

ANATOMY AND TIME

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SNAP AND SPAN

To understand relations between universals

Reference to times and instances are
important

A derives from B

concept A derives from concept B

Official OBO definition

term: derived_from

definition: Any kind of temporal relationship,
such as derived_from, translated_from

Better Definition

A derives from B

for any instance x of A there is some instance y of B such that x exists earlier than y and

What is an anatomy standardization for?

Anatomy:

across species (human, mouse) (SAEL)

across time (development, growth, aging)

from generic (normal + abnormal)

to instance-based)

Tied to: genomic

clinical (disease pathways)

FMA = (AT, ASA, ATA, Mk)

AT = Anatomy Taxonomy

ASA = Anatomical Structural Abstraction

Mk = Metaknowledge

$$FMA = (AT, ASA, \mathbf{ATA}, Mk)$$

ATA, or *Anatomical Transformation*

Abstraction describes the time-dependent morphological transformations of the **concepts** represented in the taxonomy during the human life cycle, which includes prenatal development, postnatal growth and aging;

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single-cell zygote

multi-cell zygote

morula

early blastocyst

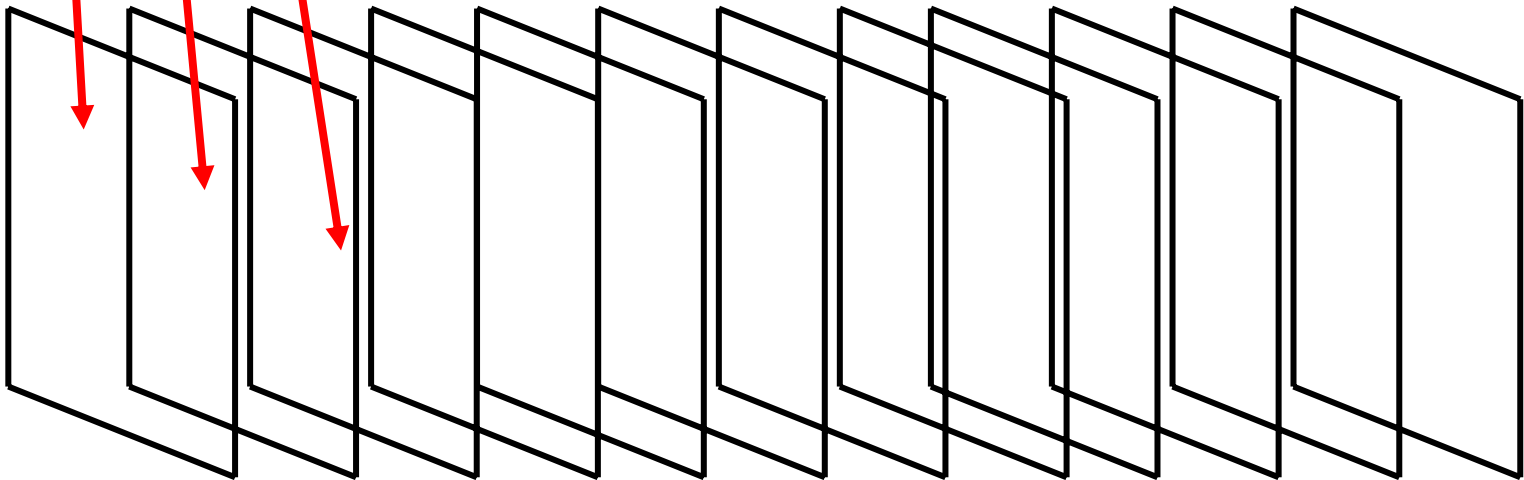
gastrula

new born

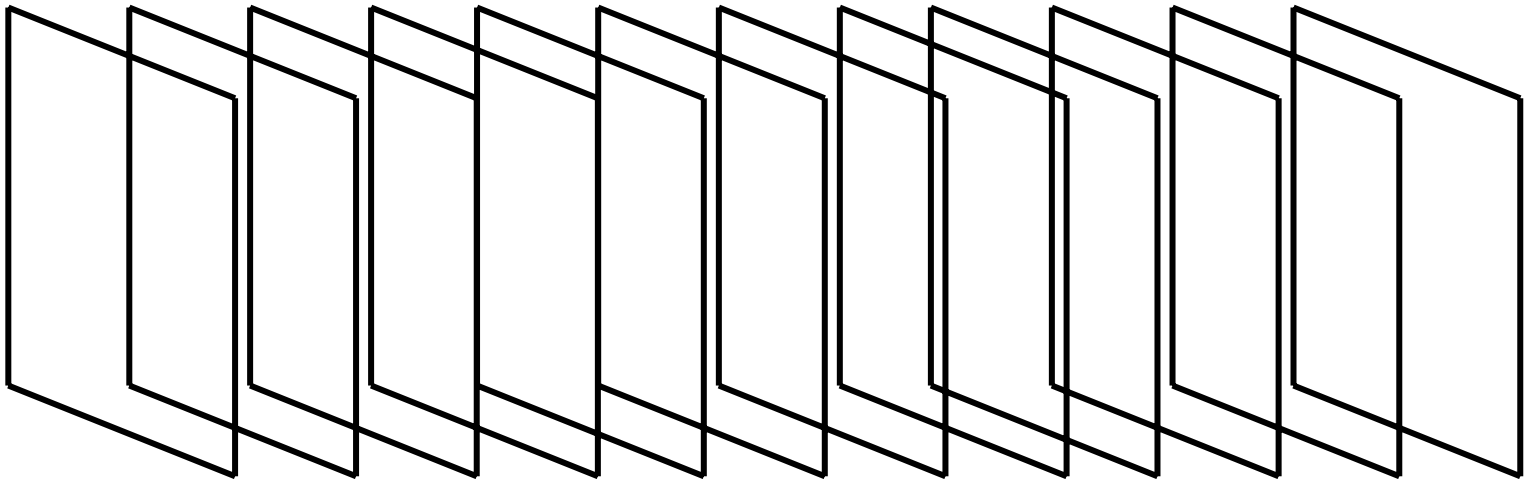
infant

adolescent

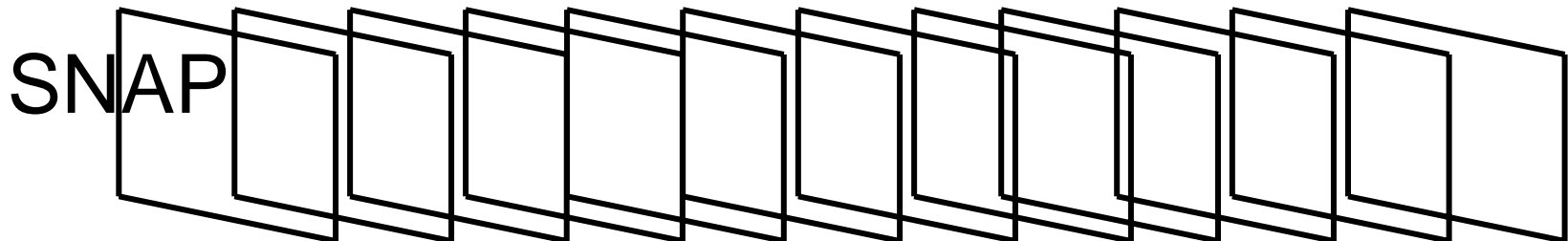
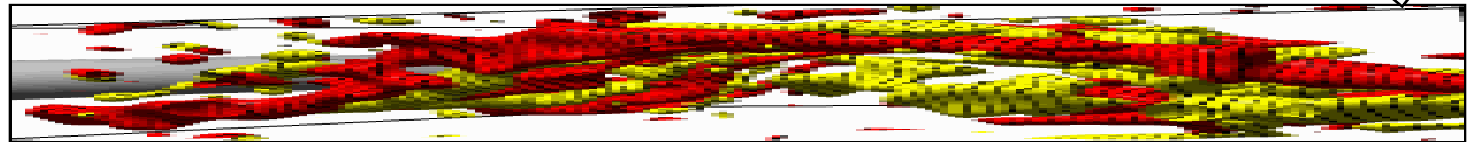
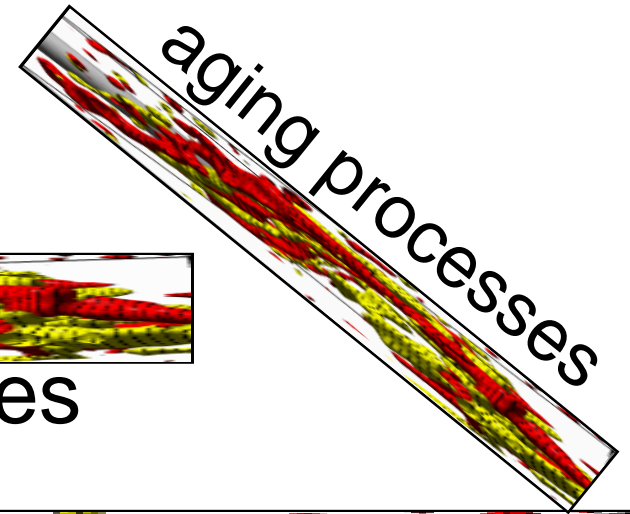
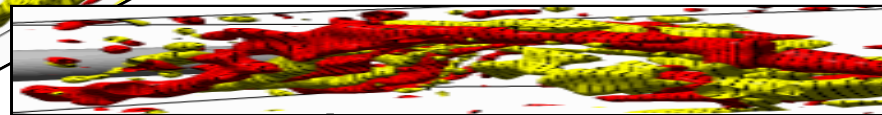
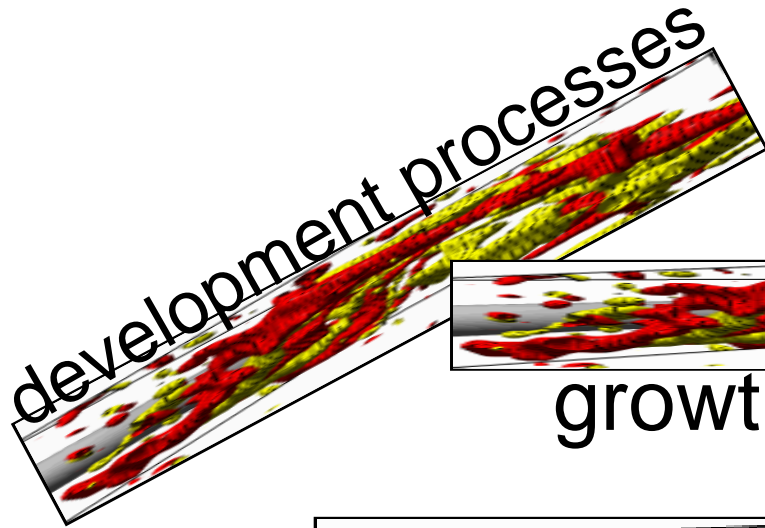
young adult



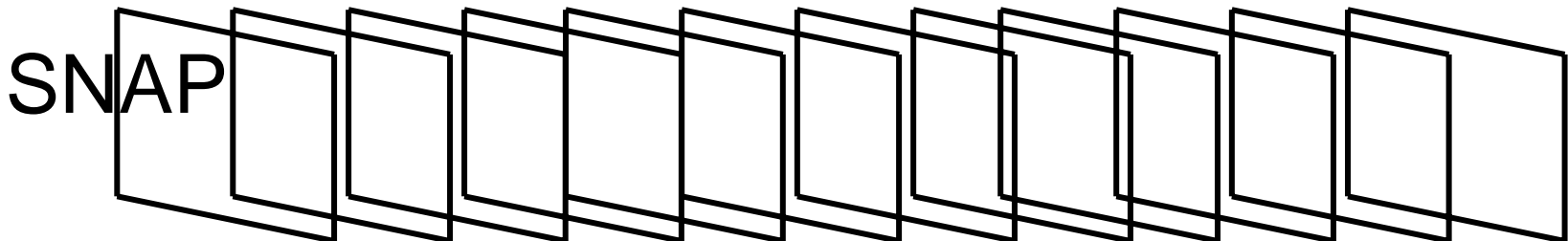
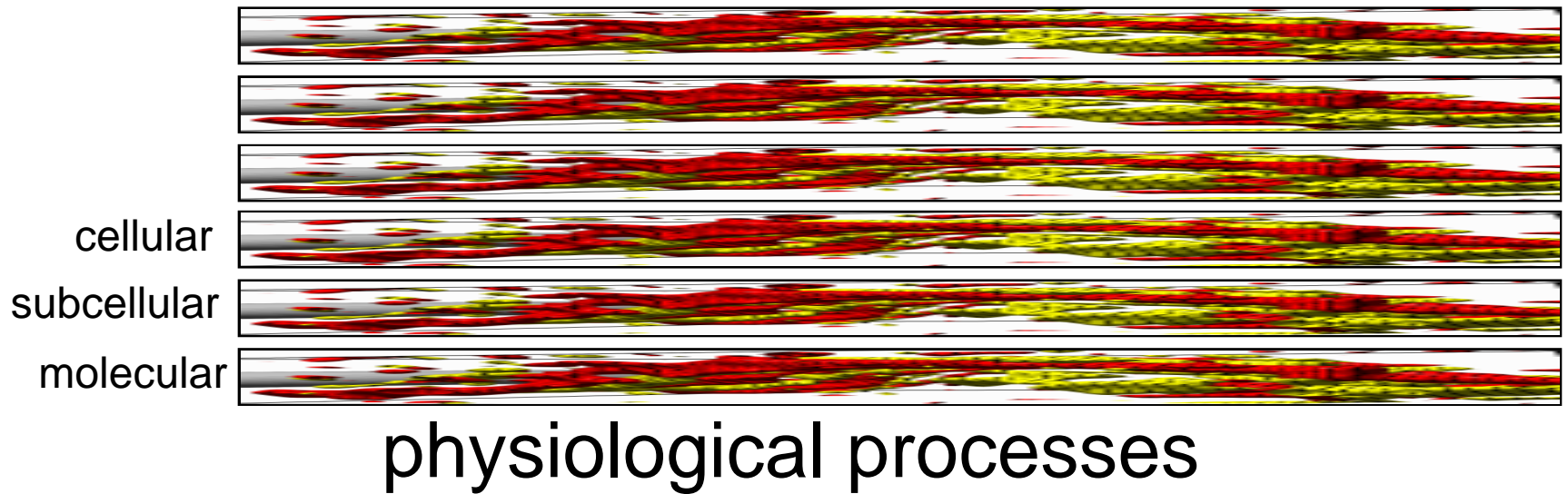
A sequence of SNAP ontologies



together with SPAN ontologies for processes/transformations

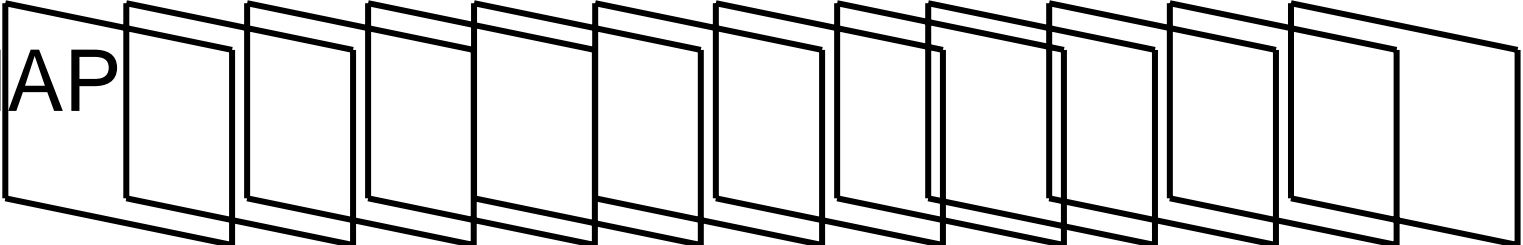


each of these at a plurality of levels
of granularity

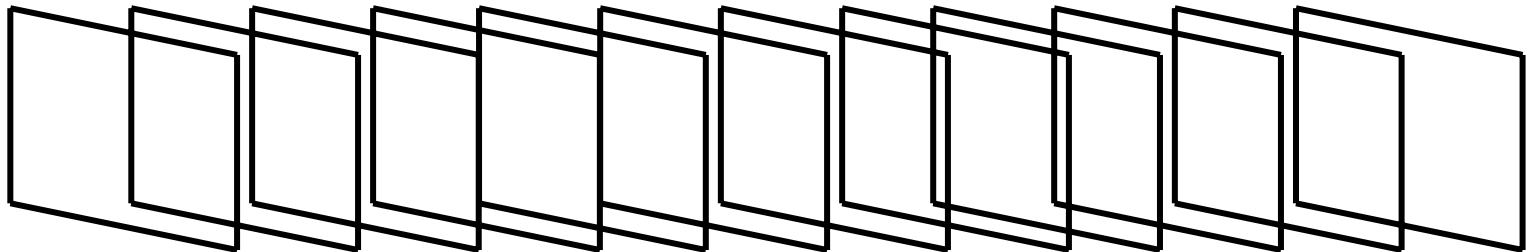


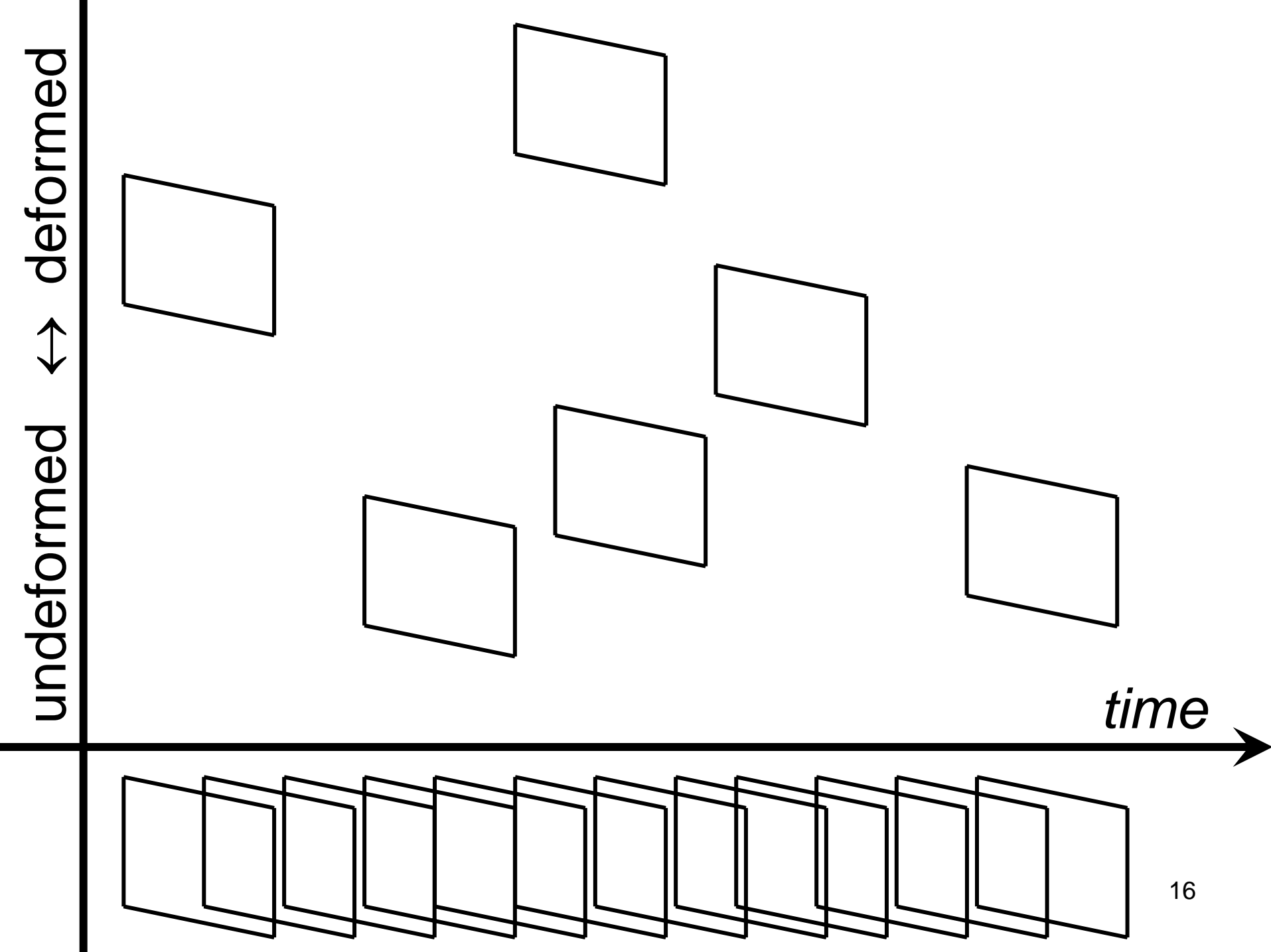


SNAP

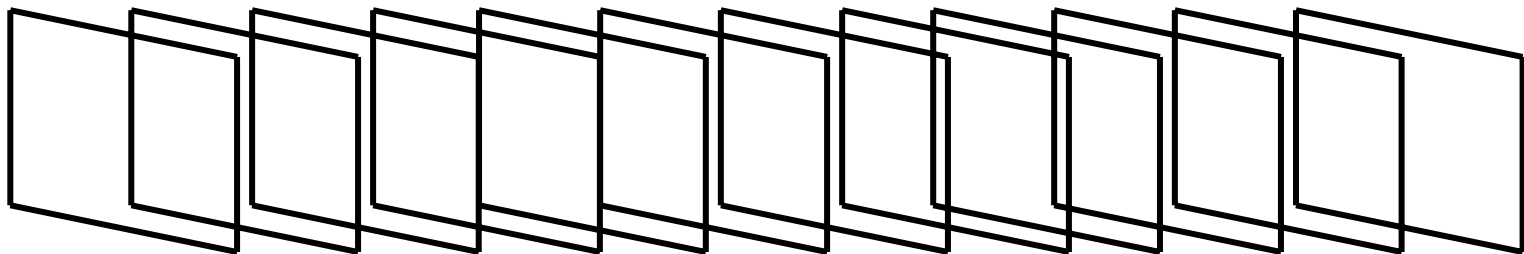
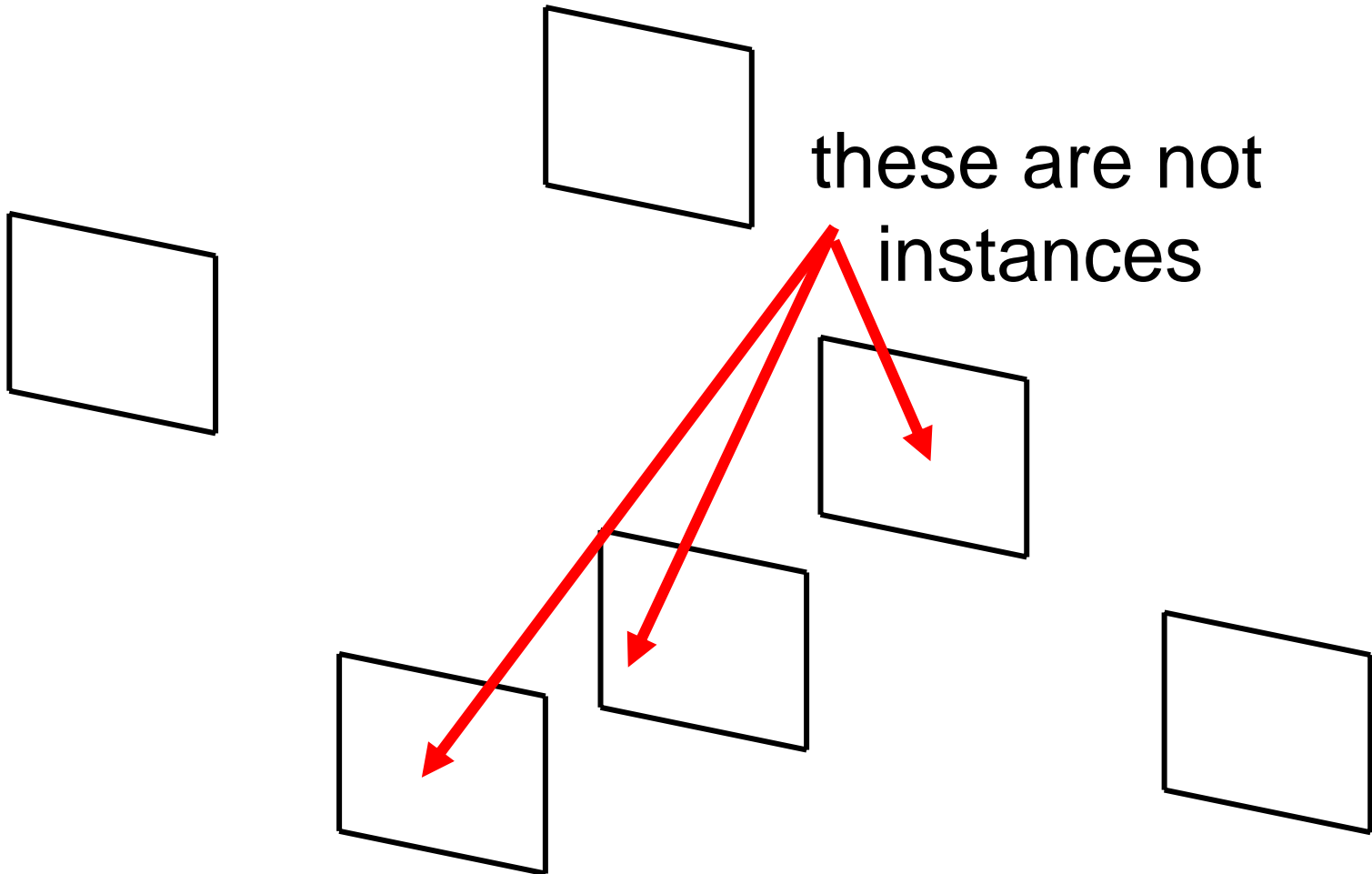


canonical vs. instantiated





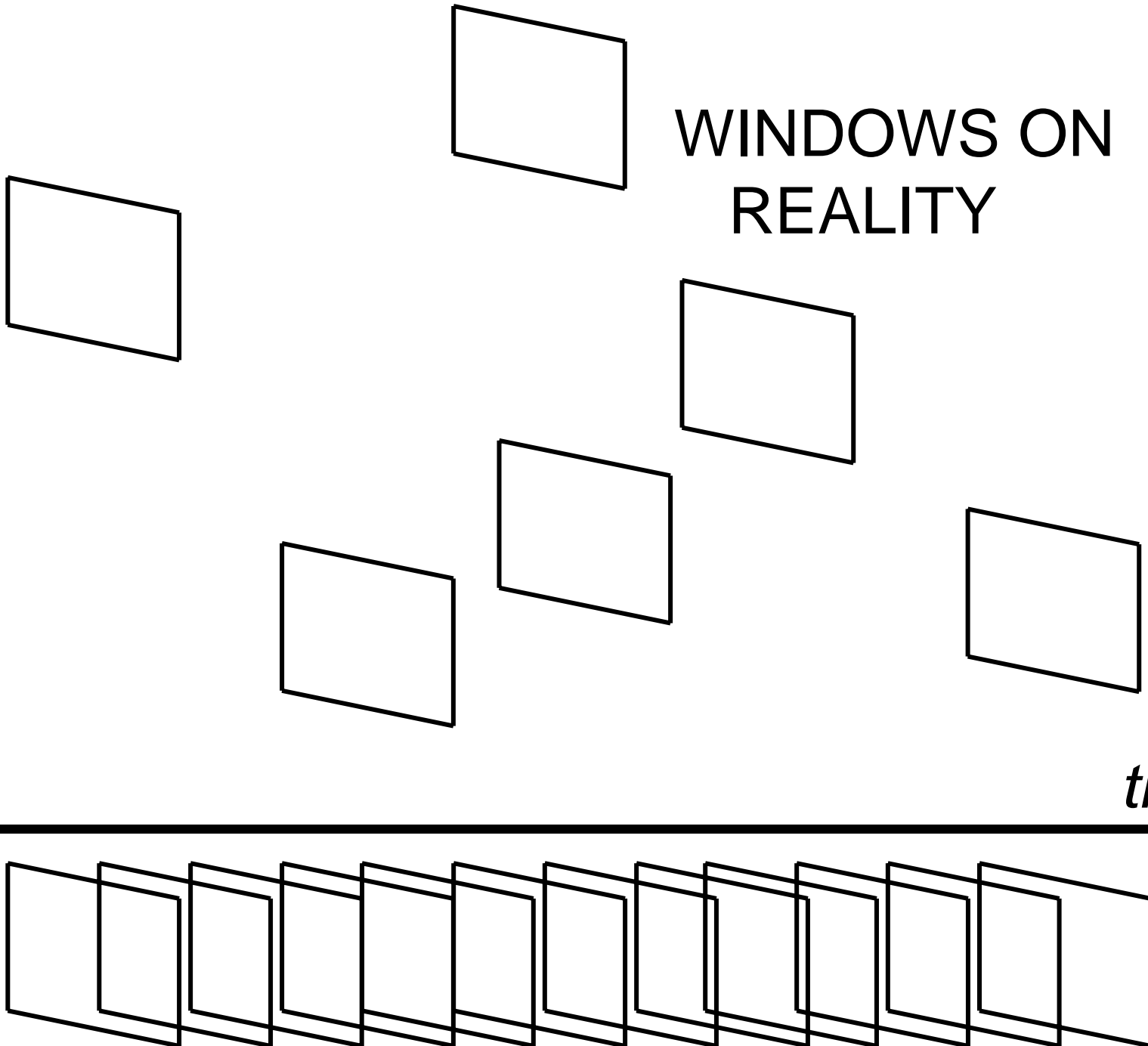
undeformed \leftrightarrow deformed



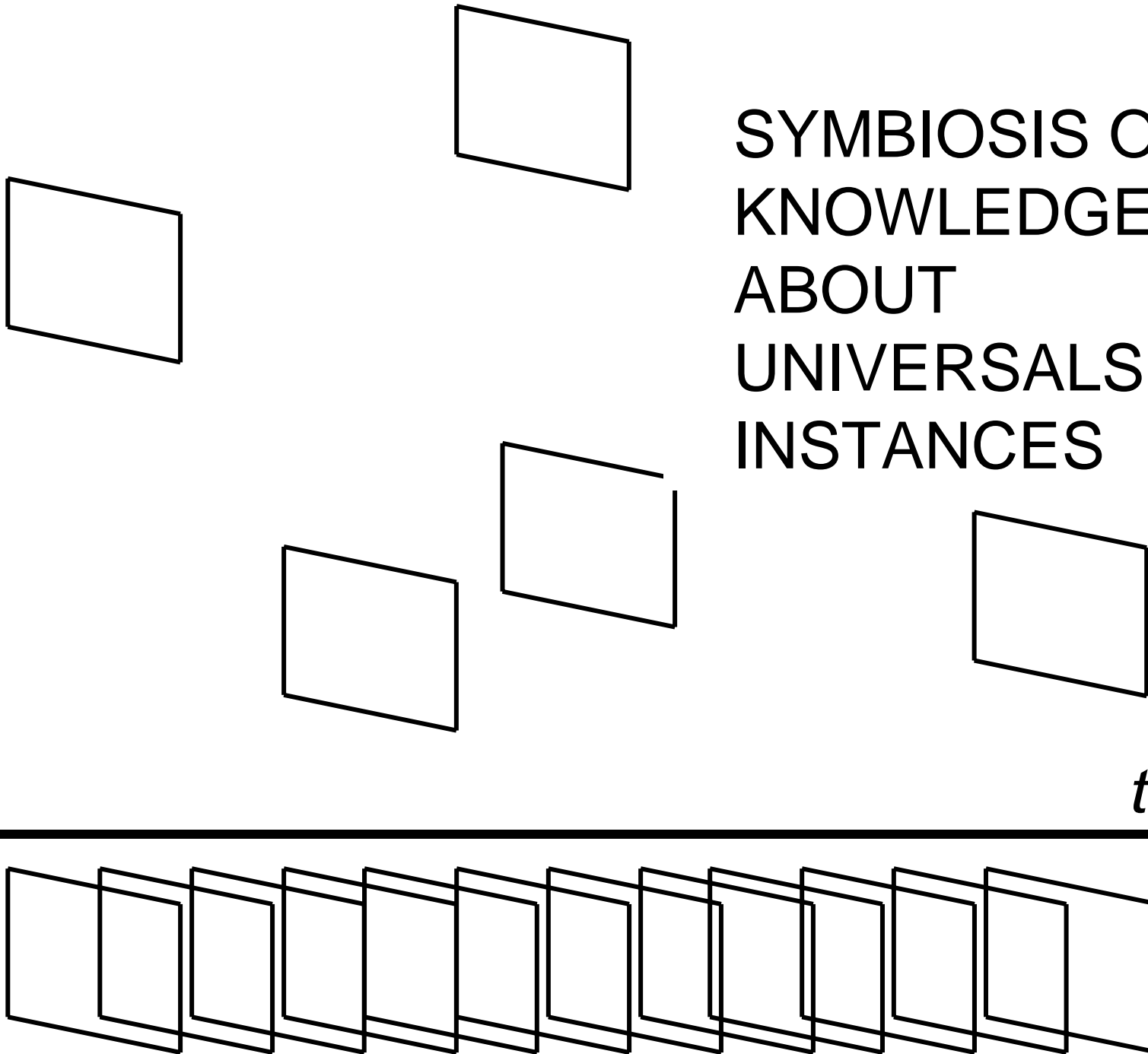
undeformed \leftrightarrow deformed

WINDOWS ON REALITY

time 

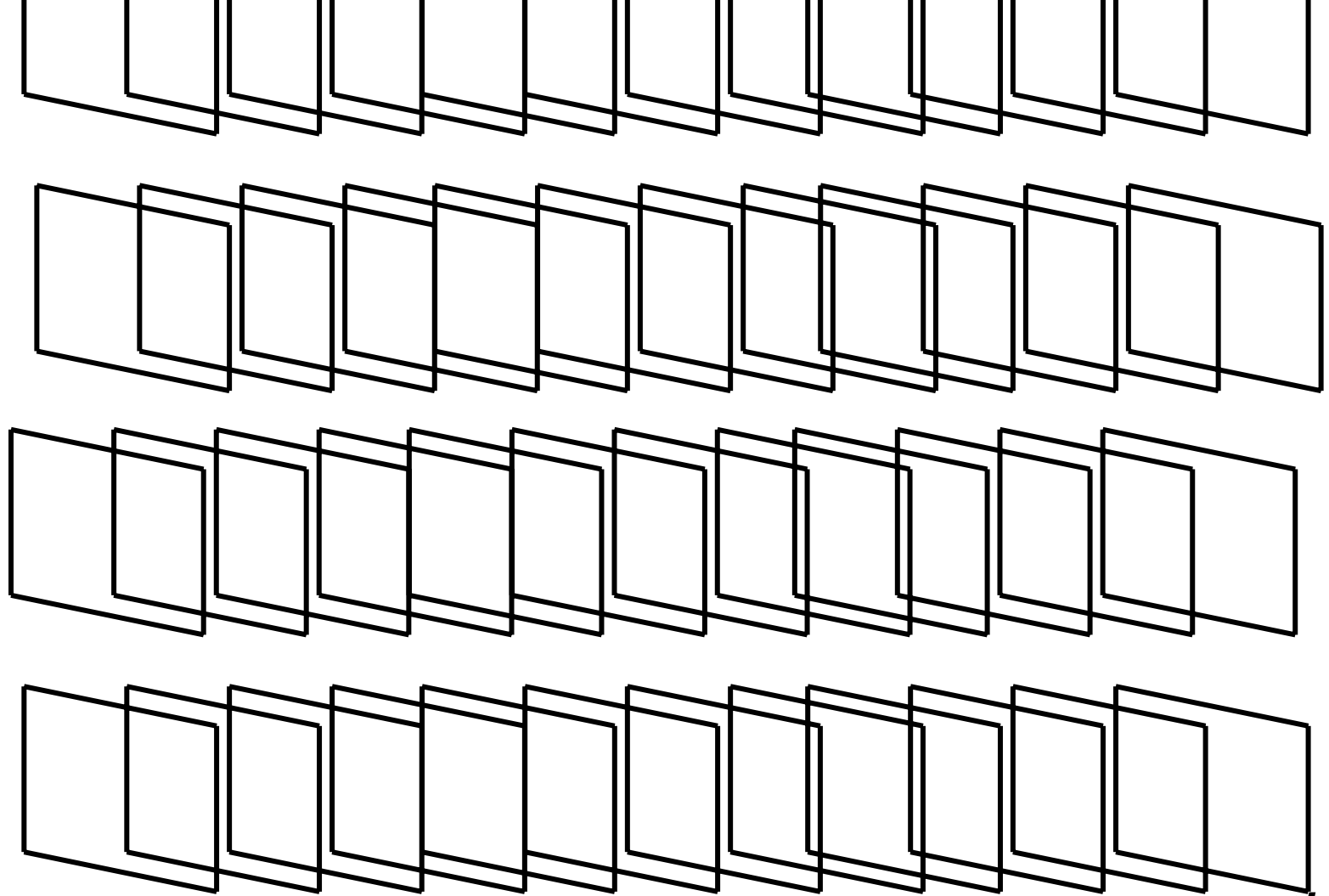


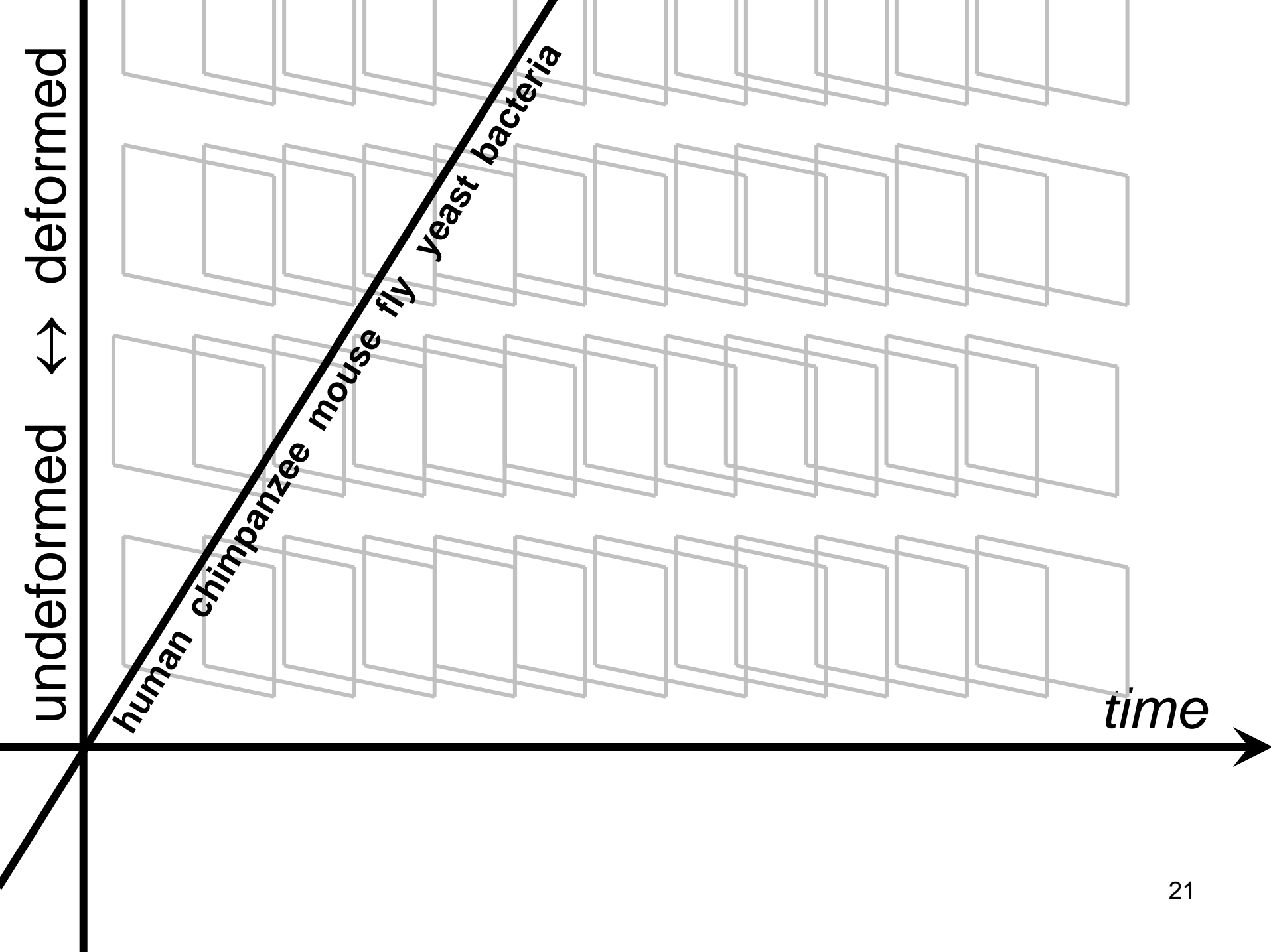
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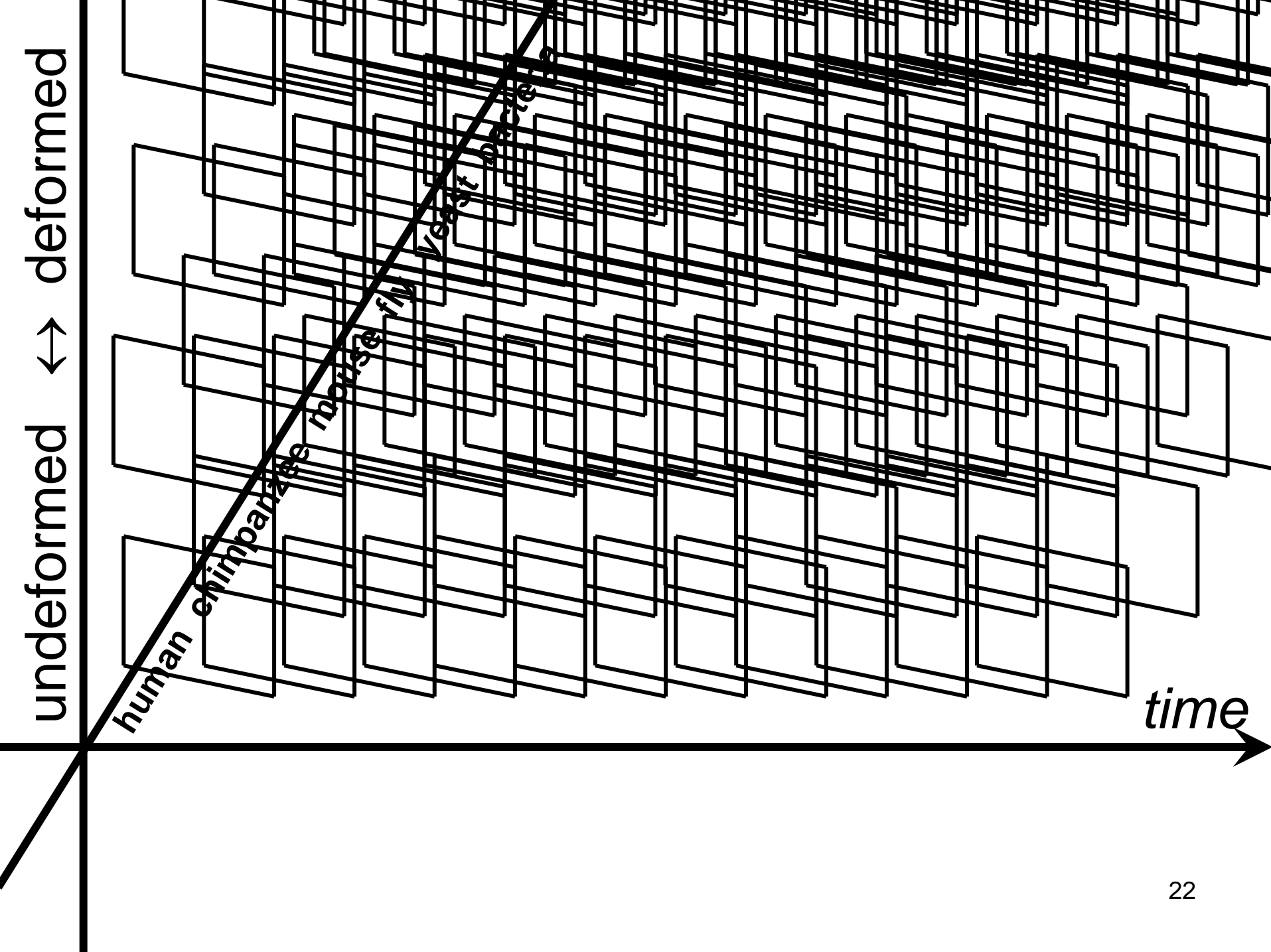


SYMBIOSIS OF
KNOWLEDGE
ABOUT
UNIVERSALS AND
INSTANCES

undeformed \leftrightarrow deformed







A Proposed Standardization

relations

A Proposed Standardization

OBO Relations Ontology

A Proposed Standardization

OBO Relations Ontology

is part of

is member of (a collection)

is location of -- is contained in ...

is connected to

is later than – is simultaneous with ...

is bearer of

is function of

causes

is functioning of