

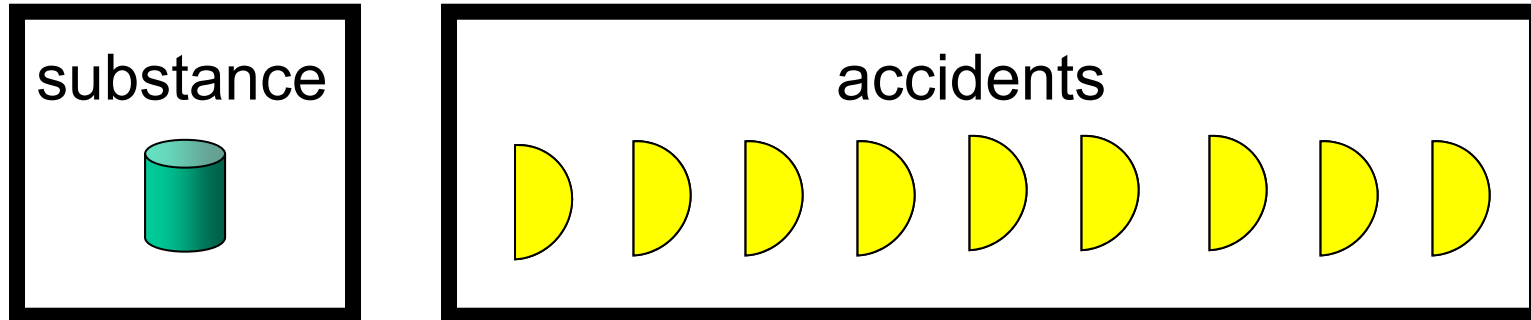
# Digitale Umwelten

Barry Smith

EcoTechGender, October 24, 2016

# Preamble on Aristotle

# Theory of Categories



one substantial category

*John, man*

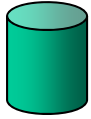
nine accidental categories

*your hunger*

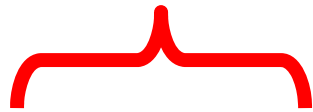
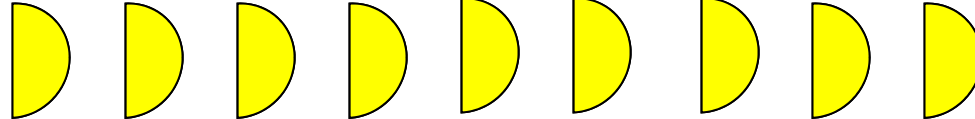
*your sun-tan*

*your being taller than Mary*

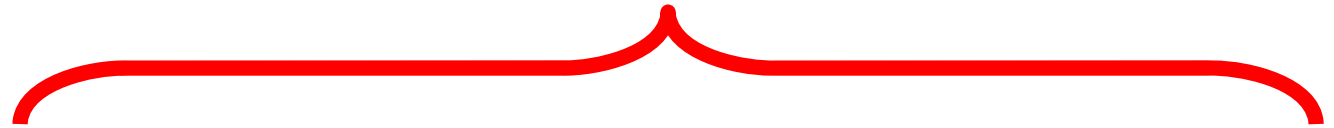
substance



accidents



*John*



quantity (*two feet long*)

quality (*white*)

relation (*taller than*)

place (*in the Lyceum*)

possession (*has shoes on*)

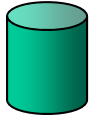
time (*yesterday*)

position (*is sitting*)

action (*cuts*)

passion (*is cut*)

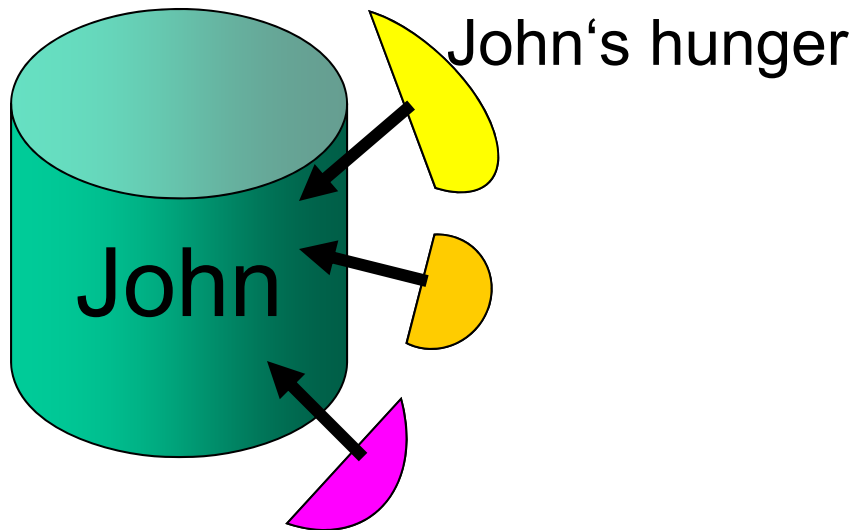
substance



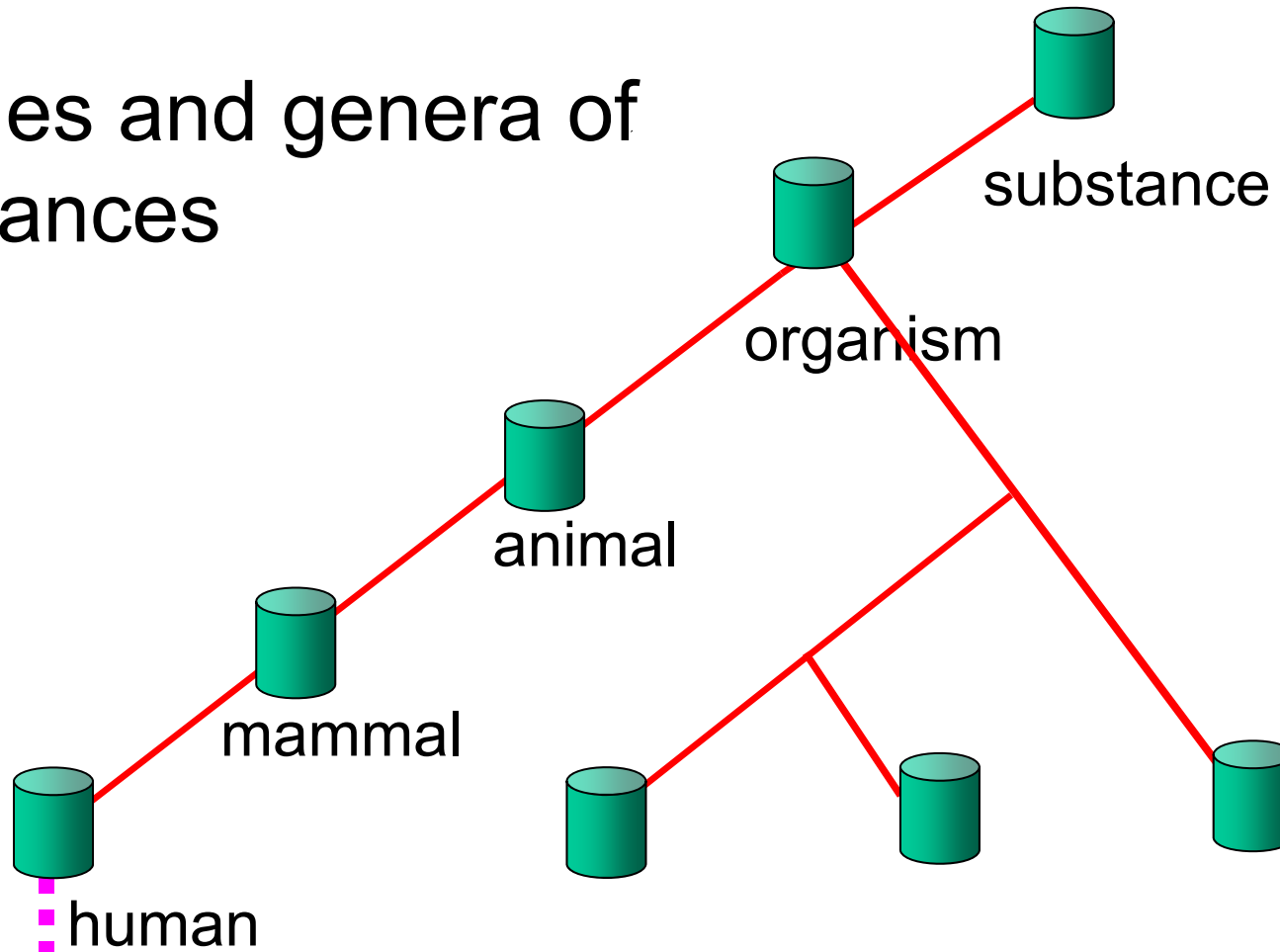
accidents



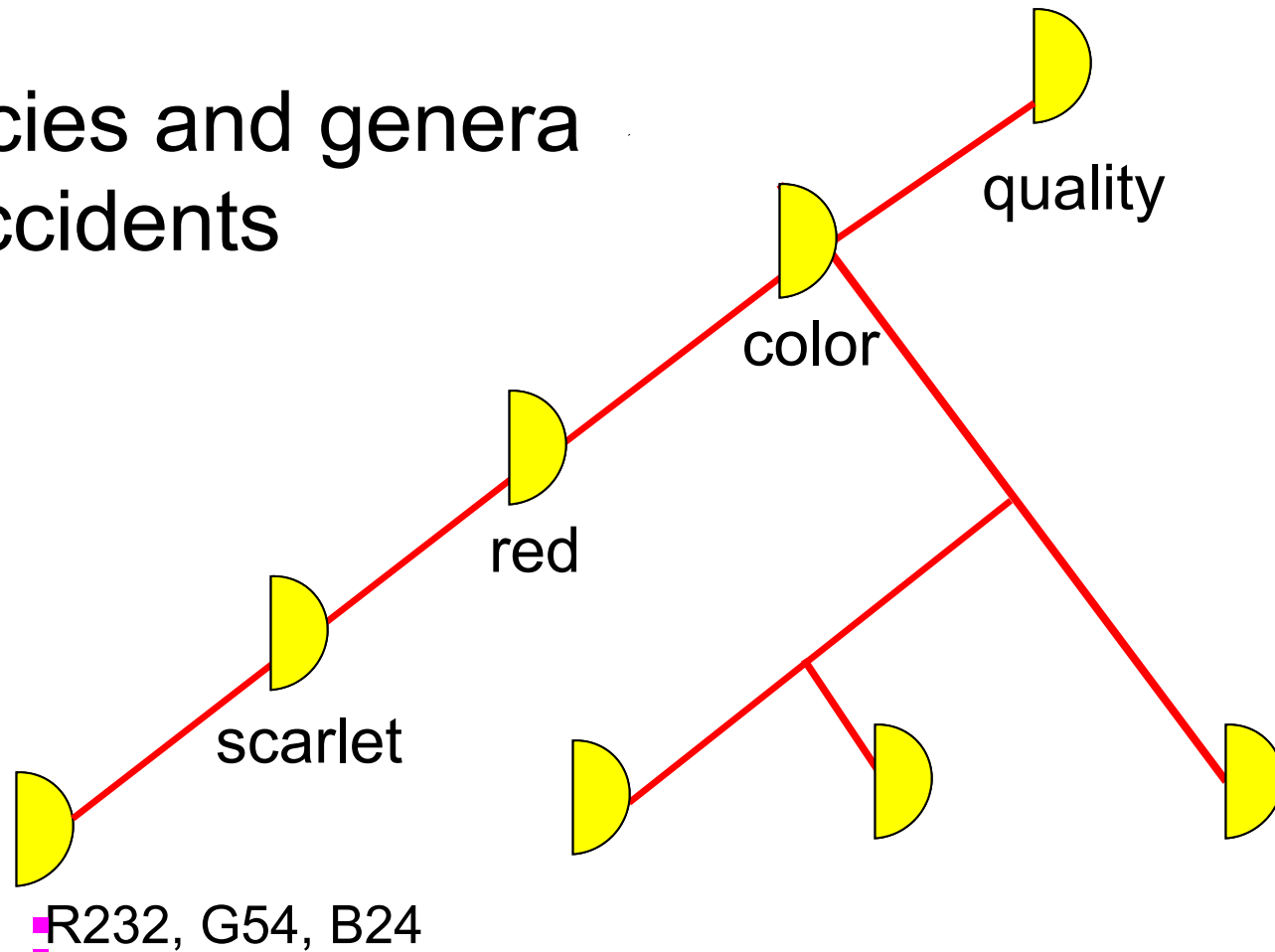
Substances are the bearers of accidents



# Species and genera of substances



# Species and genera of accidents



---

this individual accident of redness  
● (this token redness – here, now)

# Aristotle 1.0

an ontology recognizing:

- genera and species of substances

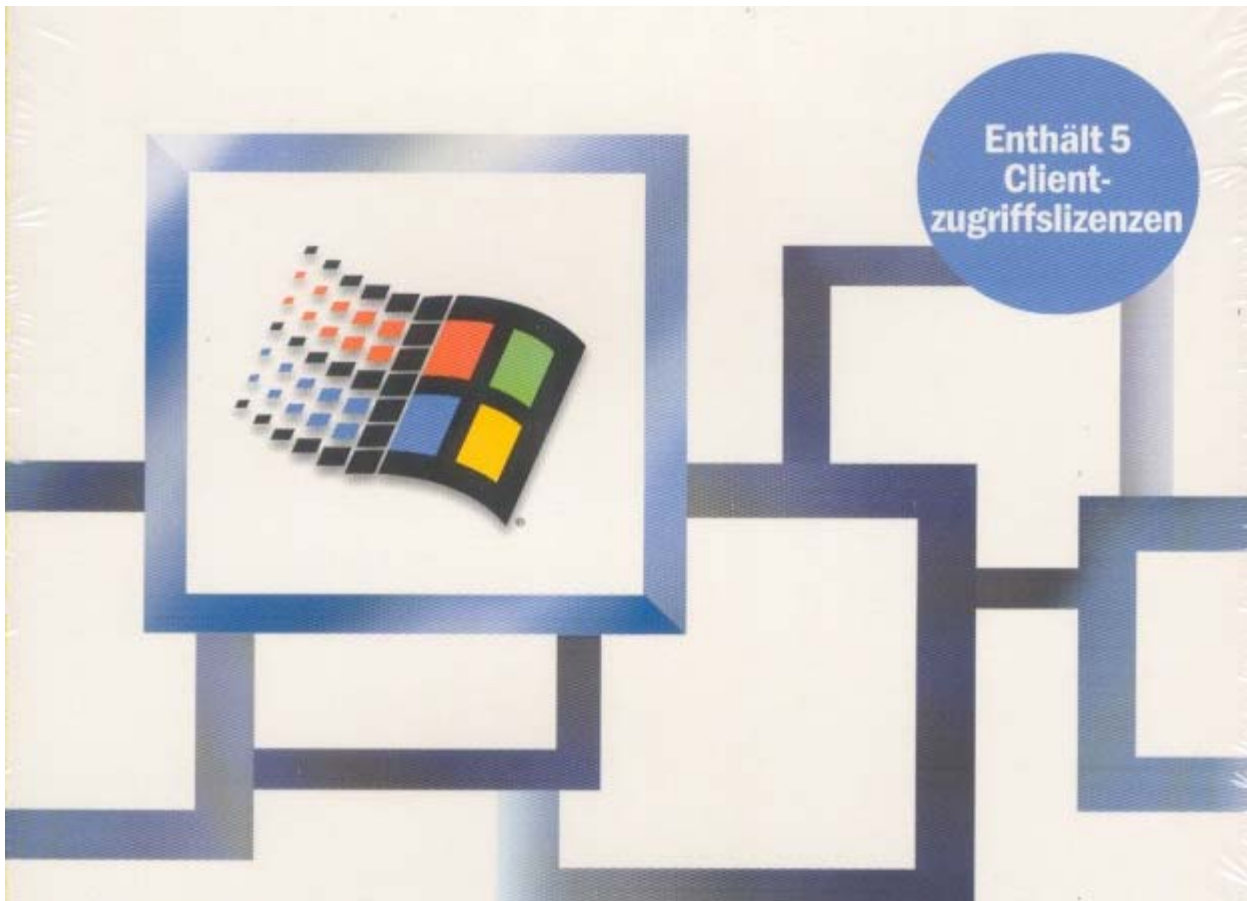
- genera and species of accidents

- individual instances of substances

- individual instances of accidents

what is missing?





# Aristotle2002

**Server**  
Auf NT-Technologie basierend

Buchheim/Flashar/King (Hg.)

Kann man heute noch etwas  
anfangen mit Aristoteles?

Meiner 2002



Buchheim/Flashar/King (Hg.)

Kann man heute noch etwas  
anfangen mit Aristoteles?

ARISTOTELES 2002

*Barry Smith*<sup>1</sup>

*1. Einführung: Kategoriensysteme und ontologische Transparenz*

1.1 Ontological Engineering



# What Aristotle 1.0 lacks

is the category of *niches, environments* in which organisms live

which are shaped by the organisms which live in them

and which shape these organisms themselves

# Environments guide our actions

they provide enclosures, apertures,  
signposts, pathways, barriers, attractors  
which *afford* different sorts of actions

# affordances

“The affordances of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or evil.”

a glass of beer *affords drinking*

a chair *affords sitting*

a step *affords climbing*

a chin (in the boxing ring) *affords hitting*

a checkbox *affords checking*

a keyboard *affords keying ...*

James J. Gibson, *The Ecological Approach to Visual Perception*, 1975

# affordance

**Angebotscharakter**

(auch **Aufforderungscharakter**  
oder **Affordanz**)

James J. Gibson, *The Ecological Approach to Visual Perception*, 1975

# Environments comprehend systems of affordances

- organisms evolved to fit into these systems of affordances
- for cultural organisms like human beings, we become tuned to the corresponding affordances through training, drill, learning, ...



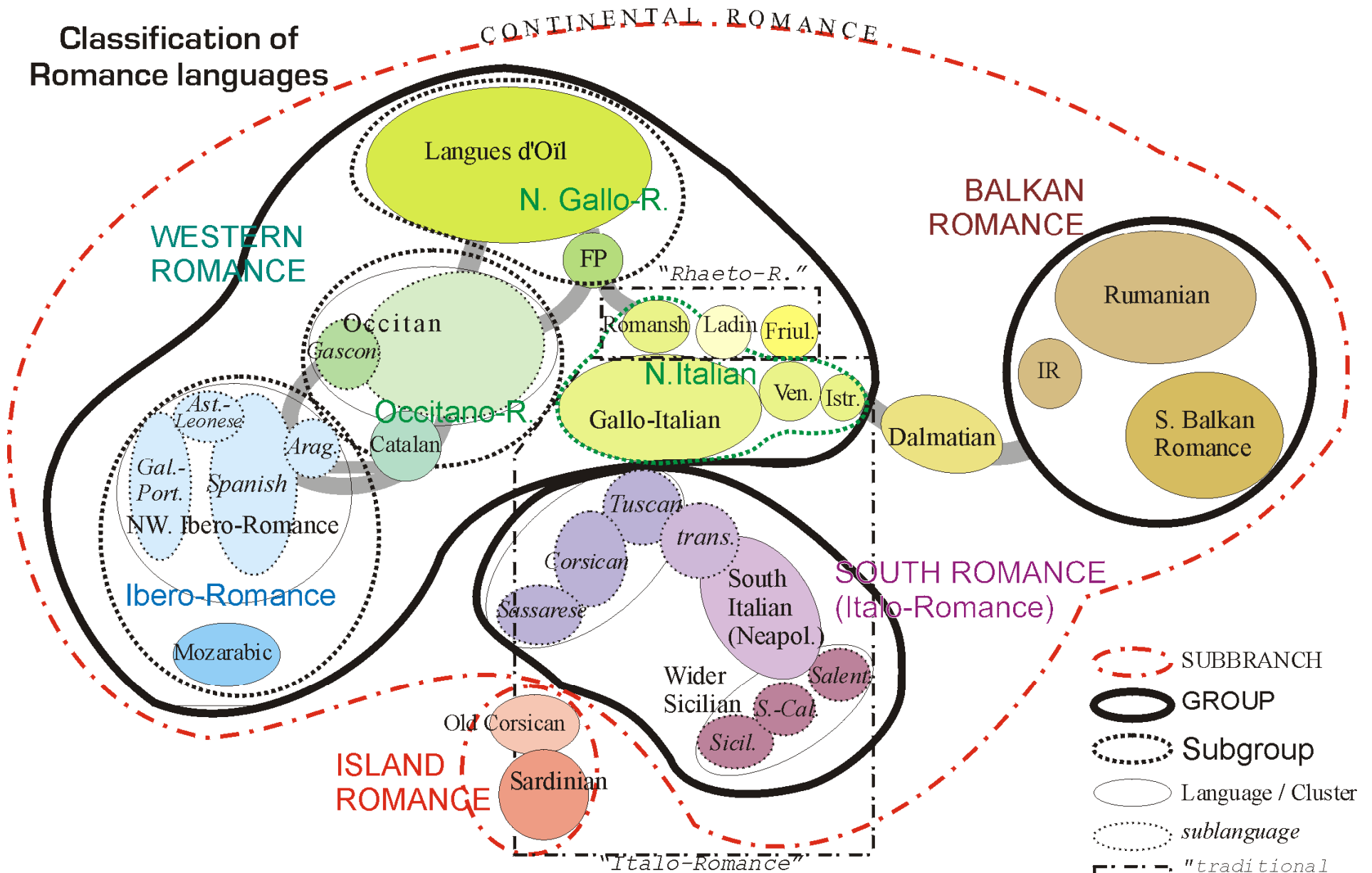
# We are trained to use language

Each person acquires a certain complex set of habits and skills, which is their linguistic competence

Persons living in the same community will have overlapping sets of linguistic competences – which is what makes communication possible

These sets of competences will overlap, and merge into each other

# Classification of Romance languages



All speakers of **CONTINENTAL ROMANCE** share in common a certain subset of dispositions

# Thomas Reid



# **Reid's theory of 'social operations' (1785)**

## **'social acts' vs. 'solitary acts'**

**A social act ... must be directed to some other person –**

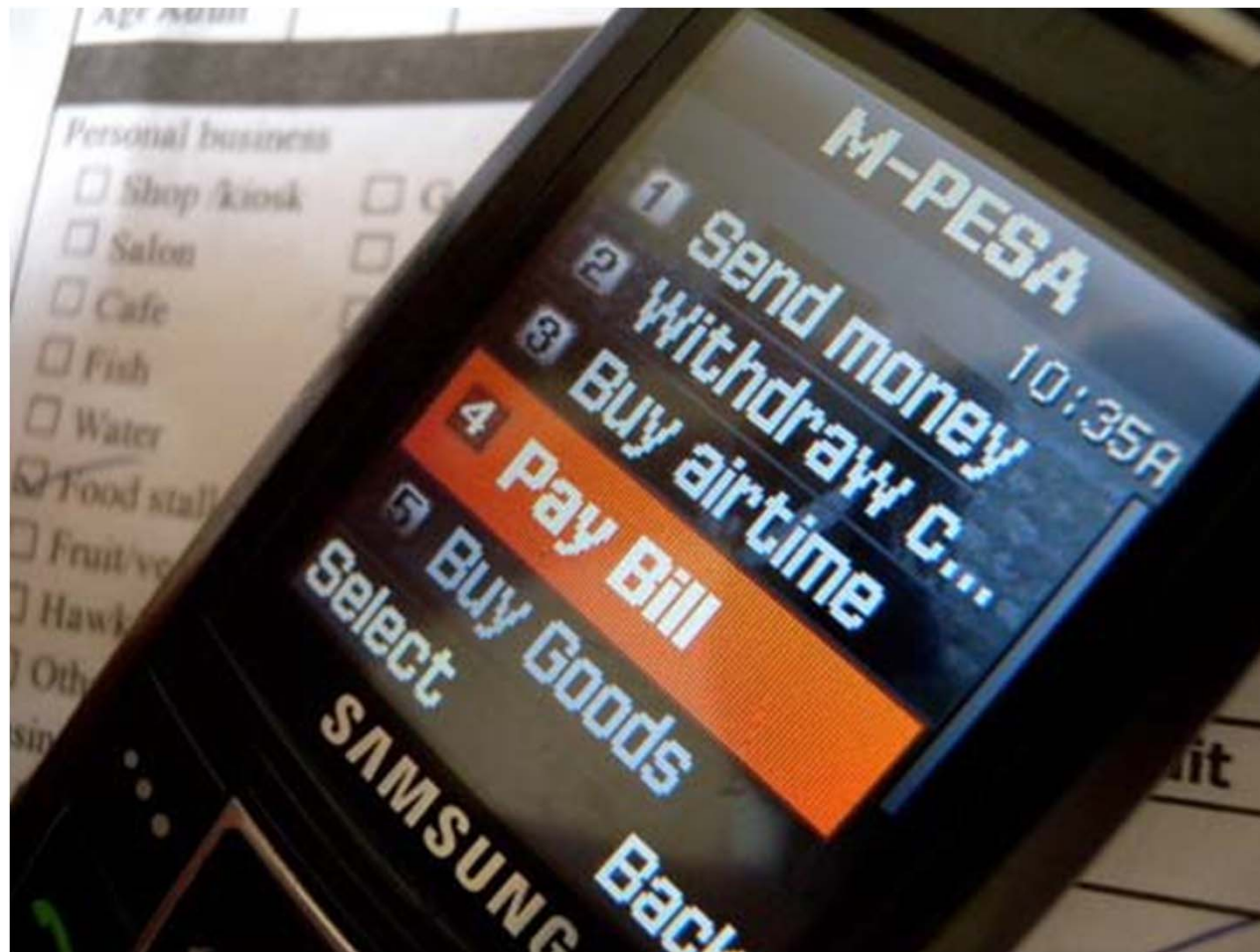
**it constitutes a miniature 'civil society'**

today communication is mediated  
in part by our membership in  
overlapping miniature *digital* civil  
societies

In Gibson's terms: a mobile phone *affords*  
*texting*

digital communication itself is being intermeshed with other sorts of digital activities, through the same linguistic and keyboard competences

## a mobile phone *affords* banking





a mobile phone *affords* mating

The background of the advertisement is a photograph of a social gathering at dusk. A man in a blue polo shirt is in the foreground, holding a large, colorful piñata. Other people are visible in the background, some holding drinks. The scene is lit with the warm, golden light of sunset.

tinder social

What are you doing tonight?

 Download on the App Store

 Get it on Google Play

✓



# a mobile phone *changes family life*



# Digitale Umwelten

**new environments, with new  
kinds of affordances, through  
which *people* are being  
changed in new kinds of ways**

## **People of old were nodes**

in biological networks

in friendship networks


in workplace networks ...

These networks were held together by face-to-face interactions which run at human speed and have a short half life

The consequences of single interactions rarely cumulated in such a way as to have wider ranging effects

**Today everything is different**

**Today everything is different**

The Schufa logo is centered within a white rectangular box. This box is set against a background of a horizontal bar with a yellow-to-white gradient. The entire graphic is framed by a light gray border.

**schufa**

Das Unternehmen

Firmenkunden

Privatkunden

**schufa**

Wir schaffen Vertrauen

Unternehmen

Wissenswertes

Verantwortung

Produkte

Presse

Karriere



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+ [Die SCHUFA & Ich](#)

# SCHUFA macht Kredit möglich

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+ [Basisinformationen](#)

+ [Die SCHUFA & Ich](#)

# SCHUFA macht Kredit möglich

... by shaping humans



Sie befinden sich hier: [Presse](#) > [Basisinformationen](#) > [SCHUFA macht Kredit möglich](#)

- + [Basisinformationen](#)
- + [Die SCHUFA & Ich](#)

## **SCHUFA macht Kredit möglich**

**... by shaping humans**

**... by shaping the environment in  
which humans borrow and save**



# SCHUFA is tied to a host of other networks

banking

real estate

credit cards

employee rating agencies

the effect of which is to make people more credit-worthy – in other words more honest

UBER





**The Uber App provides a map of your route as you traverse it**

**Calculates the fare and deducts it from your credit card**



**it then allows you to rate your driver for  
punctuality, cleanliness, ...**

**Uber *customers* can then use these ratings  
in making bookings in the future**



But then, when you leave the taxi, it allows the driver to *rate you*, the customer and these ratings too are stored in the system and used by other *drivers* in the future

*The power of data accumulation*

**Behind the scenes, good  
behavior is being rewarded and  
bad behavior punished**

customers who vomit in the cab,  
or who behave aggressively, will  
find themselves restricted in their  
use of Uber in the future



Uber is constantly accumulating vast amounts of information on the micro-details of cities; on prospective drivers, riders, and road conditions; and constantly improving the ways its algorithms instantly present drivers with highly intuitive options – by digitizing transactions



Uber also digitizes safety. The App gives your daughter a photo, name, and license plate for the stranger who picks her up at 2a.m.

It shares a detailed record of her route; which likewise protects the driver, and ensures that the driver does not get lost in unfamiliar parts of town.



**Uber makes for better drivers, better cabs, safer rides, better passengers**

AirBNB makes for better lodgings, a wider choice of lodgings, better landlords and better lodgers

Amazon.com makes for more informed consumers, which makes for better products

It also makes for cheaper products, as the information asymmetry between seller and buyer is gradually eroded

## **Tripadvisor makes for better food**

as restaurant ratings are constantly updated by  
ever new customers

Tripadvisor creates a constant competition  
among restaurants

**The internet allows cumulation of the effects of  
single actions**

# RateMyProfessors.com



## Martha Nussbaum

Professor in the Law department  
at [University of Chicago](#), Chicago, IL

[ARE YOU MARTHA NUSSBAUM?](#)

[Rate this professor](#)

[Share](#)

[SUBMIT A CORRECTION](#) | [LEARN HOW RATINGS WORK](#)

OVERALL QUALITY

3.6

WOULD TAKE AGAIN

N/A

LEVEL OF DIFFICULTY

3.6

HOTNESS



Top 20 Tags for this Professor

See how other students describe this professor.

[CHOOSE YOUR TAGS](#)



- **Recommend and Be Recommended** – In the following 3 categories: Professional, Personal, Dating
- **Peeples Number** – Your Peeples Number is the total number of recommendations you have received in all 3 categories
- **Connections** – Find likeminded connections with high Peeples Number scores with our Nearby feature

**Reid, Reinach Austin, Searle:**  
**theory of speech acts**

**“I pronounce thee man and wife”**

**“Would you like to dance?”**

**“Can you come to my barbecue?”**

**speech acts create miniature civil societies**

# affordances


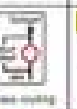





the perceptual systems of animals are tuned to just those features of their environments which are salient to their actions

**for humans these include linguistic features:**

linguistic sounds

written signs

printed signs

 Bicycles	 Auxiliary cycle	 Motor vehicles only	 End of motor vehicles only	 Bicycles east	 Direction of bicycles	 Direction to next change of lights	 Accident report	 One vehicle only with hand brake set	 Automatically answer telephone	 Automatic telephone	 Automatic hand	 Danger	 Overweight	 Overweight trucks	 Falling stones	 Danger ahead	
 Public and private telephone numbers	 Public and private telephone numbers	 First aid station	 Telephone	 Police	 Recommended speed	 Parking on left (one-way street)	 Parking area	 Umbrella area	 Park and ride area	 Automatic station	 Station inside sign	 Station service left of the road	<b>Yamud know</b> <b>Ganartraffic signs</b> <small>Available in multiple versions of size with separate flexibility to download for free.</small> <small>www.yamud.com/traffic-signs</small>				
 Automatic station sign	 Direction to station	 Change of traffic lanes	 Direction sign	 Station marking	 Station	 Direction of road	 Directional sign	 European highway	 Federal highway number	 Set-up area (one-way)	 Set-up area (one-way)	 Single curve	 Double curve	 Road works	 Road works	 No motorbikes	
 End of city centre	 Direction of road for bicycles	 Point of interest	 Name place	 Directional sign with supplementary sign	 Danger of overhanging car	 Change traffic rule	 End of station	 Directional sign	 Directional sign	 Night of time changed	 Queue	 Road damage	 Slippery road	 Low flying aircraft	 Falling stones ahead	 No vehicles carrying passengers	
 Residents only	 Speed and distance sign	 Solid white line	 Broken white line	 Parking only from broken line side	 Off track markings	 Rise in pavement	 Disturbed surface	 Pavement uneven	 No parking	 Traffic jam ahead	 Traffic jam ahead	 Slippery road	 Congestion ahead	 Congestion ahead	 Narrow road	 No motorbikes	
 Slippery road	 Loose gravel	 Children	 Construction site	 Disturbed ahead	 Wild animal crossing	 Domestic animal crossing	 Tow road	 Strong motor vehicle traffic prohibited	 Right of way ahead	 STOP	 Yield sign of one	 Mandatory direction of travel	 Mandatory direction of travel	 Mandatory direction of travel	 Mandatory direction of travel	 Traffic officer in distribution	
 Maximum height allowed	 Maximum width allowed	 Maximum weight allowed	 No vehicles carrying more than 2000 items of passengers	 Vehicles above a certain axle weight prohibited	 Motor vehicles prohibited	 Tractors and trunks with an authorized trailer weight of more than 2 tons prohibited	 Minimum clearance between vehicles of 2m	 Maximum length allowed	 No U-turn	 Prohibited for all vehicles	 Entry prohibited	 Mandatory direction of travel	 Mandatory direction of travel	 Beginning of a pedestrian priority zone	 End of pedestrian priority zone	 Traffic only	
 Distance to pedestrian crossing	 Distance to pedestrian crossing	 Pedestrian crossing	 Pedestrian crossing	 Guarded railway crossing	 Unprotected railway crossing	 Speed limit 30	 End of speed limit restricted area	 Speed limit 60	 End of speed limit	 Only when used	 Right of way green arrow sign	 Pedestrian zone	 End of pedestrian zone	 Children playing	 Traffic directed by school guard	 Bus lane	
 Prohibited to overtake	 No stopping	 No parking	 End of no stopping zone	 No parking for trucks in excess of 7.5 tons authorized weight	 End of no parking zone	 Loaded parking (blue stars) and/or prohibited	 End of loaded parking zone	 End of restriction	 Motorist straight ahead and right-hand straight ahead for left or right	 Customs control	 Overtaking traffic has right of way	 Trucks (other restrictions)	 Trucks (other restrictions)	 Trucks (other restrictions)	 Bicycles only	 Information panel at border crossing	
 Priority road	 Priority road	 End of Priority road	 Right of way	 Priority road ahead	 Bicycle crossing (priority for bicycles)	 One way street in direction of travel	 Dead end	 One-way traffic	 Overtaking traffic must stop	 Compulsory minimum speed limit	 End of compulsory minimum speed limit	 Separated lanes and pedestrian crossings (with red speed limit sign)	 Priority road	 Taxi	 Water protection zone	 Exit number	

# Social institutions come into existence through speech acts

Sometimes intermixed with document acts





# Scott J. Shapiro, “Massively Shared Agency”, 2013

[Bratman, Searle ...] ‘are unable to account for the existence of massively shared agency.’

they ‘have largely concentrated on analyzing shared activities among highly committed participants. The working assumption has been that those who sing duets or paint houses together are all committed to the success of the activity.’

Nowadays we have not only  
competences for speaking,  
reading and writing

but also screen (click-) competences  
and keyboard competences

# neurological re-engineering of human beings through repetitive keyboard action

goes back to the 14th  
century, when the clavichord  
and harpsichord were  
introduced

today repetitive keyboard  
action has the same  
importance to human action  
as speaking or writing



repetitive keyboard action is a principal ingredient of modern kinetic warfare



and of cyberwarfare



HOME

## WWIII? A "Hybrid Geo-Financial War" Between NATO and Russia Is Dangerously Escalating



Submitted by [Tyler Durden](#) on 05/21/2016 22:00 -0400

[BRICs](#) [China](#) [Cohen](#) [Donald Trump](#) [Henry Kissinger](#) [Natural Gas](#) [Poland](#) [President Obama](#) [Ukraine](#)



speech acts and document acts now intermixed with digital acts



# communities can themselves serve as affordances

a family *affords bonding*

a group *affords joining*

an enemy encampment *affords bombing*

Some social institutions involve massively complex networks of sub-institutions held together by networks of speech acts and document acts supporting relations of authority and delegation



# Org Chart: Japanese Naval Defense Force Manila, 1945

Inclosure No. 1

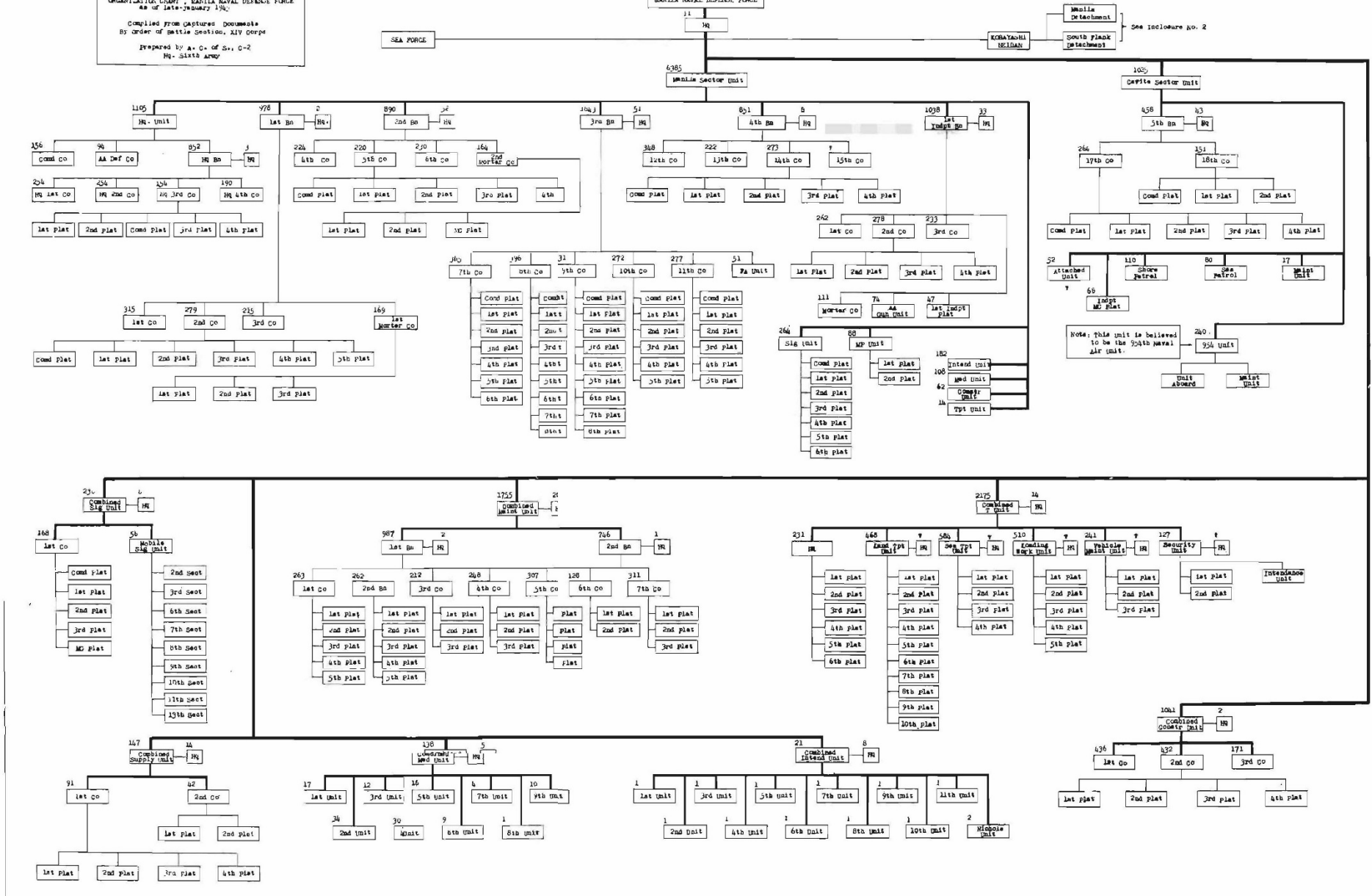
ORGANIZATION CHART, MANILA NAVAL DEFENSE FORCE  
As of late-January 1945

Compiled from captured documents  
by order of Battle Section, XIV Corps

Prepared by Lt. Col. G. C. O-2  
HQ, Sixth Army

(13,000)  
MANILA NAVAL DEFENSE FORCE

Total Personnel (in parentheses) is estimated.  
Other strength figures are from enemy documents.



**as speech acts and document acts  
and digital acts become ever more  
intermixed in every more complex  
and ever more hierarchical  
networks**

**this creates ever more  
comprehensive civil societies**

# **Social Network Sites as Networked Publics**

The affordances of networked publics are fundamentally shaped by the properties of bits, the connections between bits, and the way that bits and networks link people in new ways.

Networked publics are not just publics networked together, but they are publics that have been transformed by networked media, its properties, and its potential.

# The Global Jihadi Archipelago

Scott Atran

Soccer, paintball, camping, hiking, rafting, body building, martial arts training, and other forms of physically stimulating and intimate group action [Graffiti Crews] create a small cultural niche: a bunch of buddies who become a “band of brothers” in a glorious cause (Atran 2010).

# The Global Jihadi Archipelago

Scott Atran

a new kind of transcultural niche that leapfrogs the limits and responsibilities engendered by previous generations within territories of origin. Here, peer communities of imagined kin—bands of “brothers and sisters” drawn willy-nilly from across more than 100 countries and many more ethnic groups—commit in ritual oaths and performance of sublime acts of terror to a new world order

The Global Jihadi Archipelago  
A New Type of Transcultural Niche  
Scott Atran

The internet allows cumulation of the effects  
of single actions

“Publicity hyped by political and media frenzy is the oxygen that fires modern terrorism (Atran [2013](#)), filling a transcultural niche whose ecology ranges over a media landscape (where competition for resources is a struggle for control of information) and a geographical archipelago that spans the globe.”

The Global Jihadi Archipelago  
A New Type of Transcultural Niche  
Scott Atran

the global jihadi archipelago where information from across the world and cyberspace narrows mightily to fit the dreaming ecology of the Caliphate—a transcultural niche, which ... devoted actors of the Islamic State are fighting unto death to make real.

recall Gibson: the environments in which we live provide niches, enclosures, apertures, signposts, pathways, barriers – they *afford* different sorts of actions

# affordances

“The affordances of the environment are what it *offers* the animal, what it *provides* or *furnishes*, **either for good or evil.**”

James J. Gibson, *The Ecological Approach to Visual Perception*, 1975



# DDoS, October 22, 2016

The Internet is under attack. *The New York Times* reported that "major websites were inaccessible to people across wide swaths of the United States on Friday after a company that manages crucial parts of the internet's infrastructure said it was under attack.

# **DDoS, October 22, 2016**

in a troubling development, the attack appears to have relied on hundreds of thousands of internet-connected devices like cameras and home routers that have been infected — without their owners' knowledge — with software that allows hackers to command them to flood a target with overwhelming traffic.