Porphyry’s tree
A general ontology?
The problem

- Some interesting views on ontological problems in late western philosophy
- Was Aristotle really the one who invented ontologies?
The journey

• Starting point: The old Greece philosophers
• The desire to describe the world in a systematic way
• How it ends with a scheme that is still valid, 2000 years later!
Jonian nature philosophers

Thales of Miletos
625–545 BC
Herakleitos
Demosthenes
The Jonian world view

• They said there were four elements: earth, fire, air and water
• Thales claimed they were all manifestations of water in different aggregation forms.
• He also introduced the concept of change and inspired later Husserl to his dialectic ideas.
Thales 625-545 BC

Pythagoras 570-497 BC
Pythagoras, 570 -497 BC.

- He started a school,” the halfcirkel”, on Samos but was forced to move to Crotone, Italy.
- There he started a new school, the Pythagoreans, a sort of religious sect, based upon numerical mysticism.
- The numerical mysticism is still flourishing (c.f. Dan Brown).
Pythagora’s world view

- In the beginning we have materia (apeiron) which is unordered
- Then enters an emptiness, dividing apeiron in parts, numerically related according to harmonic scales
- The doctrine of harmony and number theory are the bases
Sokrates
470-399 BC

- He walked the streets of Athens teaching the inhabitant by asking intriguing questions
- The rulers of Athen thought that was a threat to their authority and sentenced him to death
- It is described by Platon, one of his disciples
Platon 427-347 BC

• Founded 387 BC the first academy
• The name came from the name of a grove where they met
• There they walked around and discussed
• The dialogue was the main pedagogic tool
• The academy survived until 529 AC (916 years!)
Plato in his academy, by Carl Johan Wahlbom (ur Svenska Familje-Journalen)
Aristoteles, 384-322 BC

- Is the most influential Greece philosopher
- Created a catalogue over the collectd knowledge (Metaphysics)
- Created syllogism and logic
- Nichomenian ethics book VI is so far the best written about knowledge
Aristotle’s knowledge organisation

- Physics
  - The five elements
  - Causality, The Four Causes
  - Optics
  - Chance and spontaneity
- Metaphysics
  - Substance, potentiality and actuality
  - Universals and particulars
- Biology and medicine
  - Empirical research program

- Classification of living things
- Practical philosophy
  - Ethics
  - Politics
  - Rhetoric and poetics
Aristotle's logic (Organon)

1. **The Categories** see later,
2. **On Interpretation**, principal contribution to philosophy of language.
3. **The Prior Analytics** introduces his syllogistic method
4. **The Posterior Analytics** deals with demonstration, definition, and scientific knowledge.
5. **The Topics** issues in constructing valid arguments, and inference that is probable. Here Aristotle mentions the Predicables, later discussed by Porphyry and the scholastic logicians.
6. **Sophistical Refutations** gives a treatment of logical fallacies, and provides a key link to Aristotle's work on rhetoric.
Syllogism 1

Major premise: All men are mortal.
Minor premise: Socrates is a man.
Conclusion: Socrates is mortal.

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Syllogism 2

- Barbara (AAA-1)
  All animals are mortal. (MaP)
  All men are animals. (SaM)
  All men are mortal. (SaP)

- Celarent (EAE-1)
  No reptiles have fur. (MeP)
  All snakes are reptiles. (SaM)
  No snakes have fur. (SeP)

- Darii (All-1)
  All kittens are playful. (MaP)
  Some pets are kittens. (SiM)
  Some pets are playful. (SiP)
The categories of being

- Substance,
- Quantity,
- Quality,
- Relation,
- Place,
- Time,
- Position,
- State, condition
- Action
- Affection

cf The Socrates questions!
The Roman empire

- Was founded according to tradition 753 BC by Romulus and Remus
- 146 BC the romans had conquered the Greece empire
- The romans were engineers, but not interested in the Greece philosophy
Romans and Greece

• Still the Romans were very impressed by the Greece scholarship and employed Greece slaves as teachers to their children

• They wrote encyclopaedia (e.g. Plinius sr, 23-79) where Greece scholarship was collected, often very unsystematic
Naturalis Historiæ

II Mathematical and physical description of the world
III-VI Geography and ethnography
VII Anthropology and human physiology
VIII-XI Zoology
XII-XXVII Botany, including agriculture, horticulture and pharmacology
XXVIII-XXXII Pharmacology
XXXIII-XXXVII Mining and mineralogy, especially in its application to life and art, including: gold chasing in silver[2], statuary in bronze[3], painting[4], modelling [5], sculpture in marble[6]. precious stones and gems[7]
Porphyry
234-305
Life

- Born in Tyre, Lebanon
- Went to Rome and studied philosophy for Platonius
- Become a neoplatonist
- After being in Sicily for recovering his health he starts lecturing in philosophy
Work

• Wrote an introduction to philosophy, Isagoge, based upon Aristotle, which for a long time was a standard book in Europe, Byzantium and the Arabic world through Boethius' translation and commentary

• There Porphyry’s tree appears as a model for classifying living things

• It was used until late 1800s
Boethius (480–524)
An important event

• About 400 the Roman empire was vandalised by the barbarians coming from the north
• Most of the heritage incl books, paintings etc was burned or scattered for the wind
• Boethius and some others realised they have to collect the remains...
His life

• Boethius became a favourite of the king Theoderic the Great in Pavia.
• He tried to recover and translate texts from Byzanz and Theoderic became suspicious.
• He was thrown in jail and after some time executed at the age of 44.
Comments on Isagoge

- Several of Boethius' writings, which were largely influential during the Middle Ages, drew from the thinking of Porphyry
- Boethius wrote a commentary on the Isagoge which highlighted the existence of the problem of universals: whether these concepts are subsistent entities which would exist whether anyone thought of them, or whether they only exist as ideas.
- This topic concerning the ontological nature of universal ideas was one of the most vocal controversies in medieval philosophy.
The tree of Porphyry
A deeper analysis
Basic controversy

- Platon: The reality are the ideas...
- Aristotle: The categories points to reality
- Porphyry: The Categories is not a work in primary ontology but rather a work about the expressions used to signify the sensible things around us
Porphyry says that he will rehearse “what the ancient masters say” and avoid the deep questions.

As an example of the latter, he mentions the ontological status of genera and species—whether they exist or depend on thought; and if they exist, whether they are bodies or incorporeal; and if the latter, whether they are sensible items or exist separately.

His formulations of them constitute the most influential part of his work, since it was these questions that formed the basis of medieval debates about the status of universals.
Two realms

• Two realms, the sensible and the intelligible.
• The latter realm contains three different ontological levels:
  • One,
  • Intellect
  • Soul.
The One is the first cause of everything else; it is characterised by sheer unity which renders it beyond thought and beyond description in language.

• CF ”Things” in Protegé!
Intellect and Soul

• Intellect is the sphere of real being, identified with the Platonic Forms, which are the thoughts of a universal intellect.

• Soul, the lowest of the intelligible hypostases, is the intelligible item directly responsible for the sensible realm.
The sensible realm

- The sensible realm, which is an imperfect image of the intelligible, also consists of levels:
- Organisms are ensouled beings and thus include an intelligible component.
- Below them on the scale are forms in matter, bodies, and matter itself. These too are results of Soul's creative activity but are not intelligible entities.
An example
Another example
A third version
One possible to read
Genus-Differentia

• Suppose we will define the concept ”human”
• Humans are members of a ”species”
• ”Genus” (general category) for ”human” is ”animal”
• ”Differentia”, the difference between human and animals are ”rationality”
With modern notation

Substance

Material

Living

Animals

Rational

Man

Non living

Plants

Non rational

Soul
Some reflections from the perspective of informatics

• Informatics deals with methods of arranging information
• Thus we are interested in structures, but not of their content
• Porphry’s tree is a structure, but it is always described with the same content!
• ”Arbor porphyriana” is the search term!
Structure vs content

• Why has the tree five levels?
• Cf next picture about a car manufacturing ontology
• Is it the content or the structure that is the contribution of Porphyry?
## Car manufacturing ontology

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存在（本質、一なるもの）
On Apprehension - Francis Hutcheson, Logic, Metaphysics, and the Natural Sociability of Mankind [1730]
Is this the only thing Plato can be?

People on earth

People in Europe

People in North Europe

People in Asia

People in South Europe

söndag 30 september 12
Can Plato be of any non-human?

- As long as we think of "is-a" relations I don’t think so!
- We can introduce a lot of new levels between the instance and the Porphyrian levels, but we always end up in them!
- But introducing other relations than "is-a" change the whole thing!
Finito