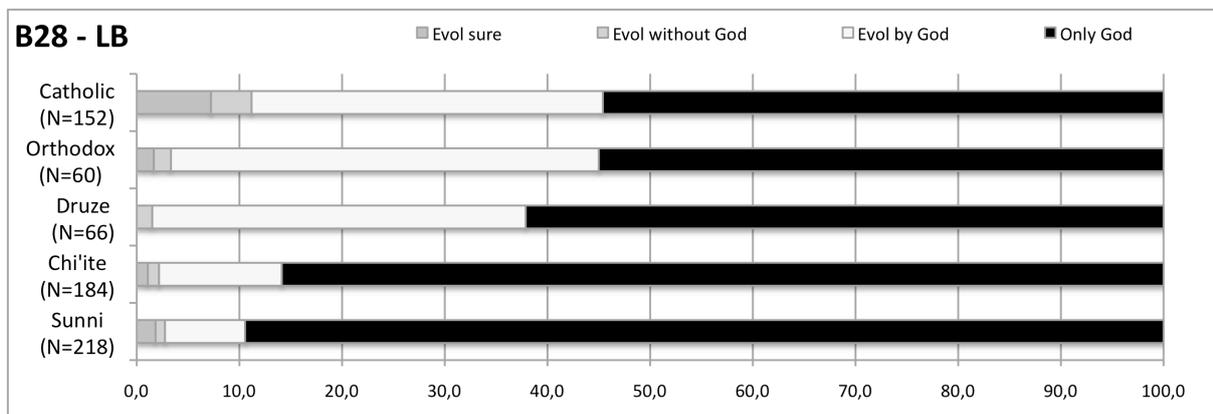
Appendix A2. Burkina Faso: Teachers' answers (grouped by religion) to the question B28 (the origin of humankind): in grey, evolutionist answers; in white: evolutionist and creationist answers; in black: more radical creationist answers..



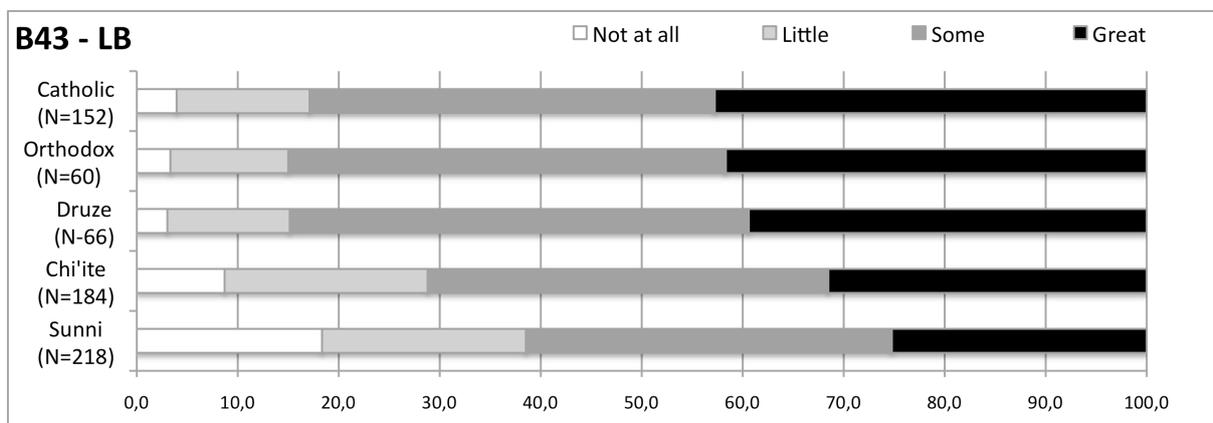
Appendix A3. Cameroon: after a between-class analysis trying to differentiate the four groups of different religions, the randomization text (Monte Carlo) assigns a new religion to each individual at random and the variance is calculated between these new groups formed. The operation is repeated 1000 times and all the calculated variances are shown by the Bar plot. The vertical black trait is the variance of our sample: it is in the middle of the histogram, showing that it could result from random: there is no difference between the four groups of teachers.



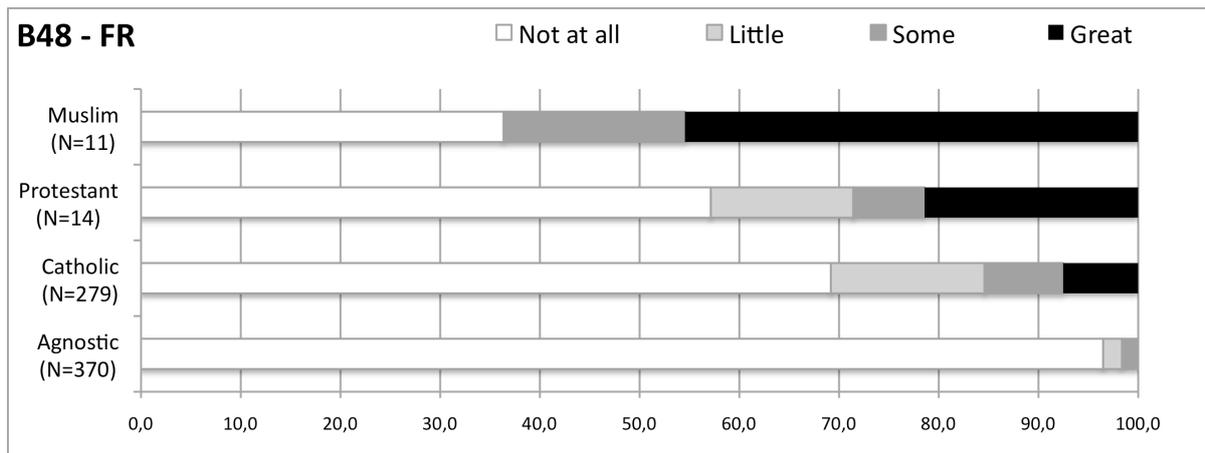
Appendix A4. Lebanon: Teachers' answers (grouped by religion) to the question A64 (the origin of life): in grey, evolutionist answers; in white: evolutionist and creationist answers; in black: more radical creationist answers.



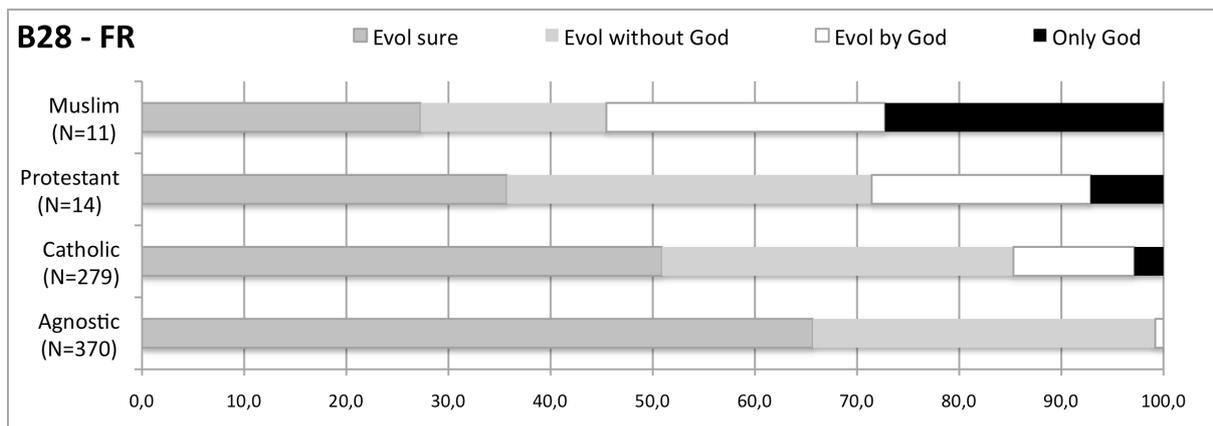
Appendix A5. Lebanon: Teachers' answers (grouped by religion) to the question B28 (the origin of humankind): in grey, evolutionist answers; in white: evolutionist and creationist answers; in black: more radical creationist answers.



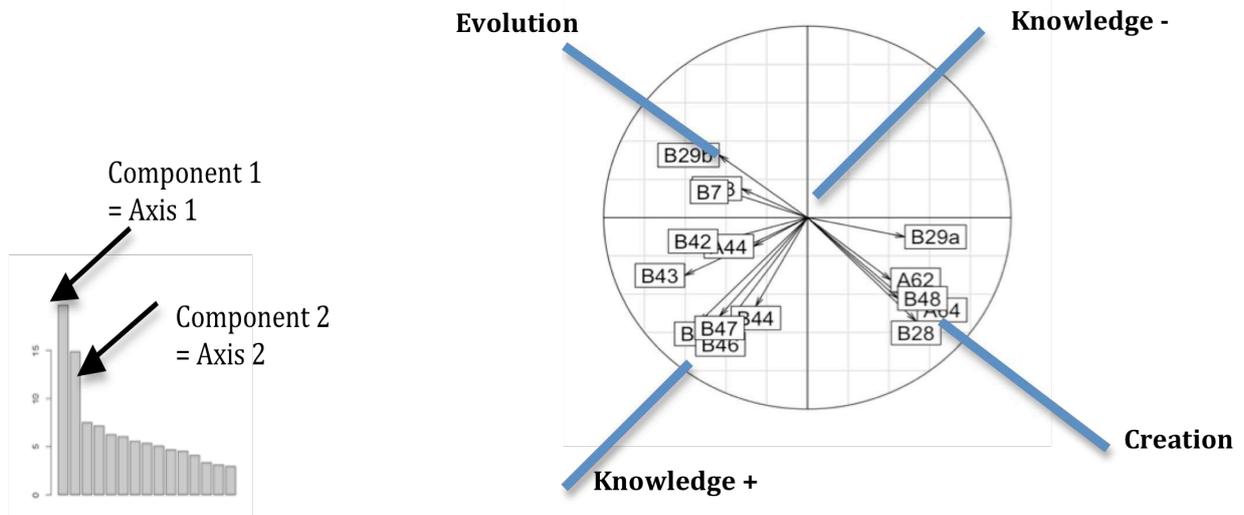
Appendix A6. Lebanon: Teachers' answers (grouped by religion) to the question B43 (Importance of Natural Selection in Species Evolution): in white, no importance at all; in grey: little or some importance; in black: great importance.



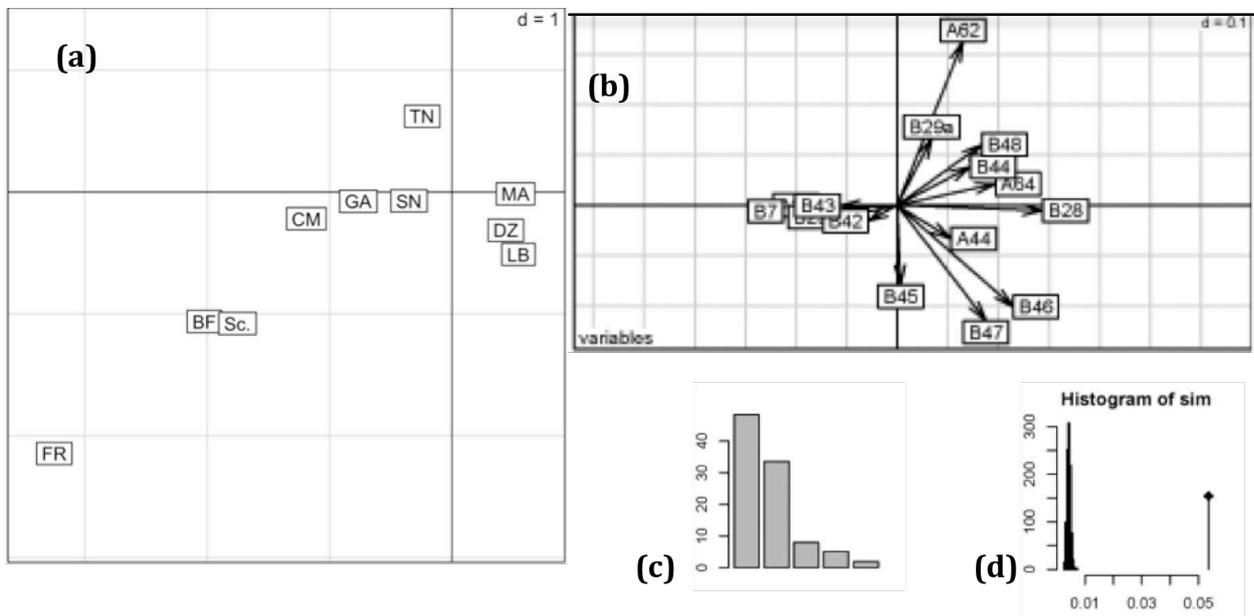
Appendix A7. France: Teachers' answers (grouped by religion) to the question B48 (importance of God in the evolution of species): in white: no importance at all; in grey: little or some importance; in black: great importance.



Appendix A8. France: Teachers' answers (grouped by religion) to the question B28 (the origin of humankind): in grey, evolutionist answers; in white: evolutionist and creationist answers; in black: more radical creationist answers.



Appendix A9. Principal Component Analysis (PCA) on responses from 2130 in-service and pre-service Muslim teachers and the 15 variables on evolution. **(On the left)** The histogram of the proportion of variance for each component: only the first two are informative (horizontal axis 1=20% and vertical axis 2=15% of the total variance). **(On the right)** The correlation circle shows that differences between the teachers' conceptions come from two independent axes: one opposing creationist versus more evolutionist conceptions; and, independently, one opposing more or less knowledge of the processes of evolution: see the text for more details.

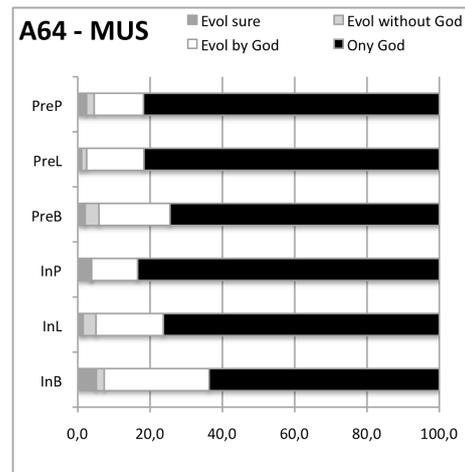
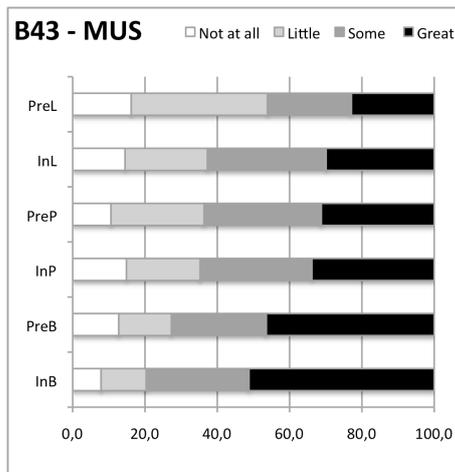


Appendix A10. Between-class analysis differentiating the countries of the 2 130 Muslim teachers.

(a) The different countries are clearly separated by the two first axes. FR=France, Sc=Scandinavia, BF=Burkina Faso, CM=Cameroon, GA=Gabon, SN=Senegal, TN=Tunisia, DZ=Algeria, MA=Morocco, LB=Lebanon.

(b) The variables which define the meaning of the two first axes (on the left = more evolutionist; lower part = more knowledge of processes of species evolution). **(c)** The histogram of the proportion of variance for each component: the first two are informative (respectively 50% and 35% of the total variance). **(d)** The

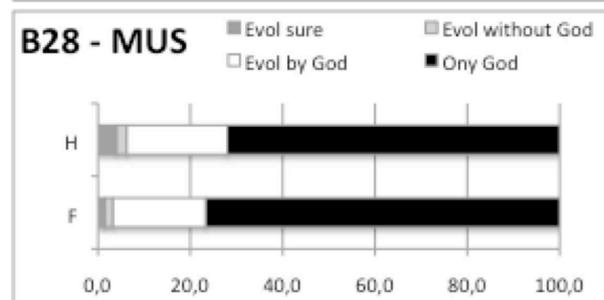
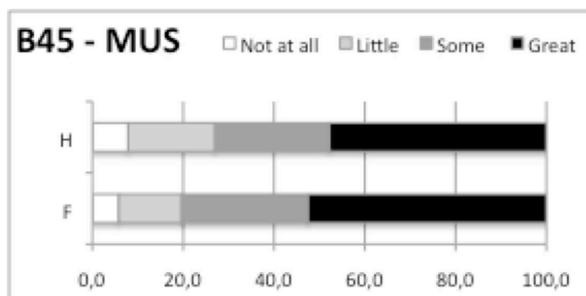
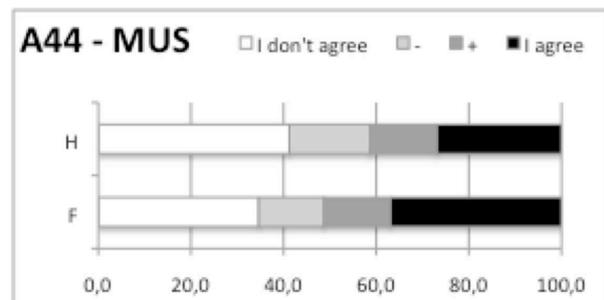
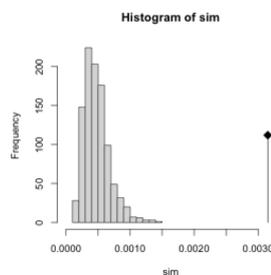
randomization test (Monte Carlo) shows that the differences are clearly significant ($p < 0.001$): the observed variance is outside (at right) the histogram of values obtained by randomization.



Appendix A11. Muslim teachers: Teachers' answers (grouped by controlled samples) to the questions: B43 (importance of natural selection in species evolution), and A64 (origin of life). PreB & InB = pre-service and in-service biology teachers, PreL & InL = pre-service and in-service language teachers, PreP & InP = pre-service and in-service primary school teachers

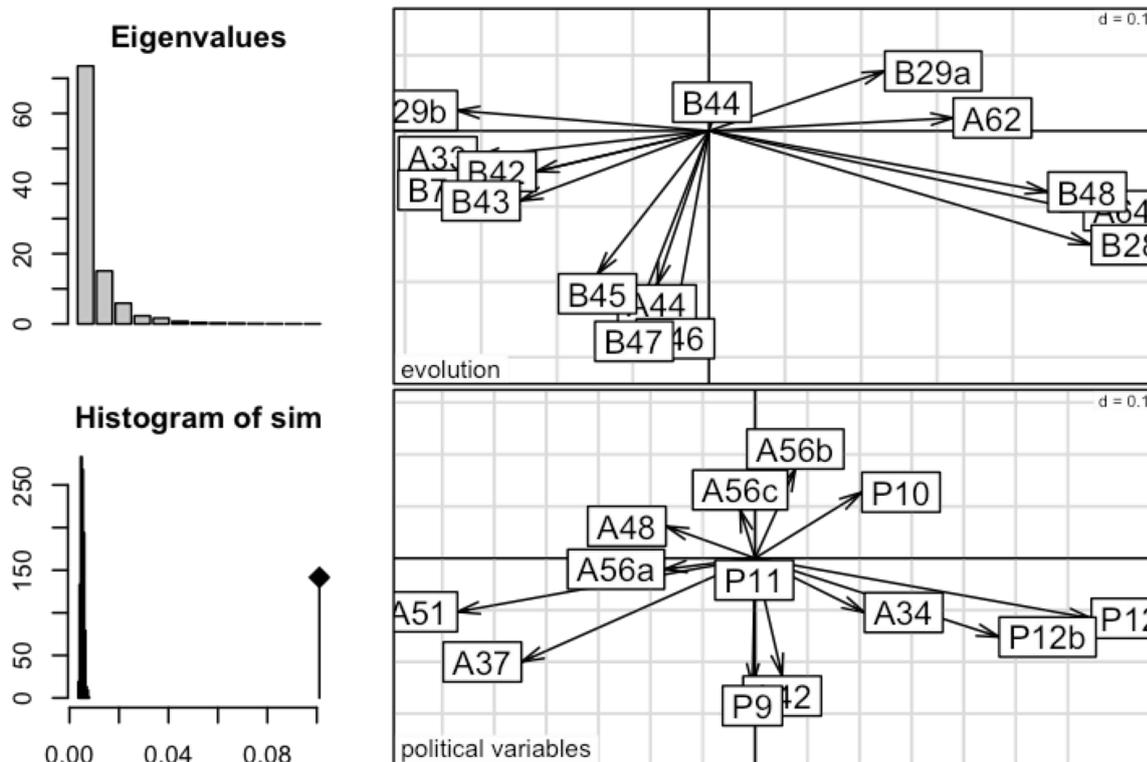
Appendix A12. The sampling of the interviewed male and female Muslim teachers

	Burkina Faso	Came-roon	Algeria	France	Gabon	Lebanon	Morocco	Scandi-navia	Senegal	Tunisia	Total
	BF	CM	DZ	FR	GA	LB	MA	Sc	SN	TN	
Female	15	9	145	10	0	386	183	10	80	429	1267
Male	58	9	60	1	8	83	138	3	209	294	863



Appendix A13. Gender effect – The histogram of sim shows that the observed variance is clearly out of the histogram coming from 1000 essays by random, from the data of a between-class analysis after suppressing all the significant effects described in the precedent paragraphs. Answering to the **question A44**, the female teachers (F) more agree that the emergence of *Homo sapiens* was the aim of the evolution. (H = Male teachers). **Question**

B45: Female teachers (F) more know than their male colleagues (H) the importance of surrounding environment in species evolution. **Question B28:** their answers (F) are a little more creationist than those of male teachers (H).



Appendix A14. Muslim teachers: Co-inertia analysis between the PCA from the variables “evolution” and the PCA from the variables “personal opinion (political and religious)”. The histogram of sim shows that the correlation between the two PCA is very significant ($p < 0.001$). The graph of “Eigenvalues” shows that the first component (horizontal axis of the two graphs at right) is the most informative. The two graphs on the right show that the horizontal axis is structured by the creationist answers to the questions B28, A64 and B48, correlated to a high degree of belief in God (P12a) and practicing religion (P12b) and against the separation between science and religion (A37), or between politics and religion (A37).