XV Encontro Nacional da APPE

Associação Portuguesa de Psicologia Experimental

Programa de Apresentações Completo

Sexta-feira, 9 de abril de 2021

08:45 - Abertura da Sala Virtual

09:00 - Sessão de Boas-vindas

Teresa Garcia-Marques - Coordenadora do Encontro
Isabel Leal - Reitora do ISPA - Instituto Universitário
Alexandra Reis - Presidente da APPE

9:30/10:30 - Sessão 1: Cognição Animal (Moderação Armando Machado)

Choice biases in no-sample and delay testing in pigeons (Columba livia)

Ana Sousa e Carlos Pinto
Animal Learning and Behavior Lab - Universidade do Minho

A well-known task is the matching-to-sample paradigm in which animals must, after the presentation of sample stimuli select the correct comparison. When the samples differ in duration and a delay is introduced between sample and comparisons, there is usually a bias towards the comparison that is correct following the shortest sample. The same bias tends to emerge in tests where no sample is presented. To try and tackle some aspects of these choice biases, pigeons were trained in a symbolic matching-to-sample task with two durations of keylight as samples, where key pecking (at a rate of at least once every 1.5 s) had to be maintained during sample presentation. Though having to attend to the sample, pigeons showed a preference for the "short" comparison in both delay and no-sample tests. These results go against the hypothesis that the choose-short bias only emerges because animals fail to attend to the sample on some trials. Moreover, though clearly showcasing a preference for "short" in both tests, the extent of the biases differed between tasks. Hence, forgetting the sample (presented during a delay) may not be the same has having seen no sample at all (no-sample test).

Evolutionary conserved role of oxytocin in emotion recognition

I.D. Akinrinade, K. Kareklas, M. Gliksberg, G. Levkowitz, e R.F. Oliveira
Instituto Gulbenkian de Ciência, ISPA Instituto Universitário, Weizmann Institute of Science (Israel)

Here, using mutant and transgenic lines of zebrafish we show the occurrence of social contagion of fear in zebrafish and that oxytocin is necessary and sufficient for it to occur. Using molecular reporters of brain activity we also identify subpallial brain regions whose activity responds to the behavioral task. Moreover, we disentangle the contribution of motor imitation and emotion recognition for social contagion of fear, showing the involvement of the latter. Given the established role of oxytocin in emotion recognition in mammals, our results show that the role of oxytocin in emotion recognition is evolutionary conserved in deep time (i.e. since the divergence of teleost fish and tetrapods in vertebrate evolution) despite the fact that it modulates different neural substrates that regulate emotion recognition in fish and mammals.

The number sense of animals: Associative or computational mechanisms?

A. C. Soares, A. Machado, e M. Vasconcelos
William James center for Research - Universidade de Aveiro, Animal Learning and Behavior Lab - Universidade do Minho

Humans and animals (other mammals and birds) may share a primitive number sense, often termed the Approximate Number Sense. A lingering question is whether simple associative processes suffice to account for the main behavioral properties of the number sense, or more complex, computational processes are called for. To address the issue, we required pigeons to peck a white key to produce x light flashes, with $1 \leq x \leq 7$. Next, we

illuminated two side keys, one red and the other green; if they chose the red, they had to produce 4 additional light flashes to receive a reward, whereas if they chose the green, they had to produce 8 -x additional flashes to receive a reward. We asked whether pigeons would choose optimally, that is, red whenever $4 < (8 – x)$, and green whenever $(8 – x) < 4$. Moreover, to dissociate different mechanisms of numerosity discrimination, one group of pigeons was trained with all x values from 1 to 7, whereas another group was trained only with the two extreme values of 1 and 7. Then, both groups were tested on generalization probe trials: rewarded for the first group and unrewarded for the second. Results showed that preference for green increased as x increased and changed from red to green when $x \approx 3$ (a small but systematic bias for green). The two groups showed similar performance – their generalization gradients overlapped. We discuss the implications of these findings for the number sense in animals and its underlying mechanisms.

10:30/11:00 - Coffee Break

11:00/12:00 - Sessão 2: Neurociências Cognitivas 1 (Moderação: Jorge Almeida)

What connects hands and tools? - relating category preferences to functional connectivity preferences

Lénia Amaral, Fredrik Bergström e Jorge Almeida
Proaction Lab, CINEICC, Universidade de Coimbra

Recent efforts have been made to understand how information processing in a particular brain region influences the processing occurring in other (distant) regions. Here, we focused on the neural processing of hands and tools, since both categories activate two main neural regions in common (Inferior Parietal Lobe – IPL and Lateral Occipital Temporal Cortex – LOTC). Our goal was to determine if there are different patterns of functional connectivity emerging from the two overlap areas depending on whether we are measuring processing of hands or tools. To do this, we used a multivariate approach to examine how multivoxel patterns are changed by the functional connectivity established between the overlap areas and the rest of the brain. We demonstrated that hands and tools are represented differently in both IPL and LOTC, exhibiting different patterns of functional connectivity (e.g.: processing of hands is more related to lateral aspects of the Fusiform Gyrus and the processing of tools is more related to medial aspects). In conclusion, although IPL and LOTC are overlap areas, it is possible to disentangle the processing of hands and tools.

When spatial sound affects visual perception: An attention-mediated effect

Catarina Mendonça
Universidade dos Açores

In the field of audiovisual space perception, vision is known to be the dominant cue. In the work we present here we argue that sound can alter visual spatial perception under certain circumstances. In two studies, we analyse the impact of sound on visual perception by altering its spatial and temporal distribution. In both studies visual attention and cognitive effort are monitored through eye tracking and pupillometry. In the first study, we used sequences of simple light flashes and noise bursts with several spatial distributions. Visual localisation was affected by some sound distributions, close to the visual distribution, but not by others. In the second study we used immersive 3D movies and manipulated the soundtrack by altering the distribution of sound events. We found higher cognitive effort and more visual errors when the sounds were more spatially distributed, compared to more simplified sound conditions. Both experiments demonstrate that, unlike what is commonly believed, spatial sound can change the visual percepts and this effect is most likely mediated through changes in visual attention and through greater cognitive load.

Is the features' similarity between objects traced back on their semantic representation?

Daniela Valério e Jorge Almeida
Proaction Lab, CINEICC, Universidade de Coimbra

In the last decades, studies showed that numerosity, object size, and tones are represented cortically and cognitively following similarity in their semantic representations. The ability to manipulate objects was essential for our evolution, and this centrality raised the question that objects could be semantically represented based on their similarity. That means, objects that share more features are represented closer in semantic memory, whereas objects with fewer features in common are represented farther away. To test this hypothesis, we performed two experiments: 1) the creation of a data set with features of selected objects, and 2) a one-back task to test how the number of features shared between objects affects object recognition. One-hundred and thirty participants freely generated features of 80 manipulable objects, and we calculated objects' similarity based on their features. Twenty-two participants performed a one-back task – they pressed a button when the current image and the previous image were of different objects (e.g., from a glass to a bowl), but not when the current and the previous

images were of a different perspective of the same object. To strength our results, we replicate the experiment using another sample of 20 participants and another set of objects. Results of both experiments revealed that participants are slower and less accurate to detect a change in the presented object when objects share more features among them. Notably, this is the first study showing that is increasingly difficult to discriminate between two objects as the number of features shared among them increases.

12:00/12:30 - Conferência Prémio APPE 2020 (Moderação: Pedro Albuquerque)

"A meta-analytical review of the familiarity temporal effect: Testing assumptions of the attentional and the fluency-attributional accounts" - Publicado na Revista Psychological Bulletin

Alexandre C. Fernandes
William James Center for Research, ISPA - Instituto Universitário

Consultar o artigo: ***https://doi.org/10.1037/bul0000222***

12:30/14:00 - Almoço

14:00/15:00 - Sessão 3: Memória e Aprendizagem (Moderação: São Luís Castro)

Why does retrieval impair our ability to learn new information? Insights from the retrieval mode framework

Ana Lapa e Leonel Garcia-Marques
Faculdade de Psicologia - Universidade de Lisboa

Our ability to memorize new information is impaired when we retrieve information compared to when we restudy it (Finn & Roediger, 2013). This impairment could happen since, when we engage in retrieval mode (Tulving, 1983), we focus on reconstructing our past and refrain from processing information deemed irrelevant for retrieval (Finn, 2017). Interestingly, research in social cognition suggests that when we are forming impressions about others, in comparison to memorizing information, we make more use of integrative and relational processing (Hamilton, Katz, & Leirer, 1980). Thus, we wondered if forming impressions (Exp. 1) and manipulating the relevance new information has for retrieval (Exp. 2) would protect against the impairment retrieval has on the ability to learn new information. Across two experiments, we adapted Finn and Roediger's paradigm and asked participants to form impressions or to memorize a set of stimuli. Later, participants were asked to retrieve (or to restudy, Exp. 1) the material and were presented with new information (relevant and irrelevant, Exp. 2). In a final memory test, we found that engaging in retrieval mode - under memory instructions - impaired learning of new information compared to restudy, while forming impressions protected against this impairment (Exp. 1). Across both conditions, relevant new information was better learnt than irrelevant new information (Exp. 2). Our results suggest that retrieval induced impairment is an outcome of the retrieval mode, thus not affecting impression formation, and can be shaped by the relevancy of the new information to be learnt.

False memories in collaborative memory tasks: How do collaborative groups deal with misinformation?

Magda Saraiva, Margarida V. Garrido, e Pedro B. Albuquerque
ISCTE - Instituto Universitário de Lisboa, CIPsi - Universidade do Minho

The emergence and transmission of false memories often occur in the course of social interaction. However, the cognitive mechanisms underlying the production of false memories in collaborative memory tasks remain rather unexplored. The present work used the misinformation paradigm to examine how misinformation is transmitted and incorporated in collaborative contexts. In two experiments (N = 304), participants watched a video immediately followed by a recall task (collaborative vs. nominal, Exp.1; individual, Exp.2). Then they completed a questionnaire (collaborative vs. nominal, Exp1; collaborative vs. individual, Exp. 2) containing true and misinformation and a final recall task (collaborative vs. nominal, Exp.1; individual, Exp.2). We expected that collaborative groups would accept less false information due to correction and error pruning mechanisms. Results from Exp.1 revealed that collaborative (vs. nominal) groups produced less false memories. However, they also recalled less correct information, suggesting that collaborative inhibition generalizes to both false and correct information. In Exp.2, participants answering the questionnaire collaboratively (vs. individually) produced less false memories in the final (individual) recall. These results suggest that collaboration has an important role in preventing misinformation transmission.

Imagination reduces false memories for everyday action sentences

María J. Maraver, Ana Lapa, Leonel García-Marqués e Ana Raposo

CICPSI, Faculdade de Psicologia, Universidade de Lisboa

Human memory can be unreliable, and when reading a sentence with a pragmatic implication such as "the absent-minded professor didn't have her car keys", people often falsely remember that the professor "lost" her car keys. Research has shown that encoding instructions affect the false memories we form. On the one hand, instructing participants to imagine themselves manipulating the to-be-recalled items increases false memories (imagination inflation effect), but on the other hand, instructions to imagine have reduced false memories in the DRM paradigm (imagination facilitation effect). Here, we explored the effect of imaginal encoding with pragmatic inferences, a way to study false memories for information about everyday actions. Across two experiments with young adults, we manipulated imaginal encoding through the instructions given to participants and the after-item filler task (none vs. math operations). In Experiment 1, participants were either assigned to the encoding condition of imagine + no filler; pay attention + math; or memorize + math. In Experiment 2, the encoding instructions (imagine vs. memorize) and the filler task (none vs. math) were compared across four separate conditions. Results from the two experiments showed that imagination instructions lead to better memory performance independently of the filler task, by showing both a higher proportion of correct responses and a lower rate of pragmatic inference errors. The findings show that imaginal encoding enhances memory and protects against pragmatic inferences errors, suggesting the engagement of a distinctiveness heuristic and source-monitoring process.

15:00/15:20 - Coffee Break

15:20/16:20 - Sessão 4: Processos Cognitivos (Moderação: Susana Araújo)

Anchoring effects within a signal detection approach

Teresa Garcia-Marques, Alexandre Fernandes, e Leonel Garcia-Marques
William James Center for Research, ISPA - Instituto Universitário, Faculdade Psicologia - Universidade de Lisboa

People's estimates of perceptual quantities are commonly biased by contextual values. Most anchoring studies, use a two-step experimental paradigm where the first judgment aims only to manipulate the anchor, meriting little consideration. Anchoring effects are approached with regard the second phase (absolute judgment). In the present research, we show the relevance of the first classification task for a better understanding of anchoring effects and address those effects in terms of both decision criterion and decision sensitivity. For this we followed a psychophysics approach, asking participants to estimate a continuum of feature-percentage displayed on several images, after having completed the classification task where an anchor is presented. Estimates results show that anchors both affect response criteria and modulate quantity sensitivity and response times results turn clear that those estimation process itself occur in the classification task.

A relational theory of phenomenological spacetime for event perception

Nuno Alexandre de Sá Teixeira
William James Center for Research, Universidade de Aveiro

The judged vanishing location of a moving target is systematically displaced forward in relation to its actual offset and more so as time elapses – Representational Momentum. Theoretically, Representational Momentum has been simultaneously thought to be a mnesic phenomenon, wherein the vanishing location is misremembered further along its path, and as an extrapolation phenomenon, wherein future target locations are anticipated. Both these interpretations tacitly share a presentist conception of phenomenological time. An adjustment paradigm was developed where participants had to adjust the location/timing of a flashed probe, presented with a varying temporal/spatial asynchrony in relation to a target event (vanishing or luminance change of a moving target). Results revealed that probes were positioned backward when shown before but forward when shown after the target event, and more so for larger temporal asynchronies, conforming to a robust linear trend. These outcomes are interpreted and discussed within a Gibsonian framework where motion, directly perceived, scales a perceptual frame-of-reference with non-orthogonal temporal and spatial axes. Possible relations with other spatial and temporal phenomena, such as Kappa and Tau effects, are noticed and discussed.

Self-other asymmetries in the perceived validity of the Implicit Association Test

Cristina Mendonça, André Mata, e Kathleen D. Vohs
Laboratório de Instrumentação e Física Experimental de Partículas, Faculdade de Psicologia - Universidade de Lisboa, Carlson School of Management - University of Minnesota (USA)

The Implicit Association Test (IAT) is the most popular instrument in implicit social cognition, with some scholars and practitioners calling for its use in applied settings. Yet, little is known about how people perceive the test's validity as a measure of their true attitudes toward members of other groups. Four experiments manipulated the desirability of the IAT's result and whether that result referred to one's own attitudes or other people's. Results

showed a self-other asymmetry, such that people perceived a desirable IAT result to be more valid when it applied to themselves than to others, whereas the opposite held for undesirable IAT results. A fifth experiment demonstrated that these self-other differences influence how people react to the idea of using the IAT as a personnel selection tool. Experiment 6 tested whether the self-other effect was driven by motivation or expectations, finding evidence for motivated reasoning. All told, the current findings suggest potential barriers to implementing the IAT in applied settings.

16:20/17:20 - Conferência Plenária (Moderação: Teresa Garcia-Marques)

The Evaluative Information Ecology: A unified explanation for the differential processing of positive and negative information

Christian Unkelbach
Social Cognition Center Cologne (SoCCCo) - University of Cologne (Germany)

One of the central constructs to explain how people navigate complex environments is valence (Lewin, 1935). People can locate almost any stimulus on a valence dimension; they can evaluate their environment. These evaluations, in turn, influence how stimuli are processed; positive and negative information is differently attended to, elaborated on, stored, and retrieved (Baumeister et al., 2001). I will present an overview of the most common processing asymmetries due to valence (e.g., better memory for negative events; faster processing of positive stimuli). Most approaches focus on negativity advantages and explain these asymmetries based on cognitive developments due to evolutionary necessities. Alternatively, I will introduce the Evaluative Information Ecology (EvIE) as a model of the environment that simultaneously explains and predicts valence asymmetries in processing with established cognitive principles. The EvIE model assumes two structural properties: Positive information is more frequent compared to negative information, and negative information is more diverse compared to positive information. This model explains and predicts processing advantages of positive and negative information and allows new predictions in classic paradigms.

17:20/18:20 - Sessão de Posters e Blitz-Talks 1

Blitz-Talks B1-B10 e Posters P1-P15 (*ver Programa Completo de Posters & Blitz-Talks*)

18:20/19:20 - Sessão de Posters e Blitz-Talks 2

Blitz-Talks B11-B20 e Posters P16-P30 (*ver Programa Completo de Posters & Blitz-Talks*)

19:20/20:20 - Sessão de Posters e Blitz-Talks 3

Blitz-Talks B21-B33 e Posters P31-P42 (*ver Programa Completo de Posters & Blitz-Talks*)

19:20 - Assembleia Geral da APPE

Sábado, 10 de abril de 2021

09:00/10:20 - Sessão 5: Linguagem (Moderação: Tânia Fernandes)

Tamil readers can discriminate mirror images

T. Fernandes, M. Arunkumar e F. Huettig
Universidade de Lisboa, Max Planck Institute for Psycholinguistics, Centre for Language Studies, Radboud University (Netherlands)

Learning a script with mirrored graphs (e.g., d is different from b) collides with the evolutionary-old perceptual tendency to process mirror images as equivalent, know as mirror invariance. Thus, breaking mirror invariance offers an important tool for understanding the cultural re-shaping promoted by literacy on visual object recognition. In this study, we investigated the role of the written script (i.e., presence vs. absence of mirrored graphs: Latin alphabet vs. Tamil), by revisiting mirror-image processing by illiterate, Tamil monoliterate, and Tamil-Latin-alphabet bi-literate adults. Participants performed two same-different matching tasks (one orientation-based, another shape-based) on Latin-alphabet letters. Tamil monoliterate adults were significantly better than illiterate and showed good explicit mirror-image discrimination. However, only biliterate adults fully broke mirror invariance: they were slower on shape-based judgments of mirrored than identical pairs and showed a reduced disadvantage in orientation-based over shape-based judgments of mirrored pairs. These findings suggest that the written script is not the sole factor relevant for triggering mirror-image discrimination but learning a script with mirrored graphs is the strongest force for breaking mirror invariance.

Are low-frequency words perceived as nonwords? Effects on judgments of learning

Pedro S. Mendes, Karlos Luna, e Pedro B. Albuquerque
CIPsi - Universidade do Minho, Universidad Nacional de Colombia

Judgments of learning (JOLs) are higher for high-frequency (common) than low-frequency (rare) words. However, this outcome could result from low-frequency words being so rare that participants consider them nonwords, which usually receive lower JOLs than words. To test this assumption, participants studied four types of words: high-frequency words; low-frequency words with high subjective frequency (i.e., more likely to be known by participants); low-frequency words with low subjective frequency (i.e., more likely to be unknown to participants); and nonwords. Participants made a JOL after studying each item. Then, they completed a lexical decision task, followed by a recall test. If the word frequency effect on JOLs is caused by low-frequency words behaving as nonwords, JOLs for nonwords and low-frequency words with low subjective frequency should be identical and lower than JOLs for high-frequency words and low-frequency words with high subjective frequency. The results showed that JOLs followed a stair-like pattern, with high-frequency words receiving the highest JOLs and nonwords receiving the lowest JOLs. Response times in the LDT decreased with increasing frequency, mediating the word frequency effect on JOLs. Recall performance was best for high-frequency words, worse for nonwords, but did not differ between the two types of low-frequency words. These findings suggest that the word frequency effect on JOLs is not a mere nonword effect, being based on both objective and subjective frequency.

Is there an early morphological decomposition during L2 lexical access? A meta-analysis on morphological priming effect

Ana Isabel Fernandes, Karlos Luna, Ana Paula Soares, & Montserrat Comesaña
CIPsi - Universidade do Minho, Universidad Nacional de Colombia

A large amount of experimental data on the representation and processing of derived words has been accumulated thus far. However, no theoretical account has gained agreement on literature due partially to the inconsistencies of the empirical results showing either the presence or the absence of any signs of early morphological decomposition during native and non-native lexical access. In this paper we present the results of a meta-analysis that aimed to examine the robustness of the morphological masked priming (MMP). This effect is indexed by faster responses to targets preceded by morphologically related primes vs. unrelated primes (e.g., fighter-FIGHT< needle-FIGHT) and is perhaps the most prominent effect used to test whether native and non-native speakers of a given language are sensitive to words' morphological components at early stages of visual word recognition. To that purpose we selected 10 masked priming lexical decision studies (16 experiments) with non-native and native speakers. Variables such as prime duration (≤50 ms vs. >50 ms) and the level of L2 proficiency (high vs. intermediate) were considered in the analyses to assess their impact on the MMP effect. Results showed a significant MMP effect for both native and non-native speakers, although its size increased with language proficiency (native > high > intermediate). No modulations were found for prime duration. These results support theoretical proposals which hold that the underlying mechanisms of morphological processing are similar for native and non-native speakers, at least when the level of L2 proficiency is intermediate or high.

Syllable effects occur for CV and CVC European Portuguese words and are driven by orthographic information: Evidence from ERPs

Ana D. Campos, Helena M. Oliveira, Eduardo López-Caneda, Francisco J. Gutiérrez-Domínguez, e Ana P. Soares
CIPsi - Universidade do Minho

Masked priming lexical decision studies have systematically shown that syllable congruency effects emerge for consonant-vowel (CV) words but not for consonant-vowel-consonant (CVC) words. Furthermore, the nature of syllable effects (orthographic versus phonologic) and the extent to which syllable effects can also be observed for pseudowords have remained contentious matters. In the present study we examined these issues by collecting event-related potentials (ERPs) while European Portuguese adult skilled readers performed a colour-congruency lexical decision task in which CV (e.g., ze.bra and fó.pio) and two types of CVC first-syllable structure (i.e., those with a match [CVCO+P+: e.g., ver.bo- vˈɛɾ.bu – and vul.ma - vˈu.ɫmɐ] and a mismatch [CVCO+P-: e.g., can.tor - kɐ̃.tˈoɾ - and pen.va -pˈẽ.vɐ] between their orthographic and phonologic structure) words and pseudowords appeared segmented according to their syllable boundary (e.g., zebra, verbo and cantor) or not (e.g., zebra, verbo and cantor). Results showed early activation of CV, CVCO+P+, and CVCO+P- first-syllable for words and pseudowords in the P200 component, and, also, modulations in the N100 and N400 components though only for CV targets. These findings suggest that syllable effects can be observed at early stages of visual word recognition both for CV and CVC targets when a technique sensitive to the time-course of processing is used, and also that syllable effects can be observed both for words and pseudowords targets regardless of the match/mismatch between their orthographic and phonologic structure, hence supporting the view that syllable effects in European Portuguese seem to be more strongly driven by orthographic information.

10:20/10:50 - Coffee Break

10:50/12:10 - Sessão 6: Neurociências Cognitvas 2 (Moderação: Luís Faísca)

Adults and children rely on different statistics to extract word-like units from a continuous speech stream: Evidence from ERPs

Ana P. Soares, Francisco Gutierrez, Alexandrina Lages, Helena M. Oliveira, Margarida Vasconcelos e Luis Jiménez
CIPsi, University of Minho, University of Santiago de Compostela (Spain)

Statistical Learning (SL), the ability to detect patterns in the sensory environment, is a fundamental skill that allows us to structure the world in a regular and predictable way. Despite evidence that SL is present from early infancy for different sensorial modalities, stimuli, and under distinct learning conditions, evidence regarding the nature of the computations involved in the extraction of the regularities embedded in the input stream and how they might change throughout development is a contentious matter. To determine whether adults and children rely on the computation of the same statistics to extract word-like units from a continuous auditory stream, we collected ERPs while 23 adults (22 female, Mage=20.21, SD=2.75) and 24 children (13 girls, Mage=5.21, SD=0.51) were exposed to a continuous auditory stream made of the concatenation of eight three-syllable nonsense words in which two concurrent regularities were embedded: triplets presenting high vs. low transitional probabilities (TP), and triplets containing high vs. low-frequent syllables. Moreover, to ascertain if the prior knowledge of the to-be-learned regularities affected the reliance on the different statistics (TPs vs. syllable frequency), participants performed the auditory SL task, firstly, under implicit, and, subsequently, under explicit conditions. Results showed modulations in the N100 and the N400-like ERP components in both groups, though changes in the pattern of neural responses in each component across groups suggest that adults and children rely on different statistics to extract word-like units from the continuous speech stream.

High-level representations in human occipito-temporal cortex are indexed by distal connectivity

Jon Walbrin e Jorge Almeida
Proaction Lab, CINEICC, Universidade de Coimbra

Human object recognition is a crucial visual ability that depends on occipito-temporal cortex (OTC), as shown by converging functional magnetic resonance imaging (fMRI) evidence. However, a complete understanding of the complex functional profile of OTC must account for how this broad region is connected to (and influenced by) the wider brain. Here, we show that the discriminability of visual information (e.g. accurately discriminating between neural responses evoked by tool-, face-, & place images) in OTC is strongly related to, and is reliably identified by, distal functional connectivity between OTC and the wider brain. Specifically, we show superior discriminability of information in OTC sub-regions - or more specifically 'voxel sets' (i.e. fMRI activation patterns comprised by sets of voxels, or 'volumetric pixels' in MR brain images) - that show strongest connectivity to the wider brain, compared to sets that are least-strongly connected. In several cases, superior discriminability is also shown for these 'most-connected' voxel sets compared to 'most-activated' voxel sets (that are defined by local activation amplitude, rather connectivity strength). Importantly, these results demonstrate that complex visual responses in OTC can be reliably identified by connectivity to the wider brain, and that (in some cases) connectivity does not merely index the same information as local response magnitude does. This approach may also serve as a principled means of feature (voxel) selection for future fMRI studies.

Predicting risky economic decisions from brain structure

Fredrik Bergstrom e Joseph Kable
Faculty of Psychology and Educational Sciences, University of Coimbra, Department of Psychology, University of Pennsylvania (USA)

Neuroeconomics studies the neural basis of economic decision-making and have been able to find associations between neural activity and various choices, and have used task-based neural activity to predict future choices within and across samples, at the individual and population level. However, since our brain structure to a large extent determines who we are and how we act in different circumstance, it should be possible to use brain structure patterns to predict individual behavior. Here we used multivariate pattern analysis on voxel-based morphometry (VBM) data (n=105) to localize neural structures that could predict whether participants would make a safe (get $20 with 100% certainty) or risky (get a higher amount with varying probability) choice on 120 trials. On any given trial, classification accuracy ranged up to 80-85%, but with some spatial variability across trials. Nevertheless, there were on average (across trials) higher classification accuracy than chance (50%) in several decision-related grey matter areas such as left dlPFC, vmPFC, insula, putamen, caudate nucleus, hippocampus, PCC, precuneus, and PPC; as well as surrounding white matter areas. Furthermore, we found that as risk increased, the prediction accuracy increased in left frontal pole, left dlPFC, left orbitofrontal cortex, left putamen/amygdala, right insula, and right PPC, while the reverse relationship was found in ACC, right dlPFC, left precentral gyrus, and

left PPC. We have therefore demonstrated that it is possible to map out what neural structures that predict risky economic choices based on grey and white matter intensity patterns in decision-making related brain areas.

12:20/12:50 - Conferência Frederico Marques - Prémio APPE 2019 (Moderação: Alexandra Reis)

"Testing the boundaries of "paradoxical" predictions: Pigeons do disregard bad news" - Publicado na Revista Journal of Experimental Psychology: Animal Learning and Cognition

Inês Fortes
Centro Algoritmi (CALG) - Universidade do Minho

Consultar o artigo: ***https://doi.org/10.1037/xan0000114***

12:50/13:00 - Anúncio e Entrega do Prémio APPE 2021

13:00 - Encerramento