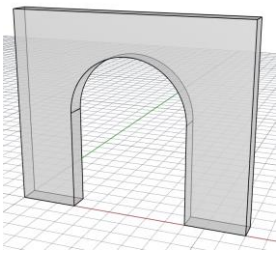
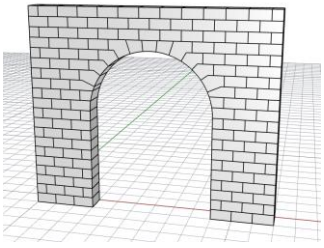
FAUL | 2018/2019 | MGG | 1º semestre

Teacher: Luís Mateus

Week 10 29/Nov – F & G 30/Nov – E & PL	• Introduction to Grasshopper: - Morphing geometry (exercise 011). - Conditional expressions (if/then). • Exercise 7 (weight: 8) Consider the arches given in: (https://pedrojanuario70.wordpress.com/2013/04/23/modelacao-geometrica-exercicio-11/) – web page of Prof. Pedro Januário. 1 ARCO ROMANO 2 ARCO ROMANO REALÇADO APERALTADO 3 ARCO ABTIDO OU REBAIXADO 4 ARCO BOTANTE 5 ARCO VISIGÓTICO 6 ARCO CALIFAL 7 ARCO ÁRABE 8 ARCO RAMPANTE (a) 9 ARCO RAMPANTE (b) 10 ARCO EM OGIVA 11 ARCO EM OGIVA A 1/3 DA LUZ 12 ARCO EM OGIVA A 1/4 PARA O EXTERIOR DA LUZ 13 ARCO EM OGIVA ABATIDO 14 ARCO TÚMIDO 15 ARCO ASA DE CESTO 3C 16 ARCO ASA DE CESTO 5C 17 ARCO ASA DE CESTO sendo dado a Luz e a Flecha 18 ARCO ELÍPTICO 19 CATENÁRIA OU ARCO PARABÓLICO 20 ARCO CANOPIAL 21 ARCO EM GOLA 22 ARCO TUDOR 23 ARCO TRILOBULADO A 1/2 DA LUZ 24 ARCO TRILOBULADO A 1/3 DA LUZ The exercise is divided in three phases.  A.  B.

	Phase 1 (60%). a) Analyse the arches and choose a subset of the arches which you think that can be generated with a single GH definition. As the work evolves, more arch types can be added to your definition. b) Define what should be the parameters (variables) for your GH definition. c) The thickness of all the arches should range between 0.4m and 0.8m. d) All the arches should be modelled, in GH, to the level of detail presented in example A. e) For each arch in your GH definition, bake 5 examples. Don't forget to organize your Rhino file with appropriate layers. **Phase 2 (20%).** f) Further develop your GH definition to include the subdivision of the arches in ashlars with an equivalent level of detail as the one presented in example B. Notice that an arch is a constructive element where compression tensions prevail, and therefore the ashlars should support themselves without the consideration of additional elements. g) Tag all the ashlars. **Phase 3 (10%).** g) Consider one type of stone and its specific weight. Calculate the volume of each ashlar. Prepare a display that distinguishes those ashlars that weight more than the average. This should be included in the GH definition. Do a report, in PDF, illustrating and describing the modelling/scripting process and the results obtained (**10%**). - The delivery of the exercise (file *.3dm + file(s) *.gh + *.pdf in a zipped folder named XXXXXXX_7.zip where XXXXXXX corresponds to your student number) should be done via Wetransfer or by email: >> until the end of the classes (19/12/2018) The evaluation criteria include: - Elegance and robustness of the GH definitions - Complexity of the solutions proposed - The generality of the proposed solutions - The completeness of the delivery - The quality of the report (text and images)

Download high resolution images for definition 11:

(http://home.fa.ulisboa.pt/~lmmateus/1819_1_sem/MGG_aula10.zip).