

Texts, Images and Sounds association learning

Presentation

This software is intended to a very large public since it handles a variety of recognition and classification problems. It handles “*entities*” that are as simple as images or sound files on your computer.

You can play for example with [your photographs of holidays](#), [some words and sound to associate](#), [a set of photos of birds](#), [mushrooms](#), [pupils in a classroom](#), [Greek alphabet](#)...

Recognition problems

→ Given one or several aspects (text, image, sound) of an entity you have to identify it among the proposed solutions.



You ear the sound 'Grr rrr' stored in the file tiger.wav

Grr rrr

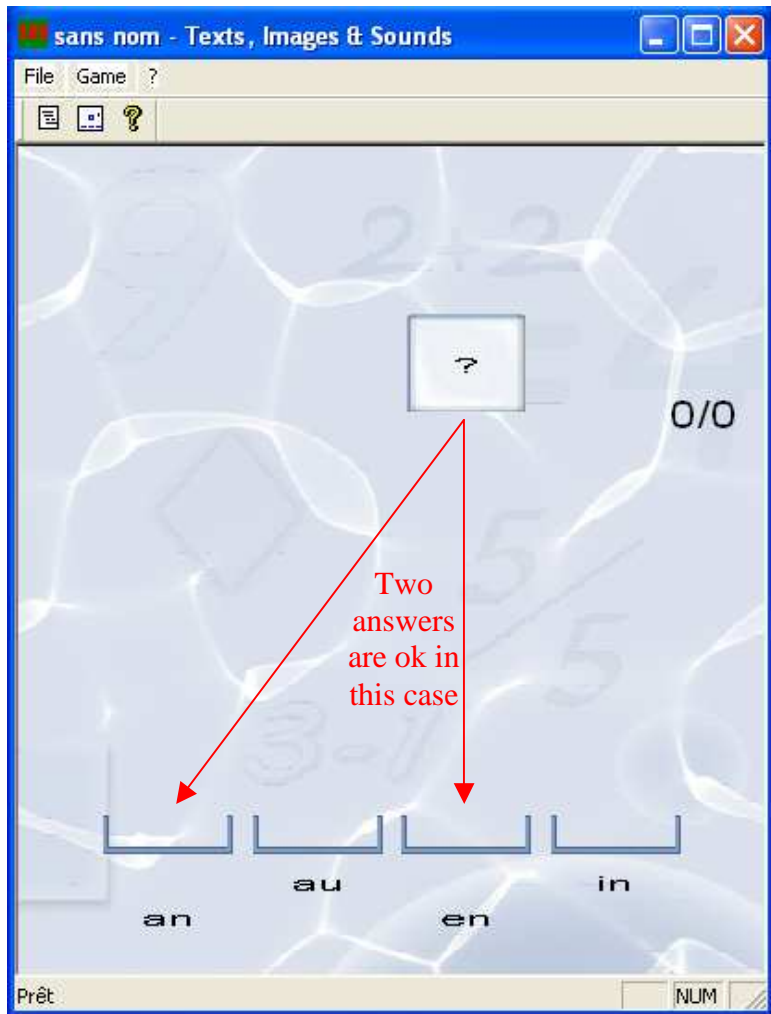
You chose to see the problem under its sound and textual aspects. This could have been a picture with or without sound

☛ To work with French vocabulary you could ear the sound 'tigre'

You chose to see the solutions under images aspects. This could have been texts

Classification problems

→ Given one or several aspect of an entity (text, image, sound) you have to select one of the proposed categories.



You ear
the sound
'en '

en

Here for example, a problem of
equivalence between different writing of
French sounds

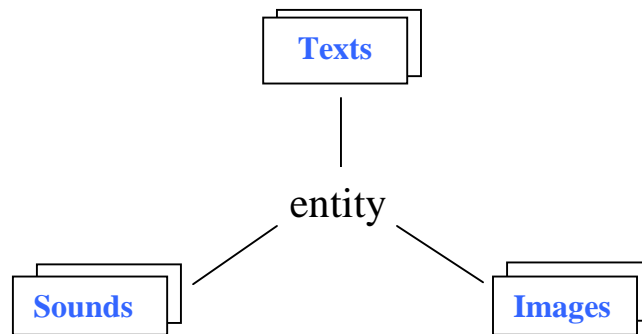
☞ To reuse the previous example, animals could be categorized in herbivorous, carnivorous, omnivorous, mammal...

☞ To work with the mushrooms could be classified in Excellent, edible, ordinary, poisonous, lethal...

☞ To work with the foreign vocabulary

Them	ou	Translation
Cat / Chat		Chat / Cat
Dog / Chien		Chien / Dog
Pig / Cochon		Cochon / Pig

In the software, **an entity** can have several aspects: textual, pictorial and/or sonorous



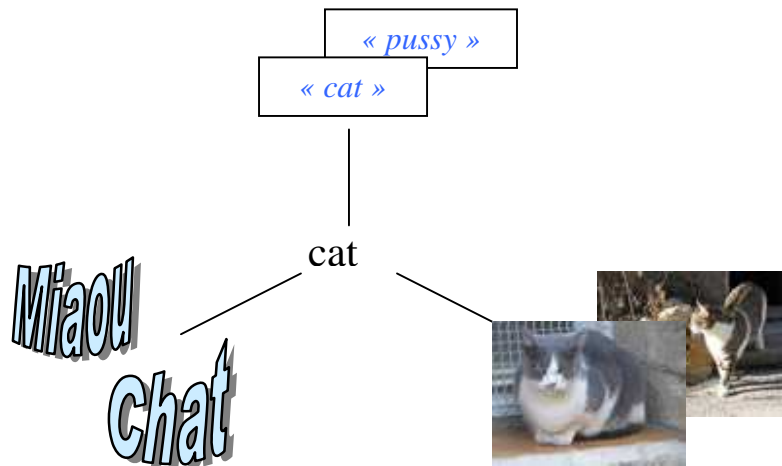
→ **Textual** aspects are to be found in **.txt** files

→ **Sonorous** aspects are to be found in **.wav** files¹

→ **Images** aspects are to be found in **.jpg** –or– **.ico** –or– **.bmp**

For instance the « cat » entity can be figured out by


- **Sound** files *cat.wav*, *hat_1.wav*... that contain sounds « cat », « Miaou »...
- **Images** files *cat.jpg*, *cat_1.jpg*, *cat_2.jpg*... showing images or drawings of cats,
- **Text** « *cat* » which is implicitly deduced from the files names. *cat.txt*, *cat_1.txt*... can also be added to provide more textual aspects.

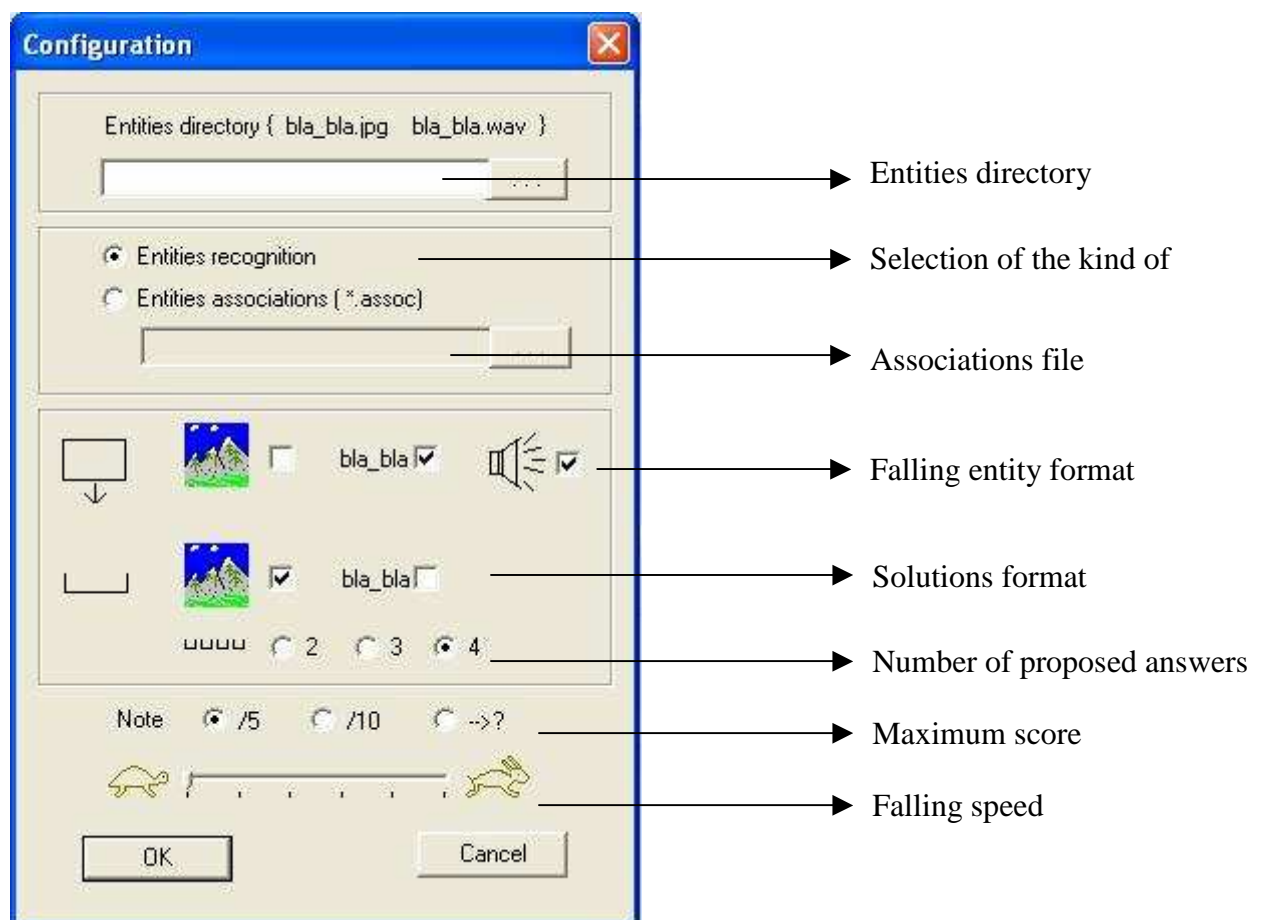


The following topics are available in the software:

- **Configuration**
This activity allows configuring the game and selecting the directories in which the entities are to be found.
- **Game**
This activity is twofold, depending on the configuration. It allows:
 - working with *pattern recognition* given their partial description, for example finding an image from a sound, learning to read by finding words from images or sounds...
 - working with classification problems, for example finding the category of a mushroom, the club of a football player...
- **Problems creation**
This activity is described at the end of this manual. It allows creating any kind of problems you can imagine.

Configuration

The configuration is available via the menu item: Game→Configure or via the icon . It allows configuring the game module.



Selection of the entities directory

This field indicates the directory that contains images and/or sounds files in the format (jpg,ico,bmp,wav) defining the entities that will be played with.

Répertoire contenant les fichiers

cat.wav	cat.jpg	cat_1.jpg	
dog.wav	dog.jpg		
cow.wav	cow.jpg	cow_1.jpg	cow_2.jpg
...			



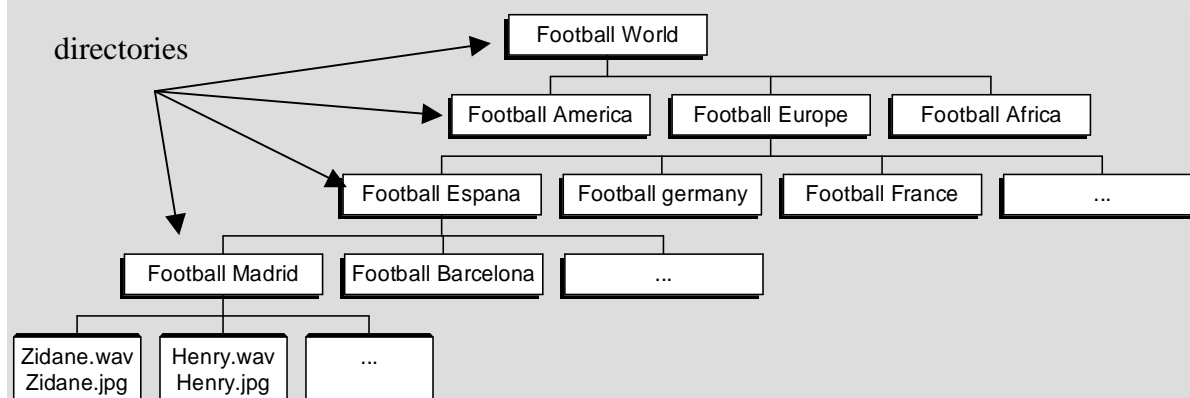
After this selection the recognition game is available

Go and try clicking on the icon

The selected directory can contain sub directories. Thus it is possible to have a hierarchy of problems built.

For example let suppose you want to play with football players.

Entities are the players. Each player belongs to a directory which represents his club, then clubs are gathered by countries and so on.:



Depending on the level of the directory indicated as the entities directory, it will be possible to play with one club, one country, one continent or all the World.

By default an entity has an implicit textual aspect which is the root name of its aspects files. For example the file `plane.wav` defines two aspects of the “plane” entity; one textual “plane” and one sonorous, the sound contained in `plane.wav`.

This implicit textual aspect may be an inconvenient if all the textual aspects you want are UNICODE and the file names can't be UNICODE. In that case, add the prefix **notext_** to the aspect files names. For example `notext_plane.wav` and `notext_plane.txt` define two aspects of the “plane” entity; one textual which is contained in the `txt` file and one sonorous, the sound contained in the `wav` file.

A simplification allows to work with non Latin alphabets.

A filename matching with **unichar**<nb> is equivalent to the UNICODE character <nb>. For example, the file **unichar923.wav** could contain the sound « lambda ». It would also define a textual aspect « Λ » which is the UNICODE character with the code 923.

Selection of the kind of handled problems

Two possibilities

- ***Entities recognition***
This is the choice by default.
It allows recognizing entities given a partial description of them.
- ***Entities associations***
This choice allows working with classes of entities and requires the selection of an additional text file which allows to define the classes as set of entities.

For example, suppose you have images of mushrooms and you want to work with their classification: excellent, edible, poor, bad, poisonous

During the game the software will select a mushroom and the pupil will have to select the proper class.

Selection of the associations file

This selection is available only if the kind or problem is 'Entities associations'

The file to select shall be a text file with the extension ".*assoc*". It must contain lines defining the different classes:

category1 / entity1.1 / entity1.2 / entity1.3 ...

category2 / entity2.1 / entity2.2 ...

...

For the previous example it would be:

excellent / flap mushroom / chanterelle / moral ...

edible / lactary...

...

lethal / death cap ...

Note: An entity can belong to more than one category.

This may be useful in some particular cases of problems such as equivalence problems

For example in the French language the following sequences of letters are equivalent:

en.wav	em.wav	an.wav	am.wav	→ <i>same sound</i>
o.wav	au.wav	eau.wav		→ <i>same sound</i>
on.wav	om.wav			→ <i>same sound</i>
...				

This is indicated via an association file that contains entities as categories:

```
o / o / au / eau
au / o / au / eau
eau / o / au / eau
en / en / em / an / am
em / en / em / an / am
an / en / em / an / am
am / en / em / an / am
on / on / om
om / on / om
...
```

Thus the **pupil hears a sound** and has to select one of the equivalent ones:



Selection of the entities format

It is possible to choose the *format of the « mystery » entity* which is falling down and the *format of the entities proposed as solutions*, which are at the bottom.

The mystery entity can have the following formats:

- text with or without sound
- image with or without sound
- sound alone

The solution entities can have the following formats:

- text
- image

Note: In case of unavailability of the selected format for an entity, the software changes it and at least the text is displayed.

Number of proposed answers

This parameter influences the number of answers that are proposed for each question. The greater this number, the more difficult the game.

Maximum score and speed selection

The maximum score value has an influence on the number of questions that will be submitted to the child.

It can be either:


- /5, the maximum score is 5
- /10, the maximum score is 10
- /? , unlimited.

This last mode is a challenge mode in which questions are submitted as long as the child answers correctly. The score is thus no more limited.

The falling speed can also be tuned, in order to let more or less time to recognize the entity before it reaches the bottom.

Note: In challenge mode, the speed automatically increases by one step every 5 problems.

Game

This activity is started via the menu item Game→Play or via the icon . It is available as long as the entities directory has been selected in the configuration module. The software randomly selects an entity and presents it according to the chosen format. The software also proposes up to four solutions and presents them according to the chosen format.

The game purpose is to determine the right solution and to put the pattern in the associated column before it has fallen on the bottom.

The column selection can be done either via the keyboard or the mouse.



ACTION	KEY	MOUSE
Left movement	←	Click in the column
Right movement	→	Click in the column
Fall anticipation	↓	Double click in the column

When the fall is terminated a jingle indicates if the selected solution is a good one or not. In addition the good solutions are highlighted by a green frame and the wrong ones by a red frame.

In case of good solution, the score is incremented by one.

The game is over when the maximum number of problems has been submitted or at the first error in the challenge mode.

Anytime it is possible to

- return to the configuration module, via the icon .
- restart the game via the icon .

Problems creation

This paragraph describes the way to create a set of problem. This uses standard tools available in Windows.

1. **[optional]** Creation on the disk of your computer of a directory that will receive the entities

This directory is the same that will be selected in the game.

2. **[optional]** Import of images files in the directory

This can be from internet, existing file, camera etc...

Possible formats are .ico, .bmp ou .jpg

3. **Rename the files according to the entities they represent**

Ex. photo1.jpg → **cat.jpg** to represent the entity 'cat'

photo2.jpg → **cat_1.jpg** to represent the same entity

4. **[optional]** Creation of sound files linked to the entities in the directory

A Windows tool allows easily creating wav files via the Recorder:

start→Program files→Accessories→Entertainment→Recorder

The sound files format shall be '.wav'

5. **Rename the files according to the entities they represent**

Ex. **cat.wav** **cat_1.wav** ... to represent the **cat** entity

6. **[optional]** Création of texts files linked to entities in the directory

Useful if you want to add textual aspects in addition or instead of implicit textual aspect.

Files format is ANSI or UNICODE or big endian UNICODE

7. **[optional]** Association file creation

You can use the tool **Start→Program files→Accessories→Note pad** to create this file.

It must be name with the '.assoc' extension.

Its syntax shall be

```
category1 / entity / entity / entity ....  
category2 / entity / entity / ...  
...
```

Ex.

```
mammal / cat / dog / whale....  
oviparous animal / tortoise/ hen / sardine / finch...  
fish / sardine / dorade / baleine ...  
bird / finch / blackbird / ...  
...
```

Note that the same entity can belong to more than one categories.

-- Enjoy ! \$88 --