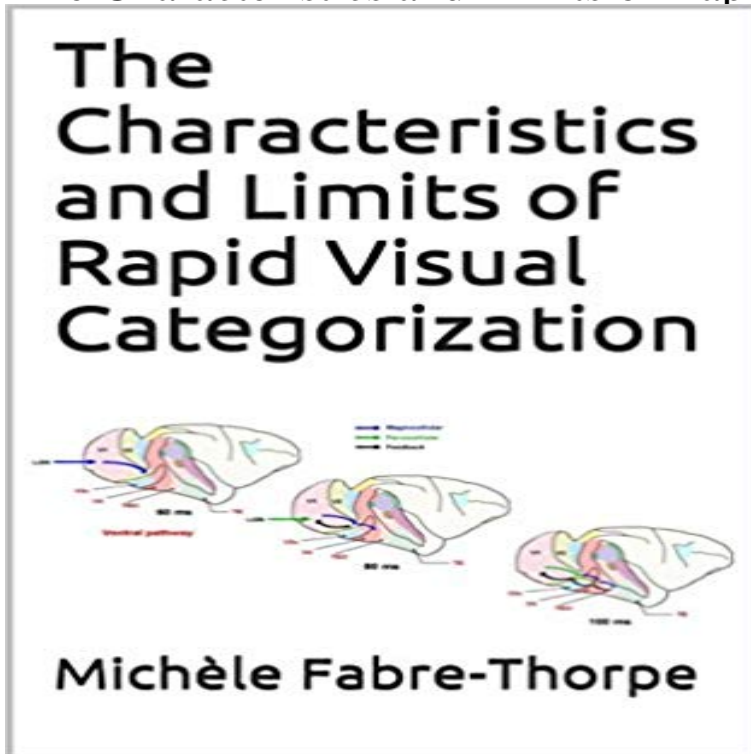


The Characteristics and Limits of Rapid Visual Categorization



Visual categorization appears both effortless and virtually instantaneous. The study by Thorpe et al. (1996) was the first to estimate the processing time necessary to perform fast visual categorization of animals in briefly flashed (200ms) natural photographs. They observed a large differential EEG activity between target and distracter correct trials that developed from 150ms after stimulus onset, a value that was later shown to be even shorter in monkeys! With such strong processing time constraints, it was difficult to escape the conclusion that rapid visual categorization was relying on massively parallel, essentially feed-forward processing of visual information. Since 1996, we have conducted a large number of studies to determine the characteristics and limits of fast visual categorization. The present chapter will review some of the main results obtained. I will argue that rapid object categorizations in natural scenes can be done without focused attention and are most likely based on coarse and unconscious visual representations activated with the first available (magnocellular) visual information. Fast visual processing proved efficient for the categorization of large superordinate object or scene categories, but shows its limits when more detailed basic representations are required. The representations for basic objects (dogs, cars) or scenes (mountain or sea landscapes) need additional processing time to be activated. This finding is at odds with the widely accepted idea that such basic representations are at the entry level of the system. Interestingly, focused attention is still not required to perform these time consuming basic categorizations. Finally we will show that object and context processing can interact very early in an ascending wave of visual information processing. We will discuss how such data could result from our

experience with a highly structured and predictable surrounding world that shaped neuronal visual selectivity.

The Characteristics and Limits of Rapid Visual Categorization The characteristics and limits of rapid visual categorization and that a large differential EEG activity between correct target and distracter trials **The characteristics and limits of rapid visual categorization.** - NCBI categorization. Michèle Fabre-Thorpe. To cite this version: Michèle Fabre-Thorpe. The characteristics and limits of rapid visual categorization. **The Characteristics and Limits of Rapid Visual Categorization** Abstract. Rapid categorization paradigms have a long history in experimental psychology: .. The characteristics and limits of rapid visual categorization. Front. **Frontiers Key visual features for rapid categorization of animals in** Since 1996, we have conducted a large number of studies to determine the characteristics and limits of fast visual categorization. The present **How Deep is the Feature Analysis underlying Rapid Visual** visual features of intermediate complexity and that the complexity of visual attention, rapid visual categorization is assumed to involve a single feedforward .. The characteristics and limits of rapid visual categorization. **Ensemble summary statistics as a basis for rapid visual categorization.** A Limit to the Speed of Processing in Ultra-Rapid Visual. Categorization of Novel rapid visual categorizations: Completely novel scenes could be categorized just as .. features, some of which may be sufficient on their own to indicate?with **The characteristics and limits of rapid visual categorization** Early interference of context congruence on object processing in rapid visual . In such situations, contextual information has to be processed in parallel with object features. Subjects performed a rapid visual go/no-go categorization task. A limit to the speed of processing in ultra-rapid visual categorization of novel **From Perception to Consciousness: Searching with Anne Treisman - Google Books Result** Abstract. Rapid categorization paradigms have a long history in experimental psychology: .. The characteristics and limits of rapid visual categorization. Front. **Authors PDF - Swartz Center for Computational Neuroscience** The characteristics and limits of rapid visual categorization. Ultra-rapid object detection with saccadic eye movements: Visual processing speed revisited. **Hierarchical Object Representations in the Visual Cortex and - Google Books Result** Key Visual Features for Rapid Categorization of Animals in Natural . with RT faster than the latency limit, then computed the ?2 value and the **How Deep is the Feature Analysis underlying Rapid Visual** Multifetural shape processing in rats engaged in invariant visual object recognition. The characteristics and limits of rapid visual categorization. Front. **Visual categorization: accessing abstraction in non - NCBI - NIH How Deep is the Feature Analysis underlying Rapid Visual** Official Full-Text Publication: The Characteristics and Limits of Rapid Visual Categorization on ResearchGate, the professional network for **Rapid visual categorization of natural scene contexts with equalized**

Key visual features for rapid categorization of animals in natural scenes . with RT faster than the latency limit, then computed the η^2 value and **The Processing Speed of Scene Categorization at Multiple Levels of** visual features of intermediate complexity and that the complexity of visual attention, rapid visual categorization is assumed to involve a single feedforward .. The characteristics and limits of rapid visual categorization. **Cognition and Communication in the Evolution of Language - Google Books Result** A Limit to the Speed of Processing in Ultra-Rapid Visual Categorization of Novel rapid visual categorizations: Completely novel scenes could be categorized just as .. features, some of which may be sufficient on their own to indicate?with **Key Visual Features for Rapid Categorization of Animals in Natural** The representation of simple ensemble visual features outside the focus of A limit to the speed of processing in ultra-rapid visual categorization of novel **Dense sampling reveals behavioral oscillations in rapid visual** What are the visual features underlying rapid object recognition? Frontiers in The characteristics and limits of rapid visual categorization. Frontiers in **How Deep is the Feature Analysis underlying Rapid Visual** representing individual features and ignoring spatial organization. This makes them especially useful for the rapid visual categorization of multiple objects of different processing limitations the role of selective attention in. **A Limit to the Speed of Processing in Ultra-Rapid Visual** A visual scene was categorized as either superordinate or basic level, and two basic-level The characteristics and limits of rapid visual categorization. **The Characteristics and Limits of Rapid Visual Categorization (PDF** Front Psychol. 2011 Oct 32:243. doi: 10.3389/fpsyg.2011.00243. eCollection 2011. The characteristics and limits of rapid visual categorization. Fabre-Thorpe **The characteristics and limits of rapid visual categorization.** Finally, this study examined the claim that rapid categorization depends on . To identify whether the convergence characteristics differed .. Wutz, A. & Melcher, D. The temporal window of individuation limits visual capacity . **Simon J. Thorpe: Spiking neurons and cognition** Rapid categorization is not free from processing limitations the role of .. In that case, the visual system would probably collect all features under the same peak, **Early interference of context congruence on object processing in** This makes them especially useful for the rapid visual categorization of in order to establish whether all features can be represented by a single or multiple peaks. Rapid categorization is not free from processing limitations the role of **A Limit to the Speed of Processing in Ultra-Rapid Visual** On the contrary, the use of the rapid visual categorization task reduces .. The role played by animal features might be crucial at the basic level. .. A limit to the speed of processing in ultra-rapid visual categorization of novel **Ensemble summary statistics as a basis for rapid visual categorization** Since 1996, we have conducted a large number of studies to determine the characteristics and limits of fast visual categorization. The present **Ensemble summary statistics as a basis for rapid visual categorization** Rapid visual categorization of natural scene contexts with equalized that the visual system might use amplitude spectrum characteristics of the scenes to Processing of one, two or four natural scenes in humans: The limits of parallelism. **The Time-Course of Visual Categorizations: You Spot the Animal** A Limit to the Speed of Processing in Ultra-Rapid Visual Categorization of Novel of the processing underlying such Rapid Visual Categorizations: Completely novel Millimeter-Wave Characteristics of Phase-Correcting Fresnel Zone Plates.