European Conference on Data Analysis (ECDA 2014)
in Bremen, Germany, July 2nd to 4th 2014

LIS-Workshop

Context Analysis and Context Indexing

Formal Pragmatics in Knowledge Organization

Michael Kleineberg

Berlin School of Library and Information Science
Humboldt-Universität zu Berlin

2nd July 2014

> Therefore, **indexing theory** contains a considerable **pragmatic dimension**. The representation of a document says something about both the actual **document** and the reality or social **context** it may represent or reflect.

Jack Andersen & Frank Sejer Christensen
Wittgenstein and Indexing Theory

[Andersen & Christensen 1999, 2]

Overview

1) Context in Knowledge Organization
2) Formal Pragmatics
3) A Framework for Context Indexing

Context in Knowledge Organization

Knowledge Organization (KO)

Library and Information Science (LIS):

Theory and practice of indexing languages for the description of documents.

- Subject headings
- Classifications
- Thesauri
- Ontologies

➢ **Knowledge Organization Systems (KOS)**

What means „Context“ in KO?

Epistemology:

Theory of the nature and grounds of knowledge especially with reference to its limits and validity.

- **Cognitive** influence (e.g., Peter Ingwersen‘s „Polyrepresentation“)
- **Social** influence (e.g., Birger Hjørland‘s „Domain Analysis“)
- **Historical** influence (e.g., Hope Olson‘s „Genealogy“)

➢ **Epistemic Context**

Knowledge Organization and Context

KO *in* Context:

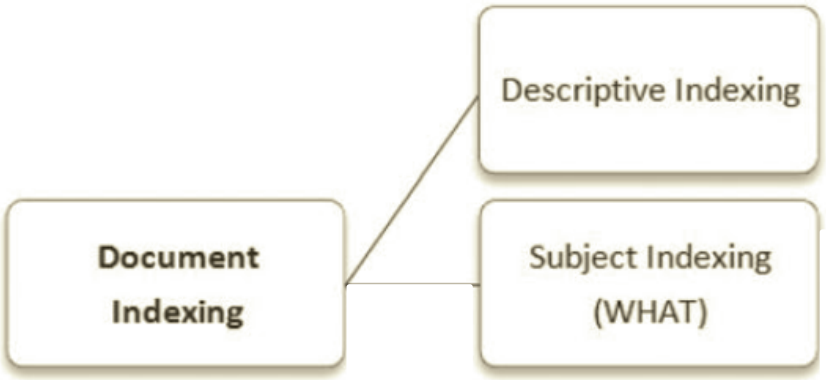
- **Influence of epistemic contexts** on document indexing
- Differential aboutness, situational relevance

KO *of* Context:

- **Indexing of epistemic contexts** of documents
- Viewpoint pluralism, methodological pluralism

➢ If human **knowledge is context-dependent**, then our KOSs should be prepared for an **indexing of epistemic contexts.**

Typology of Document Indexing



[Kleineberg 2013, 358]

Epistemic Contexts in Document Indexing

"Multi-modal approach" [Swift et al. 1978]

"Viewpoint-as-form" [Austin 1984]

"Viewpoint information" [Crowe 1986]

"Formal characteristics" [Langridge 1992]

"Multi-modal indexing" [Biagetti 2006]

"Viewpoint warrant" [Gnoli 2011]

"Multi-perspective knowledge organization" [Kaipainen & Hautmäki 2011]

➢ Distinction between **Subject** and **Context** in Indexing

Subject vs. Context

“Topic”	vs.	“Form of knowledge” [Langridge 1989, 31]
“Subject”	vs.	“Approach” [Hjørland 1997, 93]
“Phenomena”	vs.	“Theory and method” [Szostak 2004, 225]
“Knowing that”	vs.	“Knowing how” [Blair 1990, 148]
“Content”	vs.	“Generative structure” [Habermas, 1979, 12-13]

➢ Distinction between **Semantics** and **Pragmatics**

Pragmatics in Knowledge Organization

- Semiotic or linguistic pragmatics (e.g., Peirce)
- Pragmatism (e.g., Dewey, James)
- Language games, forms of life (e.g., Wittgenstein)
- Speech acts (e.g., Austin, Searle, Grice)
- Practice and discourse communities (e.g., Foucault)
- Communicative action (e.g., Habermas)

➢ **Pragmatic Theories** of **Meaning**

[Blair 1990; Frohmann 1990; Bies 1992; Hjørland 1997; Brier 1996; Andersen & Christensen 1999; Thellefsen & Thellefsen 2004; Backlund 2005; Biagetti 2006]

Theories of Meaning

What is intended?:

- **Intentionalist semantic theory**
- ➢ Criticism: „Mentalism“

What is said?:

- **Formal semantic theory**
- ➢ Criticism: „Representationalism“

In which way it is used?:

- **Use-oriented pragmatic theory**

➢ **Document-oriented = Semantics** vs. **User-oriented = Pragmatics**

Theories of Meaning

- **Document-oriented ≠ Semantics** vs. **User-oriented ≠ Pragmatics**

Author/User Distinction

"Content-oriented"
"Document-centered"

vs.

"Request-oriented"
"User-oriented"
"Need-oriented"
"Domain-centered"

[Hjørland 1997; Mai 2005]

Semantics/Pragmatics Distinction

Language-as-sentence
(Semantics)

vs.

Language-as-speech act
(Pragmatics)

Context of production

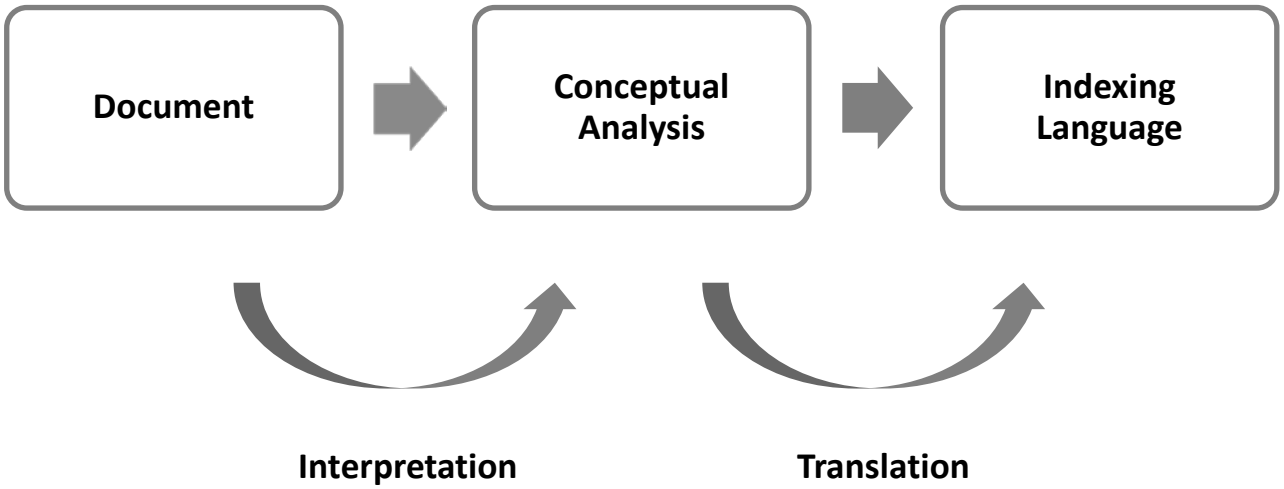
Context of mediation

Context of consumption

„Parent language game“

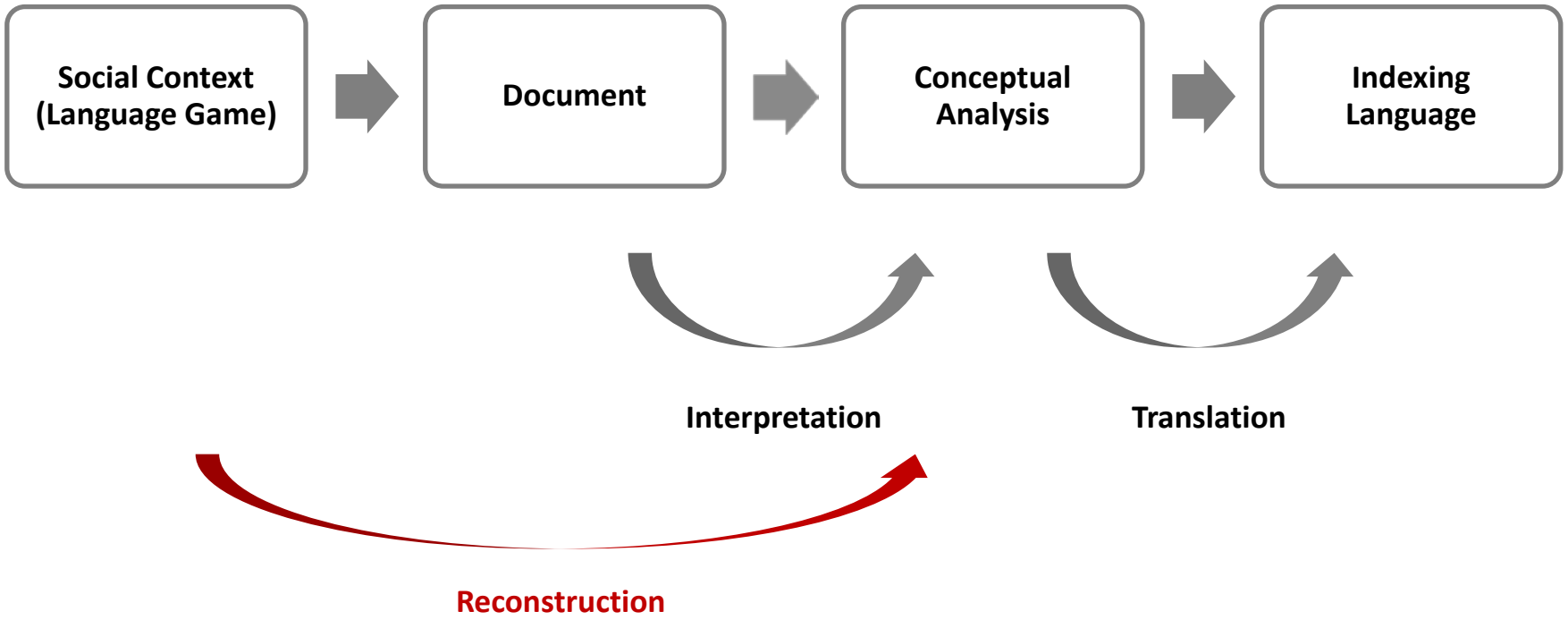
[Cf. Andersen & Christensen 1999]

Traditional Indexing Process



[Based on Andersen & Christensen 1999, 2]

Context-aware Indexing Process



[Based on Andersen & Christensen 1999, 20]

Formal Pragmatics

> “Had Wittgenstein developed a **theory of language games**, it would have had to take the form of a **universal pragmatics**.”

Jürgen Habermas
On the Pragmatics of Social Interaction

[Habermas 2001, 53]

Formal Pragmatics

Critical Theory:

- **Linguistic turn** (arguments against mentalism)
- **Normativity** (arguments against contextualism)

Theory of Communicative Action:

- **Speech act theory** (based on Austin, Searle, Grice)
  - From empirical to formal pragmatics
  - From validity claims of truth to rightness and thruthfulness
- **Context-transcending framework**
  - Integration of different theories of meaning
  - Universal structures of communicative competence

➢ **Formal Pragmatics** as a **Theory of Language Games**

Rational Reconstruction

First Mode of Meaning Explication:

- Semantic content ("know-that")
- Interpretation of surface structures: **hermeneutics**
- ➢ **Subject indexing**

Second Mode of Meaning Explication:

- Generative structure ("know-how")
- Reconstruction of deep structures: **rational reconstruction**
- ➢ **Context indexing**

➢ **Rules** of **Language Games**

[Habermas 1998; Pedersen 2008]

Theoretical level	Object domain
Linguistics	Sentences
Grammar	Sentences of an individual language
Grammatical theory	Rules for generating sentences in any language whatever
Aspects of linguistic analysis	
Phonetic theory	Inscriptions (language sounds)
Syntactic theory	Syntactical rules
Semantic theory	Lexical units
Pragmatics	Speech acts
Empirical pragmatics	Context-bound speech acts
Universal pragmatics	Rules for using sentences in utterances
Aspects of universal-pragmatic analysis	
Theory of elementary propositions	Acts of reference and predication
Theory of first-person sentences	Linguistic expression of intentions
Theory of illocutionary acts	Establishment of interpersonal relations

Language-as-sentence

Language-as-speech act

(„What is said“)

(„What is intended“)

(„In which way it is used“)

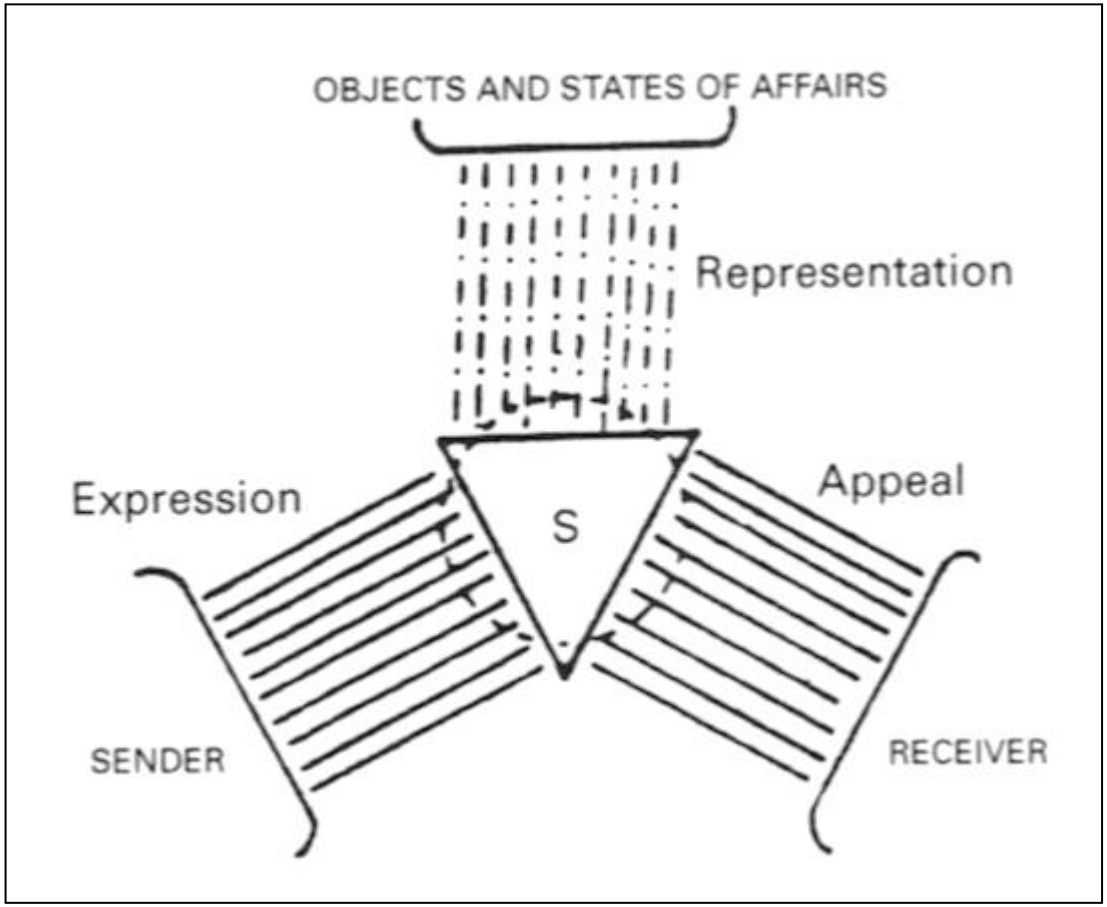
[Habermas 1998, 55]

Functions of Communication

A

Objective world

(„What is said“)



C

Subjective world

(„What is intended“)

B

Social world

(„In which way it is used“)

[Karl Bühler in Habermas 1998, 278]

Horizontal Dimension in Formal Pragmatics („Three Worlds“)

	A	B	C
World relation	„The“ world of external nature (objective world)	„Our“ world of society (social world)	„My“ world of internal nature (subjective world)
Type of action	Conversation	Normatively regulated action	Dramaturgical action
Mode of communication	Cognitive	Interactive	Expressive
Characteristic speech act	Constatives	Regulatives	Avowals
Function of speech	Representation of facts	Establishment of interpersonal relations	Self-representation
Theme	Propositional content	Interpersonal relations	Speaker’s intention
Validity claim	Truth	Rightness	Truthfulness
Type of knowledge embodied	Empirical-theoretical knowledge	Moral-practical knowledge	Aesthetic-practical knowledge
Form of argumentation	Theoretical discourse	Practical discourse	Therapeutic and aesthetic critique
Model of transmitted knowledge	Theories	Legal and moral representations	Works of art

[Based on Habermas 1998, 81, 92, 165, 171]

Vertical Dimension in Formal Pragmatics („Developmental Logic“)

	Cognitive presuppositions	Actors	Action motivations	Action levels	Level of Interaction
I	Preoperational thought	Natural identity	Generalized pleasure/pain	Concrete actions and consequences of action	Incomplete interaction
II	Concrete-operational thought	Role identity	Culturally interpreted needs	Roles, systems of norms	Complete interaction
III	Formal-operational thought	Ego Identity	Competing interpretations of need	Principles	Communicative action and discourse

[Based on Habermas 1979, 83]

Generative Structures (Ontogenesis)

Level	Piaget & Inhelder (1969) *Cognition*	Kohlberg (1981/84) *Moral judgement*	Hy & Loevinger (1996) *Ego identity*
I	I	Sensori-motor	
	II	Preoperational	Preconventional
		0. Magic wish	1. Presocial (Symbiotic)
II	III	Concrete operational	
	(early)	1. Punishment and obedience	2. Impulsive
	(late)	2. Instrumental hedonism	3. Self-protective
III	IV	Formal operational	Conventional
	(early)	3. Approval of others	4. Conformist
	(middle)	4. Law and order	5. Conscientious-conformist
		Postconventional	(Self-aware)
	(late)	5a. Social contract	6. Conscientious
	V	[Postformal]	5b. Prior rights	7. Individualistic
		6. Universal ethical	8. Autonomous
		7. (Transcendental)	9. Integrated

[Kleineberg 2014, 83]

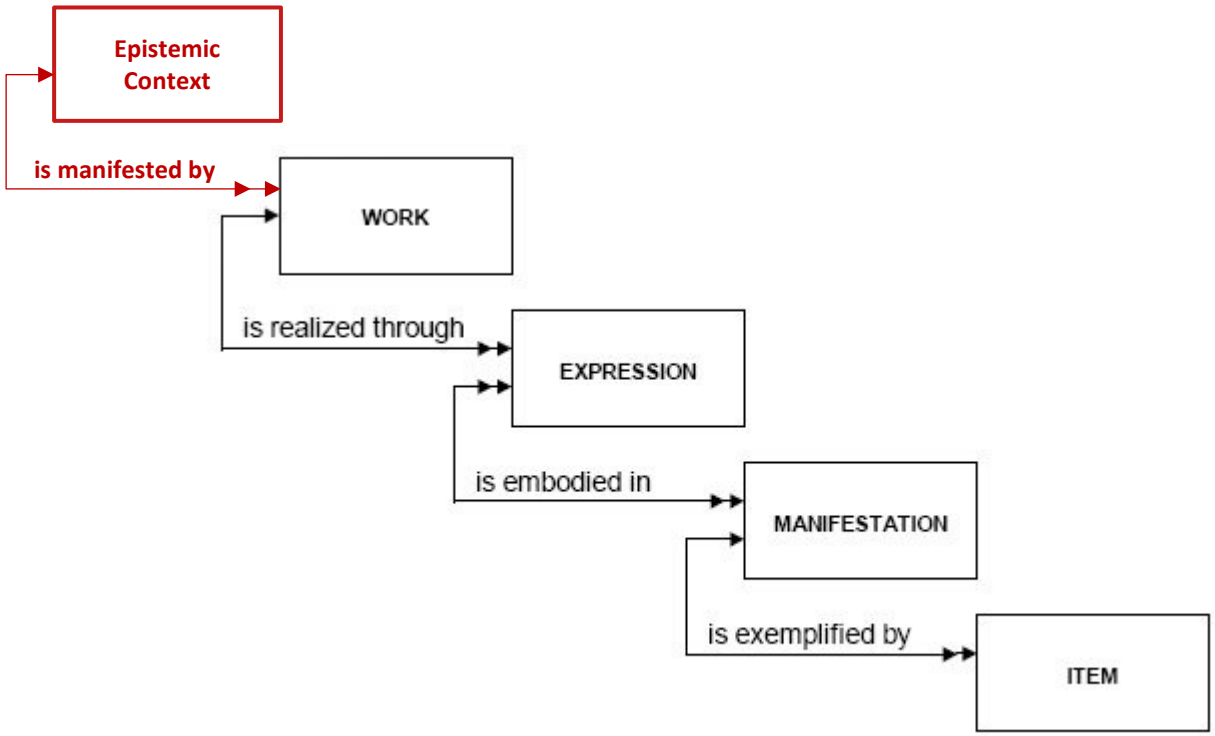
Generative Structures (Phylogenesis/Historiogenesis)

	Level	Donald (2001) *Consciousness*	Gebser (1985) *Consciousness*	Habermas (1979) *Worldview*	Dux (2011) *Thought*	Wilber (2000) *Consciousness*
I	Ia	Episodic *Primates*				
	Ib	Mimetic (gesture) *Homo erectus*	Archaic			
	II	Mythic (language) *Homo sapiens*	Magic	Magical-animistic/ Mythic (early)	Mythical-magic	Magical-animistic
II	III	Theoretic (writing system)	Mythic	Mythic (developed)	Archaic	Mythic
III	IVa		Mental	Rationalized, Cosmological	Philosophical	Mythic-rational
	IVb		(Perspectival-rational)	Theoretical, Reflexive	Modern	Rational
	Va		(Aperspectival)		Postmodern	Vision-logic (pluralistic)
	Vb		Integral-aperspectival	(World citizen)	Systemic-relational	Vision-logic (integral)

[Kleineberg 2014, 84]

A Framework for Context Indexing

The FRBR Model Extended



Context Indexing

Subject Indexing

Descriptive Indexing

[IFLA 2009, 14]

Developmental Logic of "Works"

I)	Mythic (early) Preoperational	→	Narrative explanations Exemplary stories
II)	Mythic (developed) Concrete operational	→	Narrative explanations Great epics (Unity of the manifold of appearances)
IIIa)	Rationalized Formal operational (early)	→	Deductive explanations Cosmologies, philosophies, higher religions (First principles)
IIIb)	Reflexive Formal operational (late)	→	Nomological explanations Revisable theories, practical justifications

[Habermas 1979]

Developmental Logic of Knowledge Forms

Ia) Tacit
Sensori-motor

Ib) Intuitive
Ikonic (Preoperational)

II) Declarative
Conrete-symbolic

IIIa+b) Theoretical
Formal

IIIc+d) Metatheoretical
Postformal

[Biggs 1992]

Developmental Logic of Metatheories

IIIa) Formalism

Hypothetico-deductive

IIIb) Mechanism

Empirical-verifying

IIIc) Contextualism

Relativistic

IIId) Organicism

Dialectical-synthetic

[Kramer 1983]

Developmental Logic of Metatheories

IIIa)	Formalism	Rationalism
	Hypothetico-deductive	Formal operational (early)
IIIb)	Mechanism	Empiricism
	Empirical-verifying	Formal operational (late)
IIIc)	Contextualism	Historicism/Pragmatism (relativistic)
	Relativistic	Postformal (early)
IIId)	Organicism	Historicism/Pragmatism (non-relativistic)
	Dialectical-synthetic	Postformal (late)

[Kramer 1983; cf. Hjørland 1997]

Developmental Logic of Metatheories

IIIa) Formalism — Modernism
Hypothetico-deductive

IIIb) Mechanism
Empirical-verifying

IIIc) Contextualism — Postmodernism
Relativistic

IIId) Organicism
Dialectical-synthetic

[Kramer 1983; cf. Mai 1999; Szostak 2007; Kleineberg 2013]

Example: Language Games „Knowledge“

- Same aboutness (**subject indexing**)
- Different approaches (**context indexing**)
  - Viewpoint pluralism
  - Methodological pluralism

- **Context analysis:**
  - Rational reconstruction („know-how“)
- **Context indexing:**
  - Formal pragmatic framework (controlled vocabulary)

➢ **Generative Structures** (**Type** and **Level**)

[Cf. Kleineberg 2013]

Context Analysis: Horizontal Dimension („Three Worlds“)

Methodological pluralism	**A** (Objective world)	**B** (Social world)	**C** (Subjective world)
Quantitative (Third Person)	Observation (empirical-theoretical)		
Qualitative (Second Person)		Understanding (moral-practical)	
Qualitative (First Person)			Experience (aesthetic-practical)

- **Types of Knowledge (Method Indexing)**

[Cf. Kleineberg 2013]

Context Analysis: Horizontal Dimension („Three Worlds“)

Methodological reductionism	**A** (Objective world)	**B** (Social world)	**C** (Subjective world)
Objective Monism (e.g., scientism, objectivism)	+	-	-
Social Monism (e.g., intersubjectivism, moralism)	-	+	-
Subjective Monism (e.g., phenomenalism, aestheticism)	-	-	+
Objective-social Dualism (e.g., sociologism, historical materialism)	+	+	-
Objective-subjective Dualism (e.g., psychologism, cartesianism)	+	-	+
Subjective-social Dualism (e.g., social constructivism)	-	+	+

➢ **Types of Knowledge (Method Indexing)**

[Cf. Kleineberg 2013]

Context Analysis: Vertical Dimension („Developmental Logic“)

Ontogenesis	**Historiogenesis**	**Language game**
I. Preoperational	Premodernism	Knowledge-as-perception
II. Concrete-operational		Knowledge-as-common sense
IIIa. Formal-operational (early)	Modernism	Knowledge-as-deduction
IIIb. Formal-operational (late)		Knowledge-as-verification
IIIc. Postformal (early)	Postmodernism	Knowledge-as-construct
IIId. Postformal (late)		Knowledge-as-formal unity

- **Levels of Communicative Competence (Viewpoint Indexing)**

[Cf. Kleineberg 2012, 2013, 2014]

Summary

Indexing Theory is in need of:

- **Context analysis:** pragmatic dimension
- **Context indexing:** systematic organization (controlled vocabulary)

Formal Pragmatics provides:

- **Rational Reconstruction**
  - Horizontal dimension: “three worlds”
  - Vertical dimension: “developmental logic”
- **Context-transcending framework**
  - Types of knowledge (method indexing)
  - Levels of communicative competence (viewpoint indexing)

➢ **Theoretical Foundation** for **Context Indexing**

Thanks for your attention!

michael.kleineberg@ibi.hu-berlin.de

References

AKKERMANS, H. (2008): The Business of Ontology Calls for a Formal Pragmatics. In: S. Borko and L. Lesmo (Eds.): Formal Ontology Meet Industry. IOS Press, Amsterdam, 10-16.

ANDERSEN, J. and CHRISTENSEN, F.S. (1999): Wittgenstein and Indexing Theory. In: H. Albrechtsen and J.-E. Mai (Eds.): Advances in Classification Research: Proceedings of the 10th ASIG SIG/CR Classification Research Workshop, 1-26. Available at: <https://journals.lib.washington.edu/index.php/acro/article/view/12479/11017>.

AUSTIN, D. (1984). PRECIS: A Manual of Concept Analysis and Subject Indexing. Oxford University Press, London.

BACKLUND, J. (2005): Lifeworld and Meaning: Information in Relation to Context. In: F. Crestani and I. Ruthven (Eds.): Context: Nature, Impact, and Role. Springer, Berlin, 119-140.

BEGHTOL, C. (1986): Bibliographic Classification Theory and Text Linguistics: Aboutness Analysis, Intertextuality and the Cognitive Act of Classifying Documents. Journal of Documentation, 42 (2), 84-113.

BENOIT, G. (2007): Habermas' Theory of Communicative Action. Epistemological Lifeboat. Available at: <http://www.iva.dk/jni/lifeboat_old/Positions/Habermas%27%20theory%20of%20communicative%20action.htm>.

BIAGETTI, M.T. (2006): Indexing and Scientifc Research Needs. In: G. Budin, C. Swertz and K. Mitgutsch. (Eds.): Knowledge Organization for a Global Learning Society: Proceedings of the 9th International ISKO Conference, Vol. 10. Ergon, Würzburg, 241-246.

BIES, W. (1992): Linguistische Pragmatik: Eine vernachlässigte Referenzdisziplin der Inhalts-erschließung. In: W. Gödert. (Ed.): Kognitive Ansätze zum Ordnen und Darstellen von Wissen. Indeks, Frankfurt am Main, 207-216.

References

BIGGS, J.B. (1992). Modes of Learning, Forms of Knowing, and Ways of Schooling. In A. Demetriou et al., (Eds): Neo-Piagetian Theories of Cognitive Development: Implications and Applications for Education. Routledge, London, 31-51.

BLAIR, D.C. (1992): Information Retrieval and the Philosophy of Language. The Computer Journal, 35 (3), 200-207.

BLAIR, D. (2003): Information Retrieval and the Philosophy of Language. Annual Review of Information Science and Technology, 37, 3 – 50.

BOOKMAN, M. (2002): Forming Competence: Habermas on Reconstructing Worlds and Context-Transcendent Reason. In: M. Aboulafia, M. Bookman and C. Kemp (Eds.): Habermas and Pragmatism. Routledge, London, 65-80.

BUSCHMAN, J.E. (2010): The Social as Fundamental and Source of the Critical: Jürgen Habermas. In: G.J. Lecki et al. (Eds.): Critical Theory for Library and Information Science: Exploring the Social from Across the Disciplines. Libraries Unlimited, Santa Barabara, 161-172.

BRIER, S. (1996): Cybersemiotics: A New Interdisciplinary Development Applied to the Problems of Knowledge Organization and Document Retrieval in Information Science. Journal of Documentation, 52 (3), 296-344.

COOKE, M. (1997): Language and Reason: A Study of Habermas‘ Pragmatics. MIT Press, Cambridge.

CROWE, J.D. (1986): Study of the Feasibility of Indexing a Work's Subjective Viewpoint. Dissertation. School of Library and Information Studies, University of California, Berkeley.

FARRADANE, J. (1963): Relational Indexing and Classification in the Light of Recent Experimental Work in Psychology. Information Storage and Retrieval, 1, 3-11.

FROHMANN, B. (1990): Rules of Indexing: A Critique of Mentalism in Information Retrieval Theory. Journal of Documentation, 46 (2), 81-101.

References

FUGMANN, R. (1993): Subject Analysis and Indexing: Theoretical Foundation and Practical Advice. Ergon, Würzburg.

GNOLI, C. (2011): Animals Belonging to the Emperor: Enabling Viewpoint Warrant in Classifcation. In: P. Landry et al. (Eds.): Subject Access: Preparing for the Future. DeGruyter, Berlin, 91-100.

GNOLI, C.; KLEINEBERG, M. and SZOSTAK, R. (2014): The Blind Knowledge Organizers and the Elephant: Working Notes on Kleineberg's Levels of Knowing. Integrative Levels Classification. Available at: <http://www.iskoi.org/ilc/elephant.php>.

HABERMAS, J. (1979): Communication and the Evolution of Society. Beacon Press, Boston.

HABERMAS, J. (1984/89): Theory of Communicative Action. 2 Vol., Beacon Press, Boston.

HABERMAS, J. (1998): On the Pragmatics of Communication. MIT Press, Cambridge.

HABERMAS, J. (2001): On the Pragmatics of Social Interaction: Preliminary Studies in the Theory of Communicative Action. MIT Press, Cambridge.

HJØRLAND, B. (1997): Information Seeking and Subject Representation: An Activity-Theoretical Approach to Information Science. Greenwood, Westport.

HUTCHINS, W. J. (1975): Languages of Indexing and Classification: A Linguistic Study of Structures and Functions. Peregrinus, Stevenage.

IFLA (2009). Functional Requirements for Bibliographic Records: Final Report. Available at: <http://www.ifla.org/VII/s13/frbr/>.

KAIPAINEN, M. and HAUTAMÄKI, A. (2011): Epistemic Pluralism and Multi-Perspective Knowledge Organization: Explorative Conceptualization of Topical Content Domains. Knowledge Organization, 38 (6), 503-514.

References

KLEINEBERG, M. (2012): Die elementaren Formen der Klassifikation: Ein strukturgenetischer Beitrag zur Informationsgeschichte. Berliner Handreichungen, Heft 325. Available at: <urn:nbn:de:kobv:11-100201437>.

KLEINEBERG, M. (2013): The Blind Men and the Elephant: Towards an Organization of Epistemic Contexts. Knowledge Organization, 40 (5), 340-362.

KLEINEBERG, M. (2014): Integrative Levels of Knowing: An Organizing Principle for the Epistemological Dimension. In: W. Babik (Ed.): Knowledge Organization in the 21th Century: Between Historical Patterns und Future Prospects. Ergon, Würzburg.

KRAMER, D. (1983): Post-Formal Operations?: A need for Further Conceptualizations. Human Development, 26, 91-105.

LANCASTER, F. W. (1998): Indexing and Abstracting in Theory and Practice. Library Association Publishing, London.

LANGRIDGE, D. W. (1989): Subject Analysis: Principles and Procedures. Bowker-Saur, London. MAI, J.-E. (1999): A Postmodern Theory of Knowledge Organization. Cataloging and Classification Quarterly 37, 3-12.

MAI, J.-E. (2005): Analysis in Indexing: Document and Domain Centered Approaches. Information Processing and Management 41, 599-611.

MAI, J.-E. (1999): A Postmodern Theory of Knowledge Organization. ASIS 36, 547-56.

McCARTHY, T. (1978): The Critical Theory of Jürgen Habermas. MIT Press, Cambridge.

NG, K.B. (2002): The Applicability of Universal Pragmatics in Information Retrieval Interaction: A Pilot Study. Information Processing and Management, 38 (2), 237-248.

PEDERSEN, J. (2008): Habermas' Method: Rational Reconstruction. Philosophy of the Social Sciences 38, 457-485.

References

SHAW, R. (2012). Information Organization and the Philosophy of History. Journal of the American Society for Information Science and Technology, 64 (6), 1092-1103.

SOUZA GRACIOSO, L. (2012): Language Philosophy in the Context of Knowledge Organization in the Interactive Virtual Platform. Journal of Systemics, Cybernetics & Informatics, 10 (6), 64-67.

SWIFT, D.F., WINN, V. and BRAMER, D. (1978): 'Aboutness' as a Strategy for Retrieval in the Social Sciences. Aslib Proceedings, 30 (5), 182-187.

SZOSTAK, R. (2004): Classifying Science: Phenomena, Data, Theory, Method, Practice. Springer, Dordrecht.

SZOSTAK, R. (2007): Modernism, Postmodernism, and Interdisciplinarity. Issues in Integral Studies 25, 32-83.

TAYLOR, A.G. and JOUDREY D.N. (2009): The Organization of Information. Greenwood, Westport.

THELLEFSEN, T.L. and THELLEFSEN, M.M. (2004): Pragmatic Semiotics and Knowledge Organization. Knowledge Organization, 31 (3), 177-187.

TIBBO, H.R. (1994): Indexing for the Humanities. Journal of the American Society for Information Science, 45 (8), 607-619.

WATSON, L.E. et al. (1973): Sociology and Information Science. Journal of Librarianship and Information Science, 5 (4), 270-283.

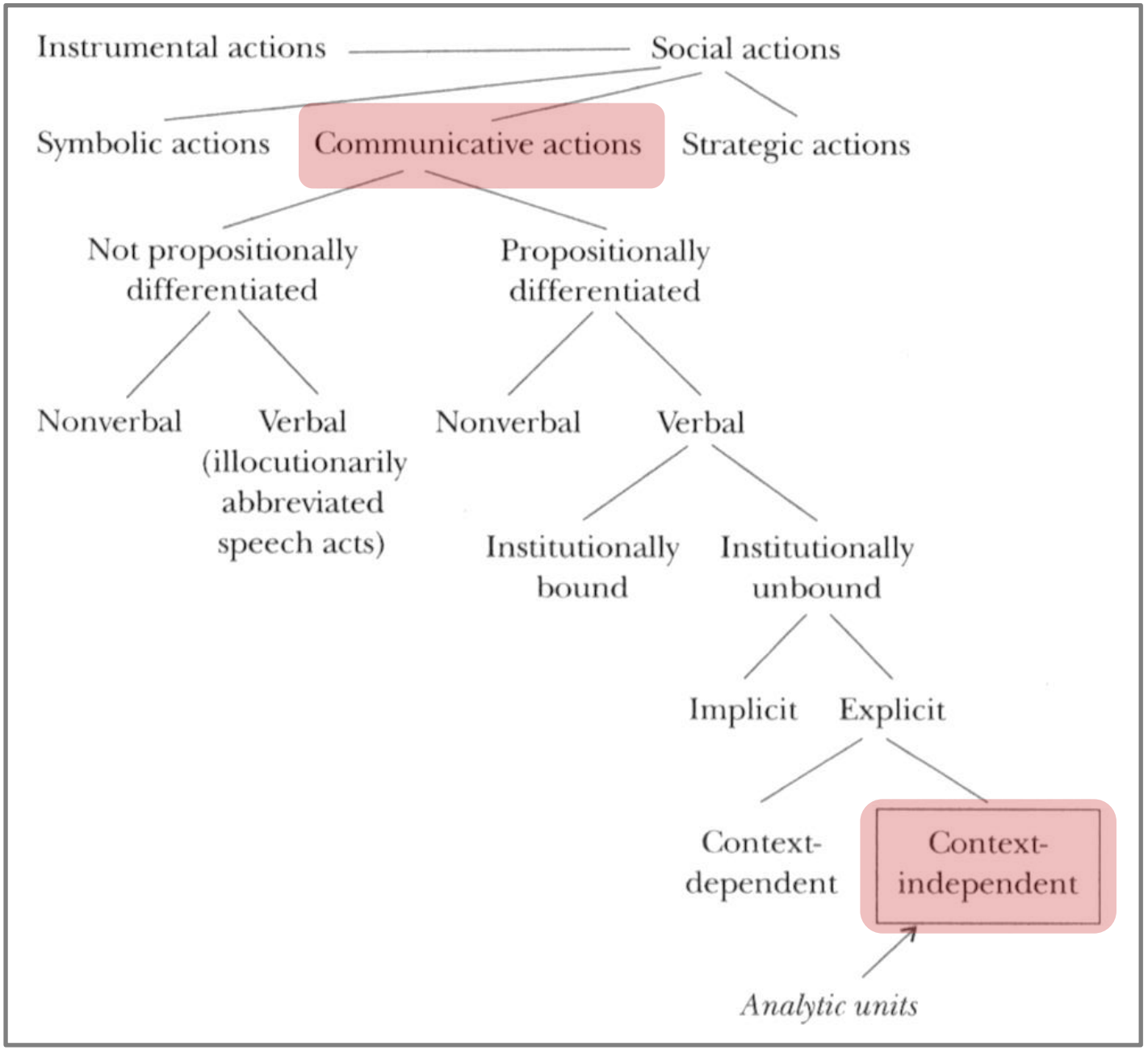
WEINBERG, B.H. (1988): Why Indexing Fails the Researcher. The Indexer, 16, 3-6.

YETIM, F. (2004): Universal Actability of and with Knowledge: Managing and Communicating Knowledge with Patterns. In: R. Hammwöhner, M. Rittberger, and W. Semar (Eds.): Wissen in Aktion: Der Primat der Pragmatik als Motto der Konstanzer Informationswissenschaft. UVK, Konstanz, 271 – 280.

Online Sources last accessed: 15.06.2014

Appendix

Typology of Actions



[Habermas 1998, 62]

Communicative Compentence

Object domain	Competence	Theory
utterances in social contexts	pragmatic	sociolinguistics
non-context-specific utterances	communicative	universal pragmatics
linguistic expressions (sentences)	grammatical	linguistics
propositions	logical	formal logic

[Habermas 2001, 75]

Horizontal Dimension in Formal Pragmatics („Three Worlds“)

Pure Types of Linguistically Mediated Interaction

	Formal-pragmatic features					
Type of action	Characteristic speech acts	Functions of speech	Action orientations	Basic attitudes	Validity claims	World relations
Strategic action	Perlocutions, imperatives	Influencing one's opposite number	Oriented toward success	Objectivating	(Effectiveness)	Objective world
Conversation	Constatives	Representation of states of affairs	Oriented toward reaching understanding	Objectivating	Truth	Objective world
Normatively regulated action	Regulatives	Establishment of interpersonal relations	Oriented toward reaching understanding	Norm-conformative	Rightness	Social world
Dramaturgical action	Expressives	Self-representation	Oriented toward reaching understanding	Expressive	Truthfulness	Subjective world

[Habermas 1998, 165]

Vertical Dimension in Formal Pragmatics („Developmental Logic“)

Cognitive presupposi-tions	Levels of interaction	Action levels	Action motivations	Actors	Perception of Norms	Perception of Motives	Perception of Actors
I Preoperational thought	Incomplete interaction	Concrete actions and consequences of action	Generalized pleasure/ pain	Natural identity	Understand and follow behavioral expectations	Express and fulfill action intentions (wishes)	Perceive concrete actions and actors
II Concrete-operational thought	Complete interaction	Roles, systems of norms	Culturally interpreted needs	Role identity	Understand and follow reflexive behavioral expectations (norms)	Distinguish between "ought" and "want" (duty/ inclination)	Distinguish between actions and norms, individual subjects and role bearers
III Formal-operational thought	Communica-tive action and discourse	Principles	Competing interpreta-tions of needs	Ego identity	Understand and apply reflexive norms (principles)	Distinguish between heteronomy and autonomy	Distinguish between particular and general norms, in-dividuality and ego in general

[Habermas 1979, 83]

A Formal Pragmatic Framework

Types / Levels	A Empirical-theoretical	B Moral-practical	C Aesthetic-expressive
I Pre-operational	*Lack of differentiation*		
II Concrete-operational	Nature	Culture	
III Formal-operational	Nature	Culture	Self

Developmental Logic of Reflective Judgement

Table 1. Integrative levels of reflective judgment (Patricia M. King & Karen S. Kitchener)

Level	View of knowledge	Concept of justification	Typical expression
Pre-reflective thinking			
Stage 1	Knowledge is assumed to exist absolutely and concretely; it is not understood as an abstraction. It can be obtained with certainty by direct observation.	Beliefs need no justification since there is assumed to be an absolute correspondence between what is believed and what is true. Alernate beliefs are not perceived.	*„I know what I have seen."*
Stage 2	Knowledge is assumed to be absolutely certain but not immediately available. Knowledge can be obtained directly through the senses (as in direct observation) or via authority figures.	Beliefs are unexamined and unjustified or justified by their correspondence with the beliefs of an authority figure (such as a teacher or parent). Most issues are assumed to have a right answer, so there is little or no conflict in making decisions about disputed issues.	*„If it is on the news, it has to be true."*
Stage 3	Knowledge is assumed to be absolutely certain or temporarily uncertain. In areas of temporary uncertainty, only personal beliefs can be known until absolute knowledge is obtained. In areas ob absolute certainty, knowledge is obtained from authorities.	In areas in which certain answers exist, beliefs are justified by reference to authorities' views. In areas in which answers do not exist, beliefs are defended as personal opinion since the link between evidence and believes is unclear.	*„When there is evidence that people can give to convince everybody one way or another, then it will be knowledge; until then, it's just a guess."*
Quasi-reflective thinking			
Stage 4	Knowledge is uncertain and knowledge claims are idiosyncratic to the indivindual since situational variables (such as incorrect reporting of data, data lost over time, or disparities in access to information) dictate that knowing always involves an element of ambiguity.	Beliefs are justified by giving reasons and using evidence, but the argument and choice of evidence are idiosyncratic (for example, choosing evidence that fits an established belief).	*„I'd be more inclined to believe evolution if they had proof. It's just like the pyramids: I don't think wee'll ever know. Who are you going to ask? No one was there."*

To be continued.

Developmental Logic of Reflective Judgement

Table 1. continued

Level	View of knowledge	Concept of justification	Typical expression
Stage 5	Knowledge is contextual and subjective since it is filtered through a person's perceptions and criteria for judgment. Only interpretations of evidence, events, or issues may be known.	Beliefs are justified within a particular context by means of rules of inquiry for that context and by context-specific interpretations of evidence. Specific beliefs are assumed to be context specific or balanced against other interpretations, which complicates (and sometimes delays) conclusions.	*„People think differently and so they attack the problem diffeently. Other theories could be as true as my own, but based on different evidence."*
Reflective thinking			
Stage 6	Knowledge is constructed into individual conclusions about ill-structured problems on the basis of information from a variety of sources. Interpretations that are based on evaluations of evidence across contexts and on evaluated opinions or reputable others can be known.	Beliefs are justiified by comparing evidence and opinion from different perspectives on an issue or across different contexts and by constructing solutions that are evaluated by criteria such as the weight of the evidence, the utility of the solution, or the pragmatic need of action.	*„It's very difficult in this life to be sure. There are degrees of sureness. You come to a point at which you are sure enough for a personal stance on the issue."*
Stage 7	Knowledge is the outcome of a process of reasonable inquiry in which solutions to ill-structured problems are constructed. The adequacy of thos solutions is evaluated in terms of what is most reasonable or probable according to the current evidence, and it is reevaluated when relavent new evidence, perspectives, or tools of inquiry become available.	Belief are justified probalistically on the basis of a variety of interpretative considerations, such as the weight of the evidence, the explanatory value of the interpretation, the risk of erroneous conclusions, consequences of alternative judgments, and it is reevaluated when relevant new evidence, perspectives, or tools of inquiry become available.	*„One can judge an argument by how well thought-out the position are, what kind of reasoning and evidence are used to support it, and how consistent the way one argues on this topic is as compared with other topics."*

Source: Kitchener & King (1994, 14-16).

Developmental Logic of Natural Philosophy

Table 1. Integrative levels of natural philosophy (John M. Broughton)

Level	Typical age	Self/World	Mental/Material	Physical/Social	Reality/Appearance	Knower/Known
1. Objective	4-7 years	*Presumptive:* Self-evident, bodily self. Not differentiated from reflexive "itself."	*Adualist:* Gross head/body distinction. Visible and invisible not differentiated. Mind and body mutually permeable.	*Animistic:* Living and nonliving only partly distinguished. People distinguished from things only along quantitative physical dimensions.	*Objective:* Reality presumed. Simple and immediate existence of external things. Real undifferentiated from nonartificial.	*Dogmatic:* Thought and its objects undifferen-tiated. Direct , automatic knowing. Single extrinsic truth, known and handed down by authority.
2. Individual	8-12 years	*Individual:* Self is specific person, me or you. Perceiving, acting person. Source or agent.	*Organic:* Mind differentiated from body as brainlike organ controlling rest of body. Discrete, nonvisible mental contents.	*Subjective:* People distinguished as conscious, sentient, or as self-active individuals. Body is (subordinate) part of person.	*Native realist:* Certainty of reality directly sensed. Appearance is the way something "looks" and this *is* reality. Real differentiated from imaginary as persistent.	*Empirical:* Partial differentiation of knower from known. Experience directly caused by object. Subjective not opposed to objective. Truth is absolute fact, is opposed to lie, and is individually apprehended and asserted.
3. Divided	12+ years	*Divided:* Self is mind (mental self) more than body (physical self). Unique subjective traits, opinions, beliefs, or values. Authentic inner self differentiated from false outer appearance (social personality or role self).	*Immature dualist:* Abstract mental differentiated from concrete physical as a fluid and invisible medium. Mental and physical as shared classes with interdependence (overlap).	*Interpersonal:* People have personality and show themselves to other people. Body is appearance, ambiguous. Physical as impersonal "scientific" world.	*Realist:* Appearance generally realistic, but mind may add personal distortion (opinion or value). Mental is belief rather than reality.	*Social:* Concrete facts known by individuals. Truth as interpersonal demonstration and plausibility (overlap). Nascent skepticism.

To be continued.

Developmental Logic of Natural Philosophy

Table 1. continued

Level	Typical age	Self/World	Mental/Material	Physical/Social	Reality/Appearance	Knower/Known
4. Dualist	18+ years	*Substantial:* Self as system: soul, intellect, logic, identity, or "cogito" (self-control). Self has mental and physical attributes. Self-concept, or "me," rather than "I." Generalized self or perspective.	*Cartesian:* Dualism between objective mechanistic system of scientific cause/effect, and subjective or spiritual world of belief, purpose, and reason. Unconscious differentiated from conscious.	*Individual:* Social as system of abstract individuals. People as spiritual, self-regulating, and purposeful (vitalist), instances of the general rule. Body now estranged as part of material world (mechanist).	*Dualist:* Reality assumed. Noumenon differentiated from phenomenon. Substantial reality is lawlike system generating appearances (data).	*Positivist:* Knowledge is inductive generalization of observation, constructive copy of world. Truth, which subordinates reality, is replicable and is achieved through social-conventional testing of models. Impartial "generalized other" defines objective standpoint.
5. Subjective	20+ years	*Process:* Self as flux of experience, or process of self-realization. Breakdown ofsubstantial soul or identity. Everything has self.	*Reductionist:* Monistic materialism. Mind as epiphenomenon.	*Anarchist:* Fusion of natural and social. (Either reduction of social to biological or panpychism.) Dialectic of organization and anarchic chaos.	*Subjectivist:* All reality phenomenal. Full determinism at level of data.	*Relativist:* All knowledge is subjective, or arbitrary convention. Opposition to objectification. Skepticism and solipsism.
6. Rational	25+ years	*Epistemological*: Self as transcendental ego, or function of universal self-consciousness. Self-conceiver or subject-self differentiated from empirical or object-self.	*Parallelist:* Functional "mental" and "physical." psychology versus physiology, as ideational systems of explanatory constructs.	*Rational:* Social as rational democratic organization, versus natural as nonrational but systematic sphere. Natural law. Physical and social sciences.	*Perspectivist:* Reality presupposed. Reality defined by coherence and utility of sytem within which it is interpreted.	*Methodological:* Objective relativism. Knowledge and truth defined by intersubjective use of paradigm, such as idealism, behaviorism, etc. Logical level distinguished from empirical.

To be continued.

Developmental Logic of Natural Philosophy

Table 1. continued

Level	Typical age	Self/World	Mental/Material	Physical/Social	Reality/Appearance	Knower/Known
7. Dialectical Materialist		*Historical:* Self as trans-individual subject (e.g., class subject), transforming natural/ social reality.	*Interpenetrative:* Dialectical materialism. Nature and culture penetrate each other through human activity (work).	*Dialectical:* Natural world transformed into cultural, or alienated from it through domination.	*Materialist:* Objective material reality dynamically evolving and appearing through human activity.	*Social:* Knowledge as active, social transformation of reality through man-made, historical categories.

Source: Broughton (1978, 80-81).

Developmental Logic of Self understanding

Table 1. Integrative levels of self-understanding (Susanne R. Cook-Greuter)

Level	Ego development	Self-definition	Perspective
Preconventional	*Typical age (in modern Western societies): 0 –12 years*		
1. Symbiotic (E1)	Children or developmentally arrested adults who are unaware of themselves as separate individuals. They may be nonverbal, driven by basic needs and fundamentally helpless with others.	Confused, confounded	
2. Impulsive (E2)	Individuals who show signs of beginning use of langugae simultanously with the ego as reflected in such statements as "I want" and "mine". Beginning of first-person perspective.	Rudimentary, physical self-labeling, crude dichotomies	First-person
2/3. Self-protective (E3)	People who see the world only from the perspective of their own wants and needs. To get what they want, they need control others and safeguard their interests. This is the first stage of beginning purposeful social interaction. Self-protective opportunist see the world from an "I win/you lose" perspective. Power is used where useful: "Might makes right."	Basic dichotomies, single concrete feature, minimal self-description in terms of desires	
Δ3. Rule-oriented (E3)	Individuals who are discovering the second-person perspective. They have a vacillating point of view. Sometimes the question is: "How do I look to others?" and at other times: "How do they look to me?". Comparing is restricted to concrete and external aspects of self and others. Interest in being part of groups (greater power) and following rules.	Primary actions: single external feature, beginning comparisons	Second-person

To be continued.

Developmental Logic of Self understanding

Table 1. continued.

Level	Ego development	Self-definition	Perspective
Conventional	*Typical age (in modern Western societies): 12+ years (80% of American adults)**		
3. Conformist (E4)	Persons with an early adolescent frame of mind. They identify themselves mostly as members of familiar groups. The boundaries between self and others are confused. But unlike people at the Self-protective stage, there is real concern for the well being of others. One takes responsibility for others. Dependency needs are high. Fear of rejection leads Conformists to be overly and nice and to repress negative feelings. There is unquestioned acceptance of the Family and in-groups (such as peer groups, family values, club, church) and loyality is important. The unfamiliar (out-groups) is rejected and easily maligned. External social status and material goods are important as indices of one's value. Simple shoulds and oughts are adhered to, but now include more socially desirable behavior. Experience is concrete, practical, and reactions immediate withou much reflection.	Concrete operations: several external features; vital statistics, rudimentary internal states, negative suppressed	
3/4. Self-aware (E5)	People who are able to step back and look at themselves as objects for the first time. They can take the third-person perspective and beginn to observe themselves. Generally, however, the focus is directed outside the self, on others. Conventional morality and self-righteousness strong. Self-aware or self-conscious people often assert and express their newly discovered personhood albeit in traditional terms. They try to differentiate themselves from the previous familiar context. Being able to stand outside oneself permits beginning self-reflection. Persons on this stage begin to recognize that others have different selves and thoughts, and that they can look at you as an object as well. A third person-perspective allows for abstract operations and mental manipulations of absract objects. Self-aware individuals can generate permutations or many solutions to a problem, known as "the yes-but" syndrome, but cthey cannot yet prioritize among variables. Beginning awareness of time as a linear progression and, therfore, beginning to see self as having enduring traits, i.e., an identifiable character or identity. Conventional shoulds and oughts and cultural norms are more successfully internalized. Belive in Authority and the Truth are strong. Self-aware persons are concerned with duty, responsibility, right action. Technicians and burocrats often inhabit this frame of mind with excellent results for society.	Abtract operations: clusters of external attributes, simple traits, beginning introspection; beginning sense of separate self-identity and unique personhood	Third-person

* Based on data since 1980. Stage 3 (E4) has become less common with the women's movement having taken hold.

To be continued.

Developmental Logic of Self understanding

Table 1. continued.

Level	Ego development	Self-definition	Perspective
4. Conscientious (E6)	This stage adds the concept of linear time (sequentiality) as a conscious object to the third-person perspective and expands the meaningful social context to others within the same society with similar ideologies and aspirations. At stage 4 (E6) one starts to explore the nature of oneself in terms of traits through more ongoing introspection. Aware of self as having definite traits that distinguish one uniquely from others. One learns to understand oneself backwards (responsibility, guilt) and forwards in time (plans, dreams) within roles (prototypes) and functions provided by one's culture. Stage 4 (E6) individuals are interested in reasons, causes, goals, costs, consequences, and the effective use of time. Aware of others as individuals with unique personalities, and thus contract agreements and mutually beneficial arrangements. At stage 4 (E6), one may deeply believe in social progress and human perfectibility. This often translates into a genuine effort at making a difference in the world through action, and mobilizing others around one's causes and beliefs. Clear sense of identity and being in charge of oneself. Life seen as a task to be mastered. Formal operations and abstract rationality are at their peak. There may be a conviction that the proper analytical, scientific methods will eventually lead to discovery of how things really are, that is, to the discovery of the laws of everything and therefore the solutions to all problems. Formal Operational 4 (E6) persons represent "the Adult" as defined by Western industrialized society and as supported by modern institutions from education to jurisprudence. Because of the expanded view, the Conscientious person plans, prioritizes, and optimizes procedures to achieve goals. One needs society to function smoothly, in order to chieve one's desires. Great need to improve, to make things more efficiently and more effectively. Quintessential conventional scientific-rational frame of mind. The self is seperated from what is observed, thus, objectively is both desirable and believed to be achievable. The rational mind makes human beings uniquely different from and superior to the rest of creation. Self-analysis can now become intense. Mind capable of exploring inner world "psychologic," and outer world. Emphasis on reason, analysis, logic, prognosis as well as measurement, prediction, probabilistic considerations and proofs.	Formal operations: self as system of roles and clusters of traits; prototype personality; individual self-agency; aware of recent past and future, and causality	

To be continued.

Developmental Logic of Self understanding

Table 1. continued.

Level	Ego development	Self-definition	Perspective
Postconventional	*(Approximately 10% of the adult population)*		
4/5. Individualist (E7)	The fourth perspective allows one to look at one self as changing over time and reacting differently in different contexts. Initial discovery that people interpret experience, that is, bring their own "meaning" to the same event. The same thing means different things to different people. Self and context (object) form an interdependent system. Their are as many truths as their are individuals. No truth can therefore be better than any other. Everything seems relative, undecidable, context dependent. Own sense of self is fluctuating, often seen as contradictory, inconsistent, made up of different subpersonalities. Since all is uncertain, Individualists often concentrate on enjoying the experience of the here and now. They turn inward and are increasingly able to understand themselves in complex ways. They can take a larger view (both in terms of time and space) regarding their own internal and external life. Discovery of cultural and personal "assumptions" and own tendency towards defensive moves. Individualitsts (E7) realize that reality is not out there, seperate from the viewer as previously felt, but connected to the person who experience it. Increasing ability to see how things are related and influence each other in non-linear ways. Others admire for their individuality and creative solutions to living.	Systematic operations: systems theory concepts perceived; self as unique entity	Fourth-person
5. Autonomous (E8)	Focus: self-development, self-actualization; creating a meaningful, coherent, objective self-identity. Dominant center of awareness: Rational mind and intellect; thought as mediated through language (symbolic codification, representation). Range of awareness: Aware of body/mind as system, aware of context dependency and personal interpretation of internal and external events. Method of knowing: Reasoning, rational analysis aided by some intuition; one assesses, evaluate, judges, compare, measures, contrasts, and predict. Goal: To be the most one can be.	Autonomous, multiple roles; self-generated core-identity; aware of many defenses and expressions of inner conflict; sense of self-esteem, empowerment	

To be continued.

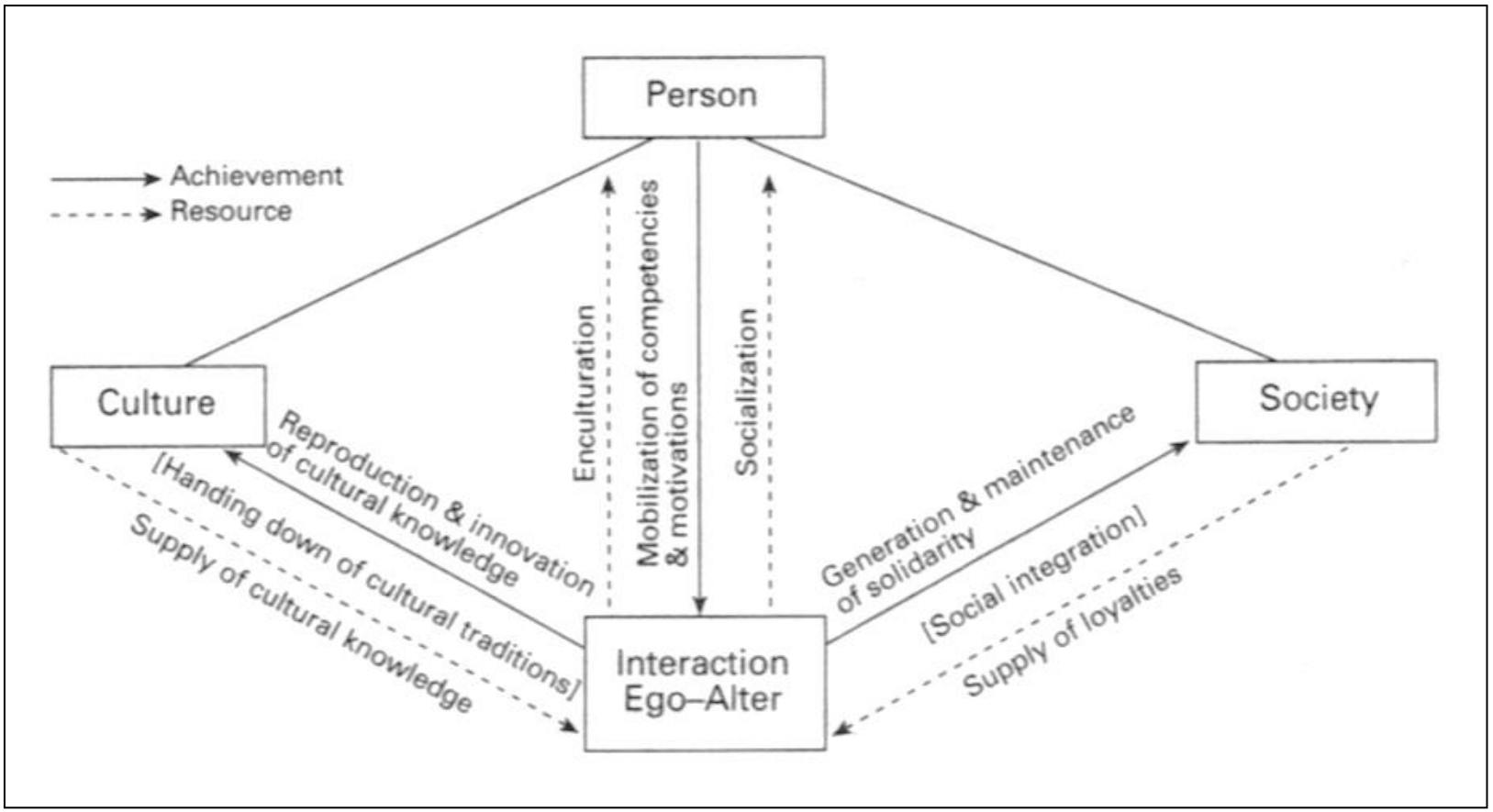
Developmental Logic of Self understanding

Table 1. continued.

Level	Ego development	Self-definition	Perspective
5/6. Construct aware (C9)	Focus: Exploring the habits and processes of mind and the way one makes sense of experience through cognition and language. Dominant mode of awareness: Rational mind plus intimation of transcendent awareness, and intuitive knowledge during peak moments. Range of awareness: Aware of the limits of symbolic codification and rational thought; aware of ego and conventional reality as constructs. Keenly aware of difference between map and territory. Method of knowing: Rational analysis with awareness of the mechanics of thought, symbolic codificaion, construction of meaning, contemplation of limitations of present way of knowing—existential paradox. Goal: To be aware.	Complex matrix of self-identifications, at the same time questioning their adequacy; description of self in stages (approximations) and critique of conventional labeling	
6. Unitive (C10)	Focus: Non-evaluating, integrative witnessing of ongoing process of experience. Dominant center of awareness: Metarational, postrepresentational, immediate, integrative awareness and direct experience of what it is. Range of awareness: Aware of perceptional flux and changing levels of awareness; life as is; aware of "illusion" of permanent, individual self and object world. Cognizant of witness-Self. Method of knowing: Contemplative, witnessing of continuous flux; subjective experience of non-symbolic mode of direct knowing and apperception; intellect and intuition are used, but not overvalued. Goal: To be.	Description of self as in constant flux and transformation; transcendent awareness; I am no(-)body, no(-)thing	

Source: Cook-Greuter (2010, 197-203).

Components of the Lifeworld



[Habermas 1998, 253]

END