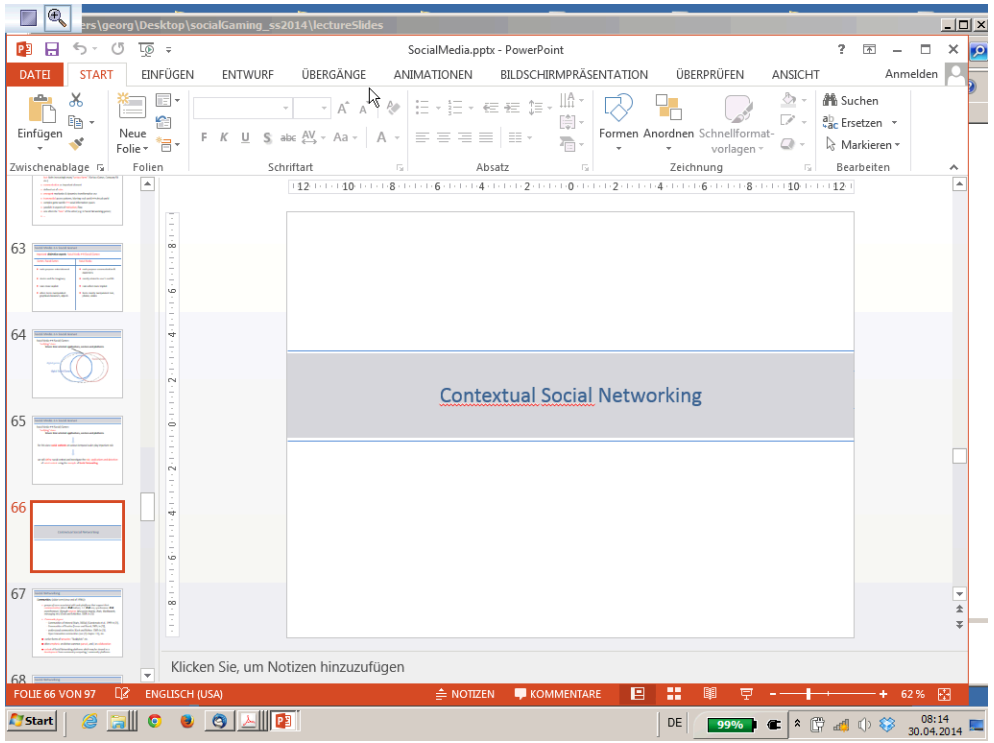
Script generated by TTT

Title: groh: profile1 (30.04.2014)

Date: Wed Apr 30 08:14:37 CEST 2014

Duration: 89:38 min

Pages: 40



Contextual Social Networking

Social Networking

Communities: (older term (since end of 1990s)):

- *groups of users associated with web-platforms that support their communication (direct ←→ indirect, 1:1 ←→ n:m, synchronous ←→ asynchronous) through services (discussion boards, chats, blackboards, messaging etc.)* [Groh and Schlichter, 2005; in (2)]
- Community types:
  - Communities of Interest [Koch, 2003a], [Carotenuto et al., 1999 in (2)],
  - Communities of Practice [Lesser and Storck, 2001; in (2)],
  - professional communities [Koch and Richter, 2009; in (2)],
  - Open Innovation communities (see (2) chapter 11)), etc.
- earlier forms of networks: “Buddylists” etc.
- often emphasis on distinct common pursuit, and / or collaboration
- variant of Social Networking platforms which may be viewed as a development from community computing / community platforms

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Social Networking

Social Networking: class / paradigm in Social Computing:

- users' main goal: maintaining and expanding their social network via communication
- users explicate and maintain explicit model of social relations (→ social network) and user-item-relations (Facebook "like", comments etc.)
- users socially interact using bundle of Social Media services (direct communication, information, awareness)
- users have personal information spaces: sets of items associated with users that they exert control over or whose relations (user-item) they exert control over
- a user has personal profile: publicly accessible sub-space of p.i.s.: used as personal reference: for introducing a person or used as reference point for SN services (e.g. awareness services)
- communication: non-anonymous; content: mostly textual + photos + contextual ; non-commercial; discrete transfer

Social Networking Services

- **awareness / contextual**:
  - services for personal social network management (adding „friends" etc.),
  - awareness services on social network (network analysis, alerts etc.)
  - services for privacy management
  - services for group management
  - services for ratings, comments
- **direct communication**:
  - synchronous + asynchronous, threaded + non-threaded, 1:1, 1:n, n:m, …
  - examples: chat, messaging, comments with substantial communicative content etc.
- **information**:
  - personal blogs + microblogs
  - bulletin boards (e.g. Facebook Chronic)

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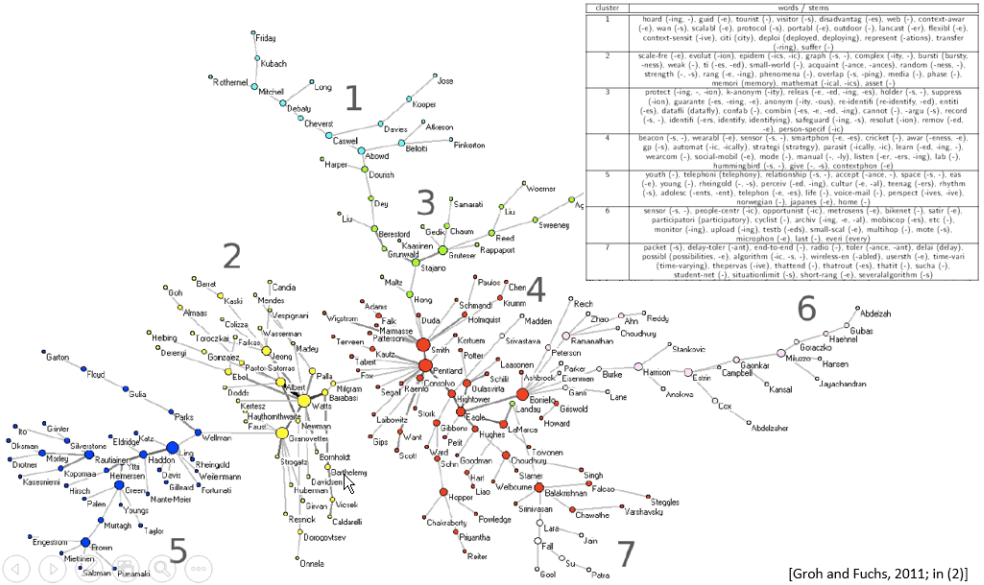

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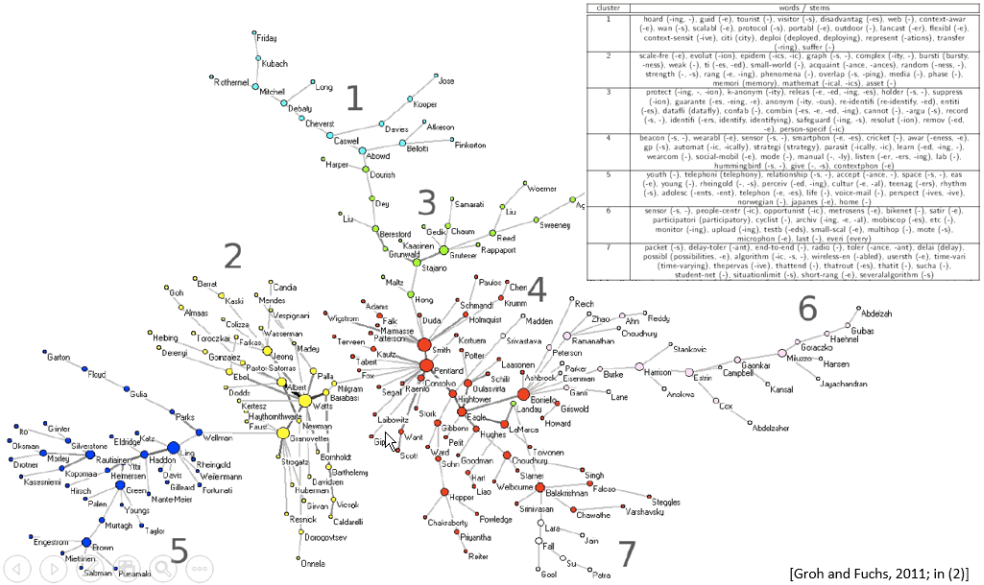

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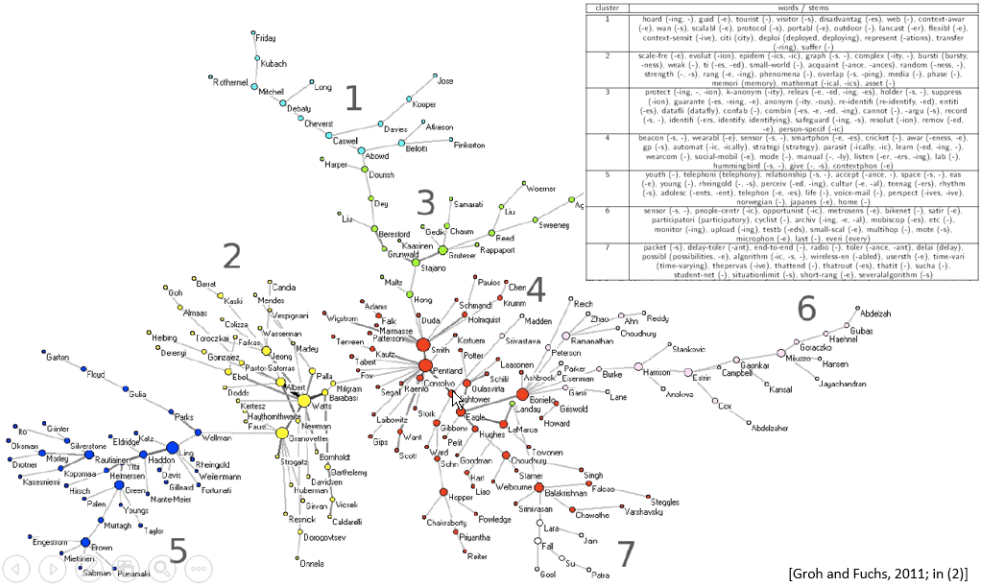

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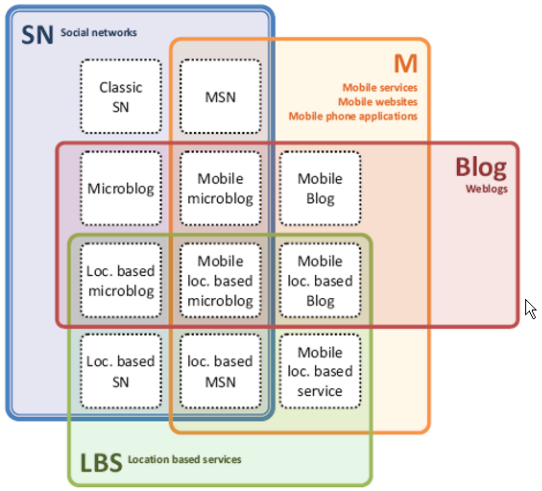

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Decentralized Social Networking + Social Semantic Web

Social Semantic Web

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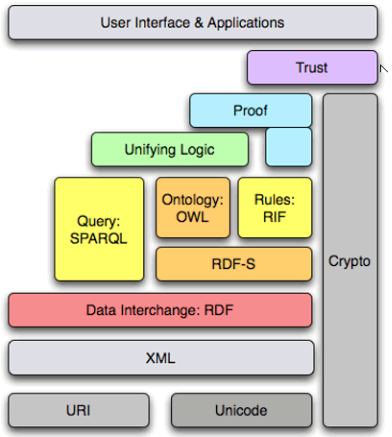

[NN, 2013]

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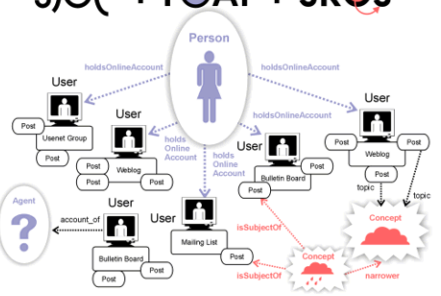

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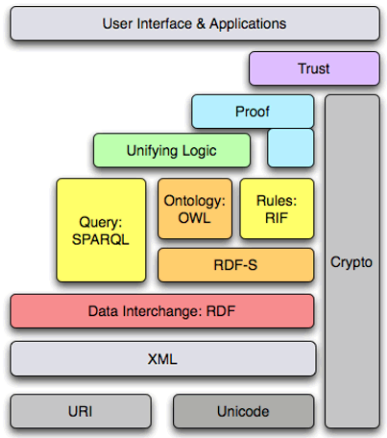

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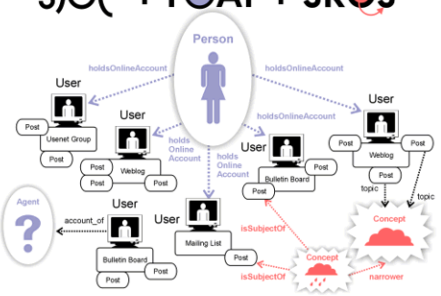

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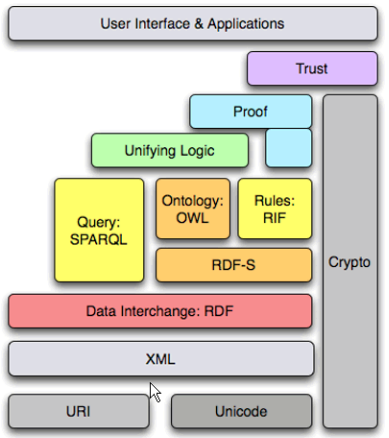

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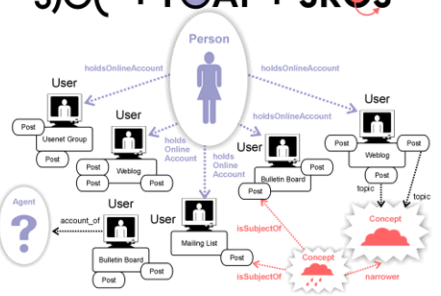

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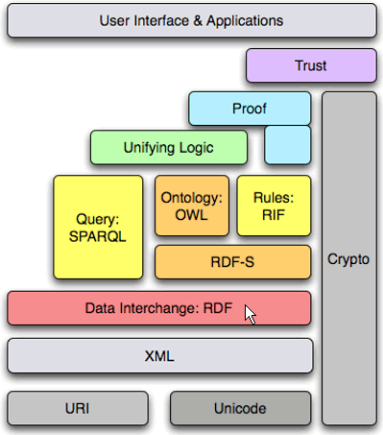

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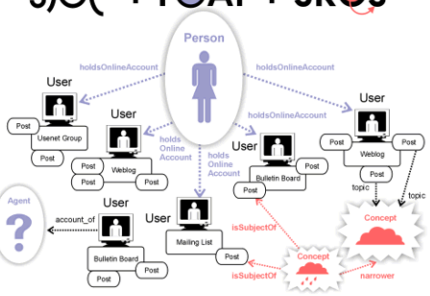

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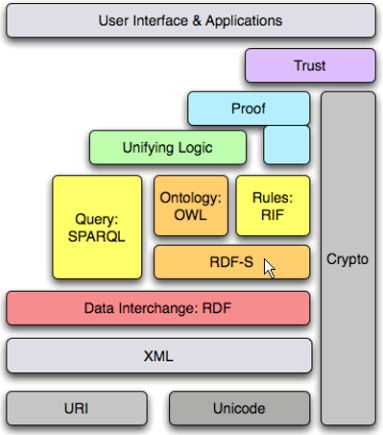

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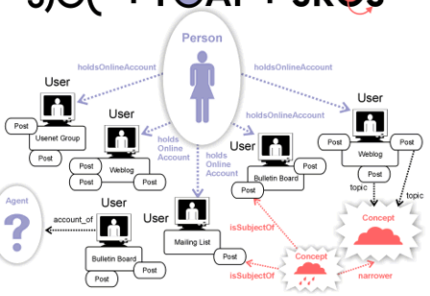

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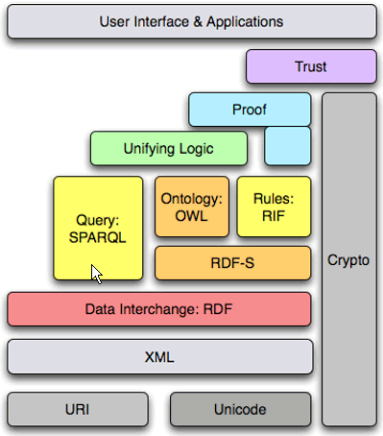

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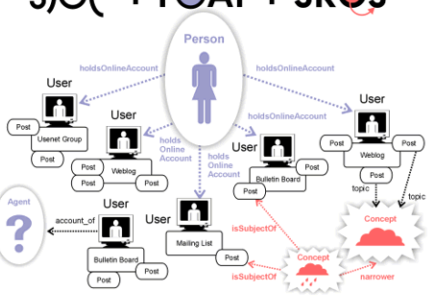

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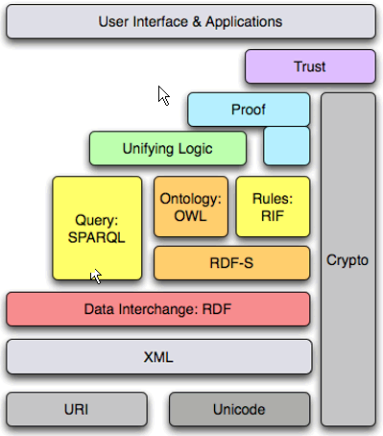

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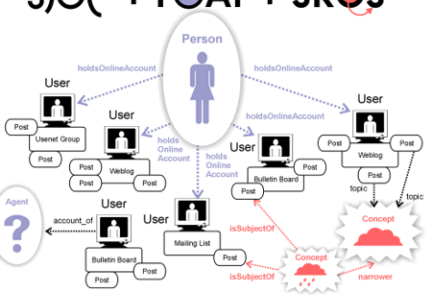

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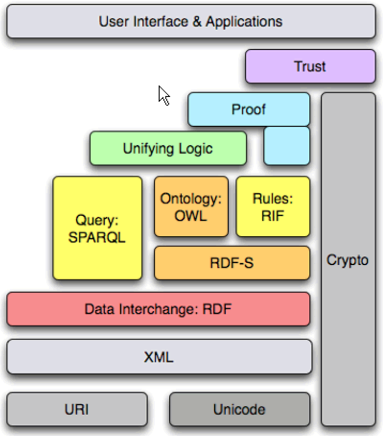

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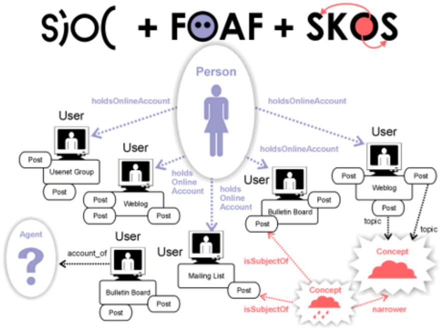

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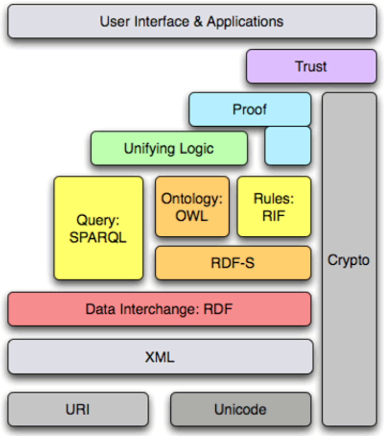

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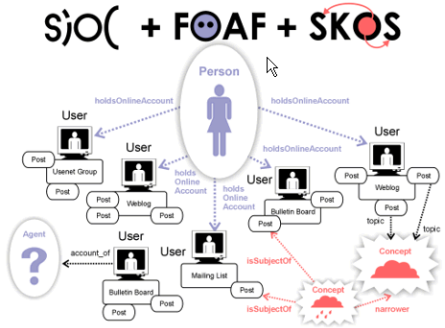

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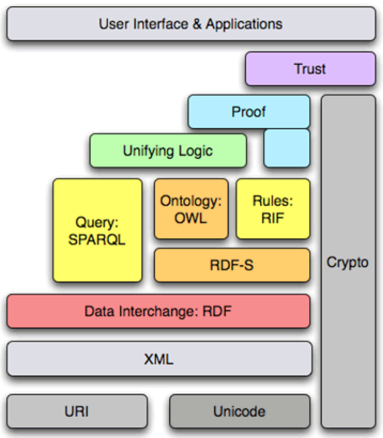

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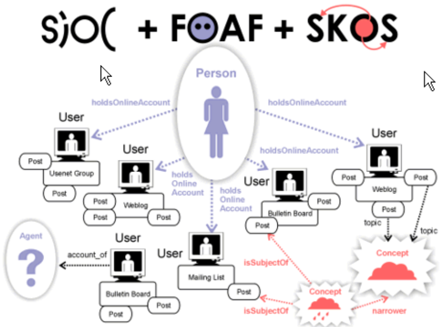

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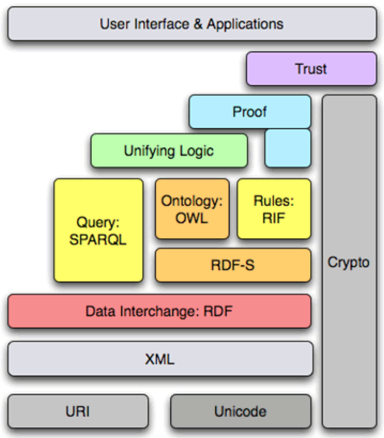

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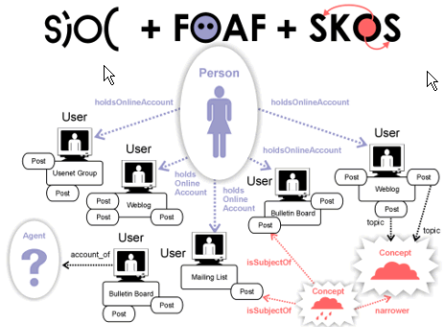

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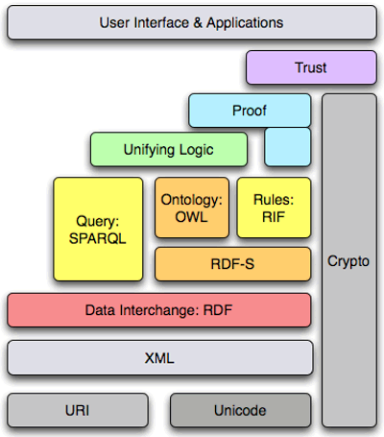

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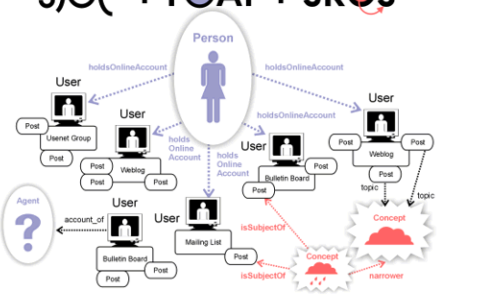

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MSN → Context

- **Context**:
  - *"[…] where you are, who you are with, and what resources are nearby. Context encompasses more than just the user's location […]"* [Schilit et al., 1994; in (2)].
  - *"Context is any information that can be used to characterize the situation of an entity. An entity is a person, place, or object that is considered relevant to the interaction between a user and an application, including the user and applications themselves."* [Dey, 2001; in (2)]
- **Context Awareness**:
  - *"A system is context-aware if it uses context to provide relevant information and/or services to the user, where relevancy depends on the user's task"* [Dey, 2001; in (2)]
  - *"Context is an operational term: Something is context because of the way it is used in interpretation, not due to its inherent properties."* [Winograd, 2001; in (2)]

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Context

- **Context classes**:
  - Computing, User, Physical, Temporal [Schilit et al., 1994; in (2)][Chen and Kotz, 2000; in (2)]
  - Identity, Location, Status [Dey et al., 2001; in (2)].
- **Active / Passive Context Awareness** [Chen and Kotz, 2000; in (2)]
- **higher level / lower level Context** (see (2), chapter 1)
- **dynamics**: 'Context': rapid changes; Personalization info: slower changes (see (2), chapter 1)
- **temporal** distinction: long term, medium term, short term (see (2), chapter 1)

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Context Classes for CSN

Context classes for Contextual Social Networking:

- **Physical Context**: at user's spatiotemporal location, independent of user: lighting, temperature etc.; also: computing context: at user's spatiotemporal location, independent of user: available bandwidth etc.
- **Individual Context** of a user: location, speed, disabilities, personal physiological parameters etc.; computing context involving nature of her device(s), state of the applications running, precise state of interaction of user with device or application.
- **Social Context**: *"social context refers to characterizing the social nature of the situation a user is currently in"* (2): **Social Context: models** of any aspects of **social interaction** having a relation to **IT systems**.
  - short term: low level: e.g. set of ids of persons in Bluetooth range; higher level: e.g. Social Situations
  - long term: low level: e.g. friendships in Facebook; higher level: e.g. dense Social Network groups the user is part of.

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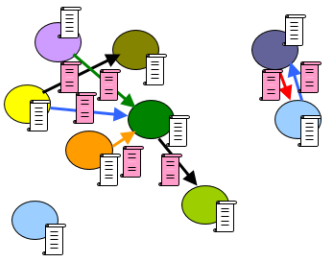
Social Network

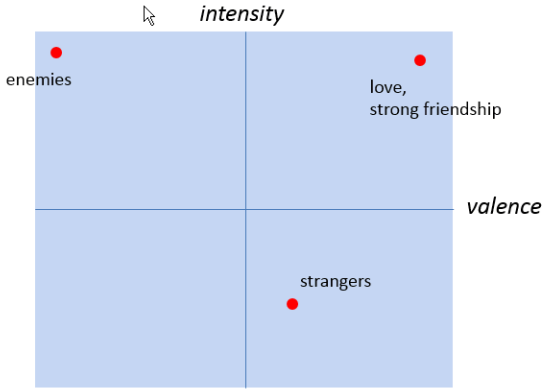
slightly **refined Social Network Model**: Graph $G=(V,E,P_V,P_E, f_{P_V},f_{P_E})$

- Nodes $V = \biguplus V_i$: represent humans (actors) of "sorts" ($\leftrightarrow$ modes) V_i;
- Edges $E \subseteq V \times V$; $E = \biguplus E_i$: represent directed binary social relations (ties) of "sorts" E_i
- P_V: Set of Node Profiles
- P_E: Set of Edge Profiles
- $f_{P_V}: V \rightarrow P_V$
- $f_{P_E}: V \rightarrow P_E$



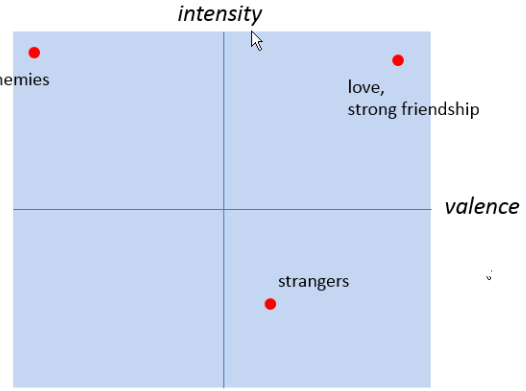
Social Ties

- ontology for social relations: e.g. FOAF [Brickley and Miller, 2010] + Relationship [Davis and Vitiello, 2010]; strong explicification problems (see [Hauffa et al 2012, in (2)],[Bossert 2011; in (2)])
- alternative characterization: use multiple axes (see [Groh, Hauffa, 2011; in (2)], Hammerl, 2011; in (2)):
  - intensity
  - valence
  - hierarchity
  - reciprocity
  - intimacy
  - ....



Social Ties

- ontology for social relations: e.g. FOAF [Brickley and Miller, 2010] + Relationship [Davis and Vitiello, 2010]; strong explicification problems (see [Hauffa et al 2012, in (2)],[Bossert 2011; in (2)])
- alternative characterization: use multiple axes (see [Groh, Hauffa, 2011; in (2)], Hammerl, 2011; in (2)):
  - intensity
  - valence
  - hierarchity
  - reciprocity
  - intimacy
  - ....



The Field „Social Computing“

Social Computing and ...

- Social Signal Processing / Affective Computing
- Game Theory, Social Choice, Auctions
- Information Retrieval / Filtering
- Privacy Control
- Social Semantic Web
- Recommender Systems
- ....

Recommended Reading

- minimal approach:
  - study the slides and mentally review the introduced concepts, definitions and connections
- standard approach:
  - minimal approach + read chapter 1 of (2)
- interested students
  - standard approach + read [Wikipedia 2013] + 3 articles linked to by this article

Analyzing Long-term Social Contexts: Social Network Analysis

Lecture follows [1]. Citations of [1] are mostly omitted because of simplicity

History of Social Network Analysis, Main Contributors

- 1930s-1950s: J. Moreno (American Psychiatrist & Sociologist): → Sociometry (quantitative method for measuring social relationships) [11]
- 1930s-1960s: Further contributors: W. Warner (Harvard U., Anthropologist) [12] :→ Native American social structures, E. Mayo (Harvard U., Sociologist) [13]: Hawthorne Studies; A. Radcliffe-Brown (Oxford U., Social Anthropologist): Structural Functionalism (←→ primitive civilizations); M. Gluckman (Manchester U., anthropologist): Urban studies; etc.
- 1960s-1970s-present: H. White (Columbia U. Mathematical Sociologist): Extremely influential contributor to formal SNA [14]; students: M. Granovetter, B. Wellman
- 2000s-present: A. Barabasi, D. Watts, M. Newman, J. Kleinberg: („Physicists take over"), A. Pentland (Reality Mining) etc.

Centrality

- Centrality indices formalize intuitive feeling that some nodes (or edges) are more central (important, meaningful etc.) than others.
- Interpretations of "centrality": "influence", "prestige", "control", "heavily required for information flow"
- Example: n persons vote for a leader; (u,v) ∈ E if *u voted for v*; Winner (most central node): node with most incoming edges (highest in-degree).
  → Degree Centrality
  Other variant: (u,v) ∈ E if *u has convinced v to vote for u's favorite candidate*. (Influence network) → node with large out-degree is central
- Other Example: If graph can be split up into groups X and Y and if node u has many edges to X and many edges to Y → u mediates most information between groups → u is central
  → Betweenness centrality

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