

Semantology as Basis for Conceptual Knowledge Processing

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Abstract. *Semantology* has been introduced as the theory of semantic structures and their connections which, in particular, covers the methodology of activating semantic structures for *representing conceptual knowledge*. It is the main aim of this paper to explain and demonstrate that semantic structures are in fact basic for *conceptual knowledge processing* which comprises activities such as representing, inferring, acquiring, and communicating conceptual knowledge.

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1 Conceptual Knowledge Representation: An Example

In this paper we assume that *Conceptual Knowledge* is based on the so-called “main functions of human thought: concept, judgment, and conclusion” (cf. [Ka88], p.6). Therefore we can benefit from the traditional philosophical logic with its basic doctrine of concepts, doctrine of judgments, and doctrine of conclusions. Our assumption allows us to understand *Conceptual Knowledge Representation* as the presentation of semantic structures that makes possible to recover (at least partly) the original knowledge (cf. [GW06]). Conceptual knowledge representations have been elaborated in related work by *methods of Formal Concept Analysis and Contextual Logic* (cf. [Wi06]). How those representations may be formed shall be demonstrated in this introductory section by an example.

The example originated in a research project of political scientists in the late 1980's. This project was concerned with analysing *international regimes and their relationships* on the basis of empirical material gained by different case studies (see [Ko89]). An evaluation of the empirical material is presented in the

Regimes	1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	2-1	2-1-1	2-1-2	2-2	2-3	2-4	2-5	2-6	2-7	2-8	2-9	2-10	2-11	3-1	3-2	3-3
Cocom	h	cy,f	w	ai	n	h	i	m	e	r	ia	ie,g	n	oi	e	so,st	k	p	cc	b	h	e	ip	h	h
Antarctic Regime	h	cn,cy	w	ri	n	l	i	r	u	g	ie,g	n	oi	u	u	so,st	d	p	ct	u	h	e,a	ip	l	m
Nonproliferation	h	i,cy	s,w	ri	w	l	i,ni	m,r,s	u	g	ie,g	c	oi	u	u	so,st,io	d	f	cc	u	h	e,a	ip	h	h
Conflict Settling	e	i	s	ri	n	l	ni	s	e	r	ie,ew	c	mi	e	st		d	f	cc	u	l	a	d	l	l
Human Rights	e	i	p	v	n	l	ni	r	e	r	ie,ew	c	oi	u	u	so,st	d	p	cc	u	m	a	ia	m	m
Economy & Technology	e	i	w	ai	w	l	i	m,r	u	r	ie,ew	c	mi	e	u	so,st	k	f	cc	u	l	a	d	m	m
Free Movement	e	i	p	v	w	l	ni	r	e	r	ie,ew	n	oi	u	st		d	p	cc	b	h	a	ip	h	m
Journalism	e	i	p	v	w	l	i	r	e	r	ie,ew	n	oi	u	st		d	p	cc	b	m	a	ia	h	m
KVAE	e	i,cn	s	ai	n	l	ni	s	e	r	ie,ew	c	mi	u	st		d	f	cc	b	h	e,a	ip	h	m
Nonintervention	h	f	s	ri	n	l	ni	s	e	g	ie,g		mi	e	st		k	p	cc		l	wo	d	l	l
Rhine	e	i	w	ai	w	h	i	m	e	r	ia	c	oi	u	u	so,st	k	p	cc	b	h	e,a	ip	h	h
North Sea	e	cn	w	ai	w	h	i	m	e	r	ia	c	mi	e	u	so,st	k	p	cc	b	m	wo	ia	m	h
Mediterranean Sea	e	i,cn	w	ai	w	l	i	m	e	r	ie,g	c	mi	e	u	so,st	k	p	cc		l	e,a	ia	l	l
East Sea	e	cn,cy	w	ai	w	l	i	m	u	r	ie,ew	c	oi	u	u	so,st	k	p	cc	b	h	e,a	ip	h	h
Air	e	cn,cy,f	w	ai	w	l	i,ni	m	u	g	ie,g	n	oi	u	u	so,st	k	p	cc	b	h	e,a	ip	h	h
Ozone	h	cn,cy,f	w	ai	w	l	i,ni	m	u	g	ie,g	n	oi	u	u	so,st	k	p	cc	b	h	e,a	ip	h	h
Data	h	cn,cy,f	w	ai	w	h	i	m	e	g	ie,g	c	oi	u	u	so,st,io	k	p	cc	u	l	e,a	ia	l	l
Obligations	h	cy,f	w	ai	w	l	i	m	u	g	ie,g	c	mi	u	u	so,st,io	k	p	cc	b	h	e,a	ip	h	h

Fig. 1. Evaluations of international regimes