

# Pratiques et réflexions autour des modèles conceptuels

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# Modélisation Conceptuelle

C'est ici qu'il faut regarder

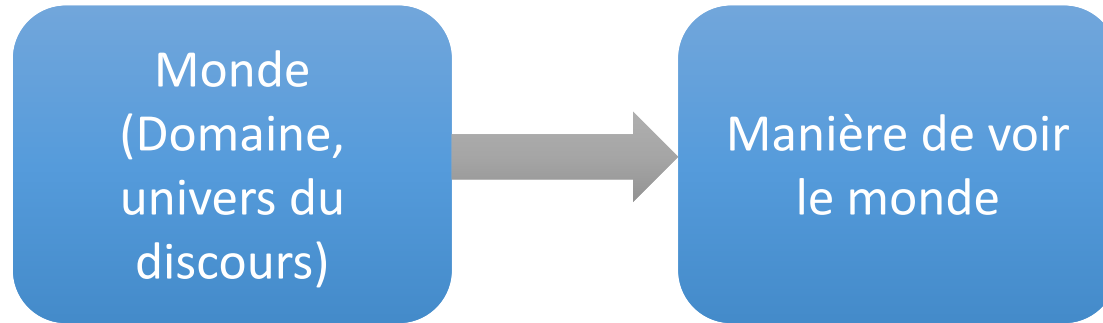


Images récréatives



[http://commons.wikimedia.org/wiki/File:Vue\\_sur\\_le\\_Puy\\_de\\_D%C3%B4me\\_-\\_005.jpg](http://commons.wikimedia.org/wiki/File:Vue_sur_le_Puy_de_D%C3%B4me_-_005.jpg)

# Modélisation Conceptuelle



[http://commons.wikimedia.org/wiki/File:Puy\\_de\\_D%C3%B4me.jpg](http://commons.wikimedia.org/wiki/File:Puy_de_D%C3%B4me.jpg)

**Ontologie**  
« étude de la nature et de l'organisation du monde réel »  
**Ontological commitment**

**Systèmes d'information**  
« Système qui collecte, stocke, traite et distribue l'information »  
**Modèle conceptuel**

**Intelligence artificielle**  
« Ensemble de théories et de techniques mises en œuvre en vue de réaliser des machines capables de simuler l'intelligence humaine »  
**Représentation des connaissances**

# Modélisation Conceptuelle

## PHASE d'ANALYSE

- Appréhender le domaine du problème posé.
- On ne résout pas le problème (on ne s'occupe pas non plus des détails techniques).
- On modélise les concepts (modélisation conceptuelle)

M. Kolp, A. Pirotte, E. Zimanyi

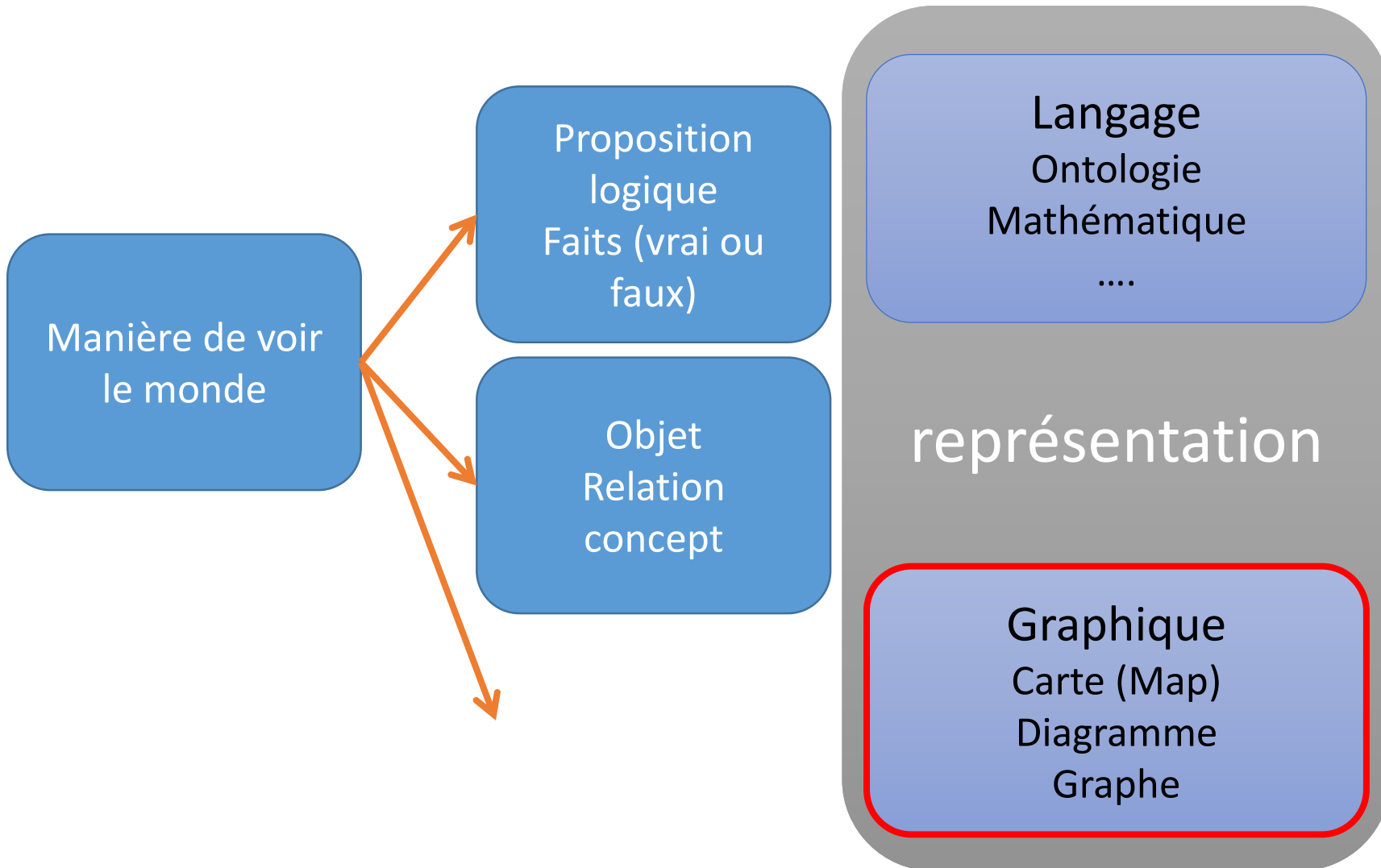
Dans la suite:

Modélisation conceptuelle / des connaissances



[https://www.flickr.com/photos/jeanlouis\\_zimmermann/4847237847/](https://www.flickr.com/photos/jeanlouis_zimmermann/4847237847/)

# Modélisation conceptuelle

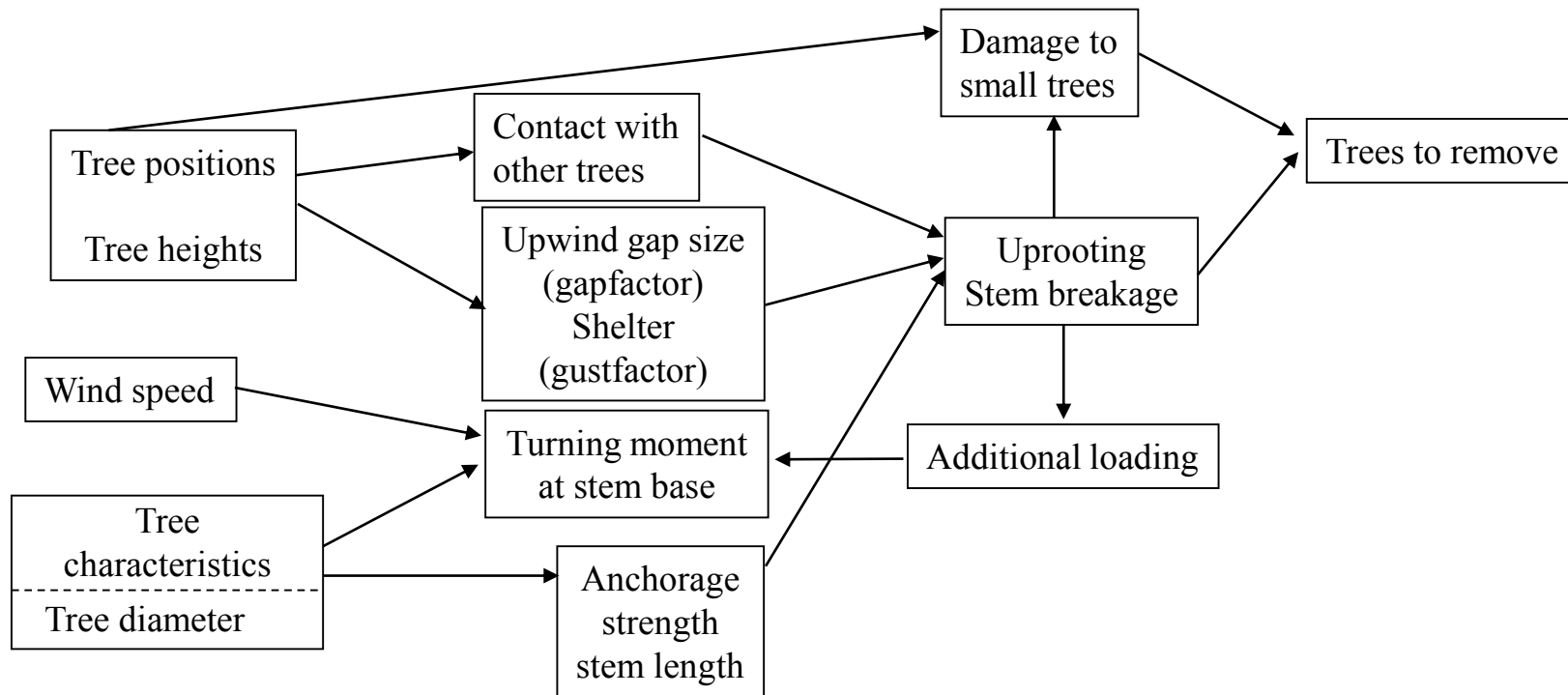


<http://www.landscape-photo.net/displayimage.php?pid=1338>

Examples

# Exemples

Libre



(M.J. Schelhaas et al. 2007)



<http://pixabay.com/fr/pacman-pac-man-jeux-vid%C3%A9o-62288/>

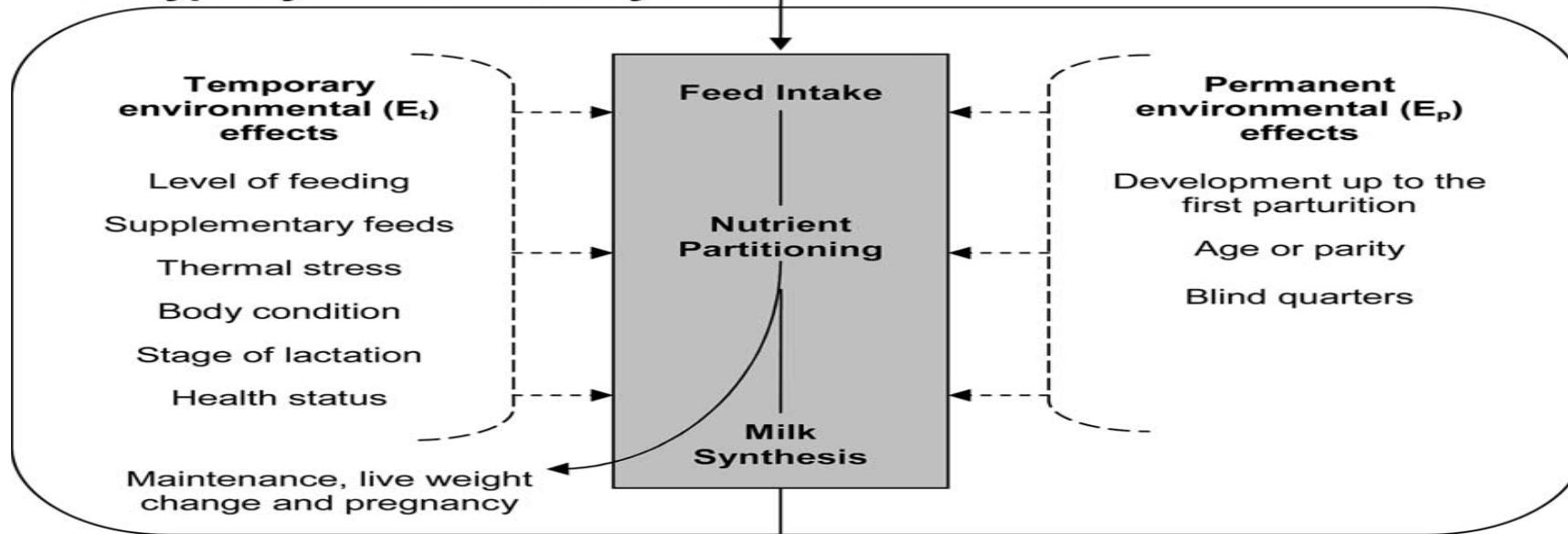
# Exemples

Libre



GENOTYPE (G)

Genotype by Environment system



$$\text{PHENOTYPE (P)} = G + E + (G \times E)$$

**Plasticity** = Phenotypic variation of the same G across different E's

**Reaction norm** = function describing the phenotypic response of the same G across different E's



<https://www.flickr.com/photos/nesposit/66495517/in/photostream/>

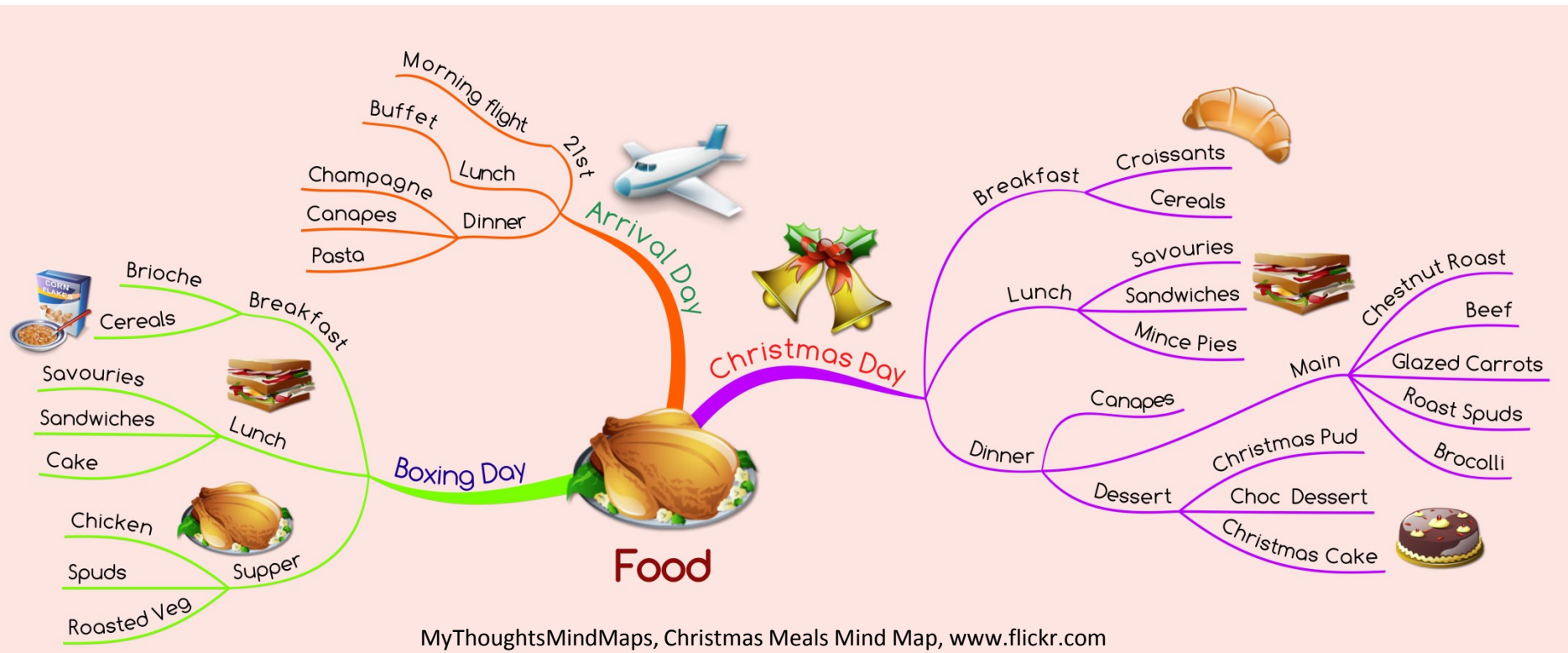
(J. Bryant et al. 2005)



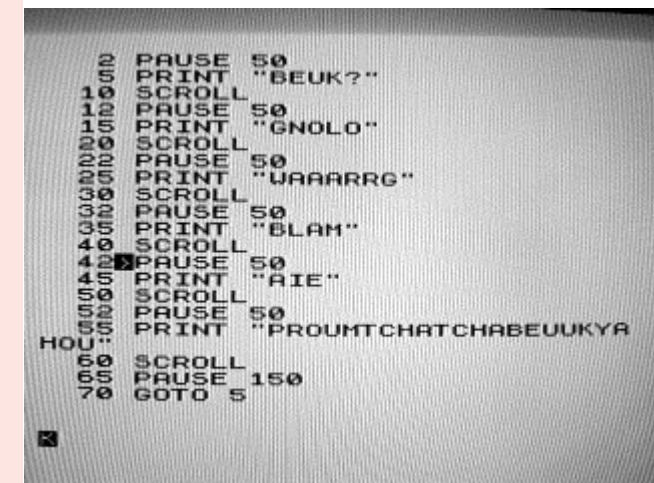
# Exemples

## Mind Map

[http://jeanluc.typepad.com/au\\_nord\\_du\\_jeanluc/2006/06/bataille\\_de\\_nai.html](http://jeanluc.typepad.com/au_nord_du_jeanluc/2006/06/bataille_de_nai.html)



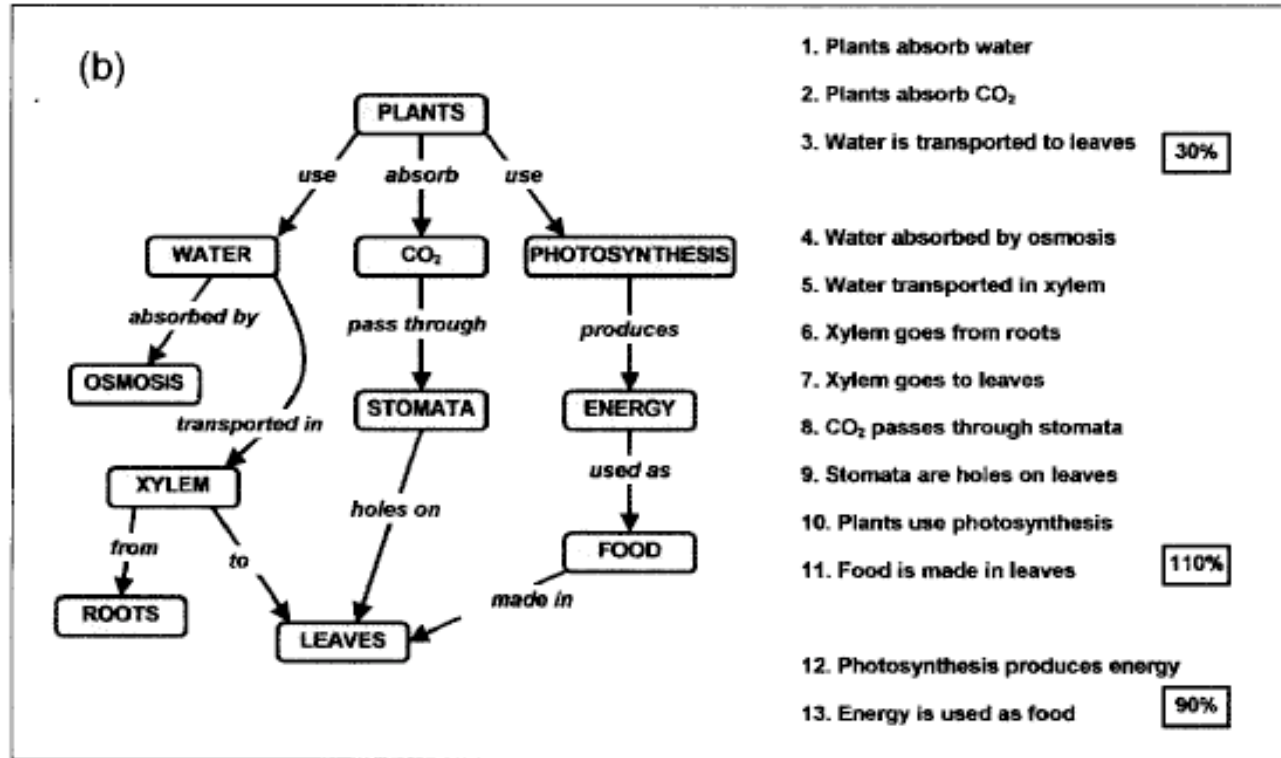
MyThoughtsMindMaps, Christmas Meals Mind Map, www.flickr.com



On hiérarchise

# Exemples

## Concept Map



**Figure 5** (a) An 'expert' map of photosynthesis (also shown reduced to a list of 10 propositions). This is not intended to be a comprehensive map for a topic, but only show the points a teacher wishes to cover in a particular lesson sequence, and how they interrelate. (b) A hypothetical student's map which has been marked according to the occurrence of propositions from the 'expert' map in 5(a), showing three possible scores depending upon what the teacher wishes to acknowledge (as described in the text). Note the number of propositions in the list is greater than the number in the map — 'water transported to leaves' has been interpreted from two other propositions forming a chain. The marker needs to decide whether to engage in such interpretation or to simply accept the stated propositions at face value.

Laura dhal, kinchin\_map7.png, www.flickr.com

J.D. Novak

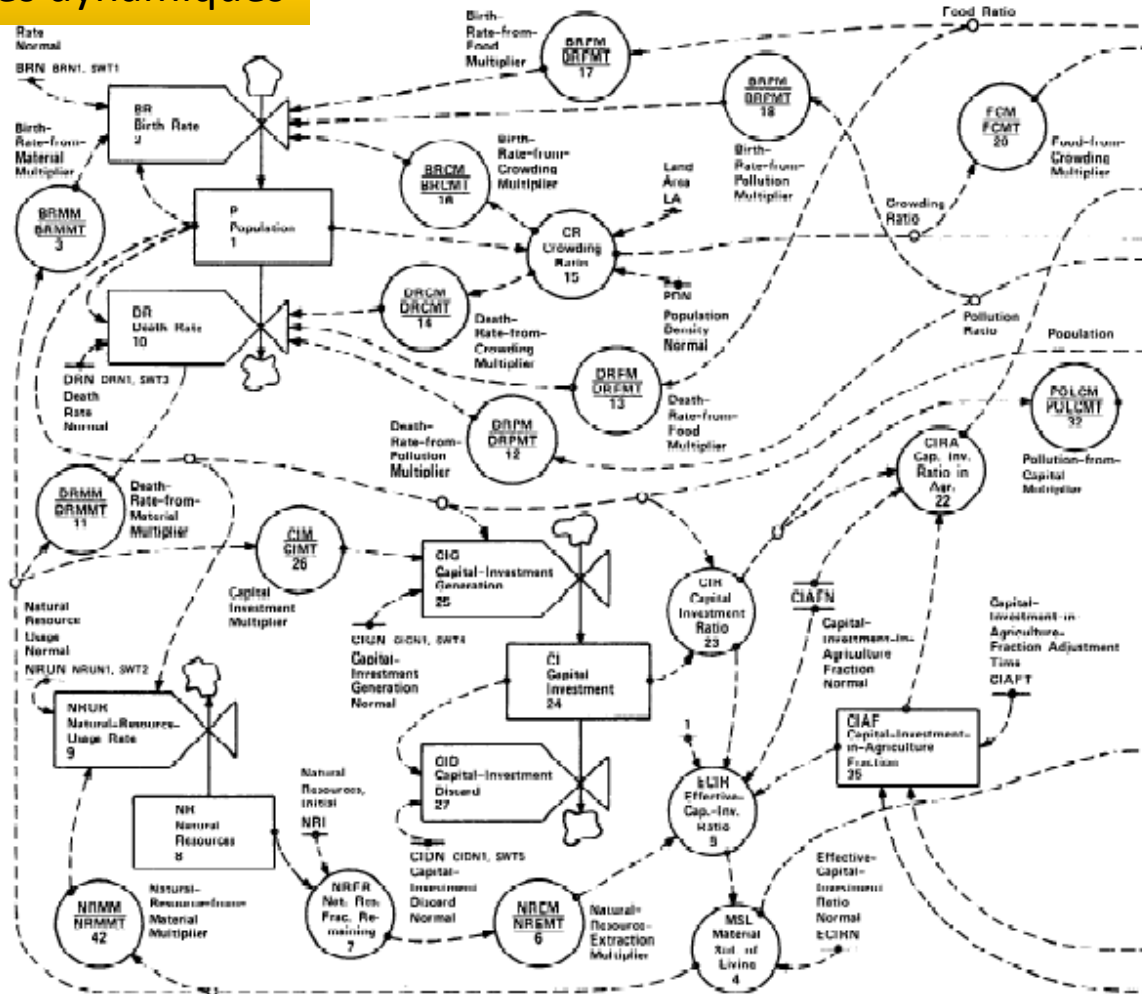


<http://en.wikipedia.org/wiki/ZX80>

On détaille les concepts et leurs relations

# Exemples

## Systèmes dynamiques



Forrester, Jay W., (1971).



[http://en.wikipedia.org/wiki/Coleco\\_Gemini](http://en.wikipedia.org/wiki/Coleco_Gemini)

Un système de « robinets » et de rétro-actions

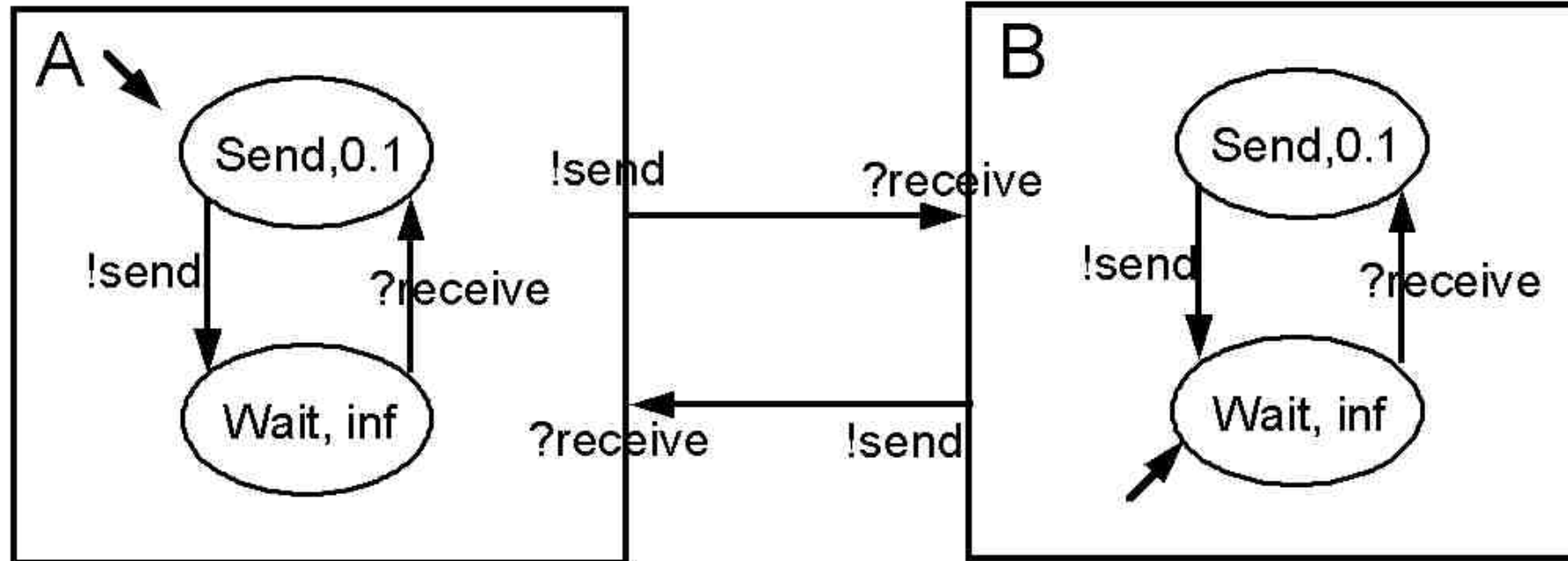
# Exemples

DEVS



[http://de.wikipedia.org/wiki/Competition\\_Pro](http://de.wikipedia.org/wiki/Competition_Pro)

## Ping-Pong



<http://en.wikipedia.org/wiki/DEVS>

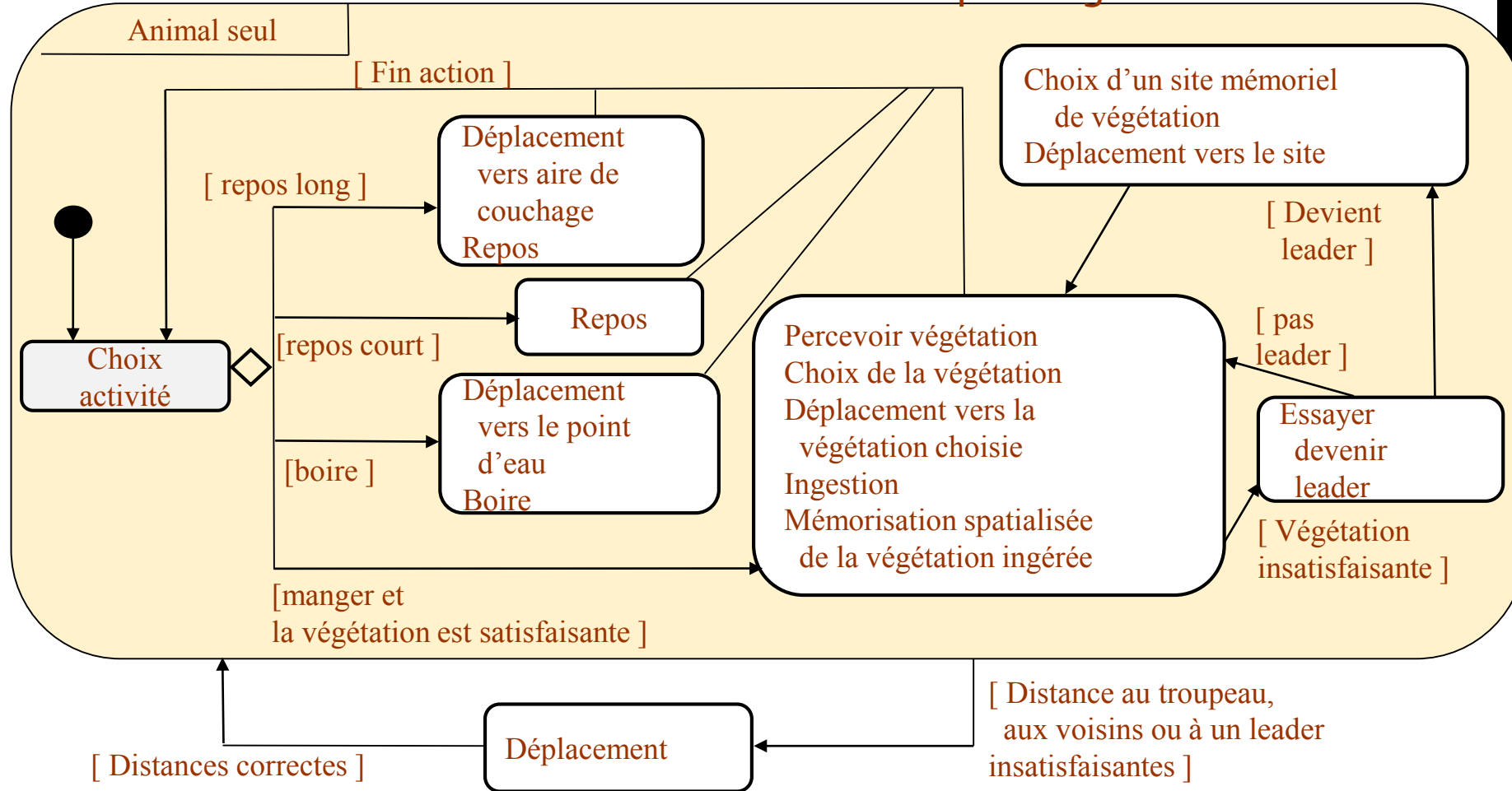
Modèles  
atomiques/couplés

Modèles  
atomiques ou  
composés, en  
interaction

# Exemples

## UML et ses profils

### Les activités du ruminant au pâturage



(Pérochon et al. 2001)

[http://en.wikipedia.org/wiki/January\\_1972](http://en.wikipedia.org/wiki/January_1972)

Plusieurs types de modèles. objets

Réflexions  
(questions?)

# Le flou



Frank fani, warning, [www.flickr.com](http://www.flickr.com)

Variable selon le  
projet, et son  
état  
d'avancement

# Multi domaines

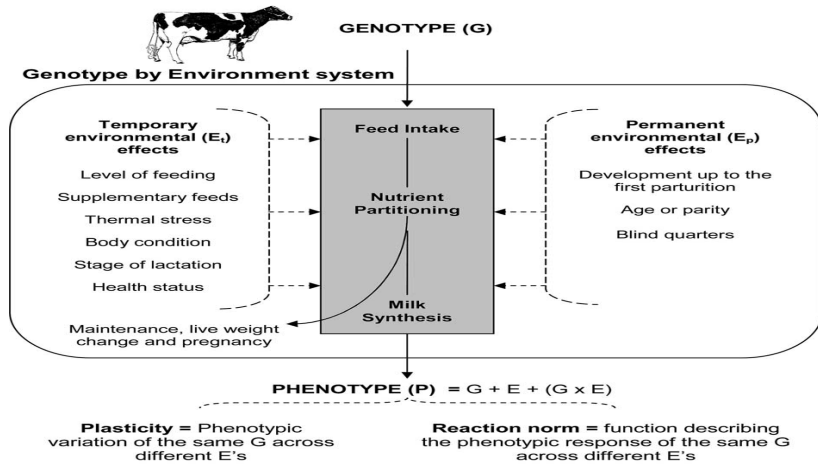


<http://pixabay.com/fr/groupe-personnes-membres-l-%C3%A9quipe-42917/>

Informatique et ...



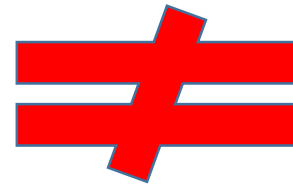
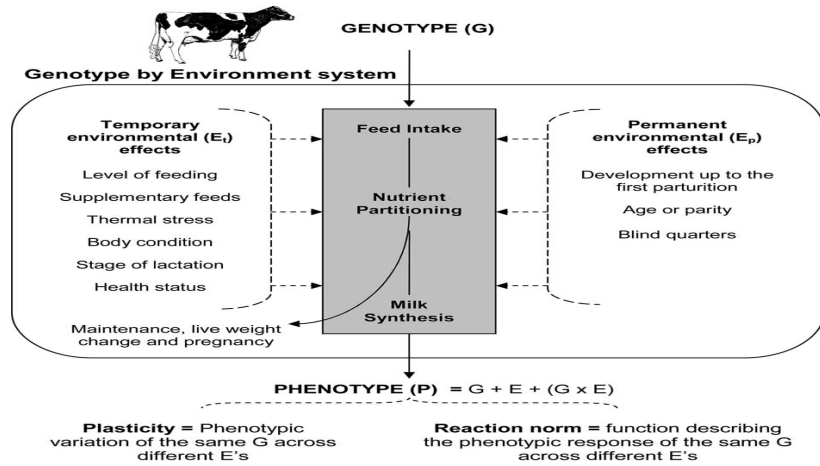
# transformation



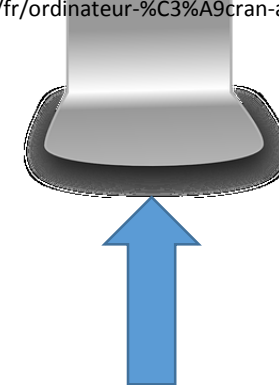
<http://pixabay.com/fr/ordinateur-%C3%A9cran-apple-heureux-304585/>

- Pas d'erreur
- Retrouver son modèle scientifique dans le code

# Modification



<http://pixabay.com/fr/ordinateur-%C3%A9cran-apple-heureux-304585/>



Ingénierie inverse, IDM ...



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