Matching hieroglyphs through the Hausdorff distance

The dataset

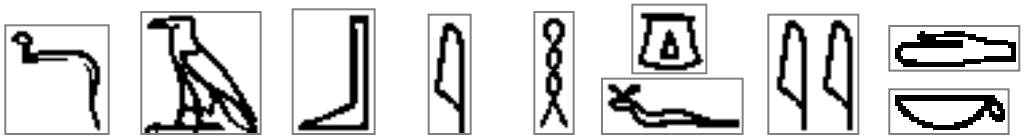
- 2 sets of bitmaps (png format) are available in the folders 'hiero_01' and 'hiero_02'
  - hiero_01 has 22 bitmaps (01.png … 22.png)
  - hiero_02 has 19 bitmaps (01.png … 19.png)
- Each bitmap represents a hieroglyph, 0 pixel values corresponding to the foreground and 1 to the background

hiero_01

hiero_02

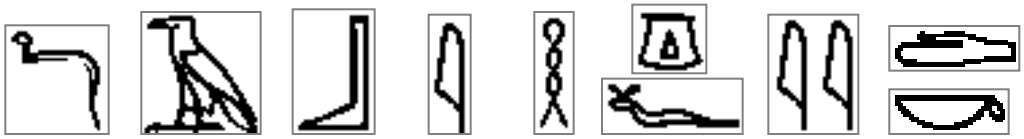
- The bitmaps do not have the same size

Project goal



- Define a procedure to compute the distance between two hieroglyphs through the Hausdorff distance
- Use the above procedure to compute a 19 x 22 matrix storing the distance of each hieroglyph in 'hiero_02' to each hieroglyph in 'hiero_01'

Guidelines

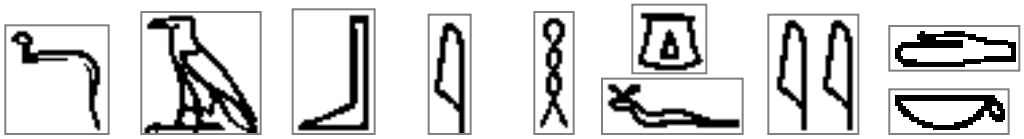


- Read the bitmaps

```
> galleryNames = { 'hiero_01/01.png';
'hiero_01/02.png';
'hiero_01/03.png';
'hiero_01/04.png';
'hiero_01/05.png';
'hiero_01/06.png';
'hiero_01/07.png';
'hiero_01/08.png'};

> img01 = imread(galleryNames{1});
```

Guidelines



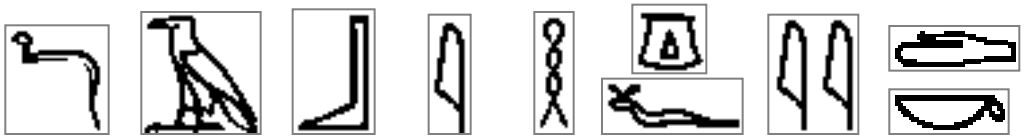
- Represent each bitmap through the coordinates of foreground pixels

```
> galleryNames = { 'hiero_01/01.png';
'hiero_01/02.png';
'hiero_01/03.png';
'hiero_01/04.png';
'hiero_01/05.png';
'hiero_01/06.png';
'hiero_01/07.png';
'hiero_01/08.png'};

> img01 = imread(galleryNames{1});

> [img01_I img01_J] = find(img01==0);
```

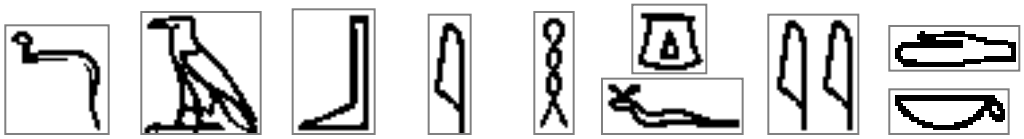
Guidelines



- Compute the Hausdorff distance between two pixel sets

??????????????????

Guidelines



- Any idea to cope with the different size of the bitmaps?

  ??????????????????