

ASSOCIATIONS AND THEIR PHYSICAL SEMANTICS

$f: X \rightsquigarrow_g Y$ where g is a given c -granule

- *X — defined in set theory, elements of X are stored (represented) in informational layer of c -granule g (e.g. control of IcS),*
- *Y — physical space, not definable in set theory,*
- *f — association between X and Y realized by c -granule g using **physical semantics**:*
 - ***implementation**: for a given $x \in X$ and a specification of f control of g is constructing a physical structural object o_x (with dynamics controlled by g relative to its local time) providing a 'physical pointer' from a part of o_x in which x has been encoded to the associated (by f) to x a physical object in o_x (pointed out by a spatio-temporal window specification represented in the physical layer of g),*
 - ***perception**: some properties of parts of o_x and properties of interactions between them (and with the environment) are perceived by control of g (in particular by decoding from some parts of o_x into informational layer of g) and used in **reasoning by g** toward providing representation of information about the object associated to x by f .*