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Human face depictions of Early Neolithic in the Near East

Presentation · September 2021

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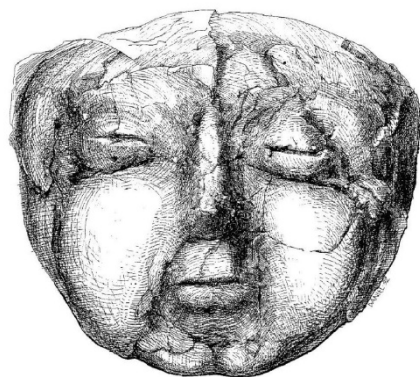
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HUMAN FACE DEPICTIONS OF EARLY NEOLITHIC IN THE NEAR EAST with *iconr* and *Momocs* packages

Huet, Thomas (LabEx ARCHIMEDE, ANR-11-LABX-0032-01)

Ibañez, Juan (Archaeology of Social Dynamics IMF-CSIC)

Pozo, Jose M (Independent researcher)

Alexander, Craig (Independent researcher)



session 238, comm. 7, Sat. 11 Sept 2011



INTRODUCTION

periods		BC	economy
PPNA		9500-8700	Incipient farming
PPNB	Early	8700-8200	
PPNB	Middle	8200-7500	Fully farming
PPNB	Recent	7500-7000	

South Levant



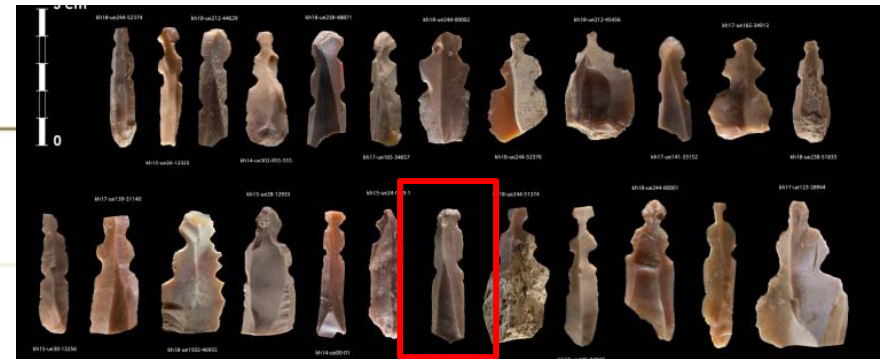
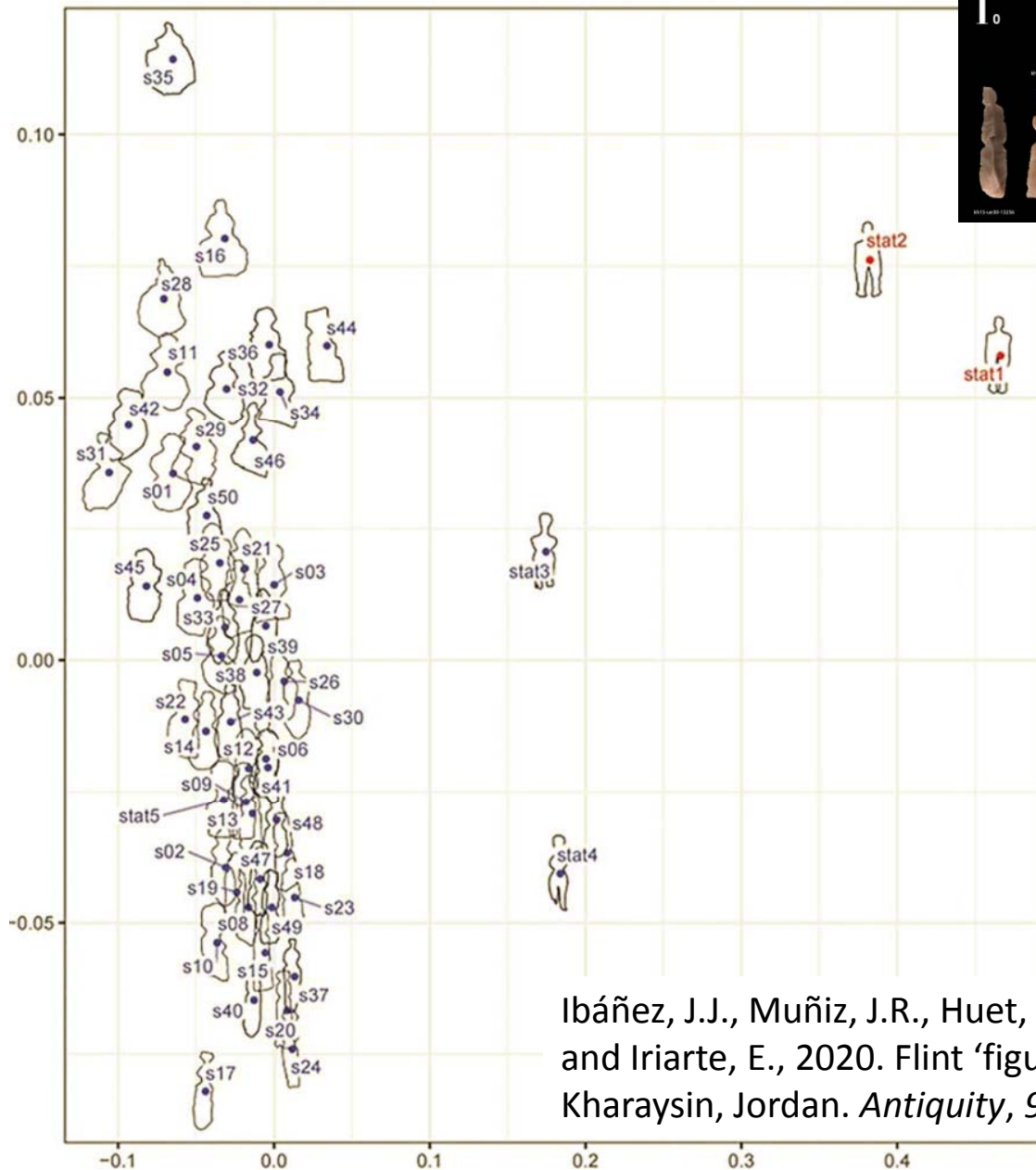
Human
iconography
became more
common from
8,200 cal BC

South Anatolia



GEOMETRIC MORPHOMETRY APPROACH

Kharaysin bladelets,
MPPNB



GM analysis

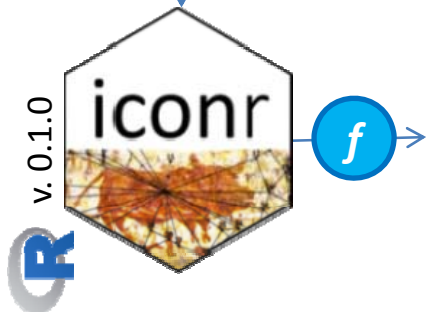
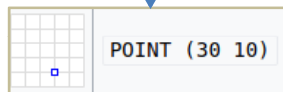
clusters

- a 1
- a 2

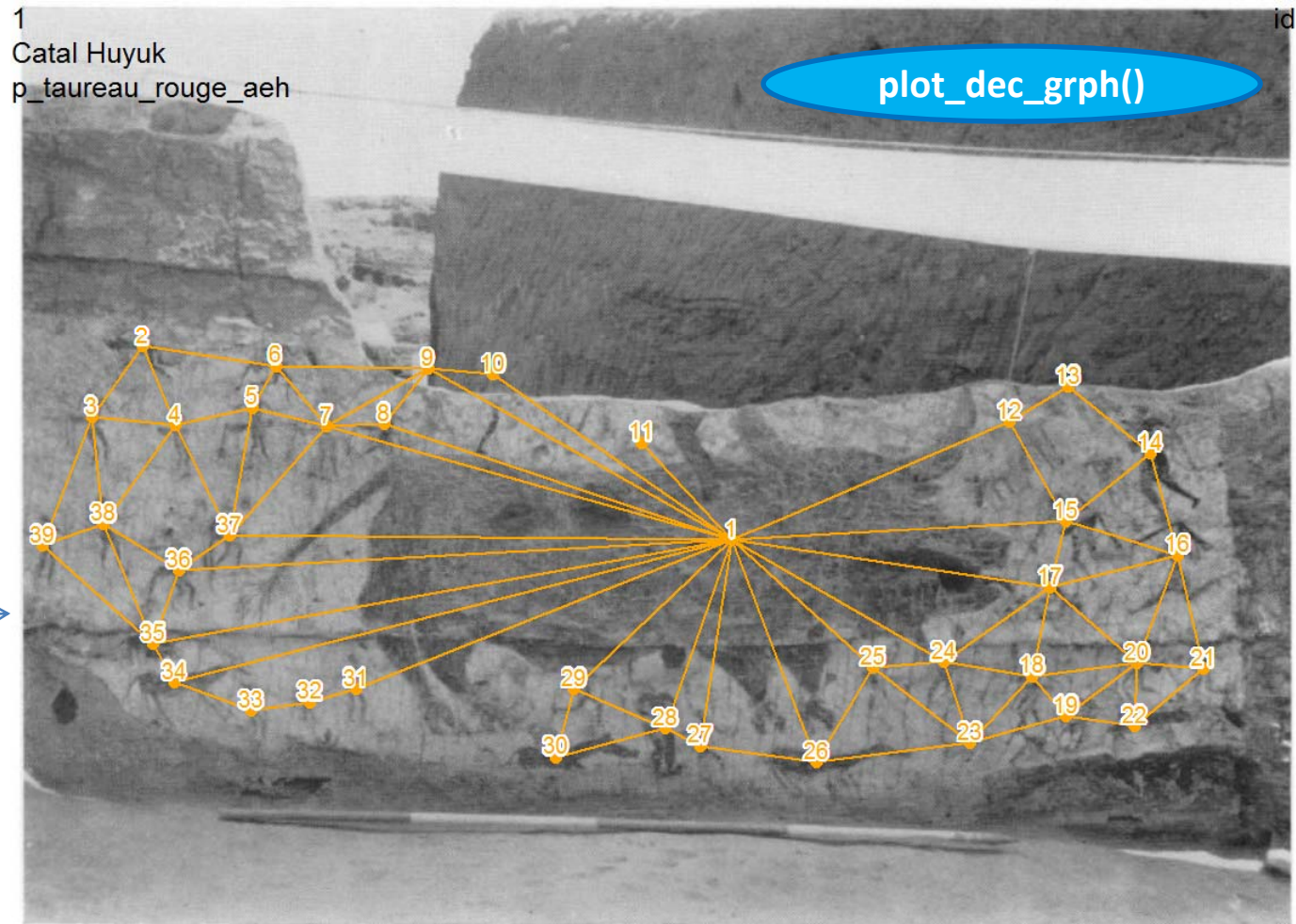
Ain Ghazal, statue 3,
(cache 1), MPPNB

Ibáñez, J.J., Muñiz, J.R., Huet, T., Santana, J., Teira, L.C., Borrell, F., Rosillo, R. and Iriarte, E., 2020. Flint 'figurines' from the Early Neolithic site of Kharaysin, Jordan. *Antiquity*, 94(376), pp.880-899

COMPOSITION ANALYSIS with Graph & Spatial approaches



Mellaart, J., 1966. Excavations at Çatal Hüyük, 1965: fourth preliminary report. *Anatolian Studies*, pp.165-191.



Çatalhöyük (A.III.1), LPPNB

Huet, T., Pozo, J. M., & Alexander, C. (2021). Analysis of Prehistoric Iconography with the R package iconr. *Journal of Open Source Software*, 6(61), 3191.

TYPOLOGY ANALYSIS with Graph & Spatial approaches

F indable A ccessible I nteroperable R eusable

Figurative GUs subtree



https://zoometh.github.io/iconr/articles/img/typo_gu_figuratif.html

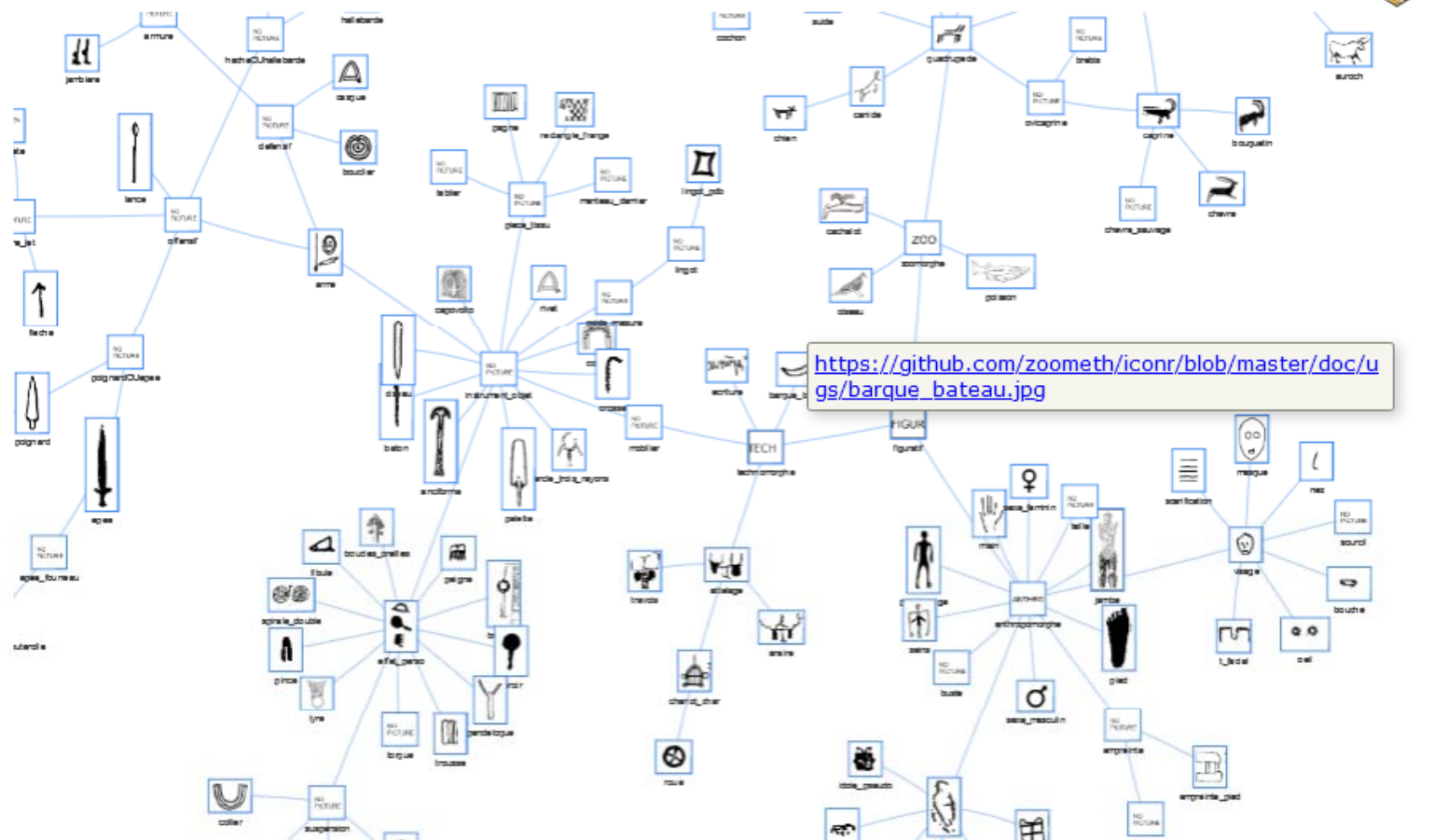
90 %



Rechercher

Graphical units typology

- root: figuratif
- nb nodes: 136

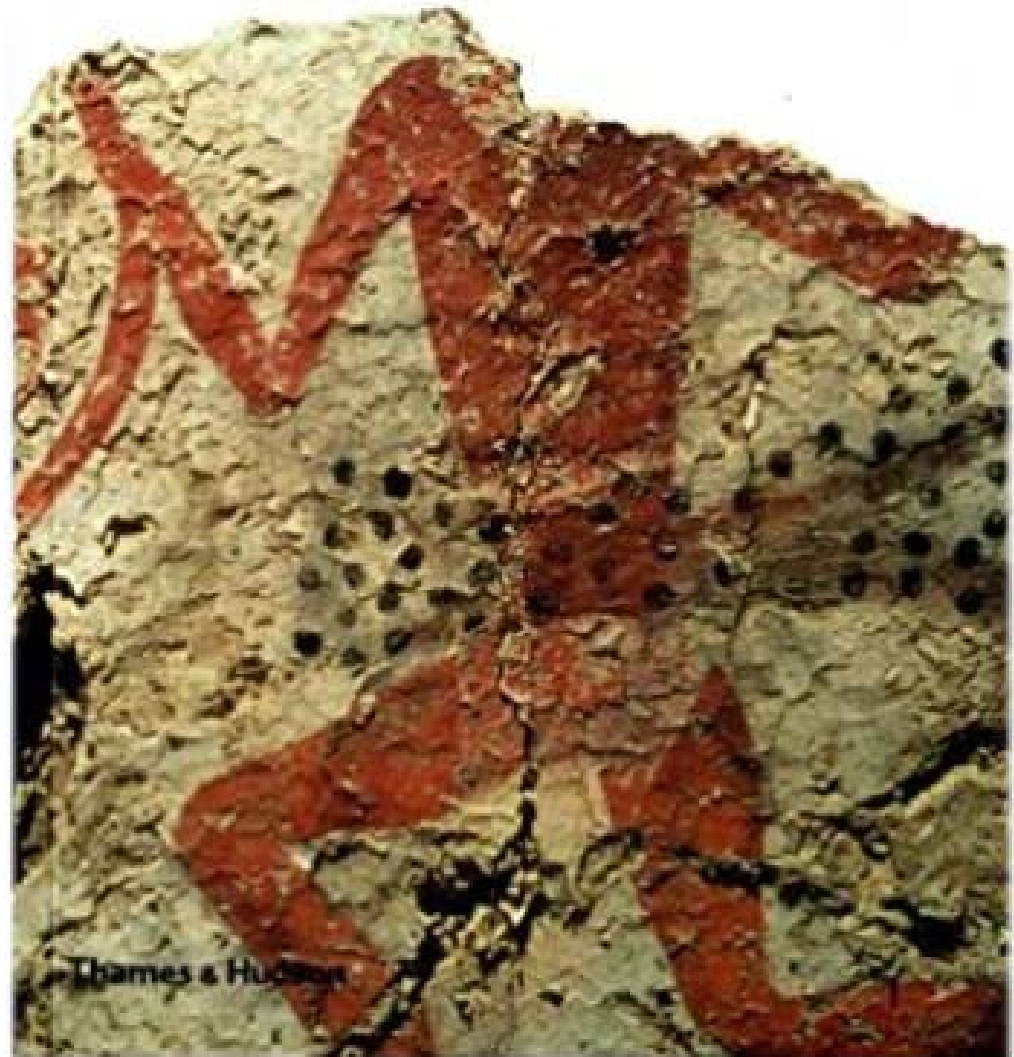


- No meaning when compositions are almost the same
- Alphanumerical variable not able to describe correctly the variabilities of eyes shapes



@Britannica

Ain Ghazal (cache 1), MPPNB



after Mellaart 1971

Çatalhöyük (A.III.1), LPPNB

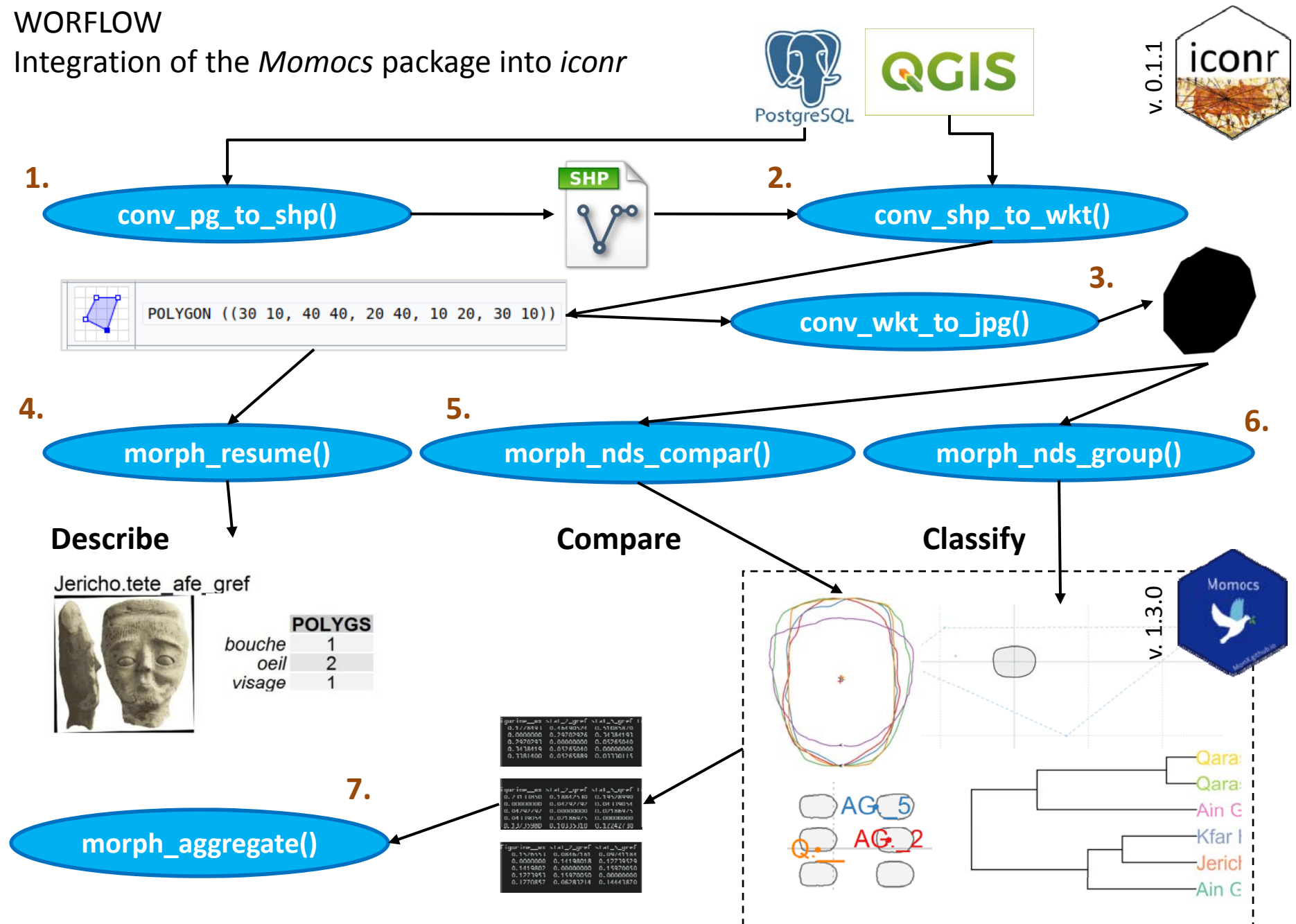
GIS ENTRY

The screenshot displays the QGIS desktop environment. The main window shows a 3D model of a bone wand with a purple face overlay. The face is labeled with 'oeil' (eye) and 'bouche' (mouth). A red outline with vertices is drawn around the face, and a label '16' is placed near the top vertex. A vertical red and white scale bar labeled '3 cm' is positioned to the right of the model. The Layers panel on the left lists various layers, including 'noeuds', 'centroïdes', 'unite complete', 'unite incomplete', 'partie manquante (na', 'trait', 'ug', 'liens', 'composante de', 'interagit avec', 'normal', 'se superpose a', 'dummies', 'contour', 'voronoi', 'echelle', 'rasters', 'figurine_wx', 'typo_ug', 'techno_ug', 'aspect_ug', and 'chrono'. The 'ug' layer is selected. The 'ug - Feature Attributes' dialog box is open on the right, showing the 'unite' tab. The 'id' field is set to '16', 'type' is 'visage', and 'sens' is 'NULL'. The 'dimensions' section shows 'px' and 'cm' fields, both with 'long' set to 'NULL'. The 'notes' section has an 'incomplet' checkbox and a 'dim_is_a' dropdown.

Qarassa bone wand, EPPNB - MPPNB

WORKFLOW

Integration of the *Momocs* package into *iconr*



DATASET 1/5

Qarassa bone wand, EPPNB - MPPNB



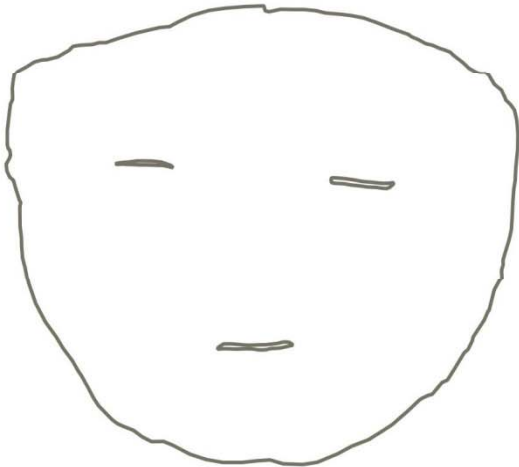
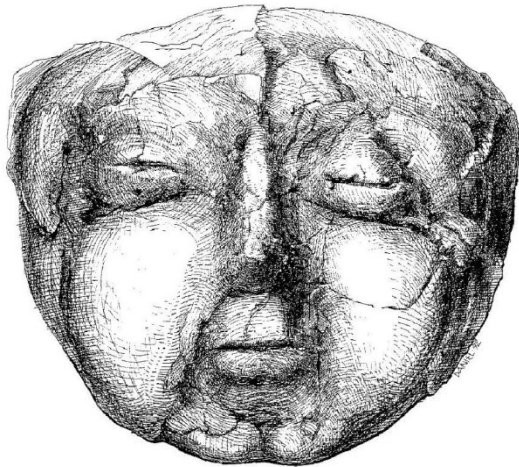
“closed eyes” (Ibañez et al. 2014)

Ibáñez, J.J., González-Urquijo, J.E. and Braemer, F., 2014. The human face and the origins of the Neolithic: the carved bone wand from Tell Qarassa North, Syria. *Antiquity*, 88(339), pp.81-94.

POLYGS	
bouche	2
oeil	4
visage	1

DATASET 2/5

Kfar Hahores, modelled skull, PPNB



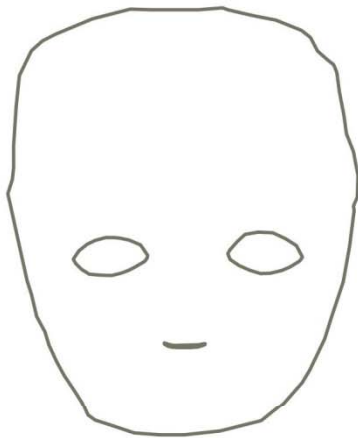
*“the eyes of the Kfar Hahores plastered skull are depicted **closed**” (Griffin et al. 1998)*

Griffin, P.S., Grissom, C.A. and Rollefson, G.O., 1998. Three late eighth millennium plastered faces from 'Aln Ghazal, Jordan. *Paléorient*, pp.59-70.

POLYGS	
bouche	1
oeil	2
visage	1

DATASET 3/5

Jericho, statue A (cache 195), MPPNB



"open eyes depicted by sea shells" (Kuilt 2017)

Kuilt, I., 2017. Constructing the Face, Creating the Collective. *Verbs, Bones, and Brains: Interdisciplinary Perspectives on Human Nature*.

POLYGS	
bouche	1
oeil	2
visage	1

DATASET 4/5

Ain Ghazal, statue 2 (cache 2), MPPNB



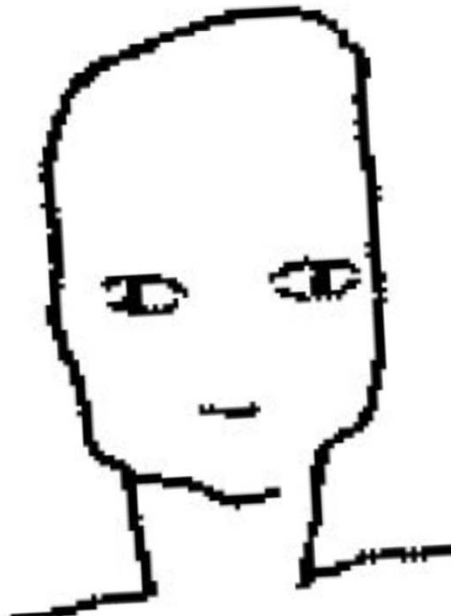
*“use of a lozenge of bitumen for the **irises**”*
(Rollefson et al. 1992)

Rollefson, G.O., Simmons, A.H. and Kafafi, Z., 1992.
Neolithic Cultures at'Ain Ghazal, Jordan. *Journal of
Field Archaeology*, pp.443-470.

	POLYGS
bouche	1
oeil	2
visage	1

DATASET 5/5

Ain Ghazal, statue 5 (cache 2), MPPNB



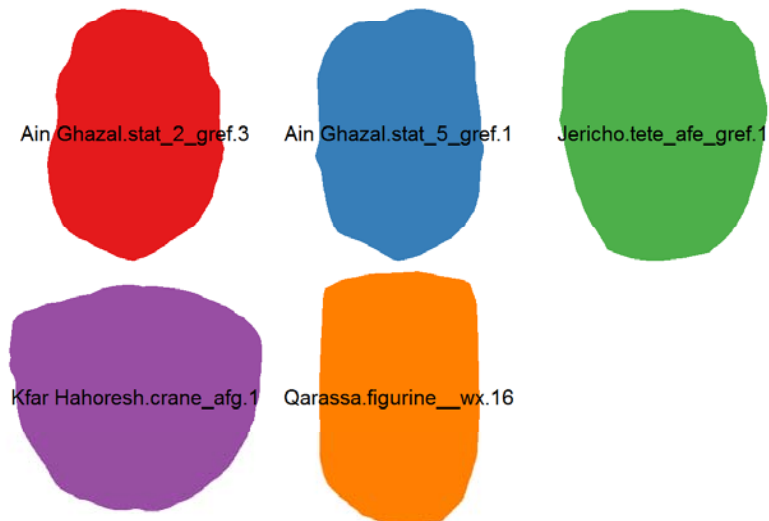
*“use of a lozenge of bitumen for the **irises**”*
(Rollefson et al. 1992)

Rollefson, G.O., Simmons, A.H. and Kafafi, Z., 1992.
Neolithic Cultures at 'Ain Ghazal, Jordan. *Journal of
Field Archaeology*, pp.443-470.

POLYGS	
bouche	1
oeil	2
visage	1

PANEL

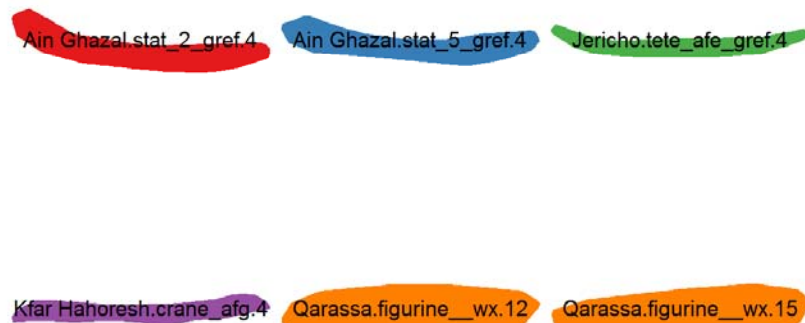
faces



eyes

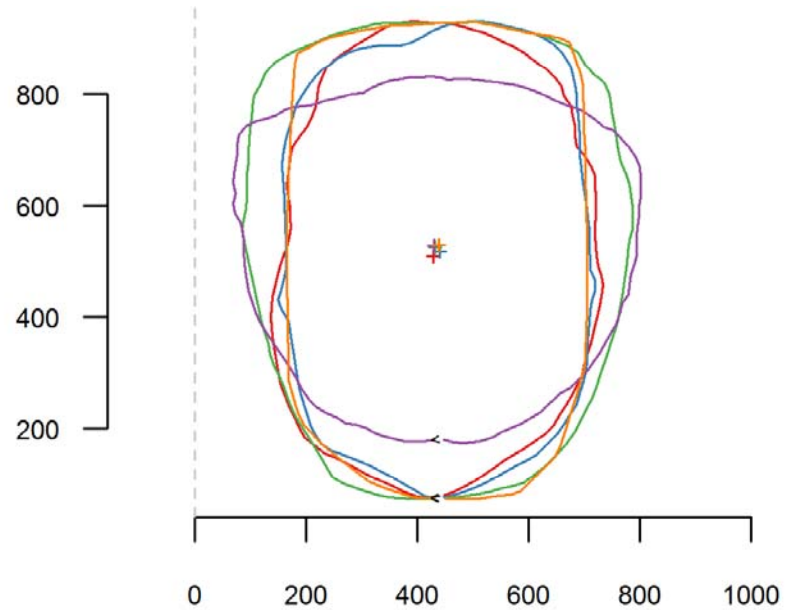


mouths

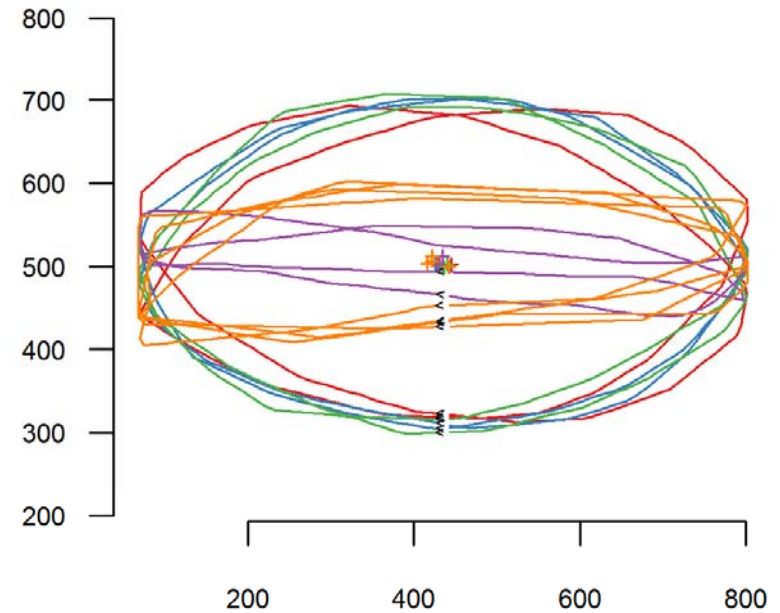


STACK

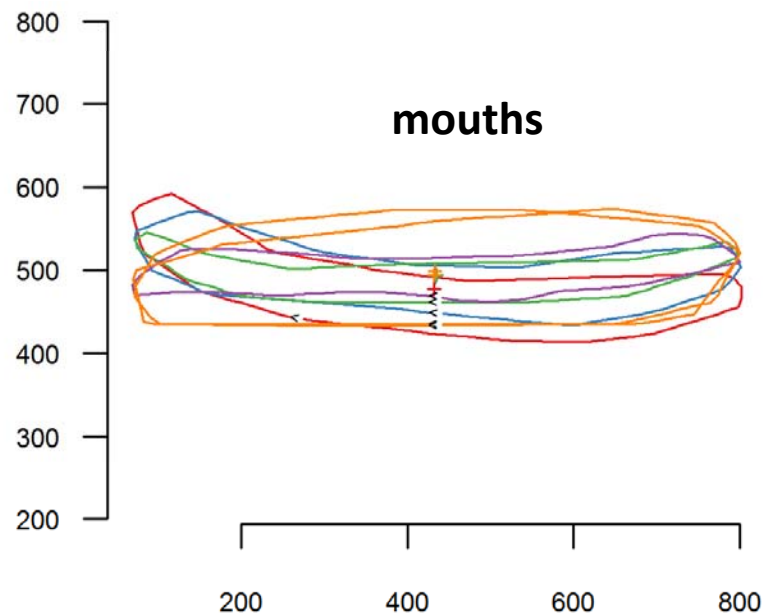
faces



eyes

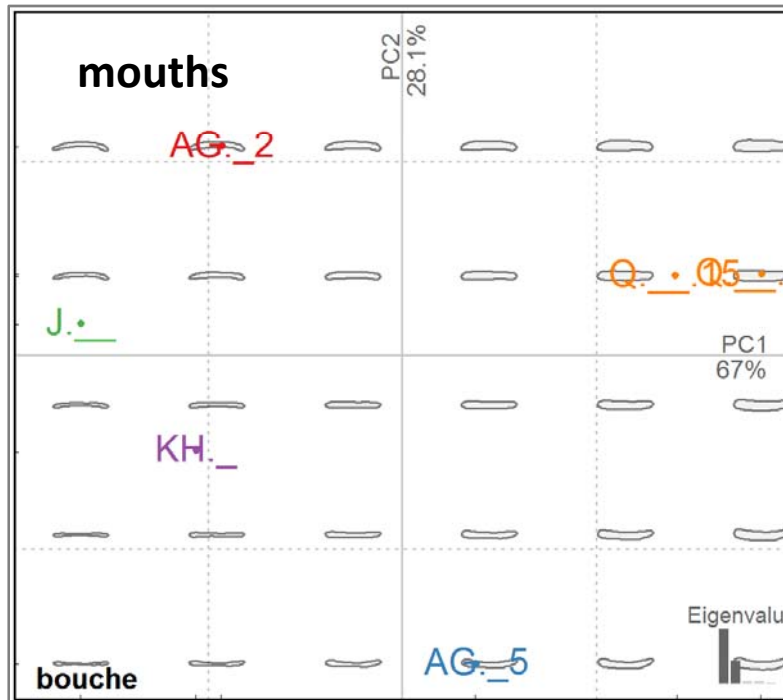
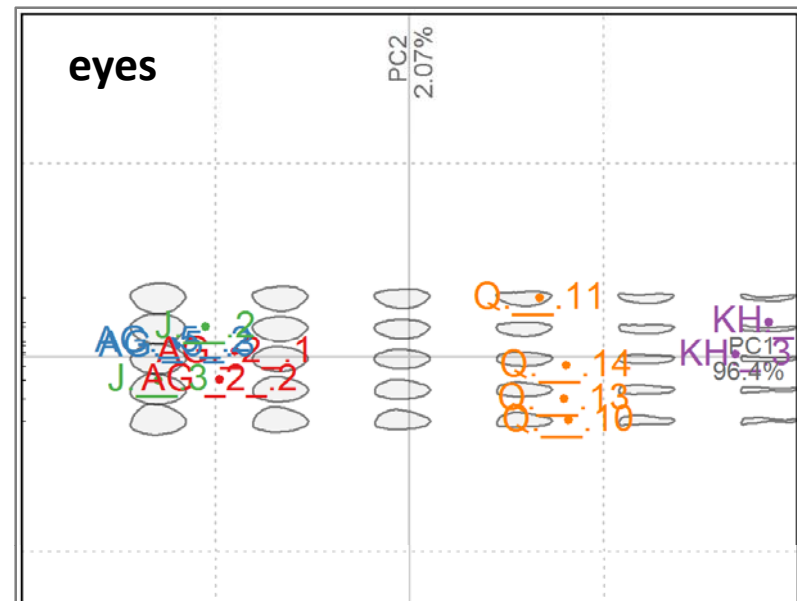
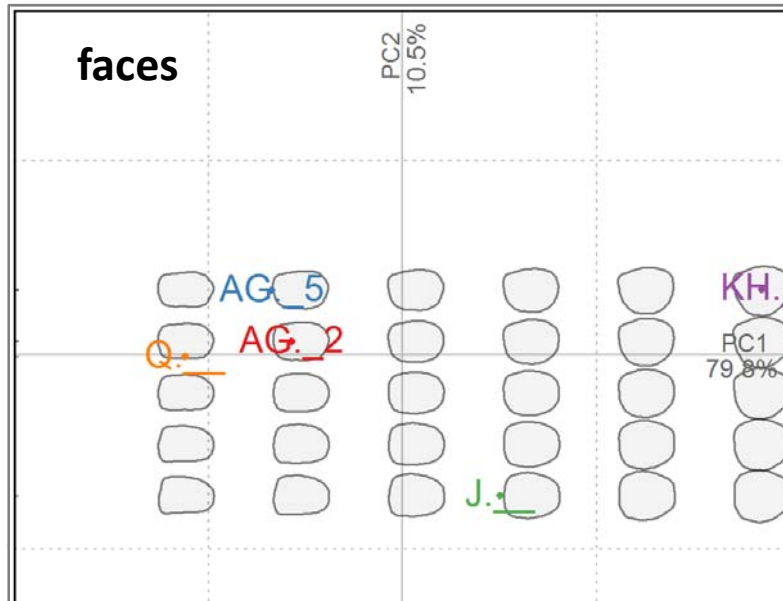


mouths



- Ain Ghazal, statue 2
- Ain Ghazal, statue 5
- Jericho, statue A
- Kfar Hahores, skull
- Qarassa, bone wand

PCA

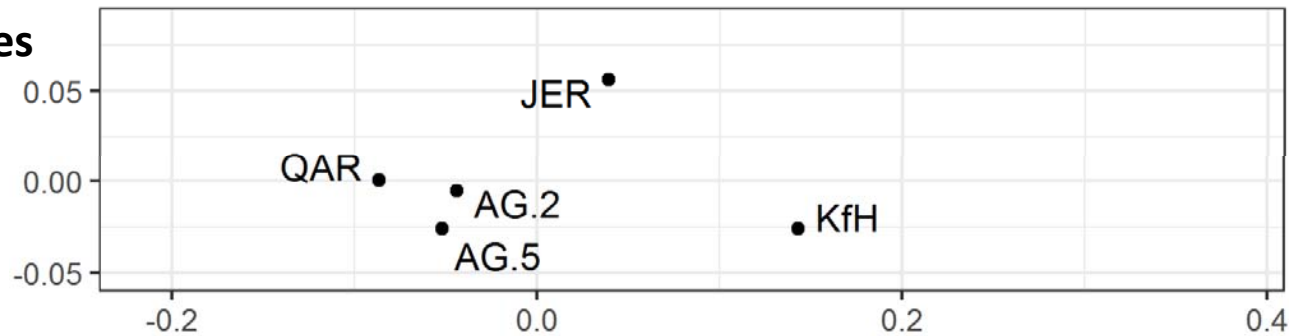


GROUP BY TYPES AND DECORATIONS

- Combine Geometry Morphometry (GM) distance matrices of **faces**, **eyes**, and **mouths** by decorations

MDS plots

faces

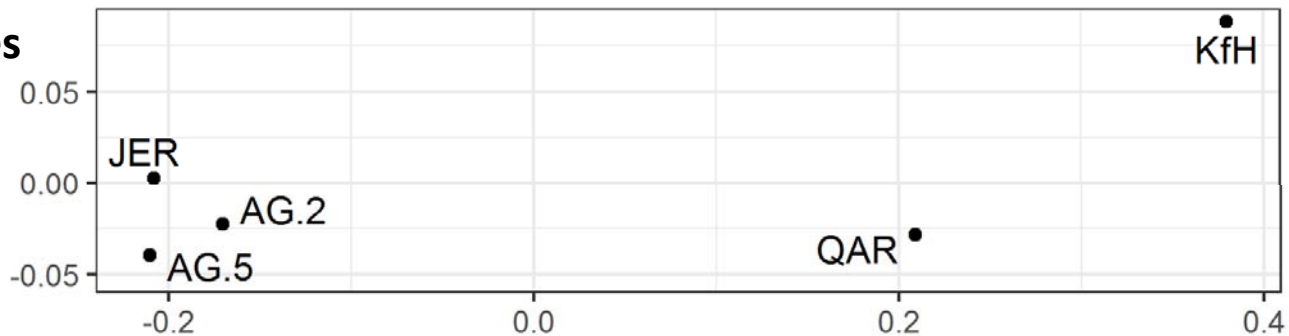


AG.2



AG.5

eyes

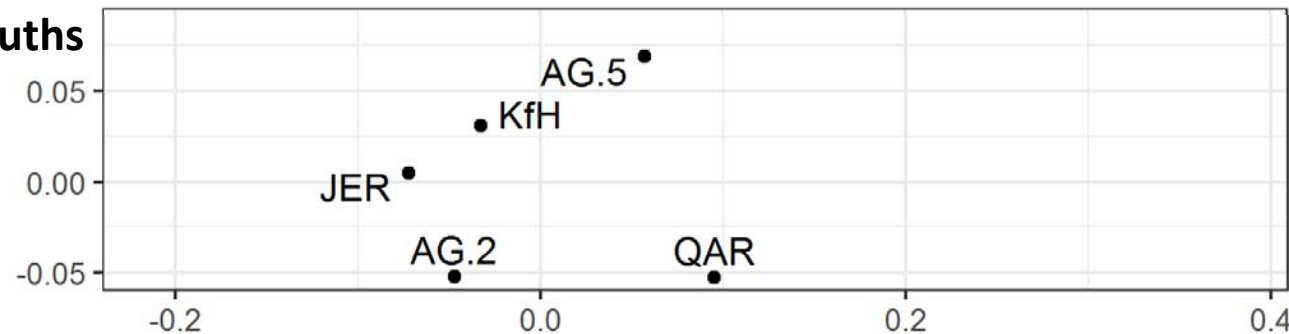


JER



KfH

mouths

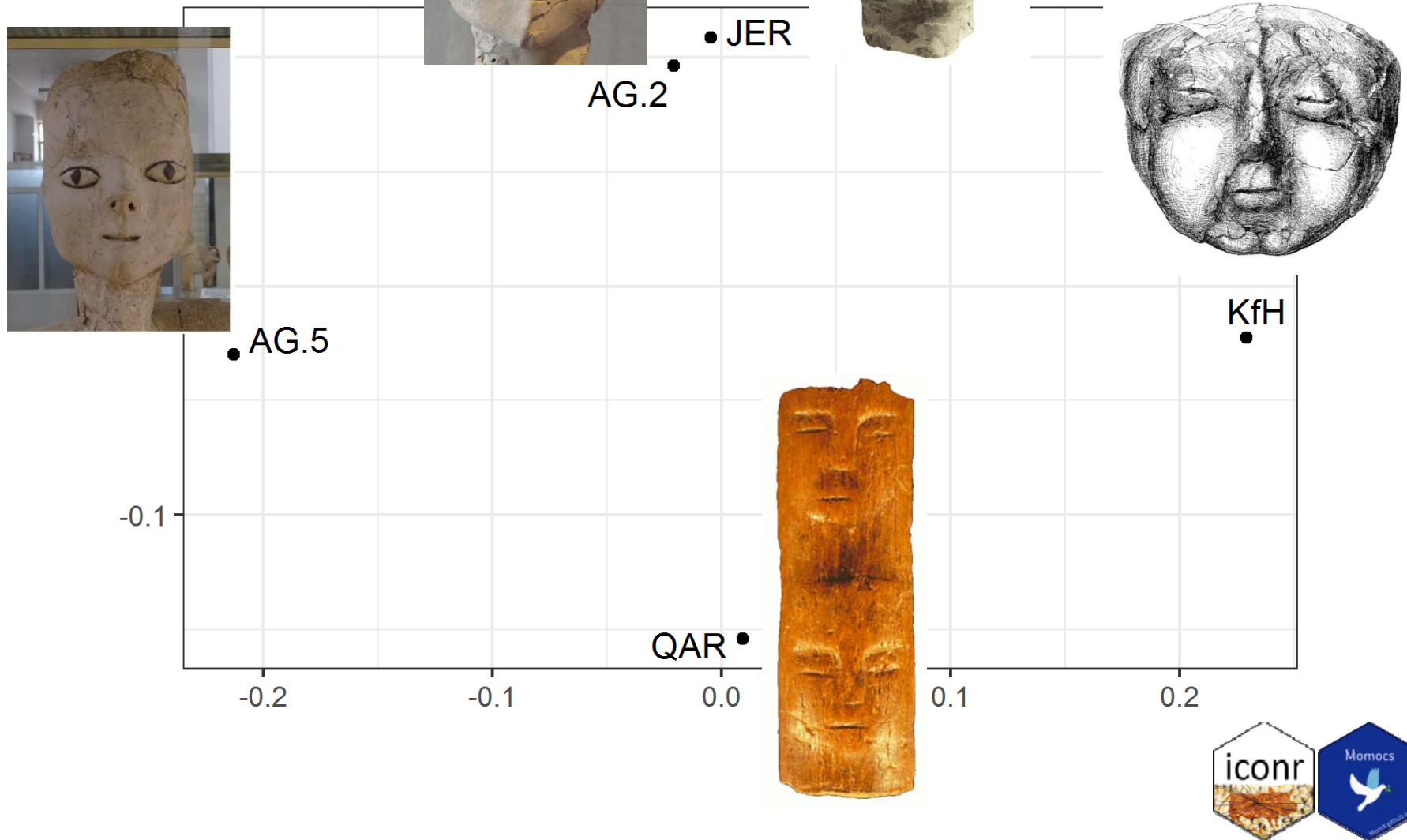


QAR



GROUP BY DECORATIONS

MDS plot



PERSPECTIVES

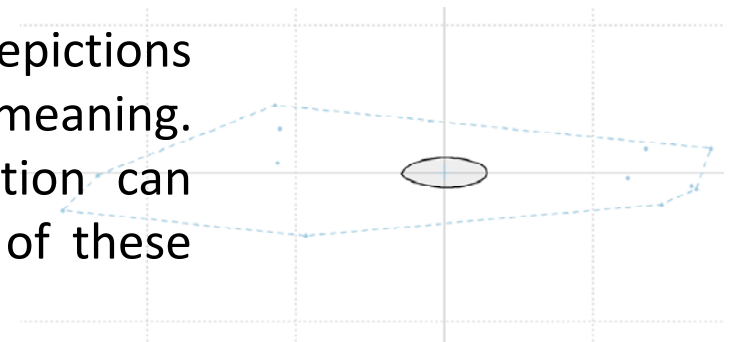
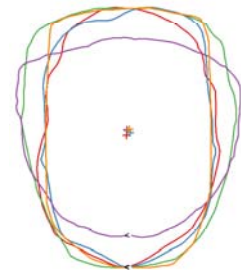
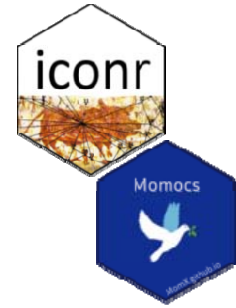
- Combine distance matrices from **composition analysis** and **shape analysis**
- 2D → 3D
- Combine **iconography with other variables** → ...



Stordeur, D. and Khawam, R., 2007. Les crânes surmodelés de Tell Aswad (PPNB, Syrie). Premier regard sur l'ensemble, premières réflexions. *Syria. Archéologie, art et histoire*, (84), pp.5-32.

Conclusion

1. The *iconr* and *Momocs* R packages are useful tools for the analysis of the iconographic conventions of human face depictions at the origin of the Neolithic in the Near East
2. Comparing iconographic conventions quantitatively offers a precise image of how much similar depictions are at a regional scale. This information can be related to cultural interactions
3. Measuring iconographic variability of depictions coming from one site can shed light on their meaning. Dealing with modelled skulls, this information can shed light on the debate about the nature of these objects (portraits? mythical individuals?).



HUMAN FACES DEPICTIONS OF EARLY NEOLITHIC IN THE NEAR EAST

THANK YOU



<https://zoometh.github.io/iconr>



<https://momx.github.io/Momocs>



session 238, comm. 7, Sat. 11 Sept 2001