

The Illusion of Internal Joy

claude.touzet@univ-provence.fr

Question and answer

Q: When do we see « joy » in the behaviors of ourself or others?

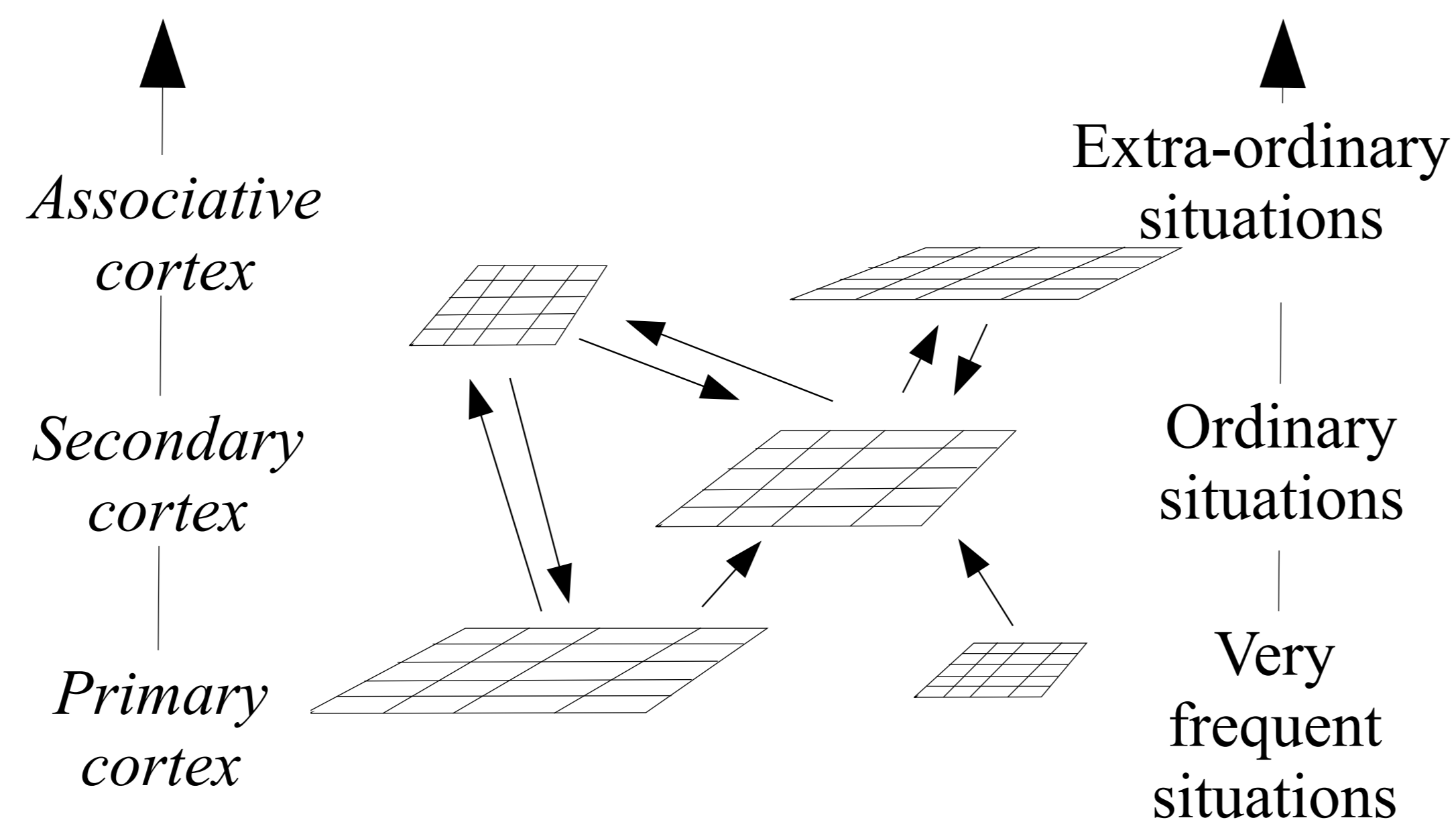
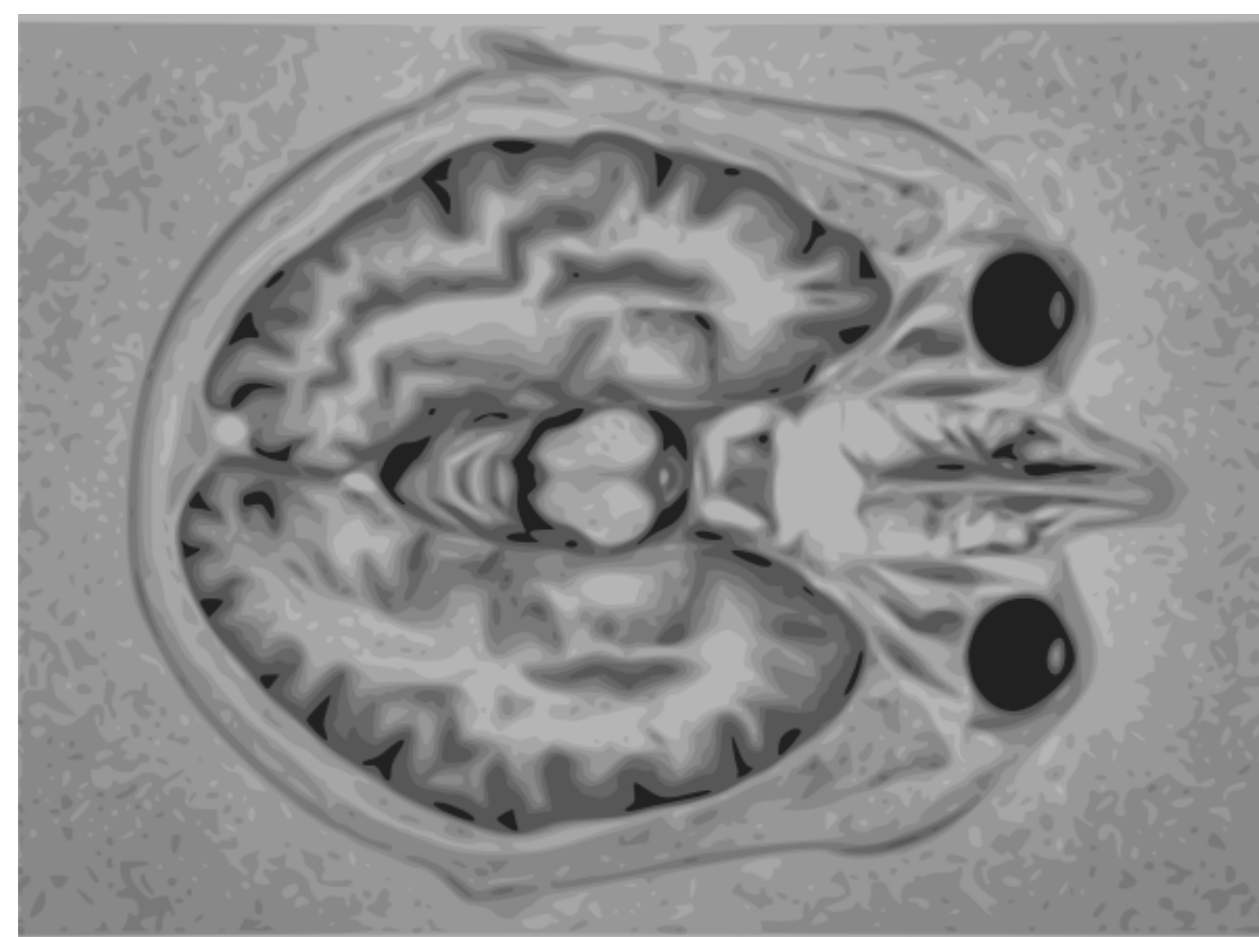
R: When the reason behind our/their behavior is unknown – but since we/they do it repeatedly in the same circumstances, we say that it is because we/they are looking for - or experiencing - « joy » (or pleasure).

Summary

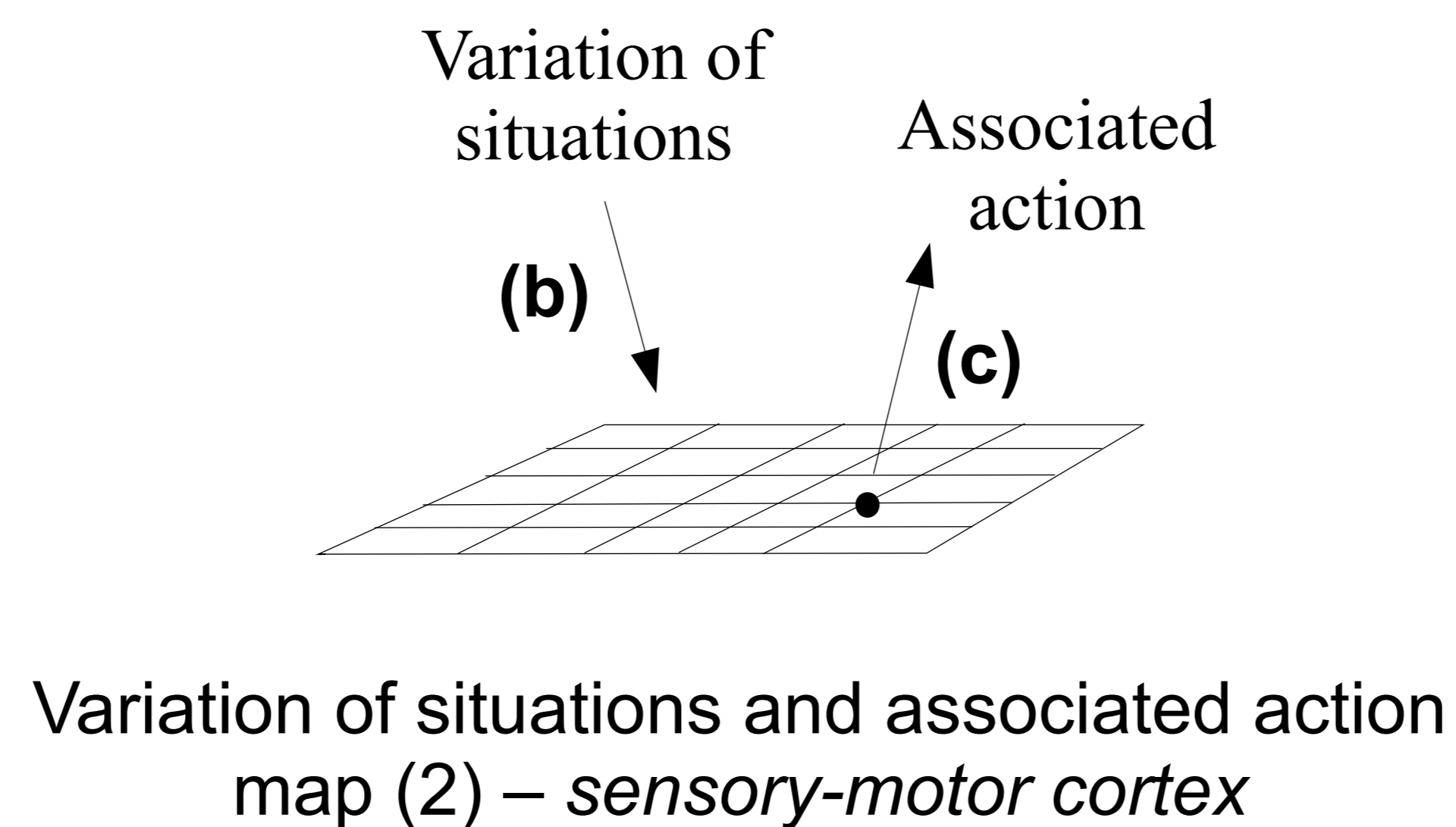
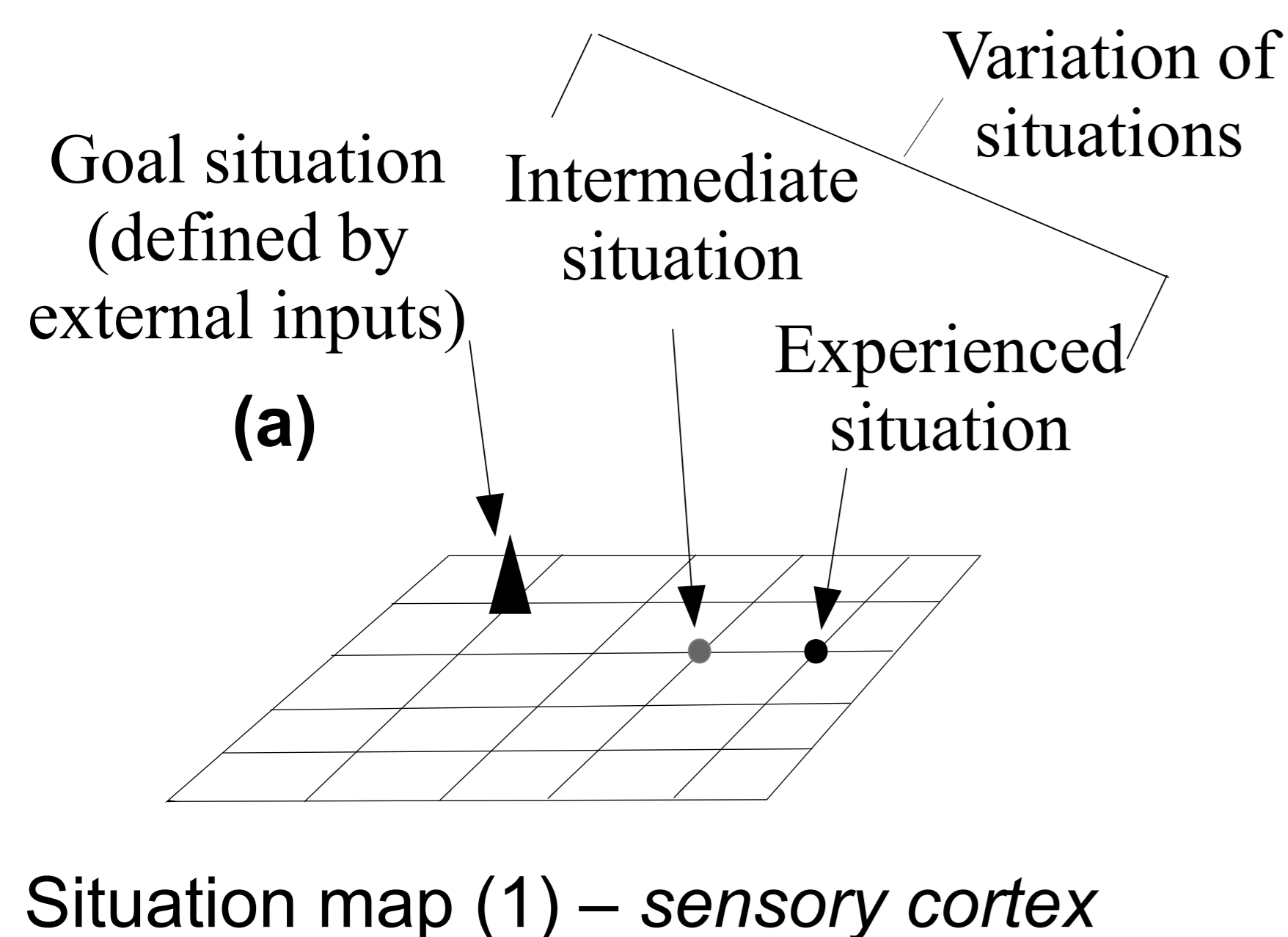
A- The Theory of neural Cognition (TnC) states that the cortex is a hierarchy of 600 cortical maps (*i.e.*, self-organizing maps).

B- TnC explains how behaviors are goal-determined.

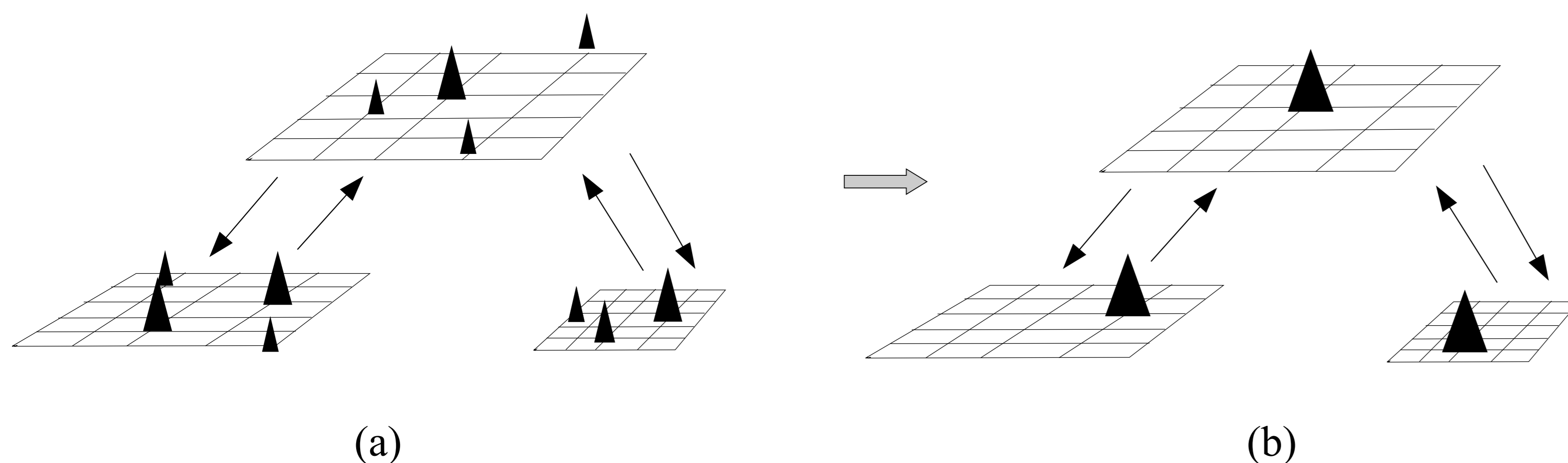
C- In several cases, the « goal » specifications are side-effects of the memorization process associated with associative memories (*i.e.*, cortical maps). Lower energy activation patterns are better memorized and act as attraction basins.



A- The cortex is organized as a hierarchy of cortical maps, from the primary cortex receiving sensory inputs, to the secondary cortex allowing for inputs fusion, to the associative cortex where map encoding is sensory modality independent. The cortical maps are novelty filters: as the information progresses in the hierarchy, it is stopped as soon as it is recognized. Only uncommon (extra-ordinary) situations (for a given individual) reach the « abstract » levels that account for the « goals ».



B- Two cortical maps cooperate in order to generate a sequence of actions (*i.e.*, a behavior) in response to experienced situations. Each intersection represents a cortical column. The topology of the input situation space is preserved by the first cortical map (1). Therefore, the situation neighbor to the input situation and closer to the goal situation (a) is an intermediate situation in the process devoted to reach this 'goal'. The variation of activity between experienced and intermediate situations (b) serves as input to the second map (2), where it activates the muscle command (action) associated (c) to this variation of situations.



C- (a) Columns activity (black triangles) associated to an experienced extra-ordinary situation, that quickly resume in an activity (b) involving less columns (each one exhibiting stronger activity, *i.e.*, bigger triangles). The pattern (a) is dependent on the life-long learning. It contains in essence the pattern (b). The memorization and future activation of pattern (b) is much easier than was pattern's (a) activation. The quick transition from (a) to (b) is certainly an unique experience, that an observer may called « joy ».