The Global Sustainable Information Society.
Techno-eco-social transformations in the age of the Great Bifurcation

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Anniversary year 2018

- 200 years
  Karl Marx

- 50 years
  student movement

- around 30 years
  protests of informatics students requesting a TU Wien chair in design and technology assessment

Contents

1 Imperial way of life

„imperial way of life“* =def. parts of humanity living

- **at the cost of other parts** that are excluded from the dominant world economic (dis)order and, in doing so,
- **at the cost of the natural living conditions**

this way of life can no longer be extended without risking the breakdown of human civilisation on earth (global challenges)!

on the other hand, these existential crises offer the potential of breaking through to a **Global Sustainable Information Society****

* Ulrich Brand, ** Wolfgang Hofkirchner

1.1 Critical social systems theory

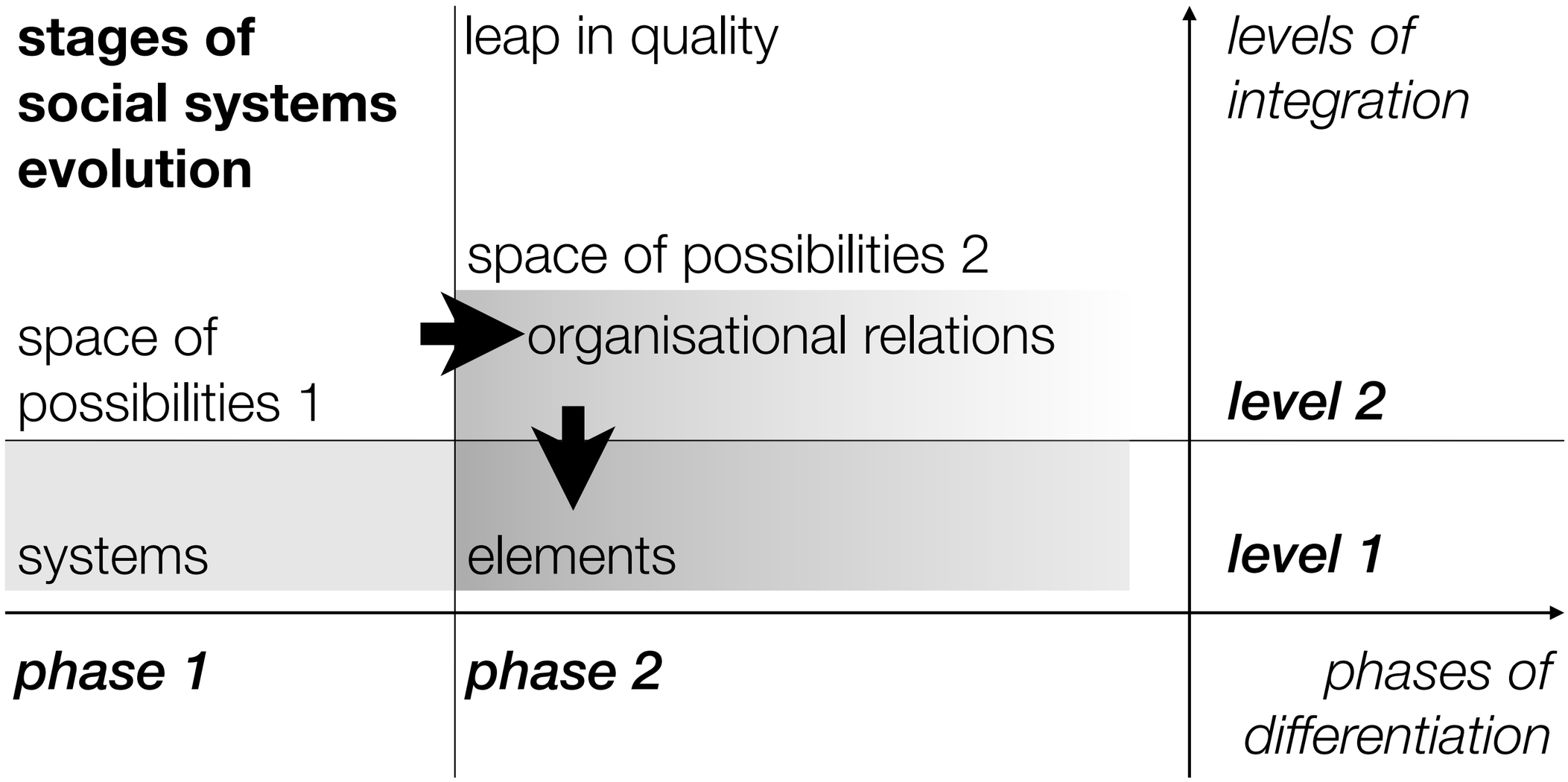
	scientific thought
objective	to provide knowledge in order to **solve problems**
object of study	a **section of reality** about which knowledge is wanted
objectivating methods	means of **generating knowledge that can be corroborated**

1.1.1 Critical social systems theory: objective

	social systems theory	**critical social theory**
objective	to provide knowledge to **design social systems**: to **reduce social dysfunctions** in the organisational relations	to provide knowledge for human **emancipation**: to empower all actors to **sublate antagonistic social relations** that originate from heteronomies
	critical social systems theory	
	to provide knowledge for the **transformation into social systems that materialise real*/concrete** utopias of a good society** (in which antagonistic social relations are not prevailing)	

* Erik Olin Wright, ** Ernst Bloch

1.1.1.1 Transformations towards a good society



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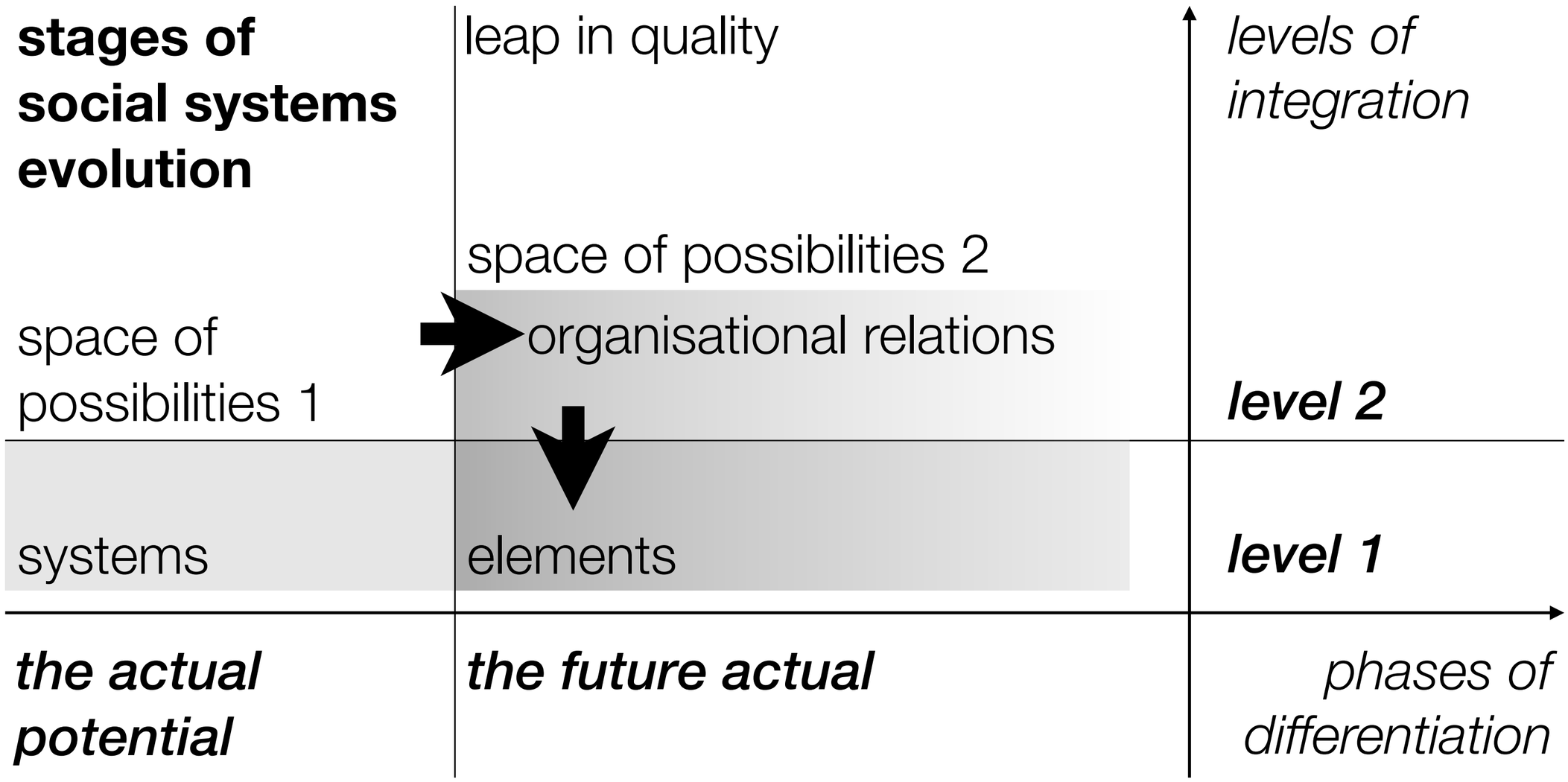

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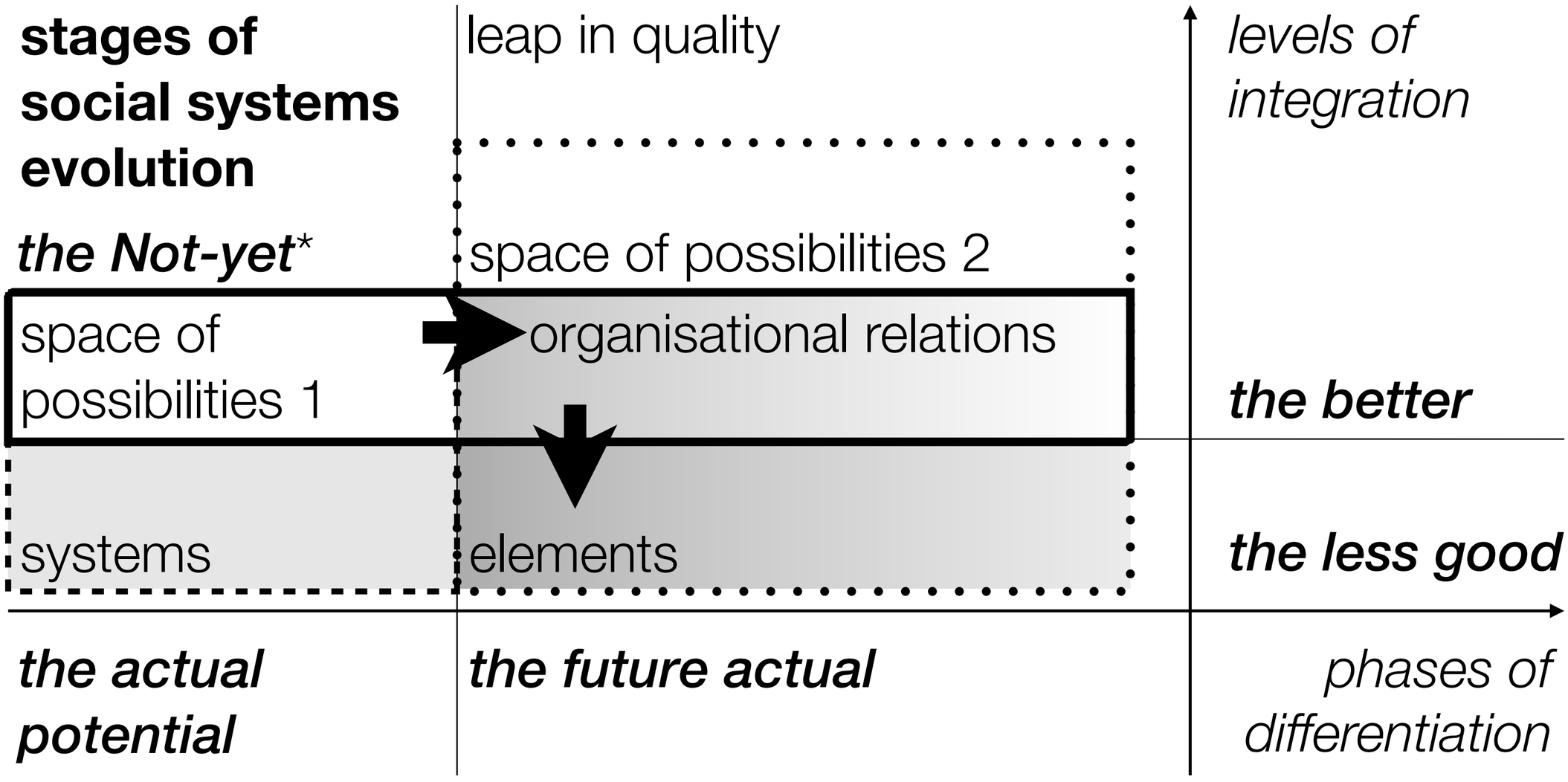


* Ernst Bloch

1.1.1.2 Types of social relations: contraria sunt complementa*

	social relations	**identity and difference**	
claim of absolutism	**antagonism** demands uniformity	**contradictority:** conflict of mutually exclusive oppositions	**negation** of particularity
			imposition of one particular on every other
claim of relativism	**agonism**** demands plurality	**compossibility***: co-existence of (in)different positions	**juxtaposition** of particulars in their own right
claim of integration	**synergism°** demands unity through diversity	**complementarity:** convergence of mutually supportive positions for the common good	**composition** made up by modified particulars („discordant pluralism“°°)

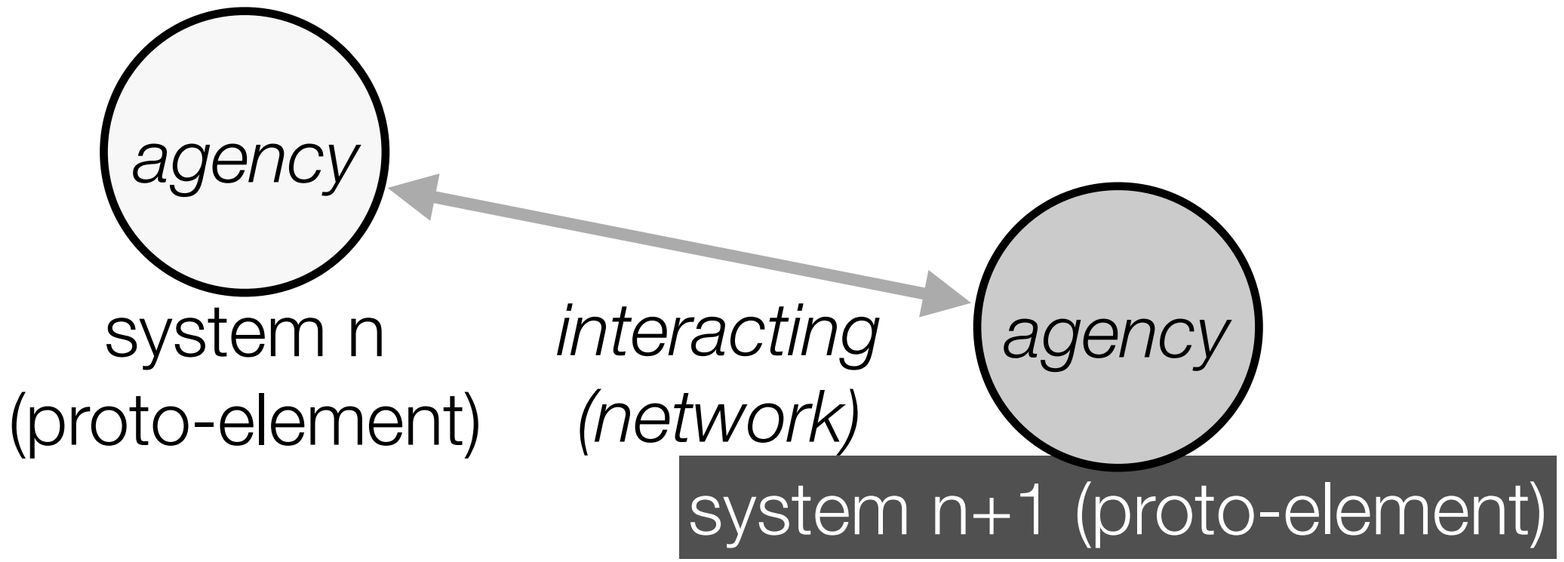
* Niels Bohr, ** Chantal Mouffe et al., *** Gottfried Wilhelm Leibniz, ° Peter Corning, °° Wendy Gregory

1.1.2 Critical social systems theory: object of study

	social systems theory	**critical social theory**
object of study	**social self-organisation** (meta-system* transitions and supra-system hierarchies): how social agents let **organisational relations emerge** that, in turn, **enable and constrain**** their behaviour	**dialectic of agency and structure/social relations** (individual and society)
	critical social systems theory	
	how actors **(re)produce** social relations that maintain the system or **transform** them into ones that form a new system	

* Francis Heylighen et al., ** Anthony Giddens

1.1.2.1 Social self-organisation



1.1.2.1 Social self-organisation

metasystem

…organisational relations (structure)…

…so as to create…

…that – through constraints – enable synergy effects for…

agency

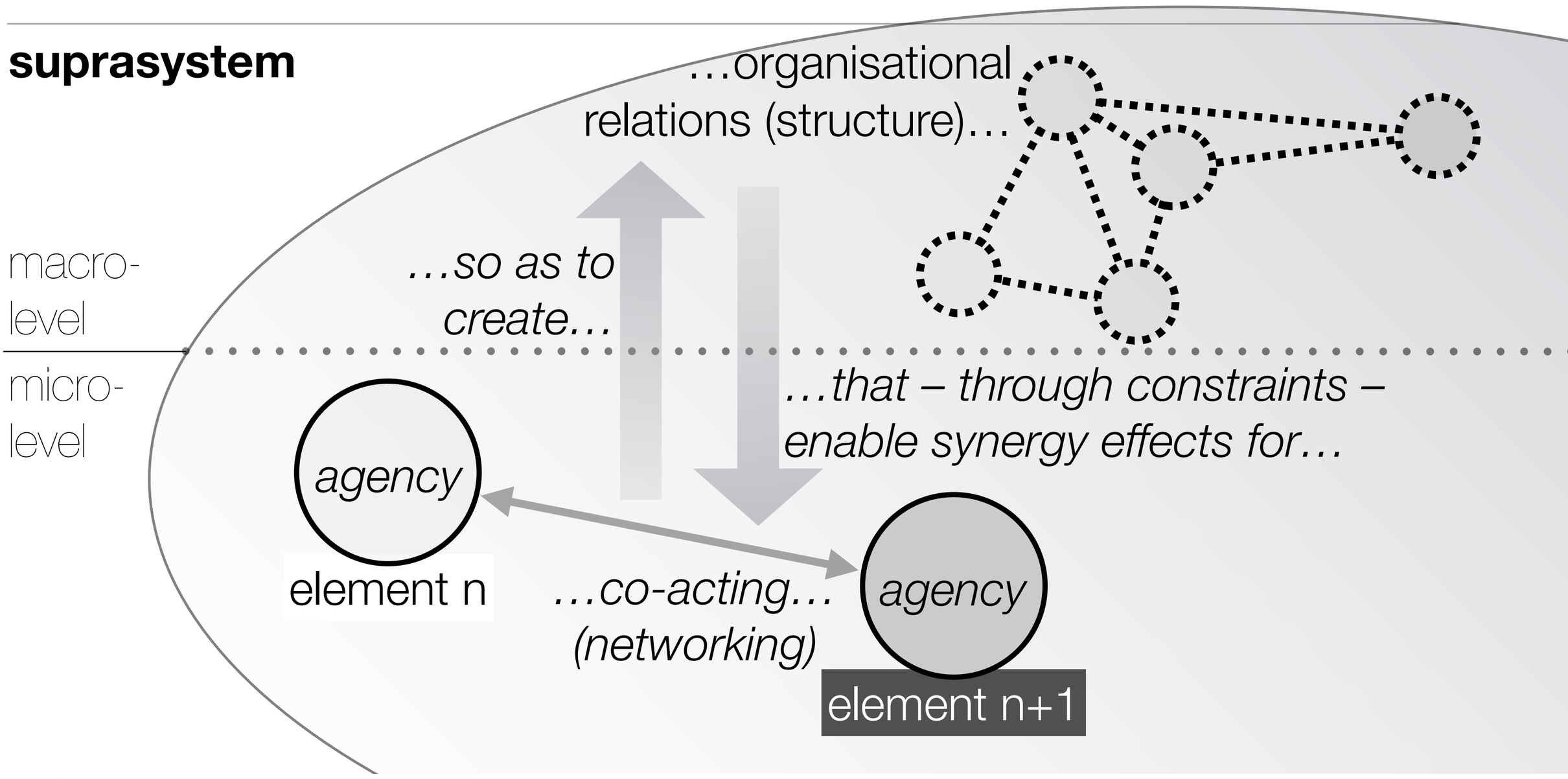
system n (proto-element)

co-acting… (network)

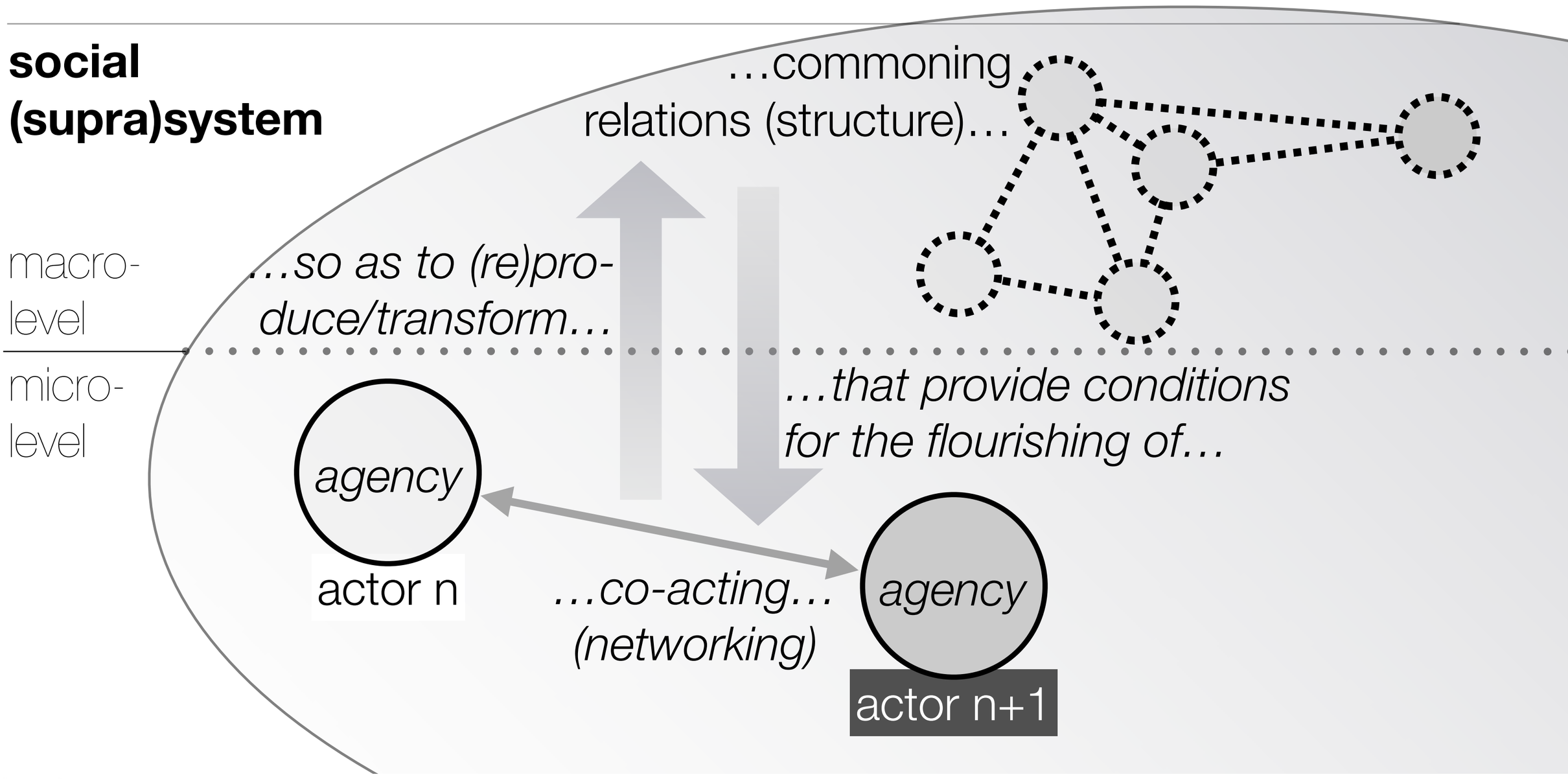
agency

system n+1 (proto-element)

1.1.2.1 Social self-organisation



1.1.2.1 Social self-organisation



1.1.3 Critical social systems theory: objectivating methods

	social systems theory	**critical social theory**
objectivating methods	employing the perspective of **organisational relationality**: putting **behavioural observations** into the context of the **evolution of organisational relations**	employing the perspective of **historicity and social totality**: putting **phenomena** into the context of the **development of social relations**
	critical social systems theory	
	understanding the **appearance of social action by theorising social relations** before the background of social systems evolution	

1.1.3.1 Relations of organisation (1/3)

Ludwig von Bertalanffy‘s „relation of organisation“ in living systems

As opposed to the analytical, summative and machine theoretical viewpoints, organismic conceptions [1] have evolved in all branches of modern biology which assert the necessity of investigating not only parts but also relations of organisation resulting from a dynamic interaction and manifesting themselves by the difference in behaviour of parts in isolation and in the whole organism.

– L. v. Bertalanffy: An Outline of General System Theory. In: British Journal for the Philosophy of Science, Vol. 1, No. 2, 1950, pp. 219-220 –

1.1.3.1 Relations of organisation (2/3)

relations of organisation distinguish kinds of systems:

everything is matter, progressively organised, from
– material systems to
– living material systems to
– social living material systems;
the difference between different manifestations of matter is
different organisation to allow for synergy

1.1.3.1 Relations of organisation (3/3)

relations of organisation cannot be empirically observed:

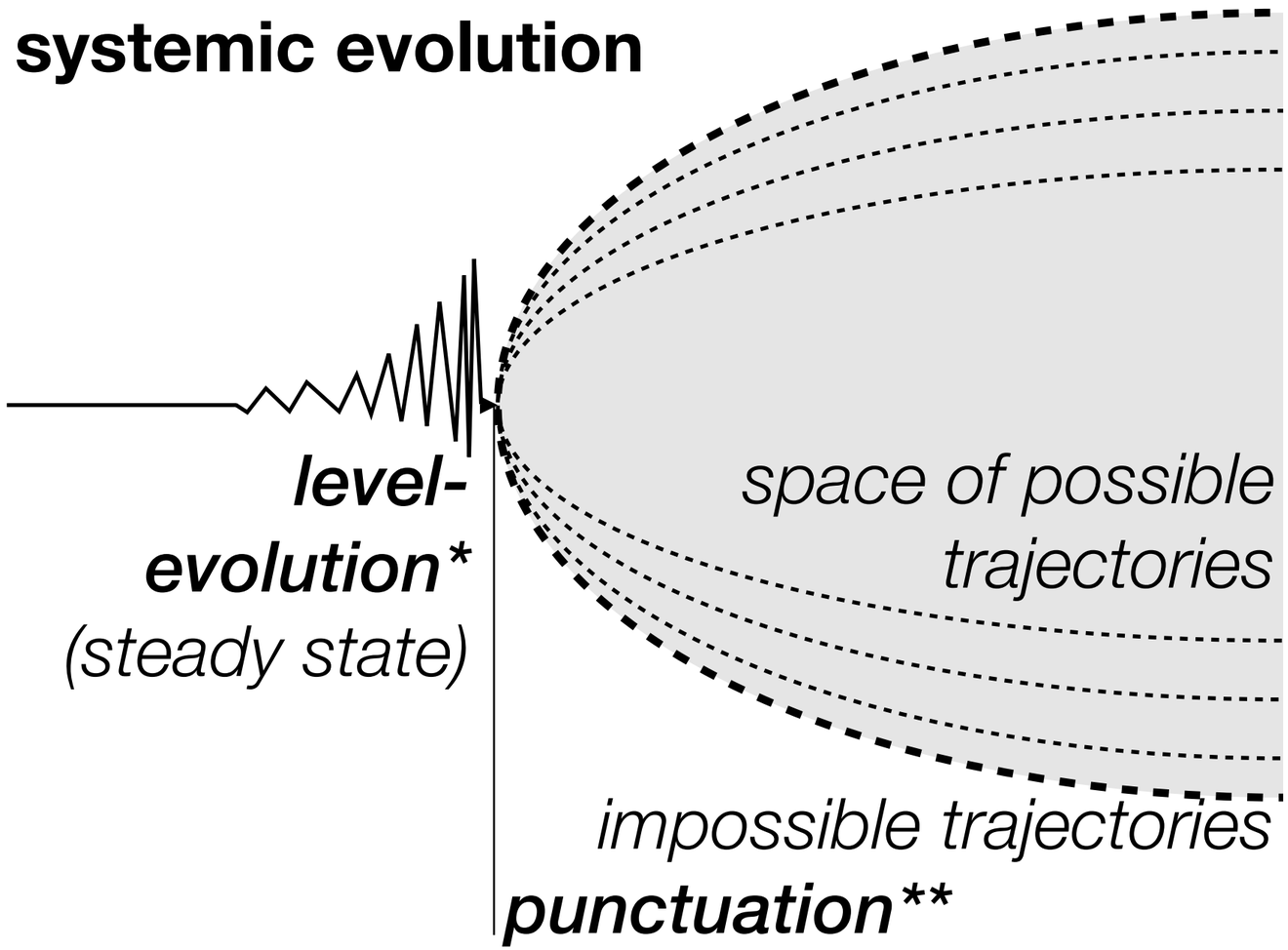
what is observable is the **behaviour of the agents and their interaction in the network (micro-level)** but not the relations of organisation (macro-level) which need to be theorised

1.2 Critical social systems theory in the age of the Great Bifurcation

objective	to provide knowledge to avoid the breakdown of civilisation and reduce social dysfunctions through **breaking up the global enclosure of the commons** by the nesting of all social systems/ actors in a Global Sustainable Information Society
object of study	how actors produse **the commons as social synergy**
objectivating methods	understanding the unfolding of **commoning relations in the history of humanity**

1.2.1 The Great Bifurcation

systemic evolution



level-evolution*
(steady state)

punctuation**

mega-evolution*
*(rise of complexity:
breakthrough to a path
on a higher level)*

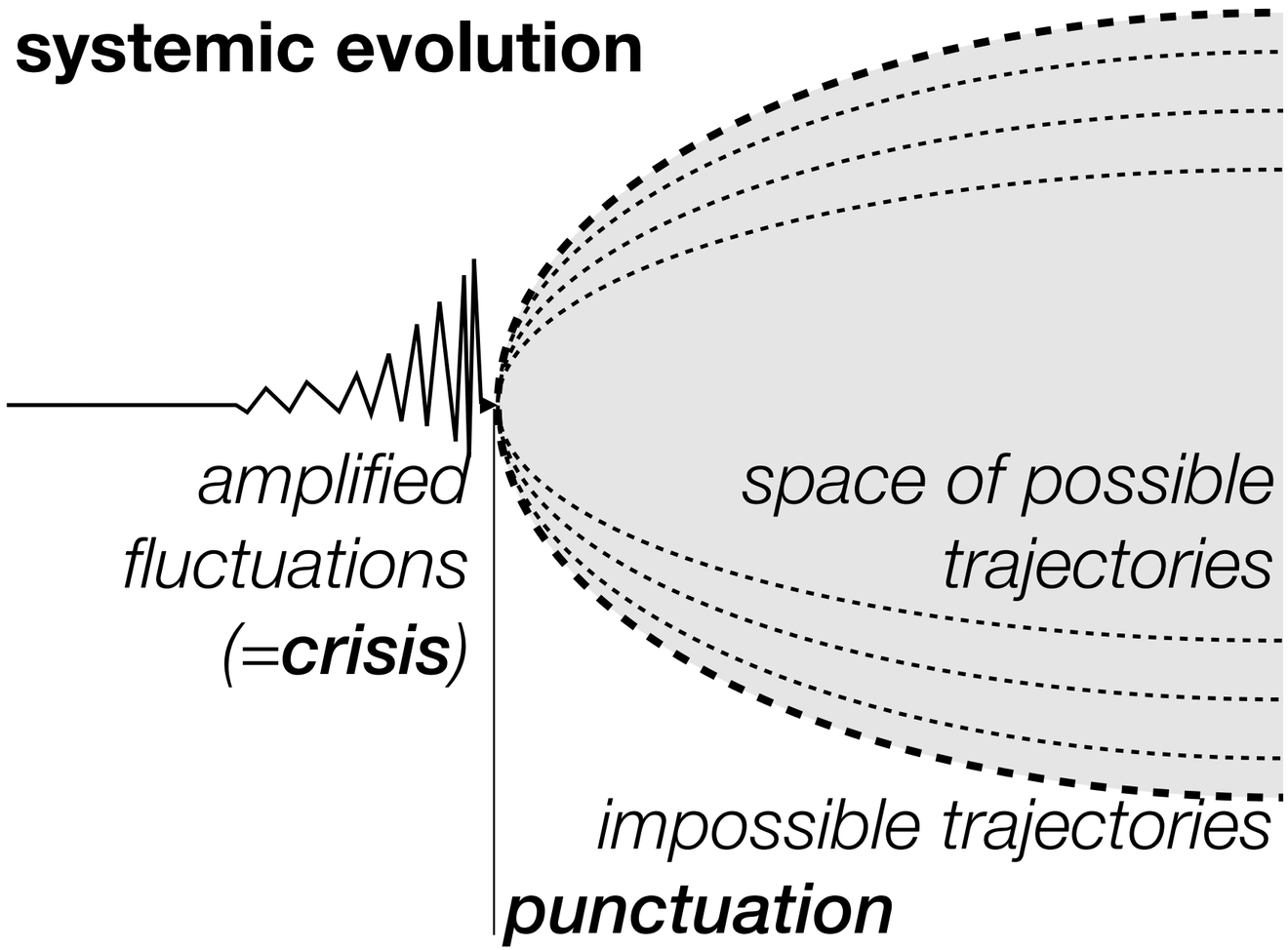
devolution
*(decline of complexity:
breakdown of the system)*

* Klaus Haefner, Erhard Oeser, ** Stephen J. Gould

1.2.1 The Great Bifurcation

systemic evolution

mega-evolution
(rise of complexity:
breakthrough to a path
on a higher level)

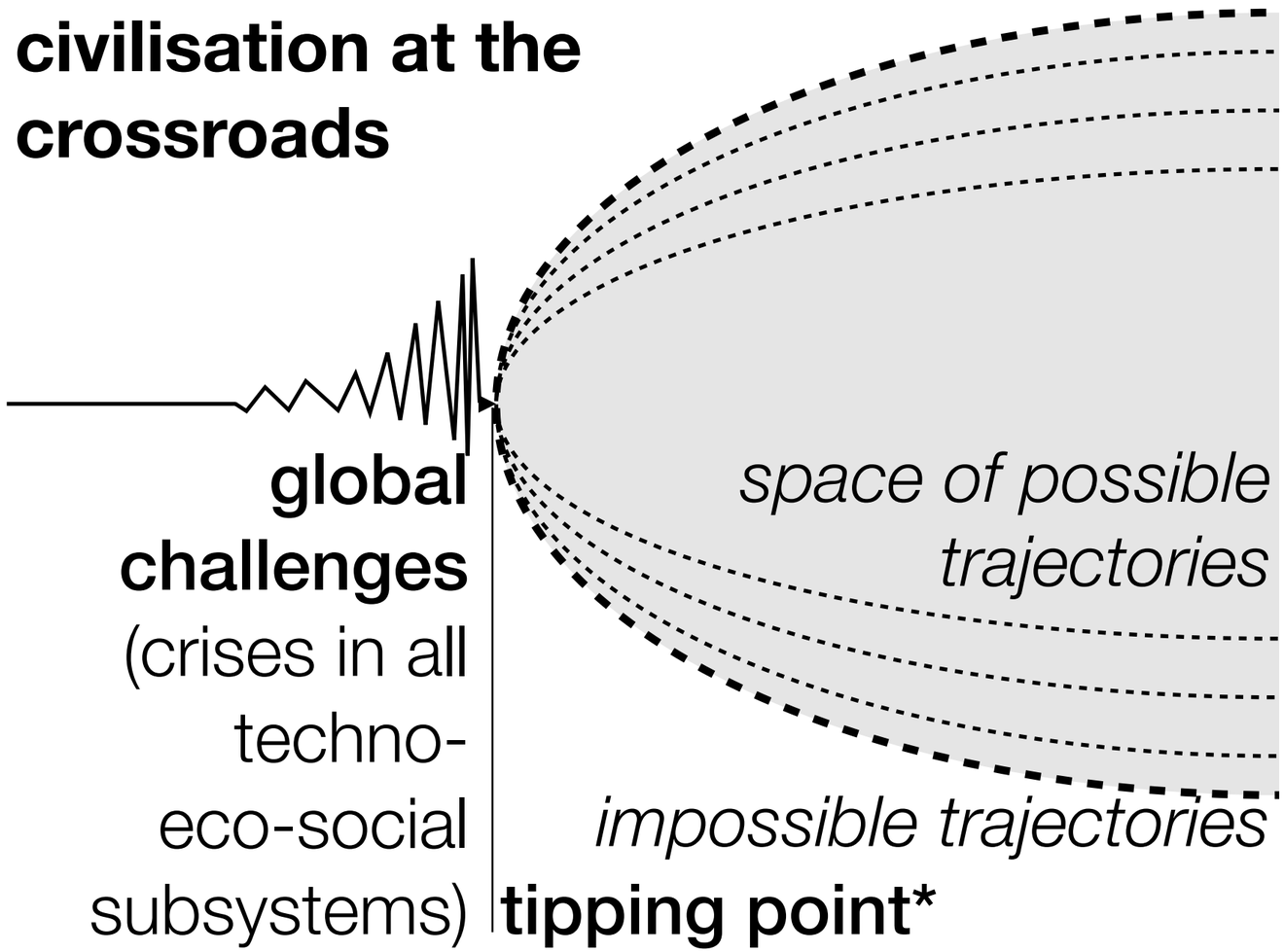


devolution
(decline of complexity:
breakdown of the system)

1.2.1 The Great Bifurcation

civilisation at the crossroads

global challenges (crises in all techno-eco-social subsystems)



integration of differentiated, interdependent social systems into a single **Global Sustainable Information Society**

disintegration and **falling apart of civilisation**

* Ervin László

2 The Global Sustainable Information Society

Global Sustainable Information Society =def. real/concrete utopia that is needed to accomplish for the first time in history:

(1) **globality** =def. **integration at the level of all humanity**
(2) **sustainability** =def. **reorganisation of the social relations** within and between the interdependent social systems such that sociogenic dysfunctions can be kept below the threshold that would endanger the continuation of social evolution
(3) **informationality** =def. **creation of requisite knowledge** for the recognition of those dysfunctions

2.1 Globality

	evolution of complex systems	**social evolution at the Great Bifurcation**
nestedness: growing together for continuing evolution	when independent systems have become interdependent, level evolution can be punctuated by the transition to a metasystem* that forms a hierarchy: a **suprasystem** can emerge, nesting the interdependent systems as co-systems	**the imperative of globality**: **social systems and their actors** cannot thrive or survive unless they **become all nested in a superordinate world system** so as to enable them to continue social evolution (global governance)

* Francis Heylighen et al.

2.2 Sustainability

	evolution of complex systems	**social evolution at the Great Bifurcation**
stability: controlling systemic dysfunctions through integration	when the new structure enters into operation, the synergy* it provides establishes a stable connection of both the suprasystem and the new co-systems: **unity through diversity**** can be approached	**the imperative of sustainability**: the world system cannot be governed unless **actual dysfunctions** in the working of social systems **are treated and possible ones are prevented** (containment)

* Peter Corning, ** Ludwig von Bertalanffy

2.3 Informationality

	evolution of complex systems	**social evolution at the Great Bifurcation**
intelligence: reflecting upon systemic dysfunctions	when single co-systems are not up to increased complexity, they can together create the requisite information* to solve the problem: **collective intelligence** can catch up, surpassing individual intelligences	**the imperative of informationality**: global governance cannot be achieved, social dysfunctions cannot be contained, unless **information about the dysfunctions is generated** (underpinned by an information infrastructure that is shaped for that task)

* W. Ross Ashby

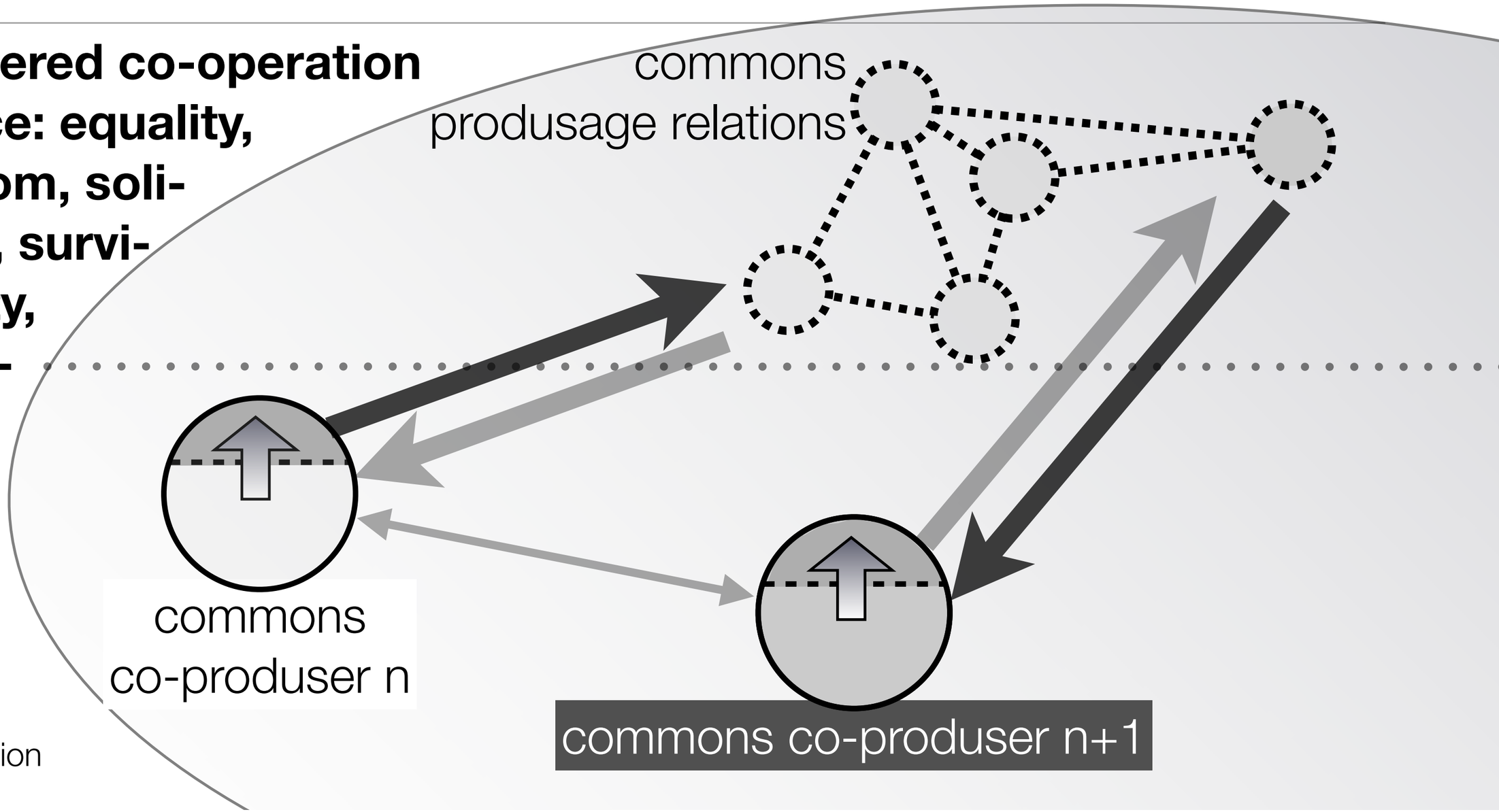
2.3.1 Three imperatives for the next stage of anthroposociogenesis

	general anthropological setting		**imperatives for mastering the Great Bifurcation**
	function	**feature**	
co-operative information	**consensual-isation*** (dedication**)	**common intention-ality***** (goal, point of departure, way)	**hyper-commonalism** (global consciousness including conscience)
communicative information	**collaboration** (deliberation**)	**consilience******** (help-, truthfulness***, perspectivism°)	**all-inclusiveness** (global conversability°°)
cognitive information	**co-ordination** (discernment**)	**conceptuality** (generalisability°°°)	**meta-reflexivity**** (global concernedness)

* Hermann Haken, ** Margaret S. Archer, *** Michael Tomasello, **** Edward O. Wilson,
° Ludwig von Bertalanffy, °° Bernard C.E. Scott, °°° Robert K. Logan

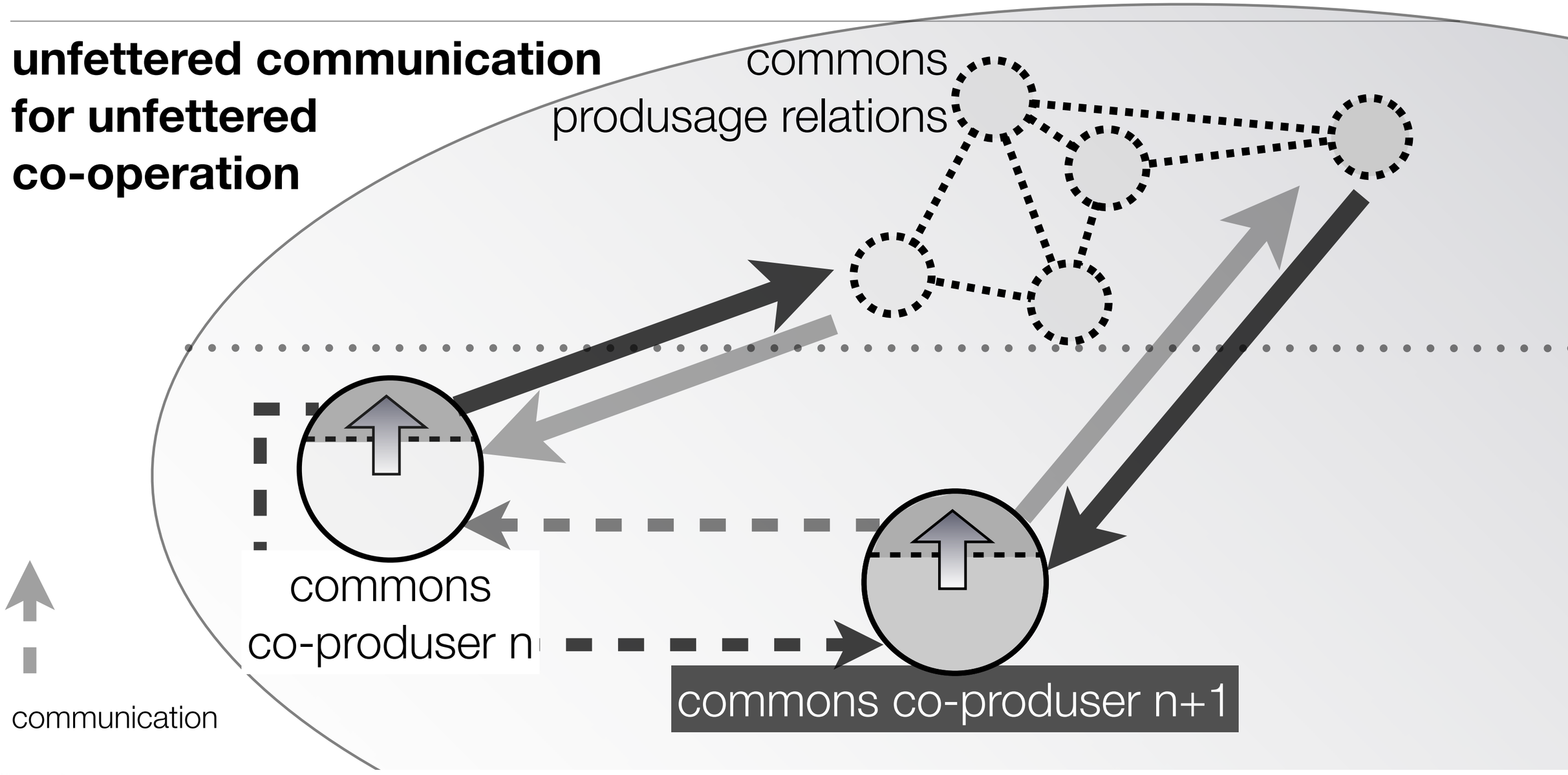
2.3.1.1 Hyper-commonalism

unfettered co-operation (justice: equality, freedom, solidarity, survivability, thrivability)



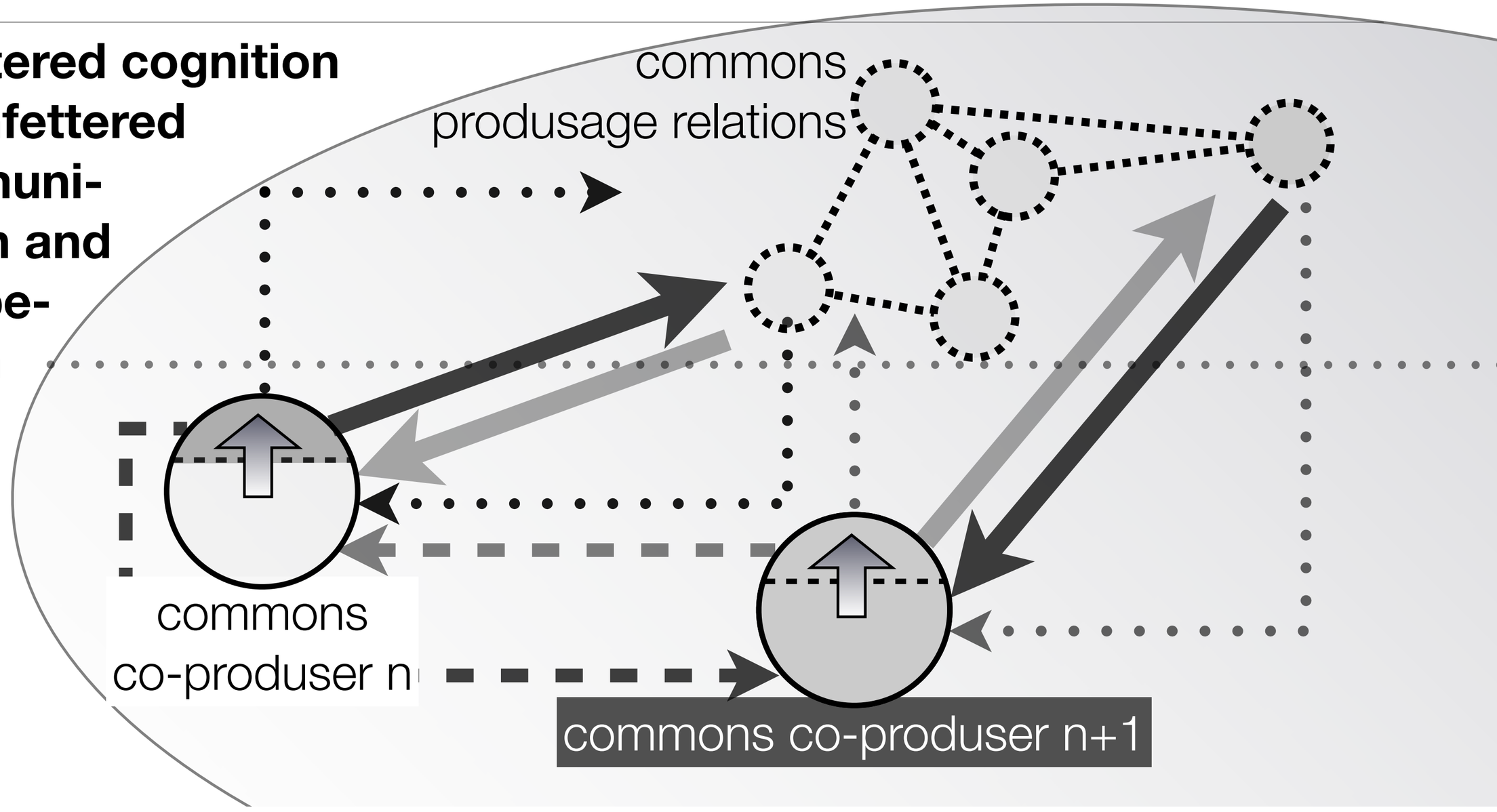
2.3.1.2 All-inclusiveness

unfettered communication for unfettered co-operation



2.3.1.3 Meta-reflexivity

unfettered cognition for unfettered communi-cation and co-ope-ration



2.3.2 Transformations

social system =def. system by organisational relations of production and provision of (the) common(-good)s

the enclosure of the commons has become ubiquitous, though:

private property of means of production has kicked off the enclosure of commons*; today it is not only material wealth growing masses are deprived of, but **virtually any field of social life has become subject to the enclosure of commons****

neoliberalism has put it to extremes*** – **reclaiming of the commons is imperative on a global scale**

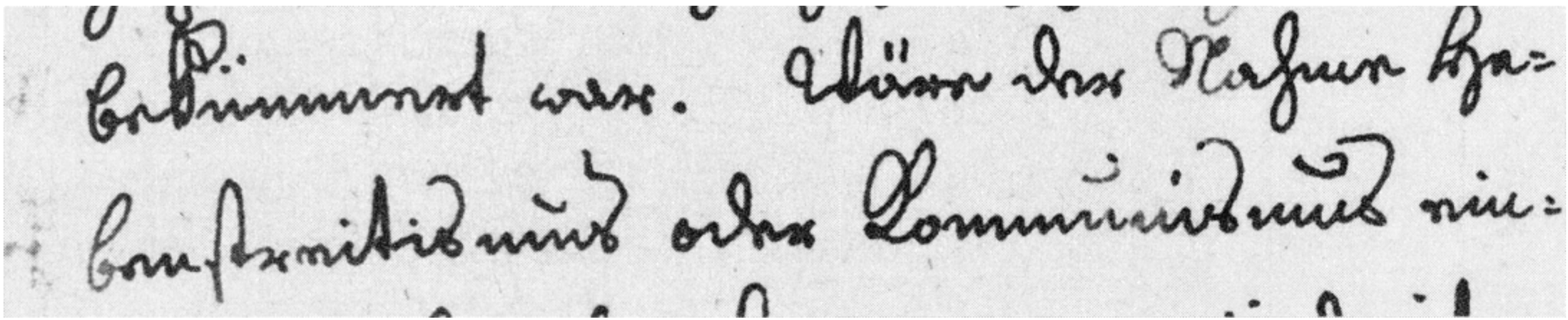
* Karl Marx, ** Slavoj Zizek, *** Neal Curtis

2.3.2.1 Commons, „Kommunismus“

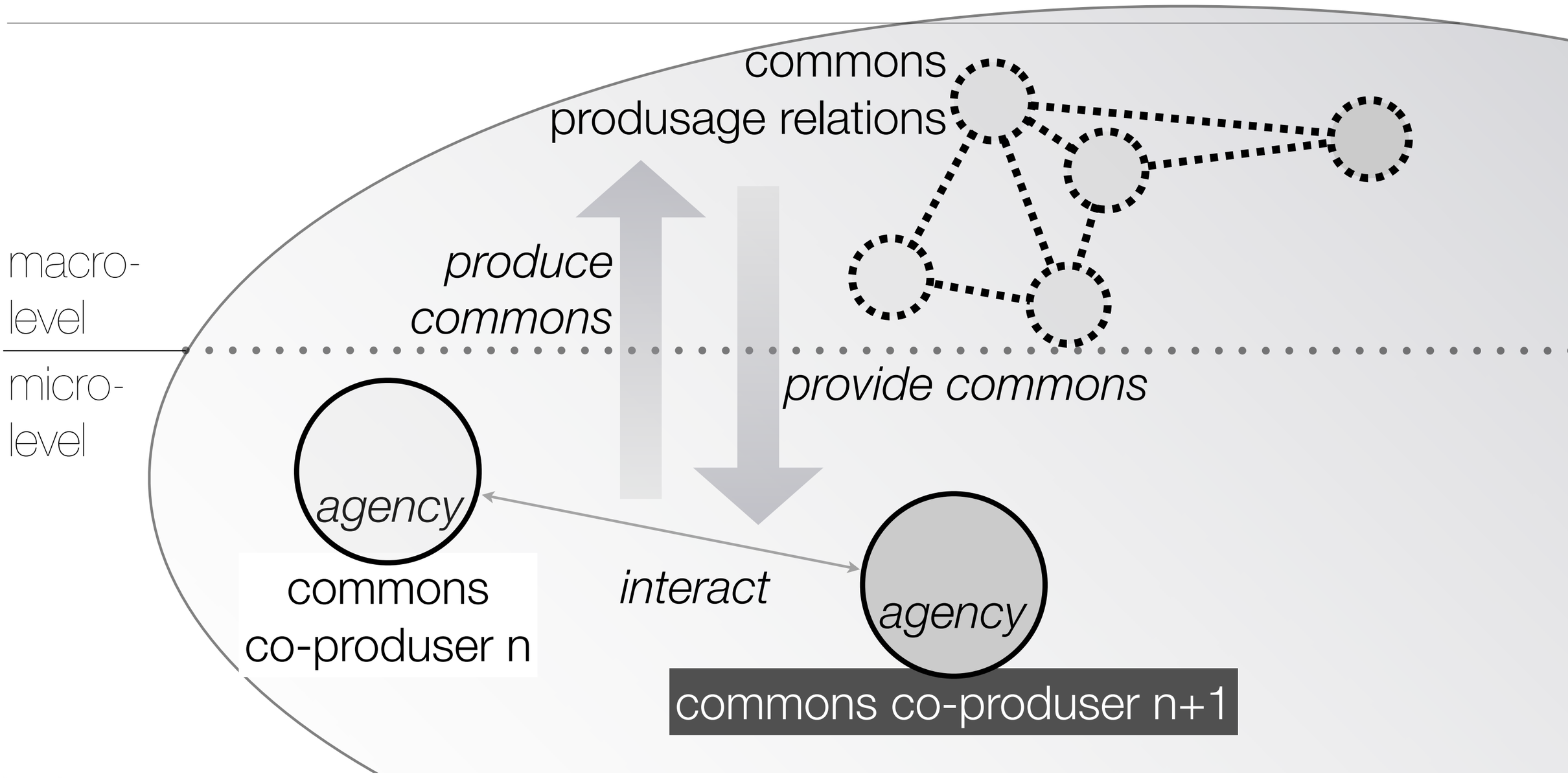
- „communistes“, „communisti“: **Verteidiger gemeinschaftlich genutzter Weideflächen** in Frankreich und Italien

- „communistae“, „Gemainschaftler“: **Hutterische Brüder** (16./17. Jhdt.)

- „Hebenstreitismus oder Kommunismus“, „Gesellschaft, worinnen alle Natur- und Kunstprodukte *nach jedem Bedürfnis* gemeinnützig sind, folglich der Erwerb sowie der Genuß gemeinschaftlich, in einer solchen Gesellschaft ist jedes Laster unmöglich“: **Wiener Jakobiner Andreas Riedel und Franz Hebenstreit** (Nov. 1794) – erste urkundliche deutsche Nennung des Begriffs zur Bezeichnung der ideellen Grundlage der Bewegung und seine Erweiterung auf die Vision einer zukünftigen Gesellschaft

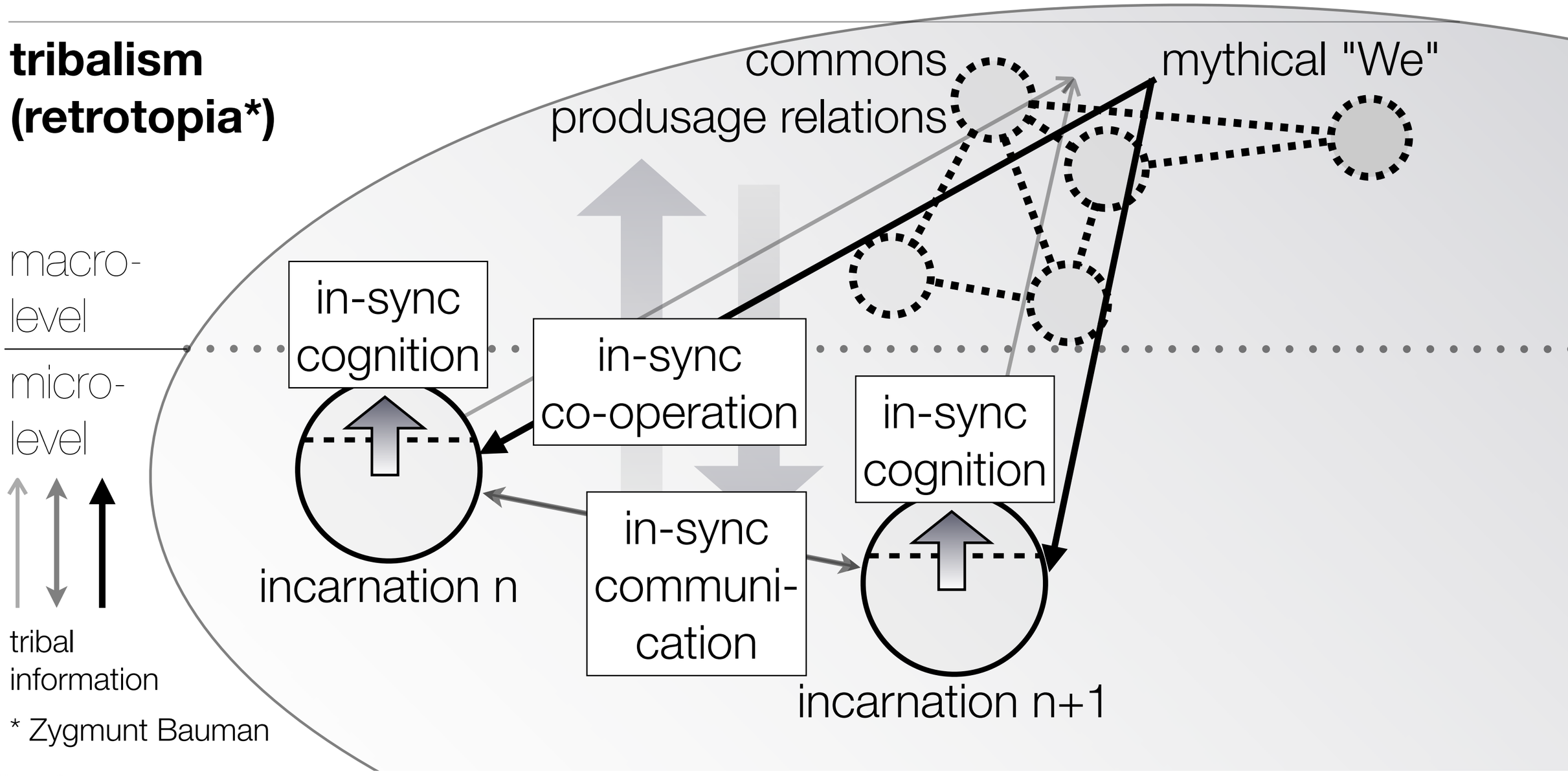


2.3.2.2 Transformation states

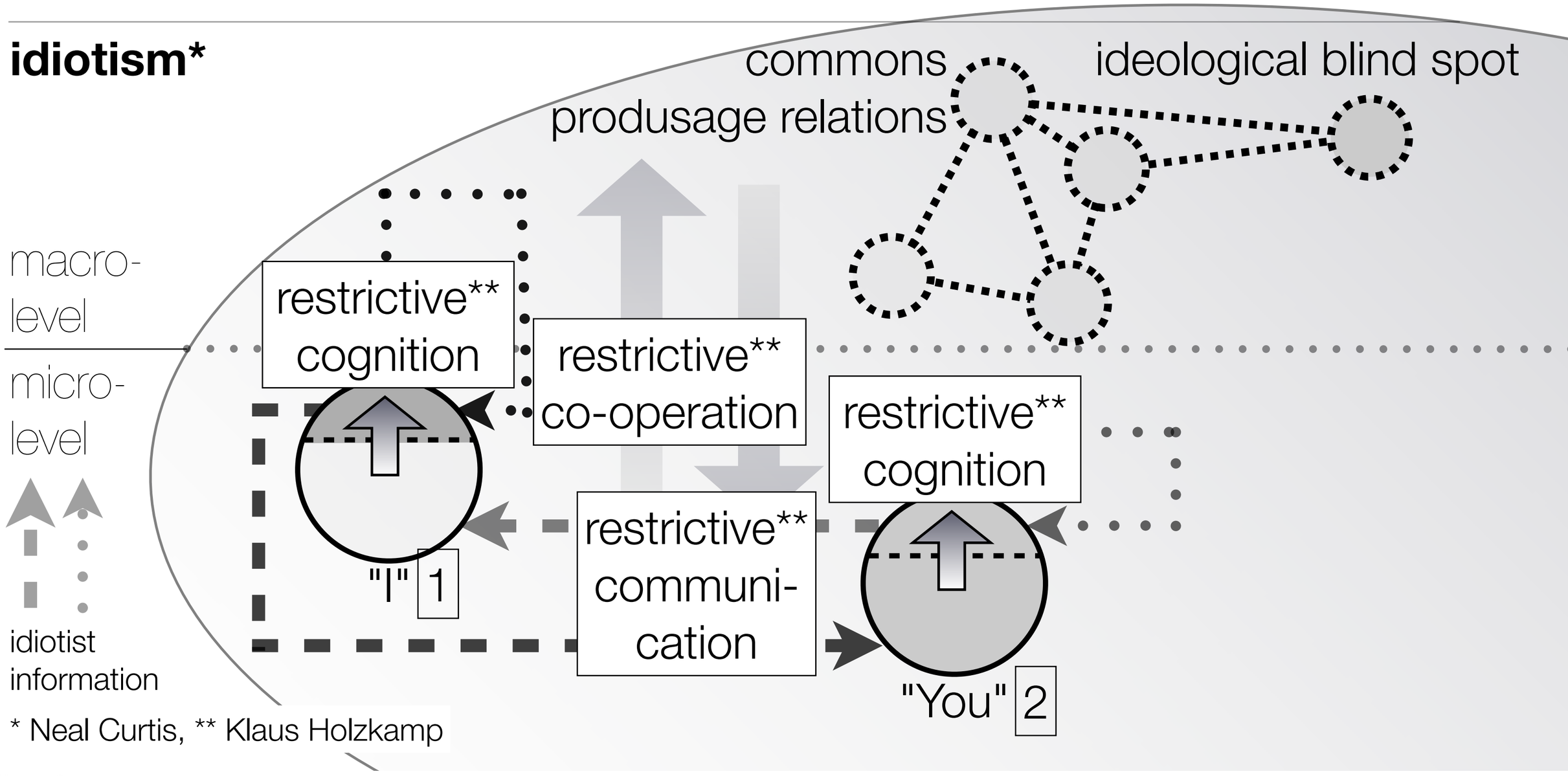


2.3.2.2.1 Animal sociale

tribalism
(retrotopia*)

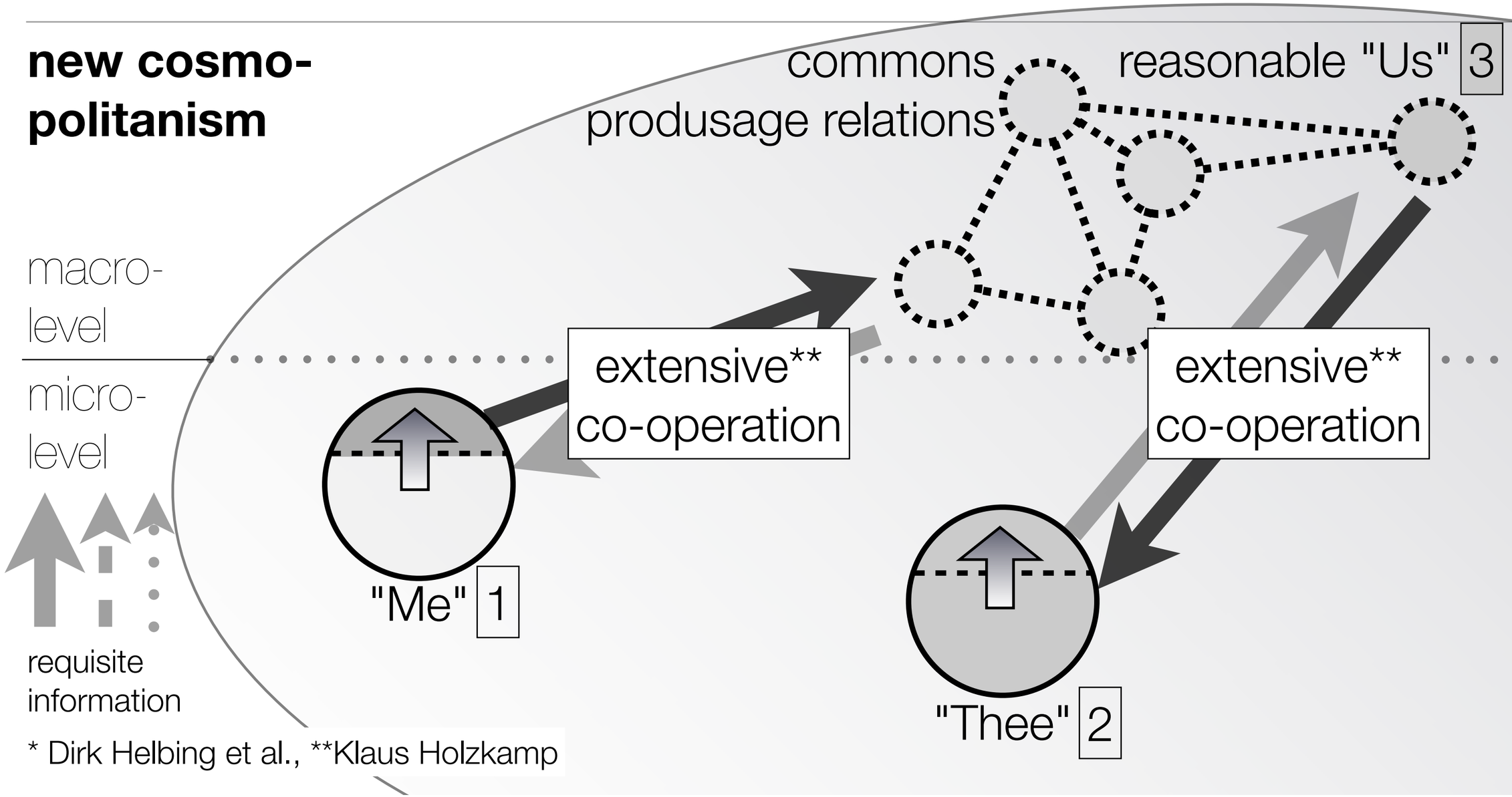


2.3.2.2.2 Homo idioticus



2.3.2.2.3 Homo socialis*

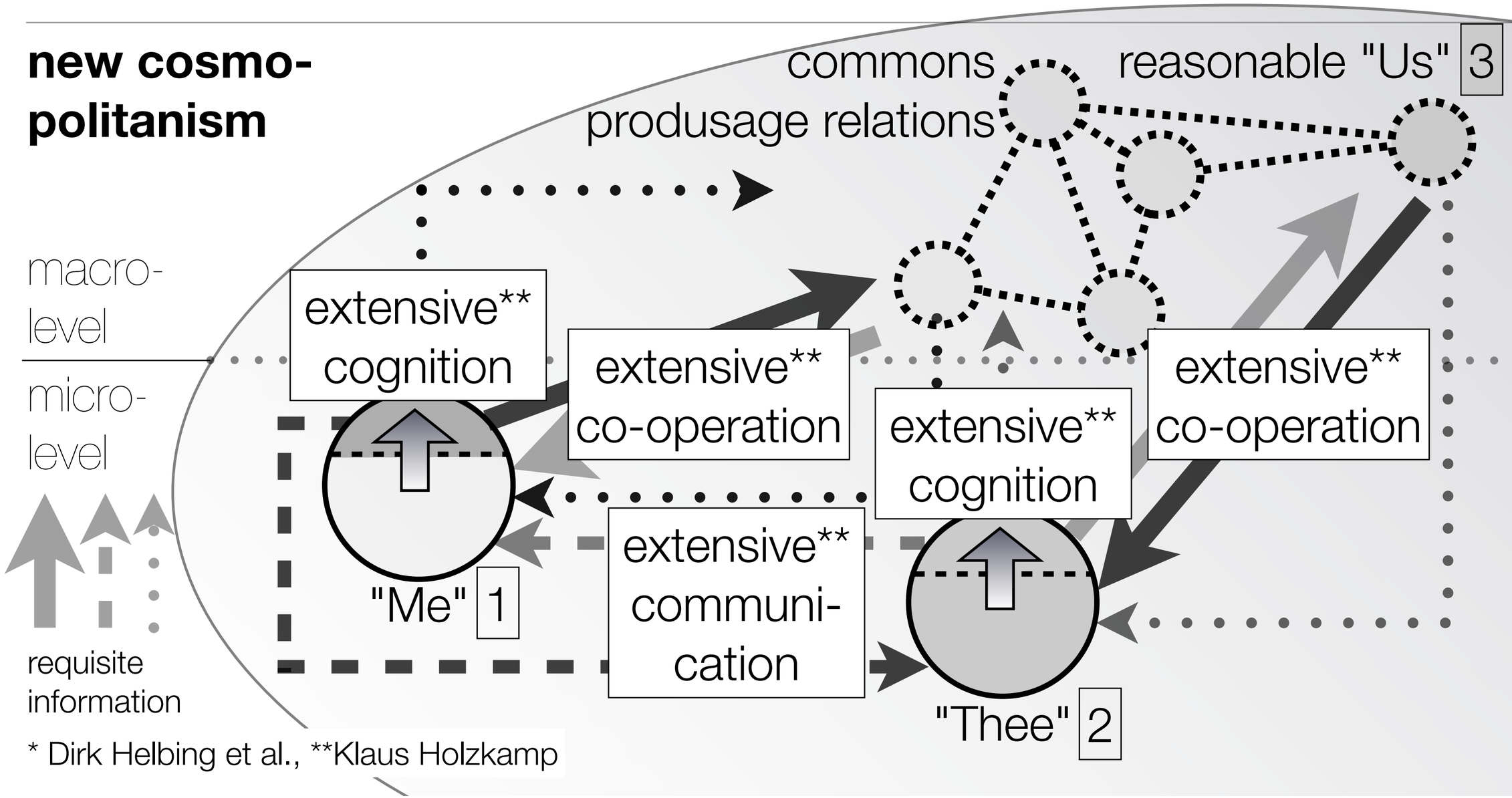
new cosmo-politanism



* Dirk Helbing et al., **Klaus Holzkamp

2.3.2.2.3 Homo socialis*

new cosmo-politanism



* Dirk Helbing et al., **Klaus Holzkamp

3 Meaningful ICTS in the age of the Great Bifurcation

informatisation* =def. process of diffusion of technologies that make society more and more responsive to information

informationalisation** =def. process of raising the problem-solving capacity of (world) society to a level of intelligence that allows the successful tackling of problems that arise from society‘s own development

informatisation has to be tamed and harnessed for informationalisation!

* Simon Nora/Alain Minc, **Wolfgang Hofkirchner

3.1 The social impact of current ICTs

ICTs have **ambiguous impacts** on the social system they support:

- on the one hand, they can be **functionalised for purposes detrimental to reclaiming the commons**; they can
  - **reinforce existing dislocations**, quantitatively, or
  - **spawn new dislocations**, qualitatively

- on the other hand, a **potential for reducing frictions in the functioning of social systems inheres in them**

thus they **need to be designed deliberately**!

3.1.1 Cognition

	technologies	trends
technically supported cognitive functions	**„tools for thought“***	double **mechanisation** of intelligence: • **algorithmisation of creativity** – loss of ability to make generalisations and deal with levels of abstraction due to machine processing (formal logics, mathematics; e.g., big data); quantification of physical performance (neoliberal craze for measuring) • **outsourcing of thinking to machines** to which superiority is attributed (e.g., „autonomous“ and „intelligent“ „systems“)

* J.C.R. Licklider, Doug Engelbart et al.

3.1.2 Communication

	technologies	**trends**
technically supported communicative functions	**„media“***	**disinfotainment****: information overload, diversion, computer games, manipulation, propaganda, brain wash etc. due to industry leaders, gatekeepers close to elites***, private or public think tanks und intelligence agencies (e.g., filter bubbles in social media, dissemination of fake news, use of bots, hegemony of an irrational discourse, belittling of science, exclusion of population groups)

* Sybille Krämer, ** Howard Rheingold, *** Uwe Krüger

3.1.3 Co-operation

	technologies	trends
technically supported co-operative functions	**„technologies of co-operation“***	replacing of the military-industrial complex** by the **military-informational complex** (e.g., Big Tech & NSA)***: • **surveillance** (public/private) • **waging information wars** (public/private) • **rationalisation** because of digitisation • **exploitation** of work **of** social media users as involuntary **producers of personal data******; **making profit through platforms** of so-called „sharing economies“ (e.g., Uber, Airbnb)

* Howard Rheingold, ** Dwight D. Eisenhower, *** Shoshana Zuboff, **** Christian Fuchs

3.2 Informatisation for the informationalisation (1/3)

meaningful technology* =def. technology endowed with meaning by

(1) the reflection of its expected/actual usage (**social usefulness**) through integrated technology assessment and design of technology, that is, reflection of both

- the **fitness for the purpose** (utility) and
- the **purpose itself** (the function the technology serves)

(2) the inclusion in the design process of those who are affected by its usage: **participatoriness** (transdisciplinarity, mode-2 science**)

* Wolfgang Hofkirchner, ** Helga Nowotny

3.2 Informatisation for the informationalisation (2/3)

meaningful technology in the age of the Great Bifurcation =def. technology that contributes to the capability of societies to safeguard their development and rule out a self-inflicted breakdown

=def. technology **for a Global Sustainable Information Society (GSIS)**

3.2 Informatisation for the informationalisation (3/3)

meaningful I(C)Ts in the age of the Great Bifurcation =def. **I(C)Ts** that contribute to the capability of societies to safeguard their development and rule out a self-inflicted breakdown,
that is, to support the creation of wisdom–knowledge–data for lowering frictions in the build-up of ((techno)eco)social systems

=def. **I(C)Ts** for a Global Sustainable Information Society (GSIS)

Thank you for listening!

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