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4s/EASST Conference Barcelona, T061 Open Science in practice, Sept 1 2016

Pop-up, collective, public and urban experiments

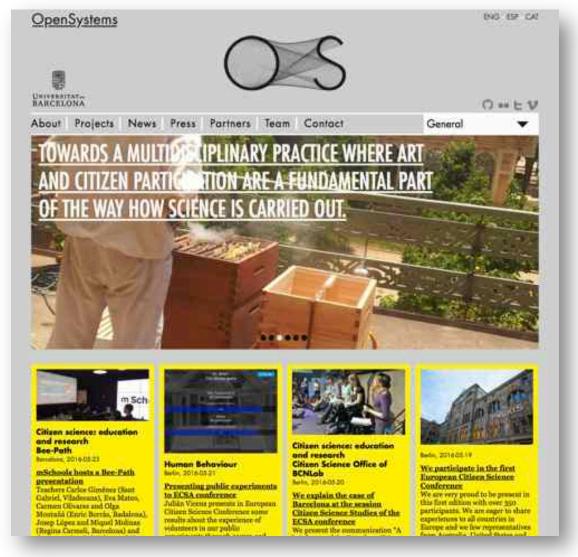
New ways of understanding Computational Social Science Research

Josep Perelló, Mario Gutiérrez-Roig, Oleguer Sagarra



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M Gutiérrez-Roig, C Gracia-Lázaro, J Perelló, Y Moreno and A Sánchez (2014) Transition from reciprocal cooperation to persistent behaviour in social dilemmas at the end of adolescence, Nature Comm 5, 4362

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ARTICLE

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Transition from reciprocal cooperation to persistent behaviour in social dilemmas at the end of adolescence

Mario Gutièrrez-Roig¹, Carlos Gracía-Lázaro², Josep Perelló¹, Yamir Moreno^{2,3,4} & Angel Sánchez^{2,5}

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Market Imitation and Win-Stay Lose-Shift Strategies Emerge as Unintended Patterns in Market Direction Guesses

Mario Gutierrez-Roles¹, Cartota Secura², Jordi Duch², Josep Perello^{1,3}

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M. Gotiérrez-Roig¹, O. Sagama^{1,2}, A. Oltra^{3,4},

NCE Bassiona, Spain

s a wide variety of information so it is pen is that guide on. Stock market provides a For this purpose, we run a lab-in-theey are required to guess whether the ging strategies, in particular, we detecactions, which can be interpreted as attranspies, with Market Impation being

the Advancement of Science. Distribute

RESEARCH ARTICLE

Humans display a reduced set of consistent behavioral phenotypes in dyadic games

Julia Poncela-Casasnovas, ¹ Mario Gutiérrez-Roig, ² Carlos Gracia-Lázaro, ³ Julian Vicens, ^{1,4} Jesús Gómez-Gardeñes, ³ Josep Perelló, ^{3,6} Yamir Moreno, ^{3,7,8} Jordi Duch, ¹ Angel Sánchez ^{3,6,10}»

study these situations, theoretical and experimental research has adopted a game theoretical perspective, generating valuable insights about human behavior. Neverer, most of the results reported so far have been obtained from a population perspective and considered one specific conflicting situation at a time. This makes at difficult to extract sclusions about the consistency of individuals' behavior when facing different situations and to define a compre hensive classification of the strategies underlying the observed behaviors. We present the results of a lab-in-the field experiment in which subjects face four different dyadic games, with the aim of establishing general behavioral tede sepament in winto-supports size to two different opade; games, with the aim of establishing general behaviors include discating individuals' actions, by analyting our data such an unsupervised clitering algorithm, we find that all the subjects conform, with a large degree of consistency, to a limited number of behavioral phenotypes (revious polimist, persimist, and trustfull, with only a small fraction of undefined subjects. We also discuss the possible con-nections to existing interpretations based on a priori theoretical approaches. Our findings; provide a relevant contribution to the experimental and theoretical efforts toward the identification of basic behavioral phenotypes in a wider set of contexts without aprioristic assumptions regarding the rules or strategies behind actions. From this perspective, our work contributes to a fact-based approach to the study of human behavior in strategic sitiations, which could be applied to simulating societies, policy-making scenario building, and even a variety of

Many situations in life entail social interactions where the parties involved behave strategically; that is, they take into consideration the tion as to why players sometimes choose to cooperate despite to anticipated responses of actors who might otherwise have an impact on an outcome of interest. Examples of these interactions include social dilemmas where individuals face a conflict between self and collective interests, which can also be seen as a conflict between rational and irational decisions (7-3), as well as coordination games where all parties are rewarded for making mutually consistent decisions (4). These and related scenarios are commonly studied in economics, psychology, po-litical science, and sociology, typically using a game theoretic framework to understand how decision-makers approach conflict and outperation under highly simplified conditions (5-7).

Extensive work has shown that, when exposed to the constraints it trisduced in game theory designs, people are often not "rational" in the sense that they do not pursue exclusively self-interested objectives (8, 9). This is especially clear in the case of prisoner's dilemma (PD) games, where rational choice theory predicts that players will always defect

action among the parties involved (A. 10). These findings beg the ones not to do so. Are these choices a function of a person's identity and draw from a small repertoire of responses, and if so, what are the conditions that lead them to choose one strategy over another?

Here, we attempt to shed light on these questions by focusing on a wide class of simple deads: somes that capture two important feat of social interaction, namely, the temptation to free-ride and the risk associated with cooperation (8, 11, 12). All are two-person, two-action games in which participants decide simultaneously which of the two actions they will take. Following previous literature, we desirfy participaints' set of choices as either cooperation, which we define as a choice that provoctes the general interest, or defection, a choice that serves an actor's self-interest at the expense of others.

The games used in our study include PD (13, 14), the stag hum (SE) (4), and the havel-dove (15) or snowdrift (16) games (SGs). SH is a co-

Reporting the know-how (if any)...

Sagarra, M Gutiérrez-Roig, I Bonhoure, J Perelló (2016)

Citizen Science practices for Computational Social Sciences research: The conceptualization of Pop-Up Experiments,

Frontiers in Phys, 05 January 2016



ENERGY SELECTION STORY (86), 10,3089/32% 2011,00003



Citizen Science Practices for Computational Social Science Research: The Conceptualization of Pop-Up Experiments

Oleguer Sagarra*, Mario Gutterrex-Rolg 17, Inabelle Bonhoure I and Josep Perelló 13*

Compliady Lab Barcalona, Disparliament de Police Fonemental Universitàt de Barcalona, Barcalona, Spain, 1 Clour Systems Remarch, Ospartimunt de Flace Foremental, Literarchut de Barcelona, Barcelona, Spain

Under the name of Citizen Science, many innovative practices in which volunteers partner up with scientists to pose and answer real-world questions are growing rapidly worktwide, Citizen Science can furnish ready-made solutions with citizens playing an active role. However, this framework is still far from being well established as a standard tool for computational social science research. Here, we present our experience in bridging gap between computational social science and the philosophy underlying Citizen Science, which in our case has taken the form of what we call "pop-up experiments." These are non-permanent, highly participatory collective experiments which blend features developed by big data methodologies and behavioral experimental protocols with the ideals of Citizen Science. The main issues to take into account whenever planning experiments of this type are classified, discussed and grouped into three categories: infrastructure, public engagement, and the knowledge return for otizens. We explain the solutions we have implemented, providing practical examples grounded in our own experience in an urban context (Barcelona, Spain). Our aim here is that this work will serve as a guideline for groups willing to adopt and expand such in vivo practices and we hope it opens up the debate regarding the possibilities (and also the limitations) that the Citizen Science framework can offer the study of social phenomena.

Keywords: Officer Science, perficipation, engagement, computational social science, data, experiments policetive, methods

1. INTRODUCTION

OPEN ACCESS

Edited by:

Javier Elergia Hofricular, Clear Computing Hasserch Institute,

Filamento Moguera Costa Filho. Universidade Featural do Cosra, Drawl Grands Mauric Circles de Investigación y Documos Economicas A.C. Modes

*Correspondence: James Florate iman pereloduti edu

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Received: 22 Sustancer 2015







Computational social science (CSS) is a multidisciplinary field at the intersection of social, computational and complexity sciences, whose subject of study is human interactions and society itself.

Prediction is very difficult, especially if it's about the future.

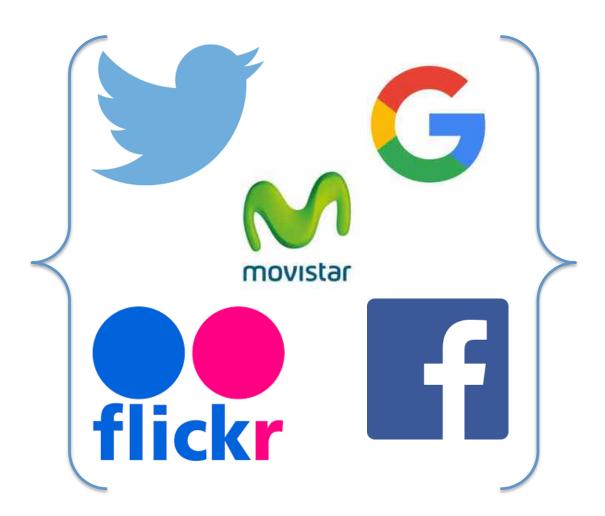
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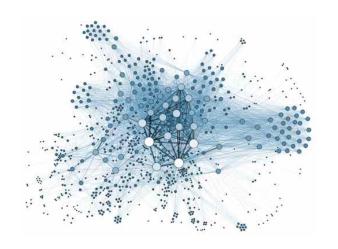






Big Data





Understanding: Human actions Human mobility







theguardian



world

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opinion culture

lifestyle business

fashion

environment

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all sections

home | tech

Facebook

Facebook apologises for psychological experiments on users

The second most powerful executive at the company, Sheryl Sandberg, says. experiments were 'poorly communicated'

Samuel Gibbs:

Wednesday 2 Ada 2014 THE BOTT

















Facebook's second most powerful executive, Sheryl Sandberg, has apologised for the conduct of secret psychological tests on nearly 700,000 users in 2012, which prompted outrage from users and experts alike.

The experiment, revealed by a scientific paper published in the March issue of Proceedings of National Academy of Sciences, hid "a small percentage" of













Manfred Milinski social dilemma experiment. Max Planck





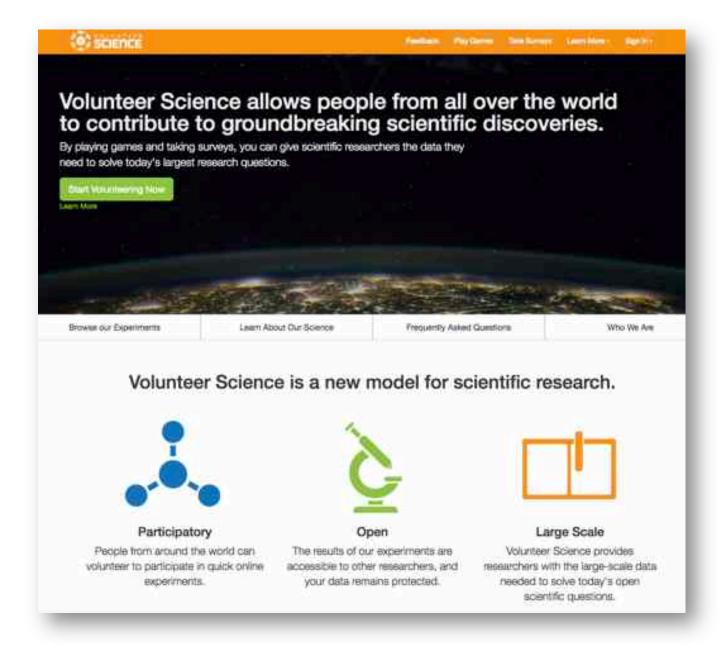


















What is a lab?









Public participation and scientific empowerment induce a level of (conscious) proximity: high-quality data

Fair relation with participants (sharing concerns)

More transparent science (open data)

Social values (multiple outputs)

A clear scientific question (not given data)

A way to overcome privacy and ethical issues



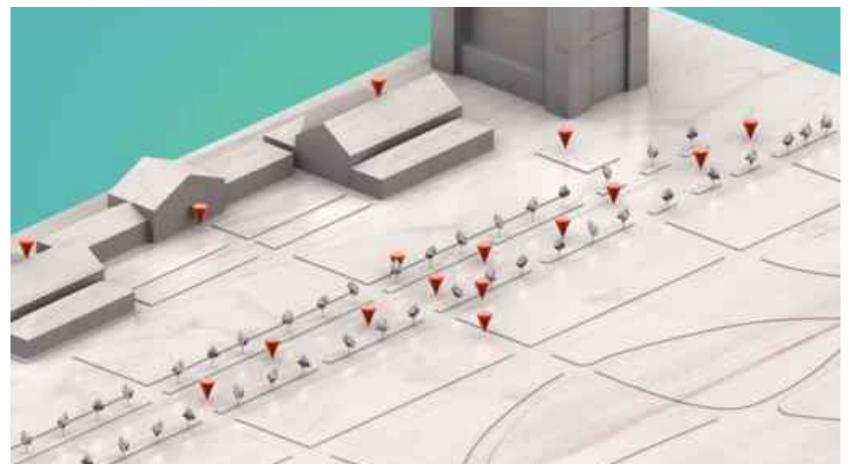








Langevin dynamics – Human Mobility



Gutiérrez-Roig M etal. R. Soc. open sci.3: 160177 (2016). https://vimeo.com/97228812









In collaboration Domestic Data Streamers and Counterest for the Big Bang Data exhibition in CCCB (Barcelona, 2014)







Experiment designed by a school Sant Gabriel – Viladecans (Jan 2016)



https://cciutadana.wordpress.com/













Set of experiments (2012-2015) done in DAU Barcelona Festival with researchers from: Universitat de Barcelona, Universitat Rovira i Virgili, Universidad de Zaragoza and Universidad Carlos III de Madrid







Human Behaviour and Games

Board Game Festival DAU 2012

- 160 volunteers, 3 research groups engaged and an actor
- Cooperation as a function of the age.

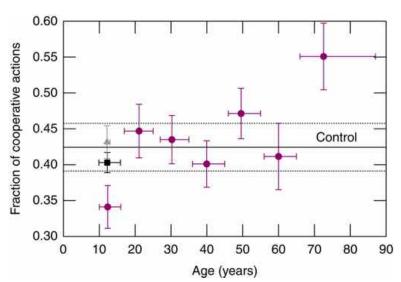






Results

Transition from reciprocal cooperation to persistent behaviour in social dilema as at the end of adolescence, M Gutiérrez-Roig, C Gracia-Lázaro, J Perelló, Y Moreno and A Sánchez. Nature Communications 5 (2014) 4362











Mr. Banks challenges you to guess the price of the stock market: will it go up or down? Mr. Banks will not make you things easy but if you success you may break the bank. Do you accept the challenge?

Mr. Banks is a citizen science experiment, a new way of doing science in collaboration with the amateur scientists, citizens like you. Mr. Banks is designed as a game, in order to understand the mechanisms of decision making.

The experiment has been created by scientists at the Universitat Rovins I Virgil, Universitat de Barcelona and CSIC. It is part of the Citizen Science Office promoted by the Direction of Creativity and Innovation of the City of Barcelona and inside the BarcelonaLab project. It has received the support of the FECYT and Garne Festival DAU Barcelona.

RANKINGS

I WANT TO PLAY!









Conference
Collective Awareness
Platforms for Sustainability
and Social Innovation.

Horizon 2020 EU research programme.

Brussels, July 2015.

Experiment done with J Duch (URV), J Vicens (URV) and I Bonhoure (UB)









CAT

ESP





El joc del clima

Dr. Brain toma al DAU Barcelona! L'excentric investigador porta els darrers mesos obsessionat amb el clima. La seva recerca, però, no acaba d'anar del tot bé i necessita de la nostra ajuda per completar-la. Ens ajudes?

Dr. Brain i els seus col·laboradors científics de quatre universitats diferents et repten per quart any consecutiu a un joc. Volen saber com prens decisions i quines són les teves decisions. Tatreveixes?

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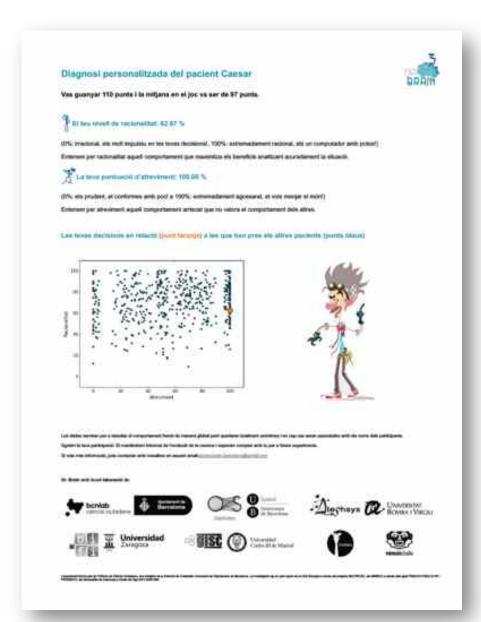




Joint work with Domestic Data Streamers December 2015



Joint work with Domestic Data Streamers December 2015



Dr Brain Experiment has been done by Poncela-Casasnovas, J., Gutiérrez-Roig, M., Gracia-Lázaro, C., Vicens, J., Gómez-Gardeñes, J., Perelló, J., Moreno Y. & Sánchez, A. In collaboration with Outliers Collective







SOCIETAL CHALLENGE + RESEARCH QUESTION

SOCIETAL IMPACT

- + Policy recommendation
- + Facts-based policy making
- + Lively maps of city welfare

SCIENTIFIC RESULTS

- + Collective intelligence
- Scientific outcome: Papers, conferences...
- Public return: OpenData, personalized reports_

DESIGN OF EXPERIMENT

- + Multidisciplinary team creation
- Demographic, socio-economic and environmental indices
- + Public spaces location

EXPERIMENT PERFORMANCE

- + Experimental set-up
- + Public engagement
- + Crowdsourcing data







Shaping a solution: The Pop-Up Experiments

A Pop-Up-Experiment (PUE) is a physical, light, very flexible, highly adaptable, reproducible, transportable, tuneable, collective, participatory and public experimental set-up.



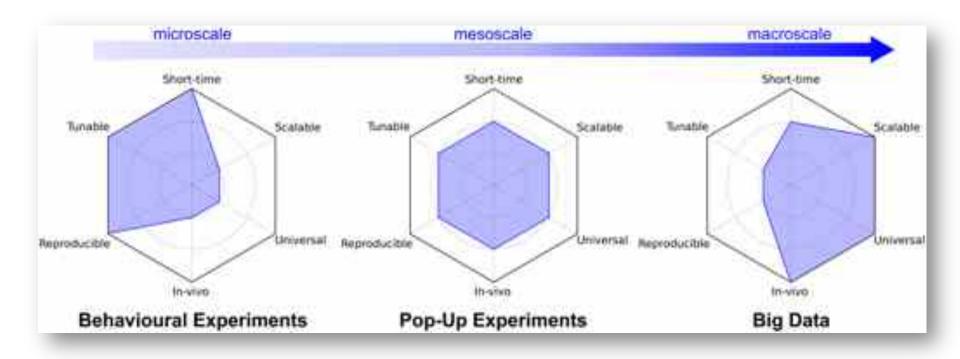




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Source: O Sagarra et al. Frontiers in Phys, 05 January 2016







Shaping a solution: The Pop-Up Experiments

- (1) applies Citizen Science to provide groundbreaking knowledge susceptible to be published in top journals and
- (2) transforms the experiment into a valuable, socially responsible experience to participants to build the urban commons arisen from facts-based effective knowledge.







Pop-up Experiments along citizen science framework

- 1. Collective Experimentation sharing publicly risk with participants.
- 2. Volunteers should be first users of scientific knowledge produced.
- 3. Natural experiments in real-world: An alternative to virtual labs and to byassed populations in social experiments.
- 4. Clear definition of the question. Appealing concept: Participants are curious!
- 5. Time and space frames: it is a one-shot experiment.
- 6. Light infraestructure easy to adapt to several contexts. Always expect the uncertain.
- 7. Quick and flexible configuration of teams (but large and complex to manage).
- 8. Short-cut to new policies in urban scale: Smart cities
- 9. Education, dissemination, research and action in a single experience.







M Gutiérrez-Roig, C Gracia-Lázaro, J Perelló, Y Moreno and A Sánchez (2014) Transition from reciprocal cooperation to persistent behaviour in social dilemmas at the end of adolescence, Nature Comm 5, 4362

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ARTICLE

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Transition from reciprocal cooperation to persistent behaviour in social dilemmas at the end of adolescence

Mario Gutièrrez-Roig¹, Carlos Gracía-Lázaro², Josep Perelló¹, Yamir Moreno^{2,3,4} & Angel Sánchez^{2,5}

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PLOS ONE

Market Imitation and Win-Stay Lose-Shift Strategies Emerge as Unintended Patterns in Market Direction Guesses

NCE Bassiona, Spain

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Mario Gutierrez-Roles¹, Cartota Secura², Jordi Duch², Josep Perello^{1,3}

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Active and reactive

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M. Gotiérrez-Roig¹, O. Sagama^{1,2}, A. Oltra^{3,4},

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Subject Assess explicitly beloning technique

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Author for correspondence:

M. Cotstery, Asset 4 HOLE PLANSAGE HOLDS AND PARK LINE RESEARCH ARTICLE Humans display a reduced set of consistent behavioral phenotypes in dyadic games

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the Advancement of Science. Distribute

Julia Poncela-Casasnovas, ¹ Mario Gutiérrez-Roig, ² Carlos Gracia-Lázaro, ³ Julian Vicens, ^{1,4} Jesús Gómez-Gardeñes, ³ Josep Perelló, ^{3,6} Yamir Moreno, ^{3,7,8} Jordi Duch, ¹ Angel Sánchez ^{3,6,10}»

study these situations, theoretical and experimental research has adopted a game theoretical perspective, generating valuable insights about human behavior. Neverer, most of the results reported so far have been obtained from a population perspective and considered one specific conflicting situation at a time. This makes at difficult to extract sclusions about the consistency of individuals' behavior when facing different situations and to define a compre hensive classification of the strategies underlying the observed behaviors. We present the results of a lab-in-the field experiment in which subjects face four different dyadic games, with the aim of establishing general behavioral tede sepament in winto-supports size to two different opade; games, with the aim of establishing general behaviors include discating individuals' actions, by analyting our data such an unsupervised clitering algorithm, we find that all the subjects conform, with a large degree of consistency, to a limited number of behavioral phenotypes (revious polimist, persimist, and trustfull, with only a small fraction of undefined subjects. We also discuss the possible con-nections to existing interpretations based on a priori theoretical approaches. Our findings; provide a relevant contribution to the experimental and theoretical efforts toward the identification of basic behavioral phenotypes in a wider set of contexts without aprioristic assumptions regarding the rules or strategies behind actions. From this perspective, our work contributes to a fact-based approach to the study of human behavior in strategic sitiations, which could be applied to simulating societies, policy-making scenario building, and even a variety of

Many situations in life entail social interactions where the parties involved behave strategically; that is, they take into consideration the tion as to why players sometimes choose to cooperate despite to anticipated responses of actors who might otherwise have an impact on an outcome of interest. Examples of these interactions include social dilemmas where individuals face a conflict between self and collective interests, which can also be seen as a conflict between rational and irational decisions (7-3), as well as coordination games where all parties are rewarded for making mutually consistent decisions (4). These and related scenarios are commonly studied in economics, psychology, po-litical science, and sociology, typically using a game theoretic framework to understand how decision-makers approach conflict and outperation under highly simplified conditions (5-7).

Extensive work has shown that, when exposed to the constraints it trisduced in game theory designs, people are often not "rational" in the sense that they do not pursue exclusively self-interested objectives (8, 9). This is especially clear in the case of prisoner's dilemma (PD) games, where rational choice theory predicts that players will always defect

action among the parties involved (A. 10). These findings beg the ones not to do so. Are these choices a function of a person's identity and draw from a small repertoire of responses, and if so, what are the conditions that lead them to choose one strategy over another?

Here, we attempt to shed light on these questions by focusing on a wide class of simple deads: somes that capture two important feat of social interaction, namely, the temptation to free-ride and the risk associated with cooperation (8, 11, 12). All are two-person, two-action games in which participants decide simultaneously which of the two actions they will take. Following previous literature, we desirfy participaints' set of choices as either cooperation, which we define as a choice that provoctes the general interest, or defection, a choice that serves an actor's self-interest at the expense of others.

The games used in our study include PD (13, 14), the stag hum (SE) (4), and the havel-dove (15) or snowdrift (16) games (SGs). SH is a co-

Reporting the know-how (if any)...

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Citizen Science practices for Computational Social Sciences research: The conceptualization of Pop-Up Experiments,

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Citizen Science Practices for Computational Social Science Research: The Conceptualization of Pop-Up Experiments

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Under the name of Citizen Science, many innovative practices in which volunteers partner up with scientists to pose and answer real-world questions are growing rapidly worktwide, Citizen Science can furnish ready-made solutions with citizens playing an active role. However, this framework is still far from being well established as a standard tool for computational social science research. Here, we present our experience in bridging gap between computational social science and the philosophy underlying Citizen Science, which in our case has taken the form of what we call "pop-up experiments." These are non-permanent, highly participatory collective experiments which blend features developed by big data methodologies and behavioral experimental protocols with the ideals of Citizen Science. The main issues to take into account whenever planning experiments of this type are classified, discussed and grouped into three categories: infrastructure, public engagement, and the knowledge return for otizens. We explain the solutions we have implemented, providing practical examples grounded in our own experience in an urban context (Barcelona, Spain). Our aim here is that this work will serve as a guideline for groups willing to adopt and expand such in vivo practices and we hope it opens up the debate regarding the possibilities (and also the limitations) that the Citizen Science framework can offer the study of social phenomena.

Keywords: Officer Science, perficipation, engagement, computational social science, data, experiments policetive, methods

1. INTRODUCTION

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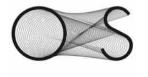
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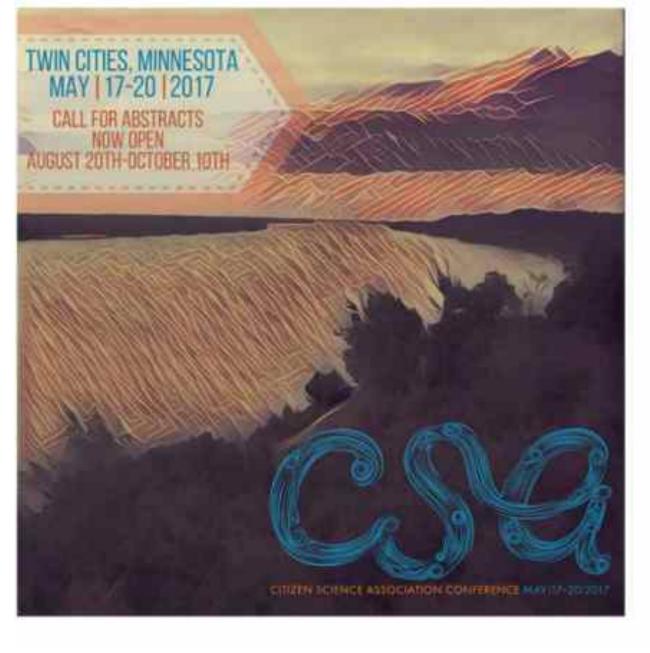
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