

# (TOWARDS) A FRAME REPRESENTATION OF DISTRIBUTED COGNITION IN SCIENCE

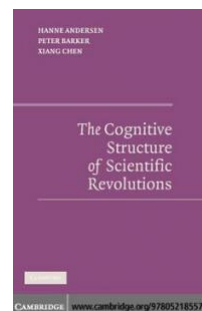
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*"PHILOSOPHY OF CONTEMPORARY SCIENCE IN PRACTICE" GROUP*



## OVERVIEW

- > The ABC of Kuhn's account
  - > Kind terms and lexicons/taxonomies
  - > Exploratory experimentation
  - > Ontological knowledge and knowledge of regularities
  - > A case of conceptual development
- > Extending Kuhn's account
  - > Distributed cognition
  - > Interconnected frames
- > Frame analysis of interdisciplinarity, collaboration and distributed cognition
  - > trading zones, boundary objects, interactional expertise



## THE ABC OF KUHN'S ACCOUNT

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> **Kuhn's account of kind terms**

- > lexicon as a *"general sort of categorization module"*

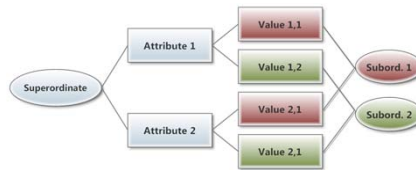
## THE ABC OF KUHN'S ACCOUNT

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- > *"No need for necessary and sufficient conditions"*
- > *"... two individuals who classify in the same way need share only lexical structure, not the features used to implement it"*
- > *"To each node ... is attached ... a set of features useful for distinguishing among creatures"*

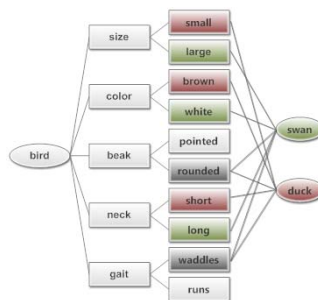
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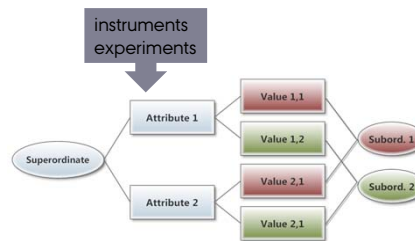
## THE ABC OF KUHN'S ACCOUNT



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- > Buchwald
  - > *experimental work divides the elements of the [taxonomic] tree from one another: sitting at the nodes or branch-points of the tree, experimental devices assign something to this or that category*
  - > *A novel taxonomy may emerge as someone attempts to grapple with a particular device*
- > Chen
  - > *instruments practically designate concepts in a lexical taxonomy by sorting their referents under different categories*



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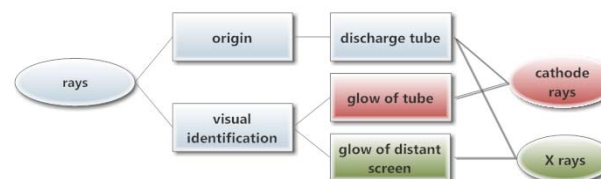
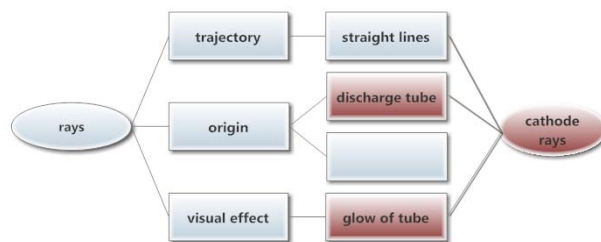
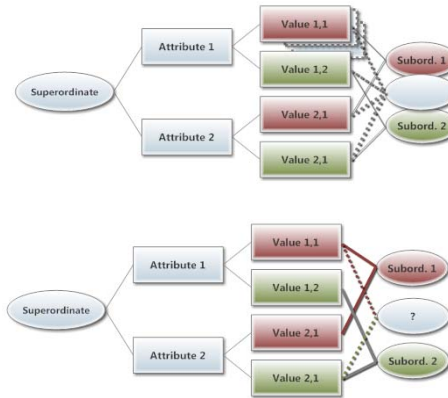
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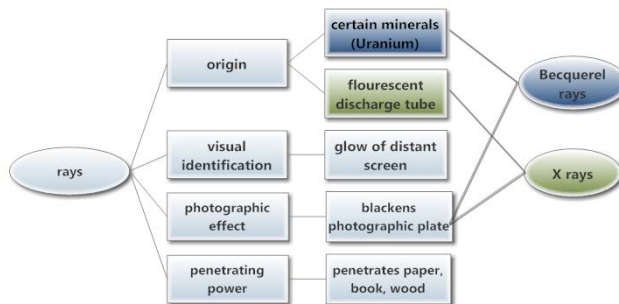
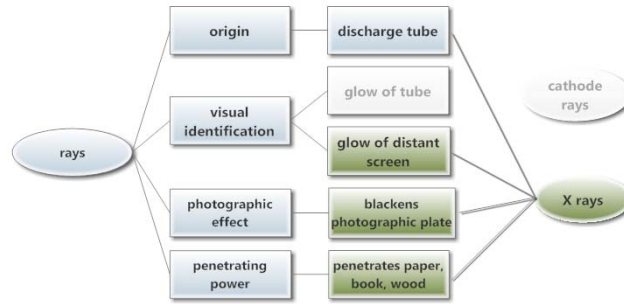
- > **Knowledge in Kuhn's account**
  - > *Certain sorts of expectation about the world are embedded in [the lexicon]*
  - > *all sorts of phenomena .. are compatible with the structure of a particular lexicon. But ... still other phenomena can't be fitted, and some of these turn up unexpectedly during historical development*
  - > *No two kind terms, no two terms with the kind label, may overlap in their referents unless they are related as species to genus. There are no dogs that are also cats, no gold rings that are also silver rings, and so on; that's what makes dogs, cats, silver, and gold each a kind*
  - > *if the members of a language community encounter a dog that's also a cat (or, more realistically, a creature like the duck-billed platypus) they cannot just enrich the set of category terms but must instead redesign a part of the taxonomy*

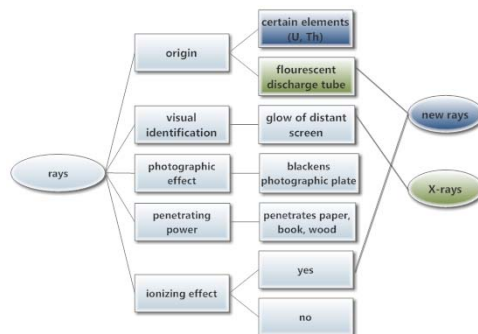
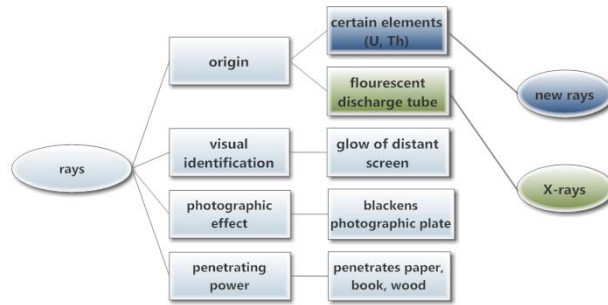
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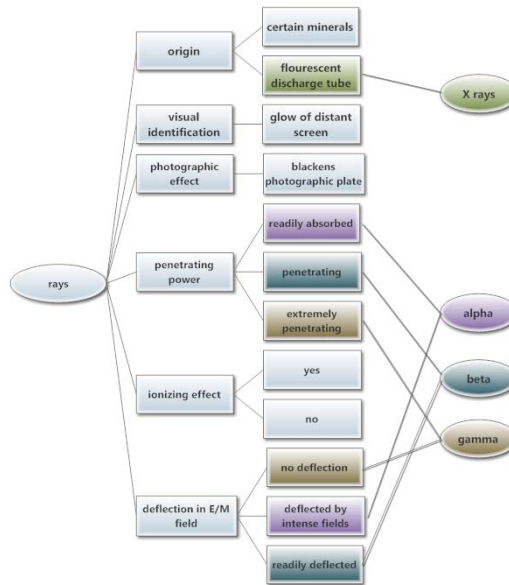
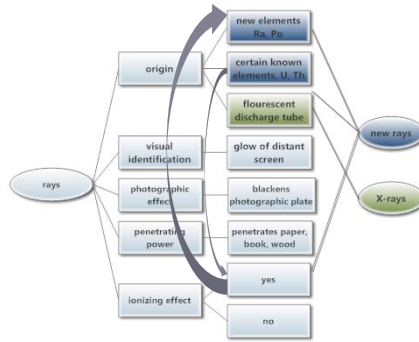
## THE ABC OF KUHN'S ACCOUNT

- > Quasi-ontological knowledge
- > Knowledge of regularities
  
- > Extension to Kuhn's account
  - > Theoretical *explanations* of feature correlations
  
- > Distributed expertise
- > Recursiveness and other connections between frames





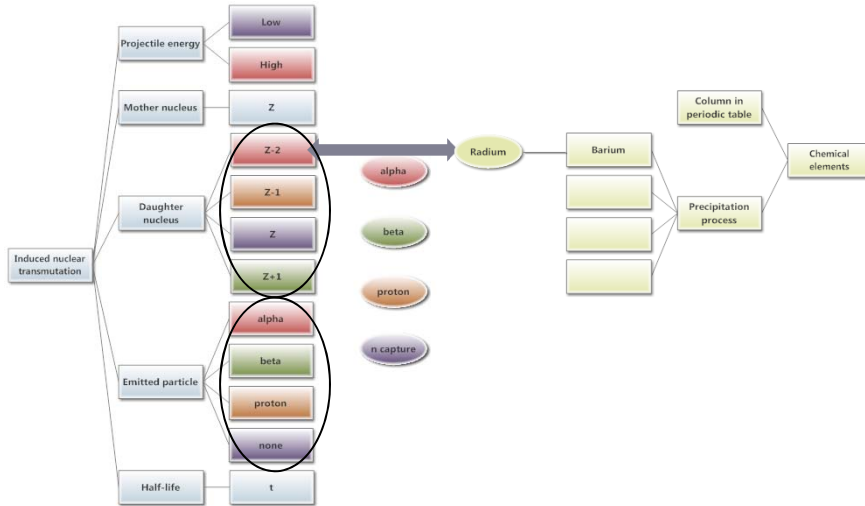






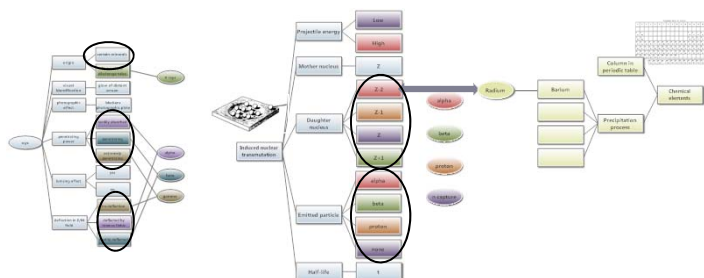






## NEW DIRECTIONS

- > Frames and distributed cognition
  - > Recursive frames and the contributory/interactional expertise divide
  - > Linked frames and trading zones/boundary objects



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THANK YOU FOR YOUR ATTENTION

AND TO  
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