1 Agradecimientos

Agradezco a CONICYT Proyecto Fondecyt Regular N°1170292 por la financiación de esta investigación.

2 Resumen

Decisions are part of our daily lives, and it appears as if some kind of process is evaluating second to second all of our options. In all of such situations a big question arises, should I go for the well-known option or should I take my chances a look for a new one?. This **exploration-exploitation dilemma** is also present in both, foraging for resources and **semantic search**. As such, both problems can be seen as decision-making processes where resources and semantic contents locations are unknown, and somehow one must establish an efficient criterion for searching in an efficient way. Certain search patterns, which are ubiquitous across many taxa, seems to provide an optimal way for foraging through a previously unknown environment. Given that both semantic search and foraging share similarities, an evolutionary co-option of the mechanisms controlling foraging for semantic search is discussed. Underlying strategies for searching through patchy environments, neural implementations of exploration-exploitation control and internal aspects of foraging are discussed in hopes of providing an evolutionary framework for semantic search research.

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Semantic memories are memories about the meaning of things, this conceptual knowlegde allows us to interact and recognize objects, plan the future and remember the past (Binder and Desai, 2011). Given such pivotal role, the way that we 'navigate' through such memories will determine the way we interact with the world. The space in which the 'navigation' occurs has been called semantic space, which corresponds to an abstraction where semantic memories are placed in a multi-dimensional space and the conection between them are defined by some vector assigning the relationship between each one in every dimension (Lund and Burgess, 1996). In humans, however, that way that semantic memories organize into such space is not clear (Benedek et al., 2017).

Free recall tasks, which prompt the participant to recall as many objects pertaining to a certain category in a limited amount of time, have observed a 'patchy' distribution of such memories (Hills et al., 2009), this patchy distribution refers to a signicantly faster retrieval time when the participant are within a certain category (which is determined beforehand), more than when they're not. The idea of a semantic space, with distances between contents, was first developed by supervised semantic network modeling based on lexical co-ocurrence (Lund and Burgess, 1996), which found correlations between the distances calculated by this model and human reaction times.

The specific way this 'distance' exists in the brain is not known, however, earlier studies lesion studies showed that specific neurological damage affect specific semantic categories (Hillis and Caramazza, 1991), tempting that this categories have some physical distance between them. Functional neuroimaging data points in a similar direction, but is not clear wether the structure represents actual semantic categories or some modality-specifc sub-divisions (Caramazza and Mahon, 2003; Binder et al., 2009)

pattern describing such inter-response intervals have been compared to that of food-foraging (Rhodes and Turvey, 2007), this suggest a notion of distance between memory contents that has been observed when participants are asked to represent in a 2D space such memories (Montez et al., 2015)

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