BASQUE CENTER
ON COGNITION, BRAIN
AND LANGUAGE

ACTIVITY REPORT

2013
2016

BASQUE CENTER
ON COGNITION, BRAIN
AND LANGUAGE

2013
2016

INDEX

This document covers the activity report of the Basque Center on Cognition, Brain and Language (BCBL) during the period 2013-2016.

The BCBL was promoted by the Basque Government through Ikerbasque (the Basque Foundation for Science). Its legal structure was set up in December 2008 with four partners: Ikerbasque (Basque Science Foundation), Innobasque (Basque Innovation Agency), the Provincial Government of Gipuzkoa and the University of the Basque Country (UPV/EHU). The BCBL was initially funded by a grant from the Basque Government, that was immediately accompanied by other competitive grants from other funding bodies such as the Ministry for Science and Innovation, the Ministry of Economy and competitiveness, the 7th Framework of the European Union, the Horizon2020, the European Research Council, the Provincial Government of Gipuzkoa, several private foundations, etc. Importantly, the BCBL has been recently awarded the label of excellence "Severo Ochoa" that brought important additional funding and situated the BCBL, a very new research center, in the league of excellence of research centers in Spain. Only a few research institutes of all sciences had received this prestigious award.

The BCBL was created with the mission of performing world-class research on the cognitive processes and the brain mechanisms that underlie language processing, with special emphasis on bilingualism and multilingualism. We are a multidisciplinary research center

within the Basque Country Science Network, dedicated to the pursuit of excellence in research, training and knowledge transfer within the field of Cognitive Neuroscience of Language. To that end, we set up a well-equipped laboratory with exceptional facilities and recruited an outstanding group of human resources to investigate three main research lines: (1) Language, reading and developmental disorders; (2) Multilingualism and second language learning; and (3) Neurodegeneration, brain damage and healthy aging: Language and Cognition.

The laboratories of the BCBL are equipped with cutting-edge technological platforms such as MRI, MEG, EEG, NIRS, eye tracking, and other behavioral techniques. The researchers are organized in nine research groups, each one directed by a group leader (4 Ikerbasque professors, 2 Ikerbasque fellows, 2 Ramon y Cajal fellows and 1 staff scientist). The management team (scientific director, general manager and group leaders), with the help of support personnel, is looking for continuous improvement in the management of human resources strategies for researchers. Our action plan deserved the "HR Excellence in research" award for creating a stimulating and favorable working environment for attraction and retention of human research capacities.

Finally, the BCBL is also committed to education and knowledge transfer; thus, in collaboration with the University of the Basque Country (UPV/EHU) we have created a Master's Program entitled "Cognitive Neuroscience of Language" that has been recently approved by the Spanish Government and has been running since September 2011, and we are in the process of creating the PhD program "Cognitive Neuroscience". Finally, related to knowledge and technological transference, we created Neure, a clinic for diagnosis of some developmental disorders, where different and new diagnosis software systems are being developed.

These are exciting times for research in Cognitive Neuroscience of Language in the Basque Country. To learn more, read what is in the pages to come.

Manuel Carreiras
Director of the BCBL
January, 2017

THE CENTER

A. PRESENTATION

The Basque Center on Cognition, Brain and Language is a world-class interdisciplinary research center for the study of cognition, brain and language jointly promoted and funded by the Basque Government, and founded by Innobasque, Ikerbasque, UPV-EHU (The University of the Basque Country) and the Government of Gipuzkoa.

The center is situated in Donostia-San Sebastián in the Basque Country (Spain) and was set up in December 2008, when operations began to create the necessary research environment, including administrative and technical support and to recruit personnel, with a view to beginning on-site research in September 2009.

In 2015 the center was granted with the "Center of Excellence Severo Ochoa" Award, within the subprogram of Institutional Strengthening of the Spanish Economy and Competitiveness Ministry, initially for the 2016-2019 period.

Language is the most unique human ability and involves complex cognitive processes. Reading and writing are the most impressive cultural developments of our civilization and are at the same time a major developmental milestone in each person's life. They fundamentally change the way in which a person interacts with their environment. However, despite the impressive technological and scientific advances of recent decades, we have yet to unravel the complexities of the cognitive processes involved in language and reading and we still do not know the causes of some speech disorders and reading disabilities or how to remedy them.

The BCBL carries out research using the most advanced techniques in these fascinating areas, with a special focus on bilingualism.

Manuel Carreiras
Director of the BCBL

Our center aims to provide a platform for researchers and professionals from related areas to carry out frontline research, development and innovation in this area.

We are a multidisciplinary research center, within the Basque Country Science Network, dedicated to pursuing excellence in research, training and knowledge transfer within the field of Cognitive Neuroscience of Language.

Aim of our research

The specific aim of our research activity is to unravel the neurocognitive mechanisms involved in the acquisition, comprehension and production of language, with particular emphasis on bilingualism and multilingualism.

Some of the areas we study include the processes involved in normal child language acquisition and second language learning in adults, as well as learning disorders, language disorders, the language-related effects of aging and neurodegeneration and language use in different social contexts.

Our commitment

Our commitment to education and knowledge transfer in the area of Cognitive Neuroscience extends across different contexts, including university, healthcare, social and business environments, with the aim of contributing to social welfare by applying the knowledge and technology derived from our research.

To this end, we have forged links with institutions and organizations in both the local and wider communities, to provide expertise, consultancy and technology development services, all to the highest international standards.

Research Agenda

Our research agenda also takes advantage of our center's location in the bilingual Basque Country to study language processing in Basque and Spanish. As an isolated language, Basque has unique characteristics and so provides an unrivalled opportunity to unveil both the specific and the universal characteristics of language.

To pursue our aims, we use a variety of methods, including cutting-edge neuroimaging techniques, behavioral methods and computational modeling, developing our own projects and also collaborating with other public and private institutions.

C. AIMS

To unravel the neurocognitive mechanisms involved in the acquisition, comprehension and production of language.

1) To develop research and innovation in Cognitive Neuroscience with special emphasis on language processing and bilingualism.

2) To promote scientific research and national and international scientific relations within the area of Cognitive Neuroscience and to transfer the results of this research to the wider socioeconomic community.

3) To promote the transfer and dissemination of knowledge about Cognitive Neuroscience, Language and Bilingualism both within and beyond the Basque Country, by means of organizing courses, seminars, national and international conferences and by other appropriate means of general communication.

4) To participate in undergraduate and postgraduate education and training programs and encourage the incorporation of young researchers to this area.

5) To facilitate the training and ongoing development of the BCBL personnel and to promote their collaboration across different lines of research.

6) To forge collaborative links and common interest areas with public and private institutions, centers and industries, with the aim of providing research, training, technological and consultancy services to use the work developed in the BCBL to the fullest economic and social advantage.


The reading circuit

A. PARTNERS

B. INTERNATIONAL ADVISORY BOARD

C. ORGANIZATIONAL CHART

D. PEOPLE

E. FELLOWSHIPS

ORGANIZATION

A. PARTNERS

The BCBL was established as a nonprofit association on November 19, 2008. The Association currently comprises the following founding partners:

Ikerbasque
Basque Foundation for Science
www.ikerbasque.net

Innobasque
Basque Innovation Agency
www.innobasque.eus

Provincial Government of Gipuzkoa
www.gipuzkoa.eus

University of the Basque Country
www.ehu.eus

PROMOTED BY:

Basque Government
www.euskadi.eus

ACCREDITED AS:

Severo Ochoa Center of Excellence

GOVERNING BODIES:

[The General Assembly is the Association's supreme governing body; it includes all members.

[The Steering Committee is the body responsible for administering the Association; it ensures that the articles of the Association are complied with and that the agreements reached at the General Assembly are fulfilled.

The Chairmen of the BCBL's General Assembly and Steering Committee for the 2013-2016 period have been: "Ikerbasque" foundation, represented by:

[2013-2014
Itziar Alcorta Idiaquez
Viceconsejera de Universidades e Investigación del Gobierno Vasco (Basque Government Deputy Councilor for Universities and Research).

[2015-2016
Aldofo Morais Ezquerro
Viceconsejero de Universidades e Investigación del Gobierno Vasco (Basque Government Deputy Councilor for Universities and Research).

B. INTERNATIONAL ADVISORY BOARD

The main role of the International Advisory Board is to advise on the center's orientation and overall strategy. The International Advisory Board comprises internationally renowned researchers and professionals.

The members of the International Advisory Board for the 2013-2016 period were:

[Anne Cutler
Max Planck Institute for Psycholinguistics
THE NETHERLANDS

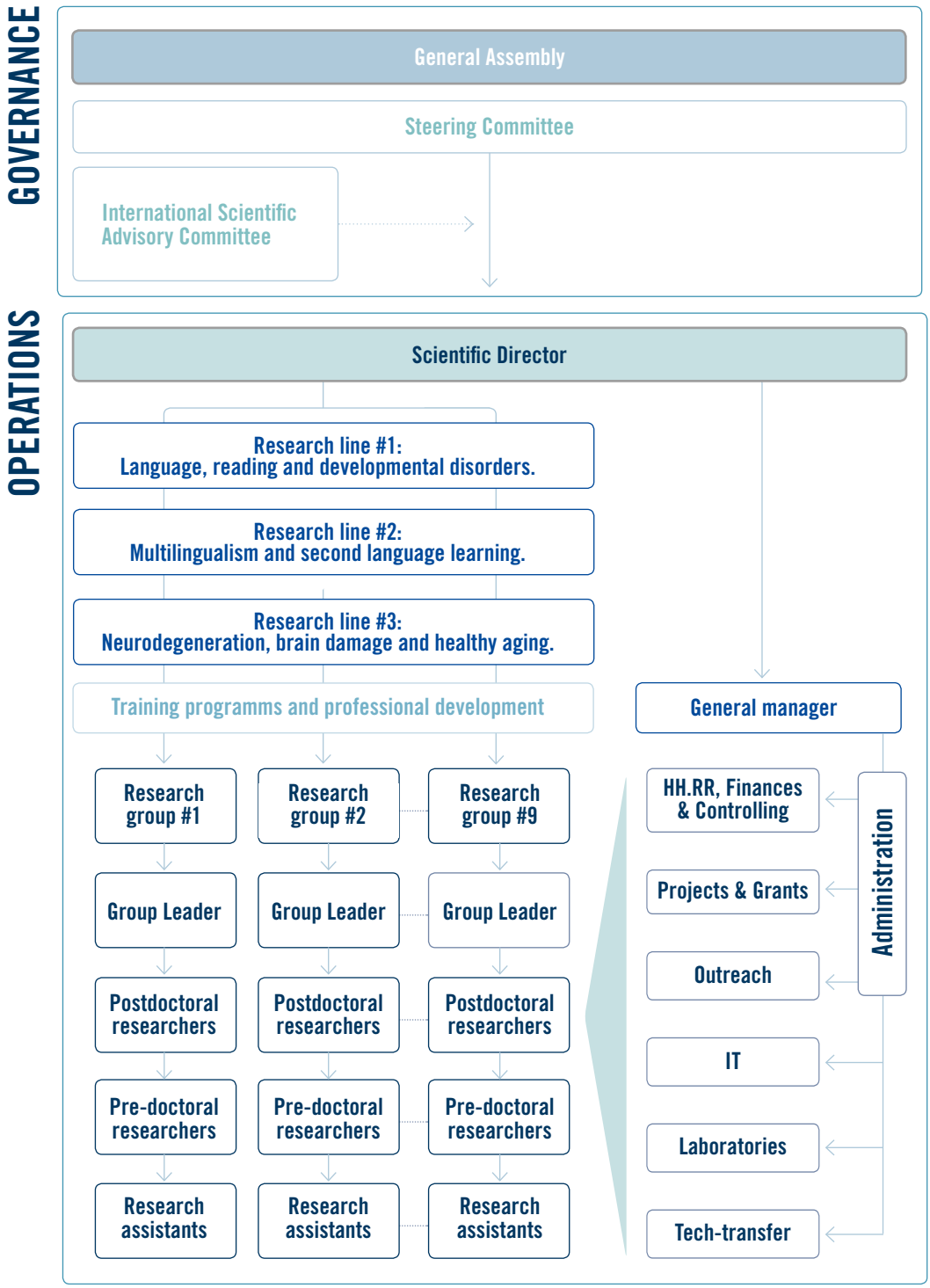
[Ron Mangun
Center for Mind and Brain
University of California at Davis
USA

[William Marslen-Wilson
University of Cambridge
UK

[Jay McClelland
Center for Mind, Brain and Computation
Stanford University
USA

[Mike Posner
University of Oregon and Sackler Institute
USA

[Tim Shallice
SISSA (Scuola Internazionale Superiore di Studi Avanzati – International School for Advanced Studies)
ITALY
and Institute of Cognitive Neuroscience, UCL
UK


GOVERNANCE
General Assembly
Steering Committee
International Scientific Advisory Committee
OPERATIONS
Scientific Director
Research line #1: Language, reading and developmental disorders.
Research line #2: Multilingualism and second language learning.
Research line #3: Neurodegeneration, brain damage and healthy aging.
Training programms and professional development
General manager
Research group #1
Research group #2
Research group #9
Group Leader
Group Leader
Group Leader
Postdoctoral researchers
Postdoctoral researchers
Postdoctoral researchers
Pre-doctoral researchers
Pre-doctoral researchers
Pre-doctoral researchers
Research assistants
Research assistants
Research assistants
HH.RR, Finances & Controlling
Projects & Grants
Outreach
IT
Laboratories
Tech-transfer
Administration

BCBL PERSONNEL ON THE PERIOD 2013-2016

Given that one of the BCBL's objectives is to become and international benchmark in its field of research, the quality of its staff has been a fundamental part of its strategy from the outset.

Our core research team was created based on three fundamental principles: quality staff, international dimension and the recuperation of talented researchers.

This philosophy was used to develop the selection and incorporation processes for staff at the various R&D units, as well as the technological infrastructure, as the high levels of investment in infrastructure, equipment and apparatus involved in starting up the BCBL make no sense if they are not accompanied by quality human resources.

HR EXCELLENCE IN RESEARCH

In 2016 the BCBL was awarded with the HR EXCELLENCE IN RESEARCH after a thorough analysis of the institution human resources policies. The "HR Strategy for Researchers" supports research institutions and funding organizations in the implementation of the Charter & Code in their policies and practices. The concrete implementation of the Charter & Code made by the BCBL in 2016 renders us more appealing to researchers looking for a new employer or for a host for their research project. Moreover, the implementation of the Charter & Code principles has contributed to the attractiveness of our National Research System and, more generally, the European Research Area.

DIRECTOR

Manuel Carreiras
2008-today
Ikerbasque Research Professor

GROUP LEADERS

Arthur Samuel
2010-today
Ikerbasque Research Professor

David Soto
2016-today
Ikerbasque Research Professor

Mª Cruz Rodríguez-Oroz
2014-today
Ikerbasque Research Professor

Clara Martin
2012-today
Ikerbasque Research Fellow

Jon Andoni Duñabeitia
2009-today

Marie Lallier
2010-today
Ramon y Cajal MINECO Fellow

Nicola Molinaro
2009-today
Ikerbasque Research Fellow

P.M. (Kepa) Paz-Alonso
2011-today
Ramon y Cajal MINECO Fellow

STAFF SCIENTISTS

Doug Davidson
2010-2018

Eiling Yee
2011-2014
Ramon y Cajal MINECO Fellow

Elena Salillas
2010-2017

Monika Molnar
2010-2017

POSTDOCTORAL RESEARCHERS

Adriana Hanulikova
2010-2013
Marie Skłodowska-Curie Fellow

Alejandro Pérez
2010-2017
ITN Marie Skłodowska-Curie Fellow

Angela de Bruin
2016-2018
Marie Skłodowska-Curie Fellow

Brendan Costello
2010-2020

Nicolas Dumay
2010-2013

Blair Armstrong
2012-2016
Marie Skłodowska-Curie Fellow

Efthymia Kapnoula
2016-2021

Eugenia Marín-García
2015-2017
Marie Skłodowska-Curie Fellow

Francesca Branzi
2015-2016

Frédéric Roux
2012-2016
Marie Skłodowska-Curie Fellow

Ileana Quiñones
2011-2021

José Alemán-Bañón
2015-2016
Juan de la Cierva MINECO Fellow

Juan Eugenio Iglesias
2014-2016
Marie Skłodowska-Curie Fellow

Leona Polyanskaya
2016-2018
Juan de la Cierva MINECO Fellow

Lisa B. Wilson
2016-2018
Marie Skłodowska-Curie Fellow

Loretxu Bergouignan
2014-2019
Marie Skłodowska-Curie Fellow

Marcel Giezen
2015-2017
Marie Skłodowska-Curie Fellow

Marie Pourquié
2014-2017
Marie Skłodowska-Curie Fellow

Martijn Baart
2012-2016
Juan de la Cierva MINECO Fellow

Mathieu Bourguignon
2015-2018
Fellows Gipuzkoa

Mikhail Ordin
2015-2020
Ikerbasque Research Fellow

Mireia Hernández
2016-2021

Natalia Kartushina
2016-2017
Swiss National Science Foundation Fellow

Phil Monahan
2010-2013
Marie Skłodowska-Curie Fellow

Reem Abu Mallouh
2012-2017

Rocío A. López-Zunini
2016-2018
Marie Skłodowska-Curie Fellow

Saioa Larraza
2010-2014

Sara Aurtenetxe
2014-2015

Sara Guediche
2016-2020

Sendy Caffarra
2013-2018

Simona Mancini
2010-2018
Fellows Gipuzkoa

Stephanie Massol
2011-2015
Marie Skłodowska-Curie Fellow

Wing Yee Chow
2013-2014

Wouter de Baene
2012-2013

PREDOCTORAL RESEARCHERS

Ahmed Mohammed
2016-2020
Qatar Foundation Fellow

Aina Casaponsa
2010-2014
FPI MINECO Fellow

Ainhara Martí
2011-2013
BFI Basque Government Fellow

Ainhoa Bastarrika
2012-2017
BFI Basque Government Fellow

Alejandro Martínez
2012-2018
BFI Basque Government Fellow

Alexia Antzaka
2012-2018
BFI Basque Government Fellow

Asier Zarraga
2013-2018

Bojana Ristic
2014-2018
BFI Basque Government Fellow

Borja Blanco
2014-2018
BFI Basque Government Fellow

Camila Zugarramurdi
2015-2018
Fundación Carolina Fellow

Cristina Gil
2010-2014

Dana Scarinci
2016-2019
La Caixa Foundation Fellow

Eneko Antón
2011-2017
BFI Basque Government Fellow

Garikoitz Lerma
2012-2017

Irene F. Monsalve
2012-2018

Jaione Arnaez
2015-2020
BFI Basque Government Fellow

Jovana Pejovic
2012-2018
BFI Basque Government Fellow

Joyse Medeiros
2013-2017
CAPES-Brasilian Ministry Fellow

Jui-Ju Su
2010-2013
ITN Marie Curie Fellow

Karla Orihuela
2011-2013

Lela Ivaz
2014-2017
FPI MINECO Fellow

Lorna García-Pentón
2010-2017

María Borragán
2016-2019
La Caixa Foundation Fellow

Mikel Lizarazu
2011-2017

Mikel Ostiz
2015-2018
La Caixa Foundation Fellow

Myriam Oliver
2012-2016
BFI Basque Government Fellow

Noemí Fariña
2014-2018
FPI MINECO Fellow

Patricia Dias
2014-2018
CNPq-Brasilian Ministry Fellow

Paula Ríos-López
2014-2018

Pavlína Heinzová
2016-2020

Peter Boddy
2013-2017

Saúl Villameriel
2014-2018

Sophie Schlöffel
2012-2017
BFI Basque Government Fellow

Yuriem Fernández
2013-2017

AFFILIATED RESEARCHERS

Blair Armstrong
2016-today

George Zouridakis
2013-today

Horacio A. Barber
2012-today

Juan A. Hernández-Cabrera
2010-today

Manuel Perea
2010-today

Nicolas Dumay
2013-today

Ram Frost
2010-today

MANAGEMENT & ADMINISTRATION

GENERAL MANAGER

Miguel Ángel Arocena
2009-today

ADMINISTRATION STAFF

Ana Fernández
2009-today

Eider Juaristi
2009-today

Iñigo Romero
2015-2017

Joana Izurieta
2010-today

Larraitz Alcorta
2012-2013

Laura Outeiral
2015-2017

Leire Arietaleanizbeascoa
2009-today

Maider Goñi
2011-today

Milena Grosshans
2013-2014

Pawel Kuszelewski
2009-2013

Vanessa Gallardo
2009-today

INFORMATION TECHNOLOGIES & TECHNICAL STAFF

Jose Corral
2009-today

Borja Chantre
2011-today

Iker Blanco
2013-today

Javier Gutiérrez
2013-today

Jose Corral
2009-today

Leon Felipe García
2010-2014

Margaret Gillon-Dowens
2010-today

Xabier Rojo
2011-2017

LAB MANAGERS

Larraitz López
2010-today
PTA MINECO Fellow

Oihana Vadillo
2010-today
PTA MINECO Fellow

LABORATORIES STAFF

Adalberto Varela
2013-2014

Agara Agirre
2016-2017

Ainhoa Eguiguren
2016-today

Alazne Alegre
2010-2016

Alexánder López
2014-2016

Amaia Rodríguez
2014-2015

Amets Esnal
2015-today

Ander Lertxundi
2012-2014

Andrea Ganchegui
2014-2016

Andrew Duchon
2011-2013

Beatriz Fernández
2016-2016

César Caballero
2012-today
Juan de la Cierva MINECO Fellow MRI Engineer

Clara Furió
2010-2013

David Carcedo
2011-today

Edurne Rodríguez
2011-2013

Elena Aguirrebengoa
2011-today
PTA MINECO Fellow

Eneritz Alkorta
2012-2013

Eri Takahashi
2010-2013
PTA MINECO Fellow

Eztizen Elorza
2015-2017

Fernando Rodríguez
2013-2016

Idoia Lauzurika
2011-2013

Idoia Lizarralde
2014-2015

Inge Iturralde
2012-2014

Irati Aldasoro
2015-2015

Itzal Uranga
2012-2016

Itziar Basterra
2012-today
PTA MINECO Fellow

Itziar Rodríguez
2012-2013

Jaione Ajuria
2016-2016

Jon Imanol Etxabe
2016-2018

Maider Lucas
2011-2013

Mamen González
2011-today
PTA MINECO Fellow

Manex Lete
2015-today

Nahikari Etxeberria
2016-2018

Olatz Unceta
2016-2017

Saima Malik
2016-2018

Sara Martínez
2015-today

Xabi Etcheverry
2013-2013

Xabier Urizar
2011-2013

TECH-TRANSFER

Nekane Galparsoro
2012-today

Uxue Doñate
2012-today

BCBL RESEARCH GROUPS ON DECEMBER 31, 2016

MANUEL CARREIRAS

Monika Molnar
Staff Scientist

Reem Abu Mallouh
Postdoctoral Researcher

Brendan Costello
Postdoctoral Researcher

Marcel Giezen
Postdoctoral Researcher

Mireia Hernández
Postdoctoral Researcher

Marie Pourquié
Postdoctoral Researcher

Ileana Quiñones
Postdoctoral Researcher

Patricia Dias
Predoctoral Researcher

Noemí Fariña
Predoctoral Researcher

Lorna García
Predoctoral Researcher

Jovana Pejovic
Predoctoral Researcher

Saúl Villameriel
Predoctoral Researcher

Ahmed Mohammed
Predoctoral Researcher

ARTHUR SAMUEL

Martijn Baart
Postdoctoral Researcher

Sara Guediche
Postdoctoral Researcher

Effie Kapnoula
Postdoctoral Researcher

Rocío A. López Zunini
Postdoctoral Researcher

Eugenia Marín-García
Postdoctoral Researcher

Lisa B.Wilson
Postdoctoral Researcher

Joyse Medeiros
Predoctoral Researcher

Leona Polyanskaya
Predoctoral Researcher

DAVID SOTO

Mikhail Ordin
Postdoctoral Researcher

Usman Ayub Sheikh
Predoctoral Researcher

Mª CRUZ RODRÍGUEZ OROZ

Doug Davidson
Staff Scientist

Elena Salillas
Staff Scientist

César Caballero
MRI Engineer

Ainhoa Bastarrika
Predoctoral Researcher

Borja Blanco
Predoctoral Researcher

Alejandro Martínez
Predoctoral Researcher

JON ANDONI DUÑABEITIA

Angela De Bruin
Postdoctoral Researcher

Alejandro Pérez
Postdoctoral Researcher

Eneko Antón
Predoctoral Researcher

Maria Borrogán
Predoctoral Researcher

Yuriem Fernández
Predoctoral Researcher

Lela Ivaz
Predoctoral Researcher

MARIE LALLIER

Alexia Antzaka
Predoctoral Researcher

Mikel Ostiz
Predoctoral Researcher

Paula Ríos
Predoctoral Researcher

Camila Zugarramurdi
Predoctoral Researcher

CLARA MARTIN

Sendy Caffarra
Postdoctoral Researcher

Natalia Kartushina
Postdoctoral Researcher

Sophie Schlöffel
Predoctoral Researcher

NICOLA MOLINARO

Simona Mancini
Postdoctoral Researcher

Mathieu Bourguignon
Postdoctoral Researcher

Pavlina Heinzova
Predoctoral Researcher

Mikel Lizarazu
Predoctoral Researcher

Irene F. Monsalve
Predoctoral Researcher

Bojana Ristic
Predoctoral Researcher

Dana Scarinci
Predoctoral Researcher

Asier Zarraga
Predoctoral Researcher

P.M. (KEPA) PAZ-ALONSO

Loretxu Bergouignan
Postdoctoral Researcher

Jaione Arnaez
Predoctoral Researcher

Peter Boddy
Predoctoral Researcher

Garikoitz Lerma
Predoctoral Researcher

E. FELLOWSHIPS 2013-2016

MICINN – Spanish Ministry of Science and Innovation 18

[Ramón y Cajal Senior Grants 4
[Juan de la Cierva Junior Grants 5
[FPI Predoctoral Grants 3
[PTA – Grants for Technicians 6

7PM – H2020 Framework Programme 16

[Marie Curie Individual Fellowship 16

Fyssen Foundation 1

[Postdoctoral Grants 1

Basque Government 17

[Ikerbasque Research Professor Grants 6
[BFI Predoctoral Grants 11

Provincial Government of Gipuzkoa 3

[Gipuzkoa fellow Postdoctoral Grants 3

Caixa Foundation 3

[Predoctoral Grants 3

Other International Organizations 7

[Predoctoral Grants 5
[Postdoctoral Grants 2

PI	Grant	Funding Agency	Amount	Period
P.M. (Kepa) Paz-Alonso	Ramón y Cajal	Spanish Ministry	208.600 €	01/01/2016 31/12/2020
Marie Lallier	Ramón y Cajal	Spanish Ministry	208.600 €	01/04/2017 31/03/2022
Joana Cholin	Ramón y Cajal	Spanish Ministry	208.600 €	24/11/2009 23/11/2014
Eiling Yee	Ramón y Cajal	Spanish Ministry	208.600 €	01/01/2012 31/12/2016
Cesar Caballero	Juan de la Cierva	Spanish Ministry	58.000 €	01/11/2016 31/10/2018
Leona Polyanskaya	Juan de la Cierva	Spanish Ministry	50.000 €	01/12/2016 30/11/2018
José Alemán	Juan de la Cierva	Spanish Ministry	58.000 €	29/06/2015 30/09/2016
Martijn Baart	Juan de la Cierva	Spanish Ministry	58.000 €	17/11/2014 16/11/2016
Lela Ivaz	FPI	Spanish Ministry	82.400 €	03/02/2014 02/02/2018
Aina Casaponsa	FPI	Spanish Ministry	82.400 €	02/11/2010 01/11/2014
Noemí Fariña	FPI	Spanish Ministry	82.400 €	13/01/2014 12/11/2018
Eri Takahashi	PTA	Spanish Ministry	36.000 €	15/12/2011 14/12/2014
Larraitz Lopez	PTA	Spanish Ministry	36.000 €	15/12/2011 14/12/2014
Oihana Vadillo	PTA	Spanish Ministry	36.000 €	15/12/2011 14/12/2014
Mamen González	PTA	Spanish Ministry	36.000 €	01/11/2014 31/10/2017
Elena Aguirrebengoa	PTA	Spanish Ministry	36.000 €	01/11/2014 31/10/2017
Itziar Basterra	PTA	Spanish Ministry	36.000 €	01/11/2014 31/10/2017

PI	Grant	Funding Agency	Amount	Period
Stephanie Massol	Marie Skłodowska-Curie	European Comission	168.896 €	01/02/2013 31/01/2015
Cesar Caballero	Marie Skłodowska-Curie	European Comission	173.370 €	01/06/2013 31/05/2015
Eugenia Marín	Marie Skłodowska-Curie	European Comission	158.121 €	01/09/2015 31/08/2017
Adriana Hanulikova	Marie Skłodowska-Curie	European Comission	167.065 €	01/06/2011 31/05/2013
Rocío Adriana López Zunini	Marie Skłodowska-Curie	European Comission	170.121 €	01/06/2016 31/05/2018
Fred Roux	Marie Skłodowska-Curie	European Comission	166.336 €	01/03/2014 28/02/2016
Juan Eugenio Iglesias	Marie Skłodowska-Curie	European Comission	170.121 €	01/06/2015 31/05/2017
Elena Salillas	Marie Skłodowska-Curie	European Comission	224.164 €	01/07/2011 30/06/2013
Phil Monahan	Marie Skłodowska-Curie	European Comission	174.380 €	01/06/2011 31/05/2013
Blair Armstrong	Marie Skłodowska-Curie	European Comission	166.336 €	01/05/2014 30/04/2016
Marie Lallier	Marie Skłodowska-Curie	European Comission	159.365 €	01/07/2011 30/06/2013
Marcel Giezen	Marie Skłodowska-Curie	European Comission	170.121 €	01/07/2015 30/06/2017
Lisa Wilson	Marie Skłodowska-Curie	European Comission	170.121 €	14/03/2016 13/03/2018
Loretxu Bergouignan	Marie Skłodowska-Curie	European Comission	166.366 €	01/03/2014 28/02/2016
Marie Pourquie	Marie Skłodowska-Curie	European Comission	222.917 €	01/11/2012 31/10/2015
David Soto	Research Professor	Ikerbasque	200.000 €	01/02/2016 permanent
Nicola Molinaro	Research Fellow	Ikerbasque	162.500 €	01/01/2014 31/12/2018
Mikhail Ordin	Research Fellow	Ikerbasque	162.500 €	15/11/2015 14/11/2019
Clara Martin	Research Fellow	Ikerbasque	171.944 €	04/06/2012 permanent
Arthur Samuel	Research Professor	Ikerbasque	200.000 €	01/01/2015 permanent
Manuel Carreiras	Research Professor	Ikerbasque	800.000 €	01/01/2009 permanent

PI	Grant	Funding Agency	Amount	Period
Ainhoa Bastarrika	Predoctoral grant	Basque Government	72.740 €	01/01/2014 31/12/2016
Myriam Oliver	Predoctoral grant	Basque Government	72.740 €	01/01/2014 31/12/2016
Eneko Antón	Predoctoral grant	Basque Government	72.740 €	01/01/2014 31/12/2016
Alejandro Martínez	Predoctoral grant	Basque Government	72.740 €	13/01/2014 12/01/2017
Sophie Schlöffel	Predoctoral grant	Basque Government	72.740 €	01/01/2015 31/12/2018
Jovana Pejovic	Predoctoral grant	Basque Government	72.740 €	01/01/2015 31/12/2018
Alexia Antzaka	Predoctoral grant	Basque Government	72.740 €	01/01/2015 31/12/2018
Jaione Arnaez	Predoctoral grant	Basque Government	72.740 €	25/01/2016 24/01/2019
Bojana Ristic	Predoctoral grant	Basque Government	72.740 €	25/01/2016 24/01/2019
Borja Blanco	Predoctoral grant	Basque Government	72.740 €	25/01/2016 24/01/2019
Simona Mancini	Postdoctoral grant	Gipuzkoa Government	117.810 €	01/01/2014 31/12/2016
Mathieu Bourguignon	Postdoctoral grant	Gipuzkoa Government	44.506 €	01/01/2016 31/12/2016
Juan Eugenio Iglesias	Postdoctoral grant	Gipuzkoa Government	39.270 €	01/04/2014 31/03/2015
María Borragan	Predoc La Caixa	Caixa Foundation	108.000 €	01/11/2016 31/10/2019
Dana Scarinci	Predoc La Caixa	Caixa Foundation	108.000 €	01/10/2016 30/09/2019
Mikel Ostiz	Predoc La Caixa	Caixa Foundation	108.000 €	01/05/2015 01/04/2018
Joyse Medeyros	Predoctoral grant	Ministério Educaçao Brasil	72.000 €	01/09/2013 31/08/2017
Patricia Diaz Alves	Predoctoral grant	CNPq Brasil	124.800 €	01/06/2014 31/05/2018
Camila Zugarramurdi	Predoctoral grant	Fundación Carolina	50.400 €	01/09/2017 31/08/2017
Natalia Kartushina	Postdoctoral grant	Swiss National Science Foundation	77.000 €	01/03/2016 31/08/2017
Martijn Baart	Postdoctoral grant	Rubicon	120.125 €	01/04/2012 30/03/2014

A. BUILDING

B. LABORATORIES

- [Miramón, Korta & Murcia
- [Junior Lab

C. RESEARCH FACILITIES

- [Behavioral
- [MEG
- [MRI
- [EEG
- [Eye Tracking
- [BabyLAB
- [NIRS
- [Computing facilities

FACILITIES AND RESOURCES

A. BUILDING

Throughout 2009 the BCBL's Director and General Manager visited and analyzed some of the key European research centers in this sector, to be able to design and build the exceptional facilities that support cutting-edge research on language and cognition in adults and children, using both behavioral and neuroscientific approaches.
Today the BCBL has three sites. The headquarters (main laboratories and offices) are located in the San Sebastian Technology Park with a total surface area of 1,823 m^2 (1,170 m^2 for offices, meeting rooms, auditorium, library and lounge and 653 m^2 for labs). The second location is a 100 m2 space located in the Jose Mª Korta building in the University of the Basque Country Campus. Finally, the BCBL extended its facilities with the Junior Lab in Vitoria (120 m^2).

Miramón, Korta & Murcia

The full complement of neuroscience methodologies is available, including EEG/ERP, MEG, and MRI. All facilities are connected to a high-speed local network that also supports communication between user workstations.
As far as possible, the same stimulus presentation and data recording hardware and software are employed throughout the lab facilities, to ensure comparable experimental setups across different experimental methods/platforms (Behavioral, MEG, MRI, EEG, Eye Tracking, babyLAB and NIRS).
For special-purpose applications, a skilled technical group supports the installation and use of different hardware and software.
Murcia Lab is a lab located in the campus of the University of Murcia, for spanish monolingual participants.
Korta is a lab located in the university campus (UPV/EHU) in San Sebastian.

Junior Lab

As a consequence of the numerous projects that imply child participation, the idea of creating a lab inside a school was explored. Today, the Junior Lab is located in Carmelitas School in VITORIA (1 hour driving distance from the BCBL). It is an external laboratory of the main BCBL Lab with significant potential and possibilities for exploring language development in children.
It is equipped with 2 behavioral cabins, 1 eye tracker and 1 EEG. The behavioral cabins have a touch screen in order to ease participant performance and the EEG facilities comply with the standards of the main laboratories. The eye tracker is a cutting-edge device. It is special as it has a mirror system allowing participants to move during the experiment. This feature is very critical in the case of child participation.

Miramón Headquarters
San Sebastián

4 Behavioural
1 MEG
1 MRI
3 EEG
2 Eyetracking
1 babyLAB
1 NIRS

Korta Lab
San Sebastián

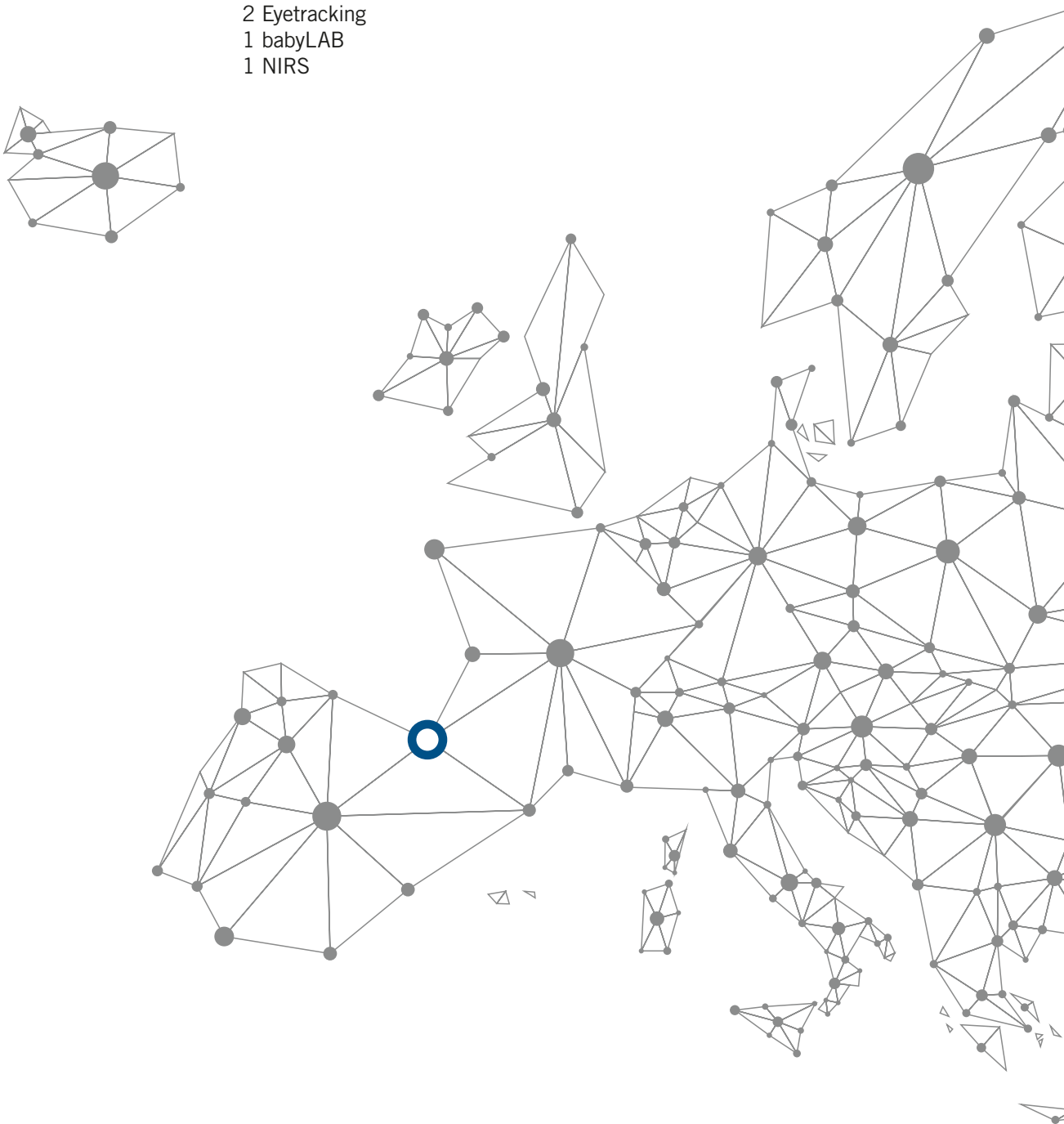
4 Behavioural
1 Eyetracking

Junior Lab
Vitoria

2 Behavioural
1 Eyetracking
1 EEG

Murcia Lab
Murcia

1 Behavioural
1 EEG



Behavioral

Eight soundproof chambers are available to conduct behavioral experiments. Each chamber is equipped with a standardized, quality, experimental setup, which can collect reaction-time data such as push-button responses or naming latencies.

Chambers can be used for individual testing sessions with one experimenter monitoring individual participants, as well as for testing up to 4 participants simultaneously.

The hardware for each chamber includes monitors (ViewSonic G90FB 19" CRT), soundcards (Soundblaster Titanium X-FI, with ASIO support) and headsets (Sennheiser HMD 280 pro push button response boxes).

The standard software packages are DMDX and Presentation, but the technical group can build and develop special-purpose hardware and software when the standard configuration does not provide the functionality for a particular study.

A special sound booth is available as well in order to prepare and run production and perception experiments.

MEG

Magnetoencephalography (MEG) provides a non-invasive method for recording cortical activity with exceptional temporal resolution and fine spatial resolution.

The MEG facility at the BCBL is a 306-sensor (204 planar gradiometers and 102 magnetometers; arranged in a helmet configuration) Elekta Neuromag® device with 16 digital trigger lines and 8 auxiliary analog input channels. The setup will allow for the delivery of both auditory and visual stimuli, and recordings can be performed in either supine or sitting position. The MEG device also includes an integrated 64-channel EEG system (60 single channel and 4 differential electrodes) for simultaneous MEG and EEG recordings that can be acquired at a sampling rate of up to 8 kHz (5 kHz standard) in either AC or DC.

Throughout the experimental session, a participant's head position within the scanner is sampled so that the data can be linked to independently-acquired anatomical MRI images.

The facility at the BCBL includes passive shielding to reduce external noise, together with a MaxFilter™ software, which filters artifacts as well as internal and external noise sources. For data analysis, the Elekta Neuromag® includes advanced analytical software, including powerful tools for visualization and source modeling of the recorded data. We have acquired some new Phantonics panel speakers and are presently evaluating the effect of the speakers as there is a long discussion thread on the MEG Community list about auditory stimulation. Most of the concerns relate to artifacts with a different system (Etymotic ear plugs) and could be resolved with this system.


MRI
Magn
behavio
MEG

MRI

Since June 2016, the BCBL houses a Siemens 3T MAGNETOM PRISMAfit MR scanner that allows researchers to perform functional MRI (BOLD and perfusion ASL), structural MRI, diffusion-weighted MRI and MR Spectroscopy studies. This system uses the Siemens Total Imaging Matrix (TIM) 4G technology, including the TimTX TrueForm and TimTX TrueShape technologies for parallel transmission and selective RF excitation for better B1 homogeneity, reduced Specific Absorption Rate (SAR), and enabling zoomed imaging with the ZOOMit application. The Tim 4G technology, with up to 64 independent channels available for parallel reception, is exploited with two dedicated 20-channel head coil and a 64-channel head/neck coil. The fully digital transmission and reception design with the DirectRF technology integrates all components inside the magnet room, connected with fiber optic cables with the equipment room, for reduced noise and improved stability. The Prismafit system offers a large anatomical coverage with a maximum field of view (FOV) of 50 cm. Decisively, it comprises a unique XR 80/200 gradient coil with a maximum amplitude of 80 mT/m and a slew rate of 200 T/m/s simultaneously on all three axes for increased SNR in the most demanding applications, enabling us to obtain higher spatial and temporal resolutions, reduced scan times and excellent workflow with subject's comfort in mind. The scanner also integrates real-time monitoring of cardiac pulse, ECG and respiration signals.

The PRISMAfit system includes a new generation of MRI protocols, for example the CAIPIRINHA and MP2RAGE sequences for structural imaging, and the simultaneous multi-slice (SMS) sequences for highly-accelerated functional and diffusion-weighted imaging. The BCBL has a research agreement with Siemens Healthcare Spain for technological support and access to the latest MR sequences and protocols developed for MAGNETOM systems, and it is developing its own tailored MRI sequences with the Siemens IDEA and ICE programming environments. Furthermore, the BCBL has established agreements with international research centers (e.g. the Athinoula A. Martinos Center in MGH/Harvard, the CMRR at the University of Minnesota, the Donders Institute in Nijmegen) to make the best imaging protocols available to our researchers.

In addition, the BCBL MRI lab is equipped with multiple stimulation and response MR-compatible peripherals for all type of fMRI studies, including 4-button optical response pads (Current Designs), response grips (Nordic Neurolab), a rear-projection video display (Panasonic SXGA+ 7000), an audio system comprising noise-cancelling headphones (MR Confon) and microphone (Optoacoustics), S14 insert earphones (Sensimetrics), a MR-compatible EyeLink 1000 Plus eye tracking system (SR Research), and a MP-150 BIOPAC system for external monitoring of physiological signals (e.g. cardiac pulse, respiration, electromyography and skin conductance). For simultaneous EEG-fMRI experiments, a MR-compatible BrainAmp Plus system with up to 64 electrodes (Brain Products) is also available.

EEG

The center is equipped with three EEG systems that are installed in three Faraday cage soundproof chambers. Each chamber is equipped with a BrainAmp DC® amplifier.

Using the recording software (Brain Recorder®) all the amplifier options, including the switch from DC to AC recording mode as well as selecting different filtering bandwidths, can be controlled. The BrainAmp DC® is more stable than older EEG systems in a variety of applications, and it supports simultaneous EEG/TMS and EEG/MEG input to the Brain Computer Interface and Neurofeedback.

Chambers are equipped with a 64-channel system as well as with a 32-channel amplifier. The BrainAmp DC® is a portable amplifier which connects to any laptop and can be powered with batteries. As a result, the 32-channel amplifiers can also be used for experiments outside the center (e.g., in schools or hospitals).

Each chamber is also equipped with sets of electrodes that can be arranged on EasyCaps® in whatever pattern needed for a given experiment. Each cap has 64 equidistant electrode positions (10%-System); several different sizes are available, including those suitable for children.

For off-line EEG/ERP analyses, Vision Analyzer® 2.1 software is available on each computer via a network key.

An EEG fMRI compatible BrainAmp MR Plus (32 channels) was also been acquired and multimodal type experiments can therefore be carried out.

EYE TRACKING

Our center is equipped with the hardware and software resources to carry out and analyze a wide range of on-line reading experiments and studies using the visual world paradigm.

Our Lab has two units of the latest and most complete systems for eye tracking: EyeLink 2K (SR Research Ltd.).

EyeLink 2K provides an excellent sampling rate (2000 Hz) and is especially suitable for real-time data collection. EyeLink 2K can be used for monocular as well as binocular eye tracking, and the system is perfectly compatible with most contact lenses and eyeglasses. This system has a very high average accuracy, down to 0.15º. Many paradigms can be implemented in the EyeLink 2K, such as the visual world paradigm, the boundary technique (parafoveal previews) or silent sentence reading. The EyeLink2K system uses a remote desktop mounting, which allows participants to be liberated of any head-mounted cameras.

The EyeLink 2K is also portable, which enables fieldwork to be conducted in other locations than the center, depending on the needs of the test population.

BABYLAB

In our state-of-the-art infant lab, a number of methods and techniques are available to discover the first steps of human language development. The behavioral set-up supports the Visual Habituation, Head-turn Preference, and Intermodal Preferential Looking procedures to assess preverbal infants' general language skills (from 3 to 12 months of age), and to investigate older infants' syntactic and lexical knowledge up to 28 months of age.

The behavioral set-up is supplemented with an electrocardiogram (ECG) system that collects heart rate recordings of the infant during behavioral tasks. ECG activity reflects how infants' attention is being modulated and regulated in the context of specific language experience.

In addition to the methods at the behavioral and physiological levels, we are also equipped with EEG/ERP systems suitable for infants and children. Electrophysiological recordings are advantageous in infancy as they provide a direct and online measurement of processing abilities; moreover, the exact same technique can be applied throughout the whole lifespan, making it possible to track language-related developmental changes. Our EEG/ERP systems can be integrated with the ECG system as well.

The BCBL babyLAB offers a cutting-edge research venue within an exceptional environment for investigating monolingual and bilingual language development comprehensively.

NIRS

Near-infrared spectroscopy is a light-based imaging technique that may be of great value in our studies. In particular, our system, NIRScout, is an ultra-compact and scalable solution for applications where flexibility is the dominant concern. This system is ideally suited for longitudinal studies with children, combined EEG-functional/NIRS studies and freely-moving studies. For instance, it provides a flexible methodology for measuring cortical activity during overt speech production while avoiding some of the limitations of traditional imaging technologies. The BCBL Nirscout has eight illumination points and sixteen sensors, can enlarge, is EEG-compatible, and has three caps from baby to infant studies available.

COMPUTING FACILITIES

The BCBL Information System provides high degrees of performance, reliability and availability of both data and computing resources. High-performance computing clusters allow the execution of sophisticated data analyses. Network services facilitate secure data sharing within and between research teams. The extensive software resources include tools for development and execution of experimental tasks, data processing, and production of scientific communications. Fast delivery of network services is guaranteed by a high-speed optical backbone network.

Eduroam (Educational Roaming) is an international project with the purpose of providing a single wifi space in the member institutions. The objective is delivering an internet connection service in the easiest and transparent way.

The BCBL is integrated in the eduroam network, so the visitors/people from other institutions integrated in the eduroam network who are in transit at the BCBL are able to use our wifi service. In the same way, our staff members in transit are able to use the wifi service in the associated institutions.

Researchers thus have all the information technology that they need to design, execute, analyze, and report on an almost unlimited range of behavioral and neuroscientific investigations of language and cognition.

A. RESEARCH LINES

B. RESEARCH PROJECTS

C. GRANTS

RESEARCH

1 / LANGUAGE, READING AND DEVELOPMENTAL DISORDERS

Natural language and reading are two critically important and unique human abilities. A major enterprise is to understand how language acquisition, comprehension and production take place in the human brain. Another major endeavor is to understand the cognitive and brain processes involved in reading (decoding and comprehension) and in learning to read. To tackle these challenges, we investigate natural language (e.g., oral language, sign language) across the life span (infants, children, adults) and reading in different populations (e.g., children and adults) with standard trajectories but also special populations (e.g., illiterates, deaf, children with atypical development, etc.).

In addition, the study of developmental disorders and learning disabilities has always been a source of information about the cognitive and brain processes involved in language and learning processes (e.g., learning to read): Understanding atypical development and functioning can inform understanding of typical function.

Developmental and learning disorders such as Specific Language Impairment (SLI), dyslexia and dyscalculia entail serious emotional, personal, educational and social consequences, as well as important costs for society. Research into these disorders will facilitate improved tools for diagnosis, early detection and treatment. More importantly, research on neuromarkers from a very early age (e.g., infants) for precocious detection of developmental disabilities can open possibilities for developing interventions that could prevent or minimize the impact of these. Studies of this kind could also inform the educational community for designing educational policies and training plans, since learning and education are intimately related to the development of neural mechanisms.

The study of various disorders, such as SLI, dyslexia and dyscalculia, permits a comparative analysis of numerous components and aspects of language development. In addition, longitudinal studies of typical and atypical development from infancy might uncover potential early markers of language disorders and learning disabilities that may appear at school age (e.g., dyslexia). The combined expertise of different groups of the center is thus brought to bear on populations with problems in language development, resulting in knowledge with important applications.

We also take advantage of information technologies for the development of computerized diagnostic and training tools for children with different learning disabilities (i.e. dyslexia, dyscalculia, SLI). The aim is to develop computerized tools with tasks designed according to the latest research-knowledge on language, reading and other cognitive processes. We investigate effects of training packages on cognitive functioning and brain activity of children with special educational needs in monolingual and multilingual contexts.

2 / MULTILINGUALISM AND SECOND LANGUAGE LEARNING

Research on cognitive and brain mechanisms of language acquisition and processing (comprehension and production) in bilingual and multilingual individuals, with different ages of acquisition of their second language (e.g., native or late learners), with different degrees of proficiency in their second language, with languages of the same or different modalities (e.g. oral and sign languages), and the impact of these on cortical plasticity is the main focus of this line. Special attention is paid to multilingualism within the school system and to the development of new educational technologies.

Phonology, morphology and syntax are the aspects of language most difficult to master when a second language is learned late in life. The specific characteristics (e.g., morphological and syntactic) of Basque and Spanish offer a unique opportunity to investigate the acquisition, processing and the underlying brain mechanisms of the two languages as a first or second language. In order to investigate these and other questions, studies of the cortical representation in monolingual and bilingual participants at different ages (infants, children, young adults and the elderly) and different levels of skill, ranging from beginner learners to fluent speakers, are carried out using behavioral and neuroimaging techniques.

Children can learn two or more languages at very early ages, and people continue learning new languages throughout life, so we are all increasingly multilingual. This multilingual education involves, among other things, learning to read and calculate in L1 and L2. We investigate the relationship between specific cognitive functions and the changes in neural activity that take place in the course of learning to read and math learning in L2, with specific attention to individual differences and the effects of L1. We also investigate when and how it is optimal to introduce a second language at school, particularly when L1 and L2 have very different orthographies (e.g., English – a deep orthography and Spanish – a shallow orthography). In addition, we investigate the effects of different second language teaching methods on brain plasticity and cognition. Modern societies increasingly demand education based on scientific evidence. Second language learning and learning to read in a second language are important skills in classroom settings that can benefit from new discoveries on human cognition research in the laboratory.

Language switching and language control are essential in multilinguals. Several studies have suggested that being bilingual, and the practice in language control that comes with it, improves general cognitive control capacities, even in non-verbal tasks. However, recent data do not seem to replicate these findings. We investigate the cognitive and brain mechanisms underlying language control and general cognitive control by comparing monolinguals and bilinguals (balanced and unbalanced bilinguals) in several paradigms using different techniques. More generally, we investigate the consequences (if any) of being bilingual or multilingual for mind and brain.

3 / NEURODEGENERATION, BRAIN DAMAGE AND HEALTHY AGING: LANGUAGE AND COGNITION

Neurodegenerative diseases are the center of much attention, not only because of their scientific interest, but also due to their social implications. Among these disorders, Alzheimer and Parkinson's diseases are perhaps the best known. Symptoms in various forms of dementia, such as Alzheimer's, Parkinson's disease or semantic dementia, include important cognitive aspects such as language. The phases of deterioration in dementia of the different components of language and potential biomarkers linked to language are being investigated.

In particular, in Alzheimer's disease and in mild cognitive impairment, language disorders are some of the earliest expressions of the disease and constitute the most frequent cognitive difficulty after memory problems. Language deterioration is also present in Parkinson's disease. Some components of language could therefore potentially be found as early markers of these diseases. Language components that may be most sensitive to decline in different types of dementia (Alzheimer Disease, Parkinson's disease, Semantic Dementia, etc.) and that could be susceptible to training and intervention are being researched.

In addition, deterioration of some components of language and other cognitive abilities (e.g., executive control, memory, cognitive reserve) is also present in normal aging, and this deterioration of cognitive abilities, including language, could be potentially modulated by bilingualism or second language learning. We investigate the relationship between specific cognitive functions and the changes in neural activity that take place in healthy aging bilinguals and monolinguals. This research line examines whether learning a new language and/or training other different cognitive processes such as attention or math processing will affect these changes.

We also investigate cognitive effects and brain plasticity related to brain damage (e.g., brain tumors, epilepsy, strokes, etc.). In particular, we investigate grey and white matter plasticity by comparing presurgical and postsurgical mapping of language and other cognitive functions such as mathematical cognition and executive control. Furthermore, we study language functions through brain stimulation in the awake-patient during surgical brain operations (e.g., tumor resection). We also investigate language processing (e.g., agrammatism) in aphasic patients, with special attention to bilingual patients of languages typologically very different in terms of morphology and syntax (e.g., Basque and Spanish). We also develop computerized diagnostic and training tools for aphasic patients that include tasks that are designed taking into account the specific features of the language in question.

GA 237907
ITN LCG LANGUAGE, COGNITION & GENDER

[Funding Agency
7th Framework Programme

[Type:
INITIAL TRAINING NETWORK, MARIE CURIE ACTION

[Time Frame:
10/2009 - 10/2013

[Budget:
BCBL: €353,933 Total: €4,106,379

[Partners:
Universities of Heidelberg, Berlin, Ceske Budejovice, Fribourg, Modena, Padova, Sussex, Norges Teknisk, BCBL

[Coordinator:
Bern University - Scientific Coordinator
Sabine Sczesny

[Spanish PI:
BCBL - PI Manuel Carreiras

The Initial Training Network - Language, Cognition and Gender (ITN LCG investigates European languages from an interdisciplinary perspective to expand current knowledge of how language influences and forms men and women's cognitive representations. Europe's diversity offers a unique opportunity to investigate the impact of language and culture in establishing and maintaining gender inequality. This issue has not yet been systematically addressed on a large scale, although the reduction of gender inequality is generally considered an important issue within Europe. Therefore, ITN LCG will provide a structured interdisciplinary research training program for young researchers in the emerging supra-disciplinary field of language, cognition, and gender to enhance the scientific understanding of this topic and improve the quality of initial research-training in Europe. For the first time, these lines of research will be investigated from cross-language and crosscultural perspectives by bringing together 10 complementary providers of research-training and 12 associated partners from the public and private sectors.

ITN LCG has four interrelated research objectives:

a) deriving indices for selected European languages that reflect the extent to which the features of a language result in gender related representations in speakers/ listeners,

b) investigating to what extent gender equality in formal language standards and theuse of gender-fair language correlates with higher levels of socio-economic gender equality,

c) analyzing the impact of language on gender stereotyping in social judgment and decisionmaking, and

d) developing and evaluating scientifically-based prototypes for guidelines and training tools for gender-fair communication in European languages. ITN LCG will strengthen the capability of its young fellows to contribute effectively to our knowledge-based economy and society, and will add to their intersectoral and transnational employability.

GA 295362
BI-LITERACY:
LEARNING TO READ IN L1 AND IN L2

[Funding Agency
European Research Council

[Type:
ERC ADVANCED GRANT

[Time Frame:
2012 - 2017

[Budget:
€2,487,000

[Coordinator:
BCBL - PI Manuel Carreiras

Learning to read is probably one of the most exciting discoveries in our life. Acquiring this unique human cognitive ability not only opens a new world of opportunities, but also changes our brain (Carreiras et al., 2009). Further opportunities and additional brain changes also occur when learning to read in a second language. Using a longitudinal approach, the research proposed examines how the human brain responds to two major challenges. First, the challenge of instantiating a complex cognitive function for which there is no genetic blueprint (learning to read in a first language, L1), and second, the challenge of accommodating to new statistical regularities when learning to read in a second language (L2). The findings from this project will provide a deeper understanding of (a) how general neurocognitive factors and language specific factors underlie individual differences – and reading disabilities – in reading acquisition in L1 and in L2; (b) how the neuro-cognitive circuitry changes and brain mechanisms synchronize while instantiating reading in L1 and in L2; and (c) what the limitations and the extent of brain plasticity are in young readers.

An interdisciplinary and multi methodological approach is one of the keys to success of the present project, along with strong theory-driven investigation. By combining both we will generate breakthroughs to advance in our understanding of how literacy in L1 and in L2 is acquired and mastered. The research proposed will also lay the foundations for more applied investigations of best practice in teaching reading in first and subsequent languages, and devising intervention methods for reading disabilities.

GA 613465
ADVANCING THE EUROPEAN MULTILINGUAL EXPERIENCE

[Funding Agency
7th Framework Programme

[Type:
COLLABORATIVE PROJECT

[Time Frame:
03/2014 - 02/2019

[Budget:
BCBL: €306,710

[Coordinator:
BCBL - PI Manuel Carreiras

The project Advancing The European Multilingual Experience (AThEME) takes an integrated approach towards the study of multilingualism in Europe by incorporating and combining linguistic, cognitive and sociological perspectives; by studying multilingualism in Europe at three different levels of societal magnitude, viz. the individual multilingual citizen, the multilingual group, and the multilingual society; by using a palate of research methodologies, ranging from fieldwork methods to various experimental techniques and advanced EEG/ERP technologies. This integrated approach towards the study of multilingualism is grounded in the idea that multilingualism in Europe has many facets.

AThEME will cover the different forms of multilingualism in Europe by developing new lines of inquiry on regional/minority languages, heritage languages, languages spoken by bilingual speakers wit h communicative disorders, and languages spoken by bilinguals at different stages of development and life. These lines of inquiry will provide (partial) answers to fundamental questions, including: What does it mean to be bilingual? How and why do people succeed or fail in learning another language? How can we help speakers maintain their regional/ heritage language and reach proficient bilingualism? What are the reciprocal effects of bilingualism and cognition? Are there cognitive benefits of bilingualism for senior citizens? How does bilingualism "interact with" communicative disorders? Which societal factors have a major impact on successful maintenance of regional/ heritage languages? Answers to these questions provided within the context of AThEME will provide a firm basis for assessing existing public policies and practices within major areas such as education and health and contribute to evidence-based policy-making. AThEME aims to raise societal awareness of multilingualism through building on the successful model of academic public engagement provided by the program Bilingualism Matters.

GA 692502

STATISTICAL LEARNING AND L2 LITERACY ACQUISITION: TOWARDS A NEUROBIOLOGICAL THEORY OF ASSIMILATING NOVEL WRITING SYSTEMS 2

[Funding Agency
European Research Council

[Type:
ERC ADVANCED GRANT

[Time Frame:
07/2016 - 06/2021

[Budget:
€800,000

[Coordinator:
BCBL - PI Ram Frost

The overarching goal of L2STAT is to understand L2 literacy acquisition by bringing together, for the first time, recent advances in the neurobiology of statistical learning (SL), a detailed statistical characterization of the world's writing systems, and neurally-plausible general principles of learning, representation, and processing. L2STAT aims to provide a new theoretical framework that considers L2 learning and SL a two-way street: SL, on the one hand, tunes learners to the regularities of a new linguistic environment and, on the other hand, L2 environment shapes learners' sensitivity to its specific types of statistical properties. The project will focus on the assimilation of reading skills in four novel linguistic environments, and investigate how exposure to their distinct writing systems shape, in turn, SL. L2STAT is an interdisciplinary project that launches in parallel five mutually informative research axes: (1) we employ advanced methods from computational linguistics and machine learning to precisely characterize the statistics of four highly contrasting writing systems (English, Spanish, Hebrew, Chinese); (2) We study the learning that results from biologically-inspired computational models that are exposed to these statistics, to generate a priori predictions regarding what statistical properties can (or cannot) be learned, and how neural mechanisms constrain the representations learned during L2 literacy acquisition; (3) We develop psychometrically reliable behavioral tests of individuals' capacities to extract regularities in the visual and auditory modalities; (4) We use state-of-the-art neuroimaging techniques including EEG, MEG, fMRI to probe the neurobiological underpinning for detecting regularities in the visual and auditory modalities; and (5) We conduct behavioral experimentation in four sites (Israel, Spain, and Taiwan to track literacy acquisition longitudinally in the four different languages.

CSD 2008
00048
COEDUCA
COGNITION AND EDUCATION

[Funding Agency
MICINN - Spanish Ministry of Science and Innovation

[Time Frame:
2008 - 2013

[Budget:
€4,000,000

[Partners:
Universities of Granada, La Laguna, Murcia, Seville, CIC bioGUNE, BCBL

[Coordinator:
BCBL - PI Manuel Carreiras

Despite the impressive technological and scientific advances of recent decades we still do not know why some children learn to read without any difficulty whereas others fail in this basic skill. In Spain, education is in urgent need of improvement according to the PISA report and is now facing major new challenges such as the integration of immigrants from different language backgrounds or the changes in teaching and learning resulting from information technologies. This proposal brings together leading scientists from many disciplines throughout Spain to create an innovative interdisciplinary research program (CONSOLIDER) designed to study the development of the two most central cognitive skills in education - reading and attention. The broader goal of this research will create specific recommendations for addressing the unique set of educational challenges and opportunities this country currently faces, with the long-term goal of improving learning and education systems. As learning and education are closely related to the processes of brain development, we aim to understand how the brain functions and changes during the development of reading and attentional-emotional processes, examining normal and abnormal development and the influence of genetic, cultural and socioeconomic variables as they play out in our country.

Research will characterize typical developmental patterns of children in Spanish schools and those of children with special needs (dyslexia and ADHD), by using socioeconomic, genetic, neural and cognitive-behavioral measures. A novel aspect of this project will examine the effects of attention and literacy training on cognitive and brain changes. This is a unique opportunity to study these central issues from an interdisciplinary perspective within the specific context of learners in our country. More generally, investment in such cutting-edge research now could prove to be a decisive step to help situate Spain on the international frontier of scientific knowledge in this area.

PSI2010 - 18087
TELL ME SOMETHING I DON'T KNOW
INFORMATIVENESS AND KNOWLEDGE OF THE REAL WORD IN UNDERSTANDING LANGUAGE FROM A COGNITIVE NEUROSCIENCE PERSPECTIVE

[Funding Agency
MICINN - Spanish Ministry of Science and Innovation

[Time Frame:
1/2011 - 12/2013

[Budget:
€145,200

[Coordinator:
BCBL - PI Mante Nieuwland

A major feat of human cognition is our ability to use language to efficiently communicate about the world. To make sense of statements about the world, we map their meaning onto our world knowledge: they can be true or false with respect to what we hold to be true, and they can be informative or trivial in light of what we already know. Whereas establishing truth-value has long been a subject of scientific investigation, the role of informativeness is not well understood. This research focuses on the interaction of informativeness and real-world knowledge in language comprehension, and adopts a multidisciplinary approach that uses neuroimaging techniques to bridge the fields of pragmatics, experimental psychology and cognitive neuroscience. This research aims to test the overall hypothesis that informativeness modulates the conceptual integration of linguistic input with knowledge from semantic memory. It will investigate when and where these processes take place in our brains, with the goal of addressing how they shape language interpretation and how they may differ across individuals. The initial step is to identify the neural signature of informativeness, and to map this signature onto neurocognitive accounts of language. I will use different paradigms that deal with how people establish sentence truth-value (e.g. negation, quantifiers and counterfactuals).

This research has three main objectives:

(1) To determine when real-world knowledge and informativeness constraints are integrated during language comprehension.

(2) To determine the neural mechanisms involved in establishing informativeness and truth-value, with the hypothesis that the neural systems that evaluate informativeness are qualitatively different from the systems that evaluate truth-value. Evaluating informativeness may particularly rely on the comprehension of communicative intentions as governed by the medial prefrontal cortex.

(3) uncovering the neuropsychological and neural mechanisms underlying individual differences in establishing informativeness and truth-value.

Taken together, the proposed projects will provide unique insights into how an understudied but essential aspect of pragmatics and language comprehension, the extraction of message information value, is performed in the brain.

PSI 2010-17781
AUTOMATICITY OF SECOND LANGUAGE PROCESSING IN SPANISH-BASQUE BILINGUALS

[Funding Agency
MICINN - Spanish Ministry of Science and Innovation

[Time Frame:
01/2011 - 06/2014

[Budget:
€108,900

[Coordinator:
BCBL - PI Arthur Samuel

Six experiments that will provide an innovative investigation of spoken language processing by Spanish-Basque bilinguals are proposed. The Basque Country offers a unique opportunity to address general theoretical questions regarding the automaticity of language processing in the bilingual mind.

Prior research, much of it conducted in our laboratory, has shown that listeners use a set of automatic processes that utilize information from lexical representations to improve recognition of phonetic segments. Given how much variation there is in speech, and given how noisy the signal is in many circumstances, the support provided through these automatic processes can be essential to successful word recognition. However, to date, demonstrations of these effects have been limited to studies of monolinguals hearing speech in their native language. It remains to be shown whether this type of processing is available when listening to speech in a second language.

The population in the Basque country provides an exceptionally appropriate test bed to address this issue, for several reasons. First, Basque and Spanish are in completely different language families. There has been excellent work done on bilingualism for cases in which the two languages are related (particularly for Catalan-Spanish and for Dutch-English bilinguals), but it is essential to study cases in which crossovers between the native language and the second language is minimal.

Second, due to historical circumstances, it is possible to encounter three types of bilinguals that differ in the timing and circumstances of learning the two languages in this area. This will permit us to clearly determine the role that age and an early learning environment have on the development of automatic language processes.

Finally, the phonemic inventories of Spanish and Basque differ in ways that make it possible to prove whether sounds that are only present in a person's second language lack some of the automatic lexical support that is available to native language sounds.

Taken together, these properties provide the proposed research with the power to reveal critical new insights into how humans can communicate so well.

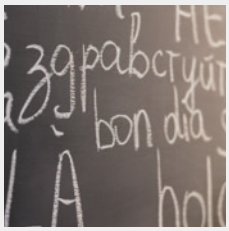
PSI 2011-24802
THE ROLE OF OSCILLATORY ACTIVITY IN THE LEXICAL AND GRAMMATICAL PLASTICITY OF LANGUAGE LEARNERS

[Funding Agency
MICINN - Spanish Ministry of Science and Innovation

[Time Frame:
01/2012 - 06/2015

[Budget:
€96,800

[Coordinator:
BCBL - PI Doug Davidson



The goal of this project is to investigate how oscillatory brain activity supports the learning of new second language (L2) vocabulary and grammar. Oscillatory dynamics are a characteristic feature of cortical function and an important determinant of neuronal plasticity. Physiological research has also shown important links between slow-wave oscillatory activity during sleep and the consolidation of memory. To date, however, most electrophysiological studies of language learning or memory have focused on event-related potential (ERP) measures of cortical function, very often using only native first-language materials. The three sets of experiments described here would adapt a well-known study-test memory paradigm to study L2 vocabulary and grammar learning using combined recordings of MEG and EEG. The first objective is to determine whether successful memory encoding of L2 words is related to theta band (3-6 Hz) oscillatory activity in frontal and temporal cortex using this paradigm. Second, the paradigm would be extended to encompass L2 grammar learning and generalization. Finally, the contribution of oscillatory activity to L2 memory consolidation would be examined by recording activity preceding, following and during sleep.

PSI 2011-24048
THE IMPACT OF MEMORY RECONSOLIDATION ON VOCABULARY ACQUISITION: A BEHAVIORAL AND NEURAL INVESTIGATION

[Funding Agency
MICINN - Spanish Ministry of Science and Innovation

[Time Frame:
01/2012 - 12/2014

[Budget:
€88,330

[Coordinator:
BCBL - PI Nicolas Dumay

Traditional views of learning assume that new memories remain shaky for a short period, but soon consolidate, becoming resistant to interference from competing learning and amnesic agents (McGaugh, 2000). However, recent - and not so recent - findings, mostly from animal neuroscience, suggest that this account is incomplete. These show that recalling a consolidated (and supposedly fixed) memory returns it temporarily to an unstable state, making it again susceptible to change until a new cycle of consolidation, or reconsolidation, is achieved (Nader & Hardt, 2009).

This project bridges the gap between animal neuroscience and psycholinguistics, and looks at the impact of memory reconsolidation on word acquisition at the behavioral and neural levels. In this domain, consolidation itself is a new concept. As it has been shown, sleep plays a major role in feeding into our mental dictionary the words we learnt during the day (Dumay & Gaskell, 2007.

The present research examines the impact of reconsolidation at various levels of word acquisition.

Findings will have strong implications for theories of human memory and models of language processing and acquisition, which all assume the stability of long-term representations. In addition, as this research introduces the idea that revising established knowledge shortly before learning similar information is ill-advised, results should also have substantial practical applications for (foreign) language tuition and remediation techniques.

PSI 2011-23995
NUMBER SEMANTICS
IN BILINGUALS

[Funding Agency
MICINN - Spanish Ministry of Science and Innovation

[Time Frame:
01/2012 - 12/2014

[Budget:
€68,970

[Coordinator:
BCBL - PI Elena Salillas

This proposal aims first to understand how the access to number semantics can depend on the verbal code used by bilinguals and second, the impact of bilingualism on math developmental disorders. Based on preliminary data we propose that the Language of Learning Math (LoIM) has a privileged access to semantics. LoIM, which is independent of language dominance, may influence number semantic processing along the life span. The proposed studies will explore how known effects indexing access to semantics – the distance effect and the size effect – are dependent on LoIM in otherwise equally proficient bilinguals. To do so, we measure behavior and ERPs, which underscore cognitive processes not observed in reaction times. Preliminary results from these studies suggest that in fact, LoIM biases ERPs components known to reflect semantic access. We aim to explore this possibility thoroughly with three experiments. We will also use MEG to account for possible spatiotemporal neural differences between the two bilingual´s verbal codes in the access to core number representation. Crucially, our results aim to support modifications to the Encoding Complex Model, the only existent model for bilingual math processing. Secondly, we believe that the fact of being bilingual can have an impact on the prevalent case of developmental dyscalculia (DD): An already deficient math functioning can be aggravated by the complexity of using two verbal codes for math (e.g. a linguistic context different from LoIM). We will use ERPs and fMRI techniques to describe the brain basis of this possible interaction. The present project addresses timely scientific issues such as format dependency in bilinguals' access to number semantics. We think that the importance of LoIM for bilinguals and for bilingual DD should not be ignored. In turn, the questions addressed in the present project have both scientific and socio-educational impact.

PSI 2012-31448
PROCESSING IN SIGN LANGUAGE, DACTYLOLOGY AND READING IN DEAF AND IN CODAS: NEURAL CORRELATES OF ORTHOGRAPHIC CODING

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2013 - 12/2015

[Budget:
€128,700

[Coordinator:
BCBL - PI Manuel Carreiras

Sign languages offer a unique and natural opportunity to study the mechanisms of language comprehension and production, and to what extent these are universal or modalitydependent.

One of the objectives of the present project is to investigate the extent to which the mechanisms for signal processing and cortical representation of language are modulated by the language modality (oral or sign language). Regarding mechanisms for processing, we will investigate the role of some sublexical units, such as formative parameters (hand configuration and localization), in sign recognition. With respect to cortical representation of sign language, we will examine to what extent comprehension and production of an oral language and a sign language activate similar or different networks in deaf people and bilingual hearing population, in which both languages are oral or one is oral and the other one sign language.

On the other hand, we will investigate orthographic processing in deaf population and in hearing siblings of deaf parents through reading and dactylology. Dactylology is based on Spanish orthography (each letter of the alphabet is represented by a different hand configuration) and is part of the Spanish Sign Language (LSE in Spanish). For users of LSE, dactylology offers added orthographic correspondence which can strengthen inner representation of words in Spanish and, at the same time, allows the compensation of correspondence-difficulties between letters and sounds (graphemes and phonemes) in deaf individuals. There seems to be a high correlation between the ability in dactylology and reading in deaf readers. We will study how deaf individuals and the hearing siblings of deaf parents process words in reading and in dactylology, and to what extent phonology plays a role in such operations. Progress on this field is not only of theoretical interest, but it could also have relevant practical implications on how we educate deaf children, given that the great majority of them suffer from difficulties with reading.

PSI 2012-32093
NEURODEVELOPMENTAL BASES OF EPISODIC MEMORY RETRIEVAL

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2013 - 12/2015

[Budget:
€58,500

[Coordinator:
BCBL - PI P.M. (Kepa) Paz-Alonso

Episodic memory, or the ability to consciously remember past events, is a complex cognitive process that is central to the human experience. In typically developing children, episodic memory improves rapidly during childhood, and then improves more slowly during adolescence. The neural bases supporting these improvements are not yet understood, but episodic memory function is thought to rely on a set of cognitive processes with different developmental trajectories that interact between each other to produce the final memory output. These cognitive processes include binding operations, semantic processing, and mnemonic control processes. Neuroscientific research has shown that the hippocampus plays a fundamental role in episodic memory, supporting the formation and retrieval of representations that relationally bind the different aspects of an event. In contrast, lateral prefrontal cortex is thought to play a supportive role in episodic memory, aiding mnemonic elaboration processes for semantically organized information and controlling the strategic retrieval of relevant memories through long-range projections to the hippocampus. It has long been assumed that the hippocampus-dependent binding mechanism is already in place by early childhood, and that the large changes in episodic memory observed during middle childhood and beyond result from the protracted development of the prefrontal cortex. Recent evidence, however, has challenged this view showing hippocampal changes in structure and function over development. Here, we propose to conduct the first developmental study aimed at unraveling the contribution of binding operations, semantic processes, and mnemonic control processes to age-related changes in episodic memory retrieval. In doing so, we will examine a total sample of 150 participants aged 8 to 24 in two separate studies (N = 75 in each study) using behavioral and MRI techniques. The present project seeks to: (1) characterize the development trajectories of binding processes for verbal and visual item and relational episodic memory retrieval; (2) investigate the neurodevelopmental changes in regional functional specialization and task functional connectivity for item and relational episodic memory retrieval of semantic and non-semantic verbal information; and, (3) examine the contribution of age-related changes in the integrity of memory- and language-related anatomical pathways to developmental changes observed in binding operations, semantic processing, and mnemonic control operations.

The proposed research project is unique in its exploration of the dynamic interplay between changes in brain structure, function, and episodic memory performance over development.

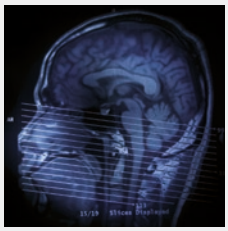
PSI 2012-32128
ATYPICAL OSCILLATORY BRAIN ACTIVITY, TEMPORAL PROCESSING DEFICITS AND DEVELOPMENTAL DYSLEXIA: WHAT ARE THE LINKS?

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2013 - 12/2015

[Budget:
€58,500

[Coordinator:
BCBL - PI Marie Lallier



Developmental dyslexia is a neurocognitive disorder preventing 10-15% of the population from acquiring reading normally and is broadly thought to result from a phonological deficit. A growing body of evidence however suggests that, in at least some cases, developmental dyslexia stems from processing limitations in the visual domain. The multifactorial hypothesis of dyslexia postulates that reading difficulties can stem from at least two independent cognitive disorders: a phonological deficit, or a visual attentional span (VA Span) deficit. Recent pieces of work further suggest that the lack of consideration of the cognitive heterogeneity in dyslexia could explain more than three decades of inconsistent results in research assessing visual and auditory temporal processing in dyslexia. Indeed, when phonological deficits relate to difficulties in processing stimuli (auditory or visual) presented sequentially, i.e., every 150-250 ms, VA Span disorders are associated with difficulties faced when several stimuli (visual or auditory) are to be encoded simultaneously, i.e., in less than 200 ms.

Going beyond behavioral evidence, the present project aims to identify the neurobiological dysfunctions subtending the dissociations previously reported regarding temporal processing deficits and cognitive disorders. Based upon recent evidence showing that different cerebral time scales for auditory processing are necessary for phonological (and reading) development, cerebral oscillatory activity at various frequencies will be recorded via magnoencephalography in Spanish skilled reader and dyslexic children matched for a number of skills.

Knowing that both auditory and visual distinct temporal processing deficits predict phonological and VA Span disorders, we expect (1) atypical amodal oscillatory low frequency activity (3-4 Hz) to explain sequential processing deficits in dyslexic children with phonological problems, and (2) amodal oscillatory high frequency activity (25-35Hz) to explain simultaneous processing deficits in dyslexic children with VA Span deficits. We also expect to show a positive impact of a phonological/VA Span training on reading, and more importantly, on low/high cerebral oscillatory activity in dyslexic children taking part in the study. Importantly, the results of the present project will contribute to develop a complete picture of the causes of developmental dyslexia taking into account the heterogeneity of its behavioral, cognitive, and cerebral manifestations, but will also have concrete outcomes such as the design of diagnostic and remediation tools for reading disorders in children learning to read in Spanish.

The present project focuses on how different orthographic and semantic factors associated with within-language and between-languages word processing exert an influence on translation recognition in perfectly balanced Basque-Spanish simultaneous bilinguals.

PSI 2012-32123
TRANSLATION RECOGNITION IN BILINGUALS ACROSS LIFESPAN

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2013 - 12/2015

[Budget:
€52,650

[Coordinator:
BCBL - PI Jon Andoni Duñabeitia

There is current disagreement on how and when the different sub-lexical and supra-lexical factors mediating the visual recognition and processing of translation equivalents exert a facilitative or inhibitory influence on translation processing. A correct understanding of the underlying mechanisms that lead to an univocal access to the shared meaning of a printed pair of translation equivalents is necessary in order to have a clear picture of how visually presented words are read and how they are successfully recognized by bilinguals, on the one hand, and of how different lexemes associated with the same concept coexist in the bilingual brain, on the other hand. One of the major aims of this project is to explore this issue in depth, taking a perspective that combines efforts of different techniques that can shed light on different aspects of translation recognition processes (i.e., behavioral and electrophysiological measures).

Besides, this project aims at investigating how conscious translation recognition processes are carried out by balanced simultaneous Basque-Spanish bilinguals of different ages, in order to characterize the mechanisms associated with bilingual word processing that remain immutable across lifespan, and those that vary as a function of age. To this end, a series of large-scale behavioral studies using the translation recognition task and several electroencephalographic recordings will be carried out on a large number of participants of different age-ranges (children, young adults and old adults). These studies will try to clarify which factors of pairs of Basque-Spanish translation equivalents mediate translation recognition processes, and critically, how these factors exert a differential influence on different age groups. Until now, nearly all the experiments testing responsiveness of bilinguals to translation equivalents have exclusively explored young adults, and it remains to be seen the relationship between orthographic factors (such as the similarity between translation equivalents; i.e., cognates vs. non-cognates) and semantic factors (such as word concreteness; i.e., concrete vs. abstract words), on the one hand, and age-related normal cognitive decline, on the other hand. This research project will clarify how balanced simultaneous bilinguals of different ages process translation equivalents of different sub-lexical and supra-lexical characteristics, thus providing the scientific community with data that will enrich our knowledge of bilingual word processing across lifespan and of the relationship between cognitive decline and mental translation mechanisms.

PSI 2012-32350
LEARNING A NEW LANGUAGE: THE ROLE PLAYED BY COLLOCATIONAL REGULARITIES

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2013 - 12/2015

[Budget:
€70,200

[Coordinator:
BCBL - PI Nicola Molinaro

The present project faces second language learning from a different perspective compared to past research. More specifically we will evaluate the neurophysiological real-time correlates of the comprehension of statistical regularities (collocations) in Spanish and in English. Based on the findings emerging from previous EEG studies from our group, we will better constrain the brain regions specifically sensitive to the processing of collocations (as compared to regular compositional constructions) by focusing on the analyses of MEG brain activity (both evaluating increased magnetic responses and phase connectivity patterns). We will test different groups of native (both Spanish and English) speakers and proficient bilinguals in the two languages: we will evaluate both native vs. second-language processing and language attrition effects. To do this we will take advantage from both the MEG lab in the BCBL in San Sebastián and the collaboration with the MEG unit of the MRC center in Cambridge.

Importantly, based on the fact that language teaching techniques nowadays focus more and more on getting students familiar with many types of collocational constructions, we will test Spanish students of English that either received such training or not, compared to Spanish speakers living in England with collocation configurations in English. The findings from this series of studies could provide insight concerning: (i) the brain regions involved in comprehending such statistical regularities, (ii) differential sensitivity to such construction in the native and in the foreign language, and (iii) neurophysiological changes due to differential teaching techniques of a new language.

PSI 2012-32107
CONCEPTS IN CONTEXT: USING CONTEXT TO REVEAL THE DYNAMIC NATURE

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2013 - 12/2015

[Budget:
€64,350

[Coordinator:
BCBL - PI Eiling Yee

At first glance, conceptual representations (e.g., the concept of a lemon) seem static. That is, we have the impression that there is something that lemon "means" (a sour, yellow, mini Americanfootball-shaped, citrus fruit) and that this meaning does not vary. Yet mounting evidence suggests that the context in which we access a concept has a major influence on what knowledge about that concept is retrieved from memory. The aim of this project is to examine the influence of context (which we define broadly as not only short-term task goals, but also as the context that an individual brings via their abilities and long-term experience) on conceptual activation. We explore differences in the time course over which particular features of a concept are activated within a given context, and, also, we examine how the information that we access about a concept changes across contexts.

The proposal is centered around five inter-related questions:

1. Can the time course over which a concept's features are activated be influenced by long-term experience such as distributional statistics in the language?

2. Can the time course over which a concept's features are activated be influenced by specific task contexts?

3. Do individual differences in cognitive control modulate context's influence on conceptual activation?
4. What are the neural mechanisms underlying dynamic conceptual activation?

The above four questions converge to raise a fifth:
5. In a multilingual society where bilingualism is the norm, how do individual differences in bilingual ability—specifically differences in long-term language use, as well as differences in cognitive control, influence conceptual dynamics?

Traditionally, in the study of semantic representations (and, in fact, in cognitive psychology more broadly), it has been assumed that only effects that can be demonstrated across a variety of tasks and contexts should be considered informative regarding the architecture of the system being investigated. Findings that are task- or context- dependent have often been dismissed because they are considered to be "strategic"—reflecting strategies that do not, by definition, generalize to different tasks or contexts. In this proposal, we take the opposite approach—we use such instances of task – and context – dependence to explore the conceptual system. In addition to advancing our knowledge of semantic memory, a better understanding of how the conceptual system interacts with context should have broader implications for understanding how humans adapt to a constantly changing environment.

PSI 2013-42343-P MULTIMODAL NEUROIMAGING OF OSCILLATORY NETWORKS DURING WORKING MEMORY

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2014 - 12/2016

[Budget:
€60,500

[Coordinator:
BCBL - PI Cesar Caballero

Rhythmic fluctuations of neuronal activity or neuronal oscillations are a prominent feature of spontaneous and task-related brain activity that occur at the level of single units, local-field potentials (LFP) and electro-/magneto-encephalographic (EEG/ MEG) recordings (Buzsáki et al., 2012). The traditional view is that neuronal oscillations reflect inhibition-based fluctuations of neuronal activity which emerge from the synchronous activation of large neuronal ensembles (Buzsáki & Draguhn, 2004; Buzsáki & Wang, 2012). In humans, oscillatory activity has been observed during perceptual and higher cognitive processes including language, attention, working memory (WM) as well as motor control (for a review see Jensen et al., 2007; Uhlhaas et al., 2010; Giraud & Poeppel, 2012). While these data highlight the importance of neuronal oscillations for human behavior and cognition, the functional roles of individual frequency bands have remained unclear.

The aim of the present project is to investigate the functional role of oscillatory activity in different frequency bands during the maintenance of information in working memory (WM) in humans. WM is a cognitive function, which underlies the ability to encode, maintain and retrieve information in order to generate behavior. Accordingly, WM is centrally involved in many aspects of cognition and thus ideally suited to assess the behavioral significance of individual frequency bands.

Because oscillatory activity at theta (5-7Hz), alpha (8-13Hz) and gamma (30-200Hz) frequencies has been prominently observed during WM in human EEG/MEG recordings the aims of the present project are: 1) to investigate the specific function of activity in these frequency bands during WM, and 2) to localize and identify the sources involved in the generation of WM-relatd activity at theta, alpha and gamma frequencies. Importantly, the present project is motivated by emerging evidence from electrophysiological recordings in humans and animals (Saalman & Kastner, 2012; Roux et al., 2012; Roberts et al., 2013) which has lead to the hypothesis that theta and gamma oscillations could reflect the recruitment of hippocampal networks during the maintenance of sequential information, whereas alpha and gamma oscillations may tend to co-occur simultaneously in thalamo-cortical networks during WM-tasks which require the rapid scanning and selection of behaviorally relevant visual-spatial items (Roux & Uhlhaas, 2013; Hsieh & Ranganath, 2013). However, direct evidence supporting these hypotheses has not been provided yet. Accordingly, the present research is designed to test these hypotheses by using a multimodal approach. Specifically, by employing simultaneous EEG-fMRI recordings, the present project will allow to directly test whether manipulating the content of WM from sequential to visual-spatial information will be associated with a switch in the spectrum of EEG activity from theta to alpha frequencies during the maintenance of WM-information. Moreover, the simultaneous collection of fMRI data will allow us to assess to what extent switching in the maintenance of sequential vs. visual-spatial WM-information results in the activation of distinct functional networks. Finally, MEG will be used to assess to what extent crossfrequency coupling (CFC) between theta-gamma and alpha-gamma oscillations may reflect the maintenance of either seq.

PSI 2014-53346-P NEUROANATOMICAL AND NEUROPHYSIOLOGICAL CHARACTERIZATION OF DRAVET'S SYNDROME EPILEPSY

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2015 - 12/2017

[Budget:
€73.810

[Coordinator:
BCBL - PI Doug Davidson

Dravet's syndrome is one of the few epileptic encephalopathies associated to the mutation of a specific gene: SCN1A, which encodes a subunit of the voltage gated sodium channel. It is a rare form of epilepsy that occurs in the first year of life (up to 15 months) and it is characterized by the onset of recurrent febrile and/or afebrile hemiclonic or generalized seizures in a previously healthy infant, followed by the appearance of multiple seizure types generally resistant to anti-epileptic drugs, with developmental arrest or regression. The evolution is insidious, with a significant mortality of up to 15% by 20 years. Neurological declines also occur in adulthood, with cognitive and motor deterioration.

The correlation between genotype and phenotype has become the SCN1A gene in one of the most relevant epilepsy genes today. A wave of research has been triggered spanning from animal models to human trials. Currently research on pharmacologic candidates for the treatment and the restoration of impaired c-aminobutyric acid (GABA) ergic neurotransmission is advancing at unprecedented speed. However, while the perspective of screening for appropriate drugs to be used in therapies is promising, the brain structural and functional counterparts of the common pathogenesis in DS have not been generally described until the recent study of our research group that described for first time the anatomical counterpart of DS in a quantitative way. Functional and structural traits related to the DS brain could provide extra criteria for diagnosis, as well as biological indicators for monitoring the progression of the condition, especially relevant in the follow-up of novel drug treatments. Based in the social need and the possible practical impact was our previous incursion on the topic. The present project proposal has been intended to continue this work given the unique opportunity of to have access to the DS community of Spain, the diverse skills of our group (EEG, MEG, MRI, see our publication record) and the technical support provided by our center (BCBL).

We intend to continue studying the anatomical counterpart of DS in a larger sample, focusing on the impact of DS on white matter. For this propose brain morphometry and DTI tractography methods will be used, as well as magnetoencephalography. On other hand, evidence has emerged of the consequences of SCN1A dysfunction in different neuronal networks across the brain. This points toward a channelopathy model causing the neurologic features of Dravet's syndrome that is beyond purely seizure related damage. We will try to model the progression of the disease in terms of the brain impact. This is possible since network diffusion models of disease progression are already available for other types of diseases. With such models, the characterization of single subjects as well as the prediction of future damage could be achieved.

In general, the project targeted a goal that could have significant positive implications for patients, family and health service. The practical benefits include a possibility of to better assess the impact of the antiepileptic drug choice, improved description of the patient state to optimize therapies/services, and allow parents to adjust their goals for the future.

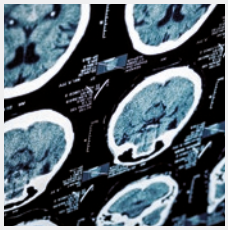
PSI 2014-51874-P
THE HEALTHY AND IMPAIRED MULTISENSORY TALKING BRAIN

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2015 - 12/2017

[Budget:
€57,838

[Coordinator:
BCBL - PI Martijn Baart



Humans are experts in perceiving speech, even though the quality of the auditory speech signal we produce or hear is sub-optimal because of background noise and speaker variability. One reason why we nevertheless experience hardly any perceptual problems when engaged in a face-to-face conversation is that our brain uses two additional streams of sensory information that generate non-auditory predictions about the upcoming sound. That is, we need to first plan and execute a set of fine-grained motor commands to correctly shape our vocal apparatus before we can produce the correct speech sound and, as a consequence, we actually see these articulatory gestures of an external speaker before we hear the sound. It is well-established that both the preceding motor-information and the preceding visual (i.e., lip-read) information modulate the way in which the self- or externallygenerated speech sound is processed.

However, the effects of motor- and lip-read information on auditory speech processing have always been studied in isolation and current proposal is set-up to determine the multisensory interplay between auditory speech, lip-read speech and selfgenerated motor commands. We will conduct 5 experiments, spread out over 2 clusters, in which we will: (1) Determine the behavioral and perceptual consequences of motor information on auditory processing and its interaction with lipread induced modulations on the same auditory processes, and (2) the fast and dynamic neural correlates and cortical sources that underlie, and are involved in, the multisensory speech process. Moreover, we will study both healthy participants and patients with aphasia. People with aphasia have difficulties with understanding and producing speech, and the results we will obtain with this patient group may lead to the development of a more efficient rehabilitation program structured around the on-line motor/lipread/auditory interactions in speech processing.

PSI 2014-53277-P
LEXICAL ACTIVATION OF WORDS WITHIN OTHER WORDS

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2015 - 12/2017

[Budget:
€68,728

[Coordinator:
BCBL - PI Arthur Samuel

The proposed research will examine fundamental processes that underlie the ability of human beings to communicate naturally – with spoken language. As perhaps the most specifically human cognitive achievement, language can provide insights into how human cognition operates. After a half century of experimental study of spoken language, we know a great deal about how it works, but we also know that there is a great deal that remains to be learned. The current project will provide an extensive new set of information about how people understand spoken language.

The experiments will examine a phenomenon that is rampant in most languages: Longer words have shorter words embedded within them, presenting the word recognition system with a potentially major problem: How can it recognize the intended spoken word, when these other (unintended) words are also present in the speech signal? Recent work from our lab, using American English stimuli with American listeners, has identified three factors that appear to govern the degree to which this problem in fact results in lexical competition. In the first half of the project, we will greatly extend these recent findings: We will test the factors in two languages that are both quite different than English, and quite different from each other (Spanish and Basque). In addition to the experimental procedure that was used in our previous work (auditory-auditory priming), we will employ a technique (the visual world paradigm) that offers a temporal analysis that is significantly better than what was available. A third technique (the long-term repetition paradigm) will provide information about whether encountering an embedded word leaves a lasting trace in memory.

In the second half of the project, we will extend these measures to spoken word recognition by bilinguals. Most of what is known of language processing comes from studies of monolinguals; yet with over 6000 languages spoken in about 200 countries, monolingualism is hardly the norm. In some regions of Spain, including the Basque Country, bilingualism is unquestionably the norm. To truly understand language processing, we must determine the consequences of multiple languages sharing a brain. These consequences are of both theoretical and practical interest, especially given recent observations of enhanced cognitive control in bilinguals (e.g., Bialystok et al., 2008) and significantly greater preservation of cognitive functioning in older bilinguals than in older monolinguals (Craik, Bialystok, & Freedman, 2010). The studies of bilinguals in the second half of the project will use the techniques that we refine in the first half, to test whether there is lexical competition from a word in one language when it is embedded in a word in the other language that a bilingual knows. These experiments will determine whether knowing more than one language actually creates difficulties for the listener because of the potential lexical competition coming from two languages, rather than from just one.

Collectively, the results will greatly enhance our understanding of the dynamic pattern of lexical activation that underlies spoken word recognition, both during listening in a person's native language, and during second-language listening.

PSI 2014-54512-P NEURAL AND PHYSIOLOGICAL CORRELATES OF ATTENTION DEVELOPMENT IN MONOLINGUAL AND BILINGUAL INFANTS

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2015 - 12/2017

[Budget:
€18,150

[Coordinator:
BCBL - PI Monika Molnar

Monolingual and bilingual infants, despite the considerable differences in their linguistic inputs, follow the same developmental milestones in terms of language acquisition during the first year of life. What contributes to the learning success of bilingual infants? Our general hypothesis is that the human mind is capable of adjusting certain cognitive factors (e.g., attention resources) to perform necessary computations (e.g., linguistic computations) in an optimal way under different environmental circumstances (e.g. monolingual vs. bilingual learning context).

Attention (e.g., orienting and sustaining fixation) is part of the earliest repertoire of the infant cognitive system. Because language acquisition begins even before birth, as infants are exposed to their native language(s) already in the uterus, it is a possibility that basic cognitive functions, including attention, develop differently across monolingual and bilingual infants to sufficiently support learning abilities. We propose that the differences in the early calibration of attentional networks should be reflected in differences in eye-movement activity at the saccadic level and brain activation in the right hemisphere across the two populations, because these functions are linked to attention. Importantly, these functions should also determine looking behavior (e.g., visual fixation duration). Recent studies have reported that bilingual and monolingual infants exhibit different looking behaviors in language tasks. Here, we provide a neural/ physiological explanation for the behavioral differences observed across monolingual and bilingual infants; in addition, we propose several experiments to assess whether attentional networks indeed develop differently across monolingual and bilingual infants in the first year of life.

The findings will substantially contribute to the field of language acquisition and to our understanding of how the human mind develops.

PSI 2014-53351-P
BILINGUAL MATH:
FROM LANGUAGE TO MAGNITUDE

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2015 - 12/2017

[Budget:
€46,585

[Coordinator:
BCBL - PI Elena Salillas

The present project addresses the links between Language and Quantity, and it does so with a focus on Bilingualism. The management of two verbal codes to refer to the same magnitude in bilinguals offers an ideal window into possible modifications of number knowledge by numerical symbols. Our recent work suggests that one of the languages of a Bilingual has a preferred entrance to quantity and this language does not need to be the dominant language. Instead, language dominance for math is established during early learning: the language used for learning math (LLmath) will remain the dominant code and this code could or could not match the dominant language for general linguistic functioning.

This and other specificities guarantee the study of Bilingual Math in its own right. Thus the present project is a continuation of our recent line of research with an emphasis on the brain basis for the modifications in our numeric knowledge by LLmath. As a second goal, we will go deeper into the study of bilingual Developmental Dyscalculia (bDD). There are reasons to believe that bilingualism could impact the deficit, adding two non-equivalent verbal codes to an already defective numerical system. We address the development of verbal-quantity links, as well as the actual brain basis of this link in bDD. Our third goal implies a step into other quantity dimensions, such as time or space, given the known commonalities in the processing of numerical quantity and these non-numerical dimensions. It is debated how numeric symbols could "recycle" in our ancient magnitude system. And here again bilingualism might be informative. It is our hypothesis that number symbols (Arabic or verbal) might enter our spatio-numerical knowledge through their intersections with numerical quantity. In bilingualism, similar asymmetries between codes should arise also during the processing of non-numerical magnitudes. We propose ways to test this both in healthy and DD populations. Importantly, we aim to address these questions at the behavioral and neurofunctional level, with the combined use of EEG/MEG techniques. They will provide with a spatiotemporal resolution lacking in the field of Numerical Cognition.

PSI 2014-54500-P SPEAKER'S NON-NATIVE ACCENT PROCESSING IN SPEECH

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2015 - 12/2017

[Budget:
€79,981

[Coordinator:
BCBL - PI Clara Martin

The goal of this project is to determine the impact of a non-native accent on speech comprehension. We will define how native listeners´ language comprehension is modulated when communicating with a non-native speaker. This conversational situation is highly frequent within the European Union. With the number of second language learners increasing drastically, the age at which people start to learn a second language lowering, and population movements being facilitated (9.7% of the total European Union population are foreign-born residents), most native listeners are interacting with second language or other non-native speakers on a daily basis. However, achieving native-like pronunciation is one of the most persistent difficulties for adult second language learners, so that even highly proficient non-native speakers often retain a "foreign" accent. This means that verbal communication between native and non-native speakers represents a challenge not only for non-native speakers having to convey messages in a second language (which has been the main focus of previous research), but also for native interlocutors having to process and understand accented speech. For the native interlocutors this entails the processing of speech containing phonetic/phonological, semantic, and syntactic approximations and errors. To better understand how native and non-native speakers overcome these challenges in their daily conversations, we will explore how non-native accents influence the way native listeners process fundamental aspects of auditory sentences, and under which circumstances native interlocutors are tolerant to approximations and errors produced by foreign speakers.

Moreover, foreign accented speech will be used as a tool to explore language comprehension at the theoretical level. In the past thirty years, we have gained much knowledge about the mechanisms of oral language comprehension and their neural correlates, but despite this knowledge, the automaticity of language processing stages is still debated. Therefore, it is theoretically important to identify which processing stages of language comprehension can be modulated by external social cues (such as the speaker's accent). The present project will aim to do so by providing experimental evidence on whether and how different language comprehension stages are affected by non-native accents.

We will adress the experimental question in three linguistic domains: syntactic, semantic and world knowledge integration in accented speech. Within the syntactic domain, we will explore whether (and at which stage) native listeners overlook morphosyntactic violations produced by nonnative speakers, and whether it depends on the familiarity of the error and/or the accent. Within the semantic domain, we will explore whether native listeners adjust their lexical-semantic processing of a critical word within a sentence, depending on the speaker's accent. We will also further characterize the spatial localization of accented speech processing. Finally, within the domain of world knowledge integration, we will explore whether a non-native accent impacts the processing of sentences' truth value and credibility in native listeners.

As a whole, this project will provide critical pragmatic information on the influence of nonnative accents in daily conversations, and crucial theoretical knowledge on the penetrability of the language comprehension system by external social cues such as the speaker's accent.

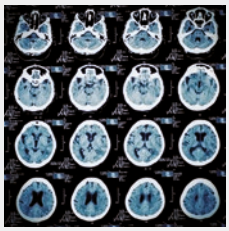
TEC 2014-51882-P
MULTIMODAL, HIGH-RESOLUTION MODELING OF THE THALAMUS FOR NEUROIMAGING STUDIES: APPLICATION TO DYSLEXIA

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2015 - 08/2016

[Budget:
€78,045

[Coordinator:
BCBL - PI Eugenio Iglesias



Automated analysis of magnetic resonance imaging (MRI) data of the thalamic nuclei requires software tools capable of operating at much higher resolution than those that are currently used in neuroimaging studies. Here we propose to address this issue by building a high-resolution statistical atlas of the thalamus upon ultra-high resolution MRI and histological data from autopsy brain samples. Since motion artifacts are inexistent in such samples, time constraints on the MRI acquisition are eliminated and the brains can be imaged at very high resolution and signal-to-noise ratio, which in turn allows for very precise manual delineations ("segmentations") of the thalamic nuclei by an expert neuroanatomist.

Afterwards, we will use Bayesian inference to combine the manual segmentations of the ex-vivo data with existing manual delineations of the whole thalamus and surrounding structures into a single atlas of the thalamic nuclei. We will also develop Bayesian segmentation algorithms that can use the atlas to automatically segment the thalamic nuclei in previously unseen structural MRI data. These algorithms will be adaptive to the variations in MRI contrast and acquisition protocol, and will be able to handle longitudinal data.

Finally, the thalamic atlas and companion segmentation algorithms will be used to study the relation between thalamus and dyslexia. Prior research has showed that, compared to controls, individuals with dyslexia exhibit deficits in the magnocellular layers of certain thalamic nuclei and their connections with primary auditory and visual cortex. Since the newly developed tools will allow us to analyze the data at the nucleus level, they will enable us to increase our understanding of this neurological disorder by investigating which specific nuclei and connections are affected. In addition, the tools will be distributed as part of the widespread neuroimaging package FreeSurfer, allowing its over 10,000 worldwide users to carry out cognitive neuroscience experiments at the thalamic nucleus level, and to potentially discover new imaging biomarkers of dyslexia, as well as other diseases in which some thalamic nuclei seem to be compromised, e.g. Alzheimer's, Parkinson's, multiple sclerosis and amyotrophic lateral sclerosis.

PSI 2015-65694-P
PREDICTIVE CODING AND PREDICTIVE TIMING ACROSS MODALITIES AND COGNITIVE DOMAINS

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2016 - 12/2018

[Budget:
€88,209

[Coordinator:
BCBL - PI Nicola Molinaro

Much of our brain and mind activity focuses on the generation of predictions. The predictive coding framework offers a description of the implementation of such mechanisms both at the neural and cognitive level, offering an exciting possibility of furthering our understanding of the human nervous system, and its link to behavior. The main body of evidence for predictive processing however emerges from the literature on basic visual and auditory processing. Empirical evidence for such a proposal in the language domain is scarce, his extent of anticipatory mechanisms is still debated, and the central role of prediction during language comprehension has often been challenged. In order for predictive processing to provide a unified description of human cognition and action, it must also account for the uniquely human ability of language. One obstacle to doing so is the difficulty in applying findings from basic perceptual research to a complex stimulus such as language. Up till now, studies of non-linguistic stimuli have focused on two dimensions of the predictive process separately: predicting what (mainly in the visual literature) and predicting when (auditory research). Given the temporally dynamic nature of language, apprehending both dimensions simultaneously might be the key to understanding predictive processing in this domain. The goal of the present project is thus to evaluate the correlates of predictive processing focusing on the relation between predictive coding (what) and predictive timing (when) for the first time. We will study these two mechanisms across modalities (visual and auditory) and across domains (basic perception and language processing) to deconstruct the mechanisms supporting predictive processing. By using state-of-the-art brain imaging (MEG) and analysis techniques (estimation of neural rhythms at the brain level) the present project will contribute to the understanding of how topdown preparatory activity may be implemented by oscillating neural populations in detail and how it affects perception in primary sensory regions.

In addition, identifying such an oscillatory "signature" of linguistic anticipatory processing may be used to re-analyze and re-interpret previous classical paradigms within the field of psycholinguistics, and to design more focused studies in the future.

PSI 2015-65696-P
NEURODEVELOPMENT OF MAGNOCELLULAR AND PARVOCELLULAR VISUAL PATHWAYS AND THEIR CONTRIBUTION TO VISUAL RECOGNITION AND TYPICAL AND ATYPICAL READING

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2016 - 12/2018

[Budget:
€72,700

[Coordinator:
BCBL - PI P.M. (Kepa) Paz-Alonso

Visual recognition is a neccesary first step for many of the activities we perform on a daily basis. Identifying the pill we need to take, discriminating a familiar face in a crowd, and reading a novel are just examples of cognitive complex operations that require a refined engagement of our visual system. The magnocellular and parvocellular streams are the major visual pathways with different histologic and physiologic properties and specialization in regard to the stimuli they are oriented to.

Although empirical evidence in humans regarding the invovelment of these visual pathways is limited, prior research in cognitive neuroscience and other related fields has underlined their potential contribution and differential implication to object recogntion evinced from the differential involvement of these pathways in object recognion and in dyslexia. However, to date, we still do not know yet the neurodevelopmental trajectories of these pathways and their specific contributions to visual recognition and typical and atypical reading. Here, we aim to use behavioral researcn and multimodal structural and functional MRI indexes to (1) characterize the developmental trajectories of the contribution of manocellular and parvocellular visual pathways to object, face and letter strings recognition, and to (2) investigate the involvement of these visual streams in typical and atypical single word and sentence reading, as well as their interaction with reading networks. To this end, we will examine a total sample of 180 participants aged 8 to 25 in two separate studies (N = 80, Experiment 1; N = 100 Experiment 2) using behavioral, structural and functional MRI techniques. The proposed research project is unique in its exploration of the contribution fo the visual pathways to visual recognition and reading processes, and in the examination of the dynamic interplay between changes in brain structure, function, and behavioral outputs of typical and atypical developing groups.

APCIN 2015-061
MULTI-LEVEL INTEGRATIVE ANALYSIS OF BRAIN LATERALIZATION FOR LANGUAGE

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
12/2015 - 11/2018

[Budget:
€231,000

[Coordinator:
BCBL - PI Manuel Carreiras

Left-right lateralization is an important organizing principle of the human brain which is not a current focus of HBP (Human Brain Project) research. One prominently lateralized anatomical and functional network underlies the uniquely human ability to speak and understand language. A lack of brain lateralization has been associated with variation in human cognitive abilities important to language, and also with susceptibility to neurocognitive disorders including language impairment, dyslexia, autism and schizophrenia. The genetic basis of human brain lateralization is unknown, while links between lateralized anatomy and function are poorly understood. It is likely that genes involved in lateralization, both developmentally and during adult function, contain variants in the population that influence cognitive performance and neurocognitive disorders. We are generating transcriptomic data on lateralized gene expression in the embryonic and adult human brain. We recently identified, for the first time, sets of neuronal genes in the healthy adult brain that are expressed at different levels in the left and right temporal cerebral cortex (crucial for the language network). Here we propose a multi-level and integrated analysis of brain lateralization for language: (i) Develop improved methods to reliably and automatically measure individual differences in lateralization of the language network in large numbers of participants, for anatomy, resting state intrinsic connectivity, and task-related function. The language cortex is a variable region for which current automated methods do not perform optimally, yet automated methods are essential for achieving large datasets that are statistically powered for genetic studies. It is essential to understand human brain diversity, as well as researching the “average brain” which is the focus of most HBP activity; (ii) Apply the methods in brain imaging datasets having genetic data available, for the purposes of association and rare variant analysis followed by integrated genome-level analysis with transcriptomic (lateralized gene expression) data and genomic gene-set analysis.

These combinatorial analyses go beyond standard genome-wide association scanning. Rather, the genomic data will be utilized to merge multiple genetic signals, informed by gene expression data and gene function data, in order to increase statistical power; (iii) Relate the gene sets arising from step “ii” to human cognitive variability linked to reading and language, and susceptibility to neurocognitive disorders.

Again, evidence-based combinations of genetic variants, constructed over many genes, will be investigated. Pinpointing shared genetic effects on lateralization and cognition would discriminate causal relations from mere correlation. Outcomes from this research program will include improved technology for automated analysis of large numbers of brain scans, and possible definition of susceptibility factors for important subtypes of impaired cognition.

PSI 2015-65689-P
THE IMPACT OF MIXING LANGUAGES DURING CONCEPT LEARNING

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2016 - 12/2018

[Budget:
€64,251

[Coordinator:
BCBL - PI Jon Andoni Duñabeitia

When bilingual individuals are set in environments in which their two languages could be used, they constantly need to adjust their linguistic productions to the specific requirements of the contexts in order to use the appropriate language in each situation. This leads to complex settings that represent a challenge in bilingual communication, the biggest challenge being language switching. Its challenging aspect has been scientifically demonstrated in terms of the so-called switch costs. Namely, spontaneous and experimentally-driven language switches have been associated with a cognitive cost both in language perception and production, quantified both at the behavioral level (e.g., longer response latencies when switching) and at the neural level (in terms of stronger neural activations in the language control areas). Considering the "negative" consequences of language switching (namely, the additional cognitive effort it requires and the cost it incurs), it is not entirely surprising that language mixing has been consistently avoided in circumstances in which effective transmission and acquisition of information is required, such as in the school system. The main reason for explicitly avoiding within-class language switches relies on the fact that it can hinder concept acquisition, resulting in reduced impoverished learning and worse academic achievement. In fact, one could tentatively assume that learning in a mixed-language context may involve an additional cognitive load as compared to learning in a monolingual context (as suggested by the Cognitive Load Theory). However, the (rather radical) approach of avoiding language switching during teaching (typically called the "one subject–one language rule") is somewhat surprising and unrealistic if one considers the reality of bilingual societies, in which switching from one language to another is a highly common behavior spontaneously adopted by bilingual speakers. In clear contrast to these assumptions, some studies support the idea that gaining understanding and knowledge could be potentiated through the use of two languages. However, with very few exceptions, these beneficial effects of language mixing in academic contexts are mainly the result of studies based on classroom observation or informal qualitative reports. The current project endeavors to understand whether language mixing during different stages of the learning process should be avoided on the grounds of scientific evidence, or, alternatively, whether the use of the two languages spoken by a bilingual during teaching does not lead to poorer learning and worse concept acquisition and consolidation in spite of the cognitive cost required to overcome the impact of the language switches. We propose a research agenda that includes testing balanced and non-balanced bilinguals that are exposed to lab-based and more natural learning scenarios in which the transmission of the information is mediated either by written or oral language. These bilinguals will be tested in different periods of the process using not only behavioral measures, but also electrophysiological measures that can shed light on the way in which the acquired concepts have been integrated in the short-term memory and the long-term declarative memory. We will directly tackle the question of whether the learning mediated by two vehicular languages differs from that mediated by a single language, in both bilingual adults and children.

PSI 2015-65338-P
DICHOTIC LISTENING: A WINDOW ONTO BILINGUAL READING DEVELOPMENT

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2016 - 12/2018

[Budget:
€64,009

[Coordinator:
BCBL - PI Marie Lallier

Millions of children become literate in more than one language. However, we don't know whether learning two languages from early on helps or hinders children with reading disabilities, such as developmental dyslexia. Whereas the research agenda has always been largely monolingual-centered, we propose examining the effects of bilingualism on typical and atypical literacy acquisition and the related auditory phonological processes. Our rationale is that the language background of an individual will shape the development of inter-hemispheric connectivity that is crucial for phonological and reading development (from the right to the left hemisphere, Molinaro et al., under review). Previous evidence (Hull and Vaid, 2006, 2007) showed that, based on dichotic listening performance, early bilinguals process speech more bilaterally compared to late bilinguals and monolinguals, who present more strongly left-lateralized speech networks. In dichotic listening tasks, different speech stimuli are presented simultaneously to both ears, and a right ear advantage for reporting the stimuli reflects a left hemisphere specialization for language. Thus, early bilinguals would exhibit better left ear performance than late bilinguals and monolinguals, also reflecting stronger rightto- left inter-hemispheric communication. Since dichotic listening was previously shown to predict phonological and reading development, we hypothesized that dichotic listening performance (left ear in particular) would be a sensitive behavioral index of the right-to-left interhemispheric connectivity important for reading.

In Study 1, early and late Spanish-Basque bilingual children as well as Spanish monolingual children will be assessed at the beginning of reading acquisition (Grade 1) and one and a half years later(middle of Grade 2). At each testing phase, phonological and reading skills will be assessed as well as dichotic listening performance indexing inter-hemispheric connectivity (left ear performance in particular). In Study 2, dyslexic and control early and late bilingual adults will be compared to monolinguals on inter-hemispheric connectivity behavioral (dichotic listening) and neural (functional connectivity of the oscillatory brain network responding to speech; structural and diffusion properties of the corpus callosum) measures. We expect early bilinguals, compared to late bilinguals and monolinguals to show (i) an advantage on the left ear performance, (ii) stronger right-to-left inter-hemispheric connectivity measures, and (iii) more effective callosal connections. This would furthermore be linked to better phonological and reading abilities and reduced dyslexic symptoms.

Overall, this project will contribute to improving predictions of reading development and strengthen the foundations on which we can base monolingual and bilingual diagnostic tools and intervention programs. In fact, if we highlight significant relationships between dichotic performance and neural connectivity as well as auditory phonology and reading, the dichotic listening paradigm may be validated as a non invasive child-friendly paradigm for assessing brain function and structure related to (atypical) reading acquisition.

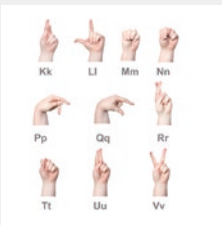
PSI 2015-67353-R
BRAIN MECHANISMS OF READING IN GOOD DEAF READERS

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
01/2016 - 12/2018

[Budget:
€108,900

[Coordinator:
BCBL - PI Manuel Carreiras



The (functional) illiteracy of the deaf is strikingly higher than that of their hearing peers. This state of affairs is unacceptable since it limits their access to information, and therefore their possibilities for exercising their rights in a modern society in which the printed word is essential. Learning to read represents a huge challenge for deaf children given their limited access to the sounds of language and to their incomplete knowledge of the language they learn to read in. However, some deaf individuals do become skilled readers. Previous research has focused on the difficulties of deaf readers in relation to phonological processing. In contrast, the present project focuses on the processes used by deaf skilled readers who have learnt to read in Spanish, a language with a transparent orthography. The skilled readers might activate visual, orthographic and semantic codes, but not phonological. To that end, we will investigate the cognitive processes and the neural circuit of skilled deaf readers, and also the flow of information in that circuit, by using MRI and MEG techniques. We will measure the brain activity and the functional and structural connectivity of the circuits used by skilled deaf readers during visual word recognition, with special attention to plasticity in the auditory cortex. We hypothesize that skilled deaf readers could show an earlier and faster activation of the visual, orthographic and semantic codes as compared to skilled hearing readers, and more direct connections between orthography and semantics. The results will help to gain a better understanding of the process of learning to read in deaf children, which is necessarily different to how hearing children learn to read. In addition, these results will be important for designing intervention programs to teach literacy to deaf children effectively.

PSI 2016-76435-P
TOWARDS THE DEVELOPMENT OF EVIDENCE BASED ASSESSMENT TOOLS FOR SPANISH SIGN LANGUAGE

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
12/2016 - 12/2019

[Budget:
€84,700

[Coordinator:
BCBL - PI Marcel Giezen and Brendan Costello

This project will carry out the much needed groundwork required to develop evidencebased assessment tools for LSE (Spanish Sign Language). This involves (i) establishing resources that adequately describe the structure of the language, and (ii) reaching a solid understanding of how the language is used and processed.

On the first count, one of the principal outcomes of this project will be the expansion of an existing lexical database to include information about specific properties of signs that are known to affect language processing: familiarity, iconicity and concreteness. Additionally, the phonological information already available in the database will be exploited to generate a metric of the distribution of phonological properties across the lexicon. This will provide information fundamental to the scientific study of LSE and will be instrumental for the design of future research work and assessment materials.

On the second count, this project focuses on how LSE is processed cognitively at both the lexical and the sentential levels. Specifically, we make use of the lexical properties added to the database (in the first part of the project) to investigate whether the processing of LSE is subject to the same lexical effects as those reported for spoken languages. Additionally, the project includes an MRI study that provides a detailed neuroanatomical profile of the lexical processing by deaf signers. At the sentence level, we focus on a unique property of sign languages, namely, the grammatical use of space. Firstly, we examine the interaction between basic word order and the use of space. Secondly, we aim to provide cognitive evidence to contribute to the ongoing debate about whether spatial inflection in sign language forms a single category.

PSI 2016-76443-P
BRAIN MECHANISMS FOR HUMAN WORKING MEMORY AND METACOGNITION ACROSS DIFFERENT STATES OF AWARENESS

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
12/2016 - 12/2019

[Budget:
€58,080

[Coordinator:
BCBL - PI David Soto

Conscious awareness allows us to introspect about our ongoing perceptions, thoughts, and actions, which can promote adaptive behavior. Classically, working memory has been conceived as the process that allows for the maintenance and manipulation of information in the focus of the mind's eye to guide our behavior towards relevant goals. Working memory is thought to be intimately related to our capacity to control and monitor the consequences of our behavioral responses, namely metacognition. Theoretical models of working memory and metacognition have typically assumed that these processes operate on information that is consciously experienced, in other words, that people have to be conscious of the relevant information so that it can be maintained in an active state for guiding ongoing behavior. However, recent research, including work from my laboratory, has challenged the above conceptualization of working memory and metacognition in its relation to conscious awareness. This recent research indicates that people can perform complex mental processes that require working memory even when they are not conscious of the critical information (e.g. reading, arithmetic, delayed discriminations, monitoring of performance, learning and subsequent recognition of a non-conscious sequence of events). Brain regions towards the front part of the head (i.e. the prefrontal cortex) have typically been associated with working memory, metacognition and awareness processes but emerging evidence from our laboratory suggests that, surprisingly, prefrontal brain regions can also be engaged in working memory processes independently of conscious awareness. The key aim of this project is to refine our understanding of the neurocognitive mechanisms that underlie the operation of working memory and metacognitive processes across different states of awareness of the relevant information, both in conscious and non-conscious contexts.

The present research proposal will also explore the role of experience and learning in modulating the ability of participants to use their working memory and their metacognitive insight in non-conscious contexts. The project will use cutting edge brain imaging techniques, multivariate pattern decoding analyses and seed-based functional connectivity analyses in order to characterize the computations carried out by prefrontal regions and delineate how the prefrontal cortex is engaged as part of a broader brain network to implement working memory and metacognitive processes in different states of awareness, namely, when observers are conscious and non-conscious of the relevant information. The use of brain imaging is fundamental for developing a theory of the operation of working memory and metacognition that is guided by what is already known about how the brain supports these functions. The outcome of the project will provide novel insight into the neural and psychological factors that mediate the operation of working memory and metacognition in relation to conscious awareness, which will lead to a novel conceptualization of how these cognitive systems operate. The outputs of this research have important implications for understanding the nature of human behavior in both normal and abnormal populations.

PSI 2016-77175-P
WHAT KIND OF LISTENER ARE YOU?
A DEGENERACY APPROACH TO SPEECH PROCESSING

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
12/2016 - 12/2019

[Budget:
€87,725

[Coordinator:
BCBL - PI Mathieu Bourguignon

Speech communication is a major component of human social interactions and understanding its neural basis is of paramount importance. Neuroimaging techniques have improved our knowledge of brain mechanisms subtending speech processing but also led to many contradictions. A potential reason for this is that the brain might achieve complex functions such as speech processing in different ways. Therefore, different subjects might use different strategies and this could lead to inter-subject variability in the recruited neuronal network and in the neurophysiological mechanisms subtending speech processing, leading as well to variability in the ability to learn a new language. The present project aims to demonstrate the existence of different brain strategies to process incoming speech and characterize these strategies in mono- and bilinguals. The ultimate goal is to reconcile opposing models of language processing by introducing interindividual variability, to relate this variability to discrepancies in the ability to learn a new language, and to assess how bilingualism shapes this variability. Mono- and bilingual subjects will be taught new sound contrasts and undergo speech listening tasks. Language network will be mapped with fMRI and a clustering approach will classify subjects into separate groups so that activation maps are similar within groups and dissimilar between groups. MEG will provide neurophysiological indices of speech processing. These indices and few behavioral parameters will be compared between groups identified with fMRI.

We expect inter-group differences in neurophysiological and behavioral parameters, in line with the degeneracy hypothesis of speech processing. Identifying and characterizing the possible strategies is of high importance to better understand the origin of specific language impairments, and to better understand the mechanisms subserving language learning, potentially leading to language trainings tailored to each individual.

FFI2016-76432-P
LANGUAGE ATOMS: AN INVESTIGATION OF MOOD, PERSON AND TENSE FEATURES

[Funding Agency
MINECO – Spanish Ministry for Economy and Competitiveness

[Time Frame:
12/2016 - 12/2019

[Budget:
€54,450

[Coordinator:
BCBL - PI Simona Mancini y José Alemán

The study of features (i.e. descriptions of linguistic objects that permit capturing regularities within and across linguistic modules) is invaluable for both the theoretical and the experimental study of language, as features provide key notions for understanding and modeling natural languages. Previous studies have examined the question of how features are represented in the speaker's mind and accessed in the course of online processing, although the focus has been on grammatical gender and number.
In the current project, we build on and contribute to this existing literature by investigating three different feature categories, person, tense and mood, which remain understudied in the psycho/neurolinguistic literature. Despite obvious differences in the type of information that these three features express, they have something in common: they all convey discourse related information concerning (i) the subject's speech participant role (in the case of person), the temporal frame under which an utterance is to be evaluated (in the case of tense), and the speaker's attitude or point of view with respect to the truth of a proposition (in the case of mood). The overarching goal of our project, which integrates linguistic theory and psycho/neurolinguistic approaches to language processing, is to examine the similarities and differences in how person, tense and mood dependencies are established in the course of online processing and how their interpretation relies on the interplay between lexical, inflectional, and discourse information, as suggested by recent theoretical proposals. By unveiling similarities and differences in the processing of these linguistic features, we will contribute to a better definition of the architecture of language and of the relation between grammar theories and language processing models. We will use two experimental techniques known for their high temporal resolution, event-related potentials (ERP, henceforth) and Eye Tracking (ET), to gain insight into the time course of person, tense, and mood processing. Crucially, these two techniques complement each other in a unique way. ERP carries the potential to inform us of the qualitative nature of the mechanisms underlying the processing of these features, their similarities and differences. In turn, the tracking of eye movements can very precisely characterize the different stages involved in the establishment of the person, tense, and mood dependencies under examination. In the present project, we focus on feature processing in native speakers of Spanish, but we note that our findings can have great relevance for a number of distinct areas such as second-language (L2) learning and teaching, and the study of language pathologies.

PI 2012-74
THE TRILINGUAL LEXICON

[Funding Agency
The Basque Government

[Time Frame:
01/2012 - 12/2013

[Budget:
€23,924

[Coordinator:
BCBL - PI Jon Andoni Duñabeitia

This project is focused on the research of the processes involved in the visual recognition of written words in trilingual communities, that is, amongst the individuals who are able to communicate in three different languages. Trilingualism is a widespread reality in the Autonomous Community of the Basque Country, as well as in many other territories with two official languages, where the population receives formal training in other languages, within the framework of educational programs. Nevertheless, no prior research has been carried out on the cognitive mechanisms involved in the control and usage of three languages spoken by trilingual individuals. This project will focus on this issue from the perspective of cognitive neuroscience, due to its importance from the perspective of basic research, as well as the application of this knowledge to the area of education.

On one hand, it will look into the variables that predict the behavioral response to reading in people whose native language is either Spanish or Basque, whose second language is another official language of the Basque Country (Spanish or Basque, as the case may be), and whose third language is English. The participants of various studies would have a lesser level of competence in the second language in comparison with their first language, as well as a lesser linguistic level in the third language than in the second one, despite the fact that they are capable of communicating in all three languages. The same participants will take part in experiments with silent reading of isolated words in each of those languages, involving a significant number of words during several different sessions. They will be aided by the new communication technologies, through a tactile response provided on devices, which are prepared to measure the response with the precision of up to a millisecond. These words would be presented in a multitude of intra-language variables, which have an impact on access to lexicon (ex: lexical and syllable frequency, length, orthographic proximity), as well as in-between languages variables (ex.: ortho-phonological overlapping with words from another language, orthographic proximity between the languages). The results obtained from the reading experiment (reaction time and success ratio in the task of lexical decisions) will be subject to a multiple regression analysis, including all variables as predictive ones, for the purposes of finding out the relative weight of each of them in each language.

Likewise, the analysis would be carried out by using mixed lineal models, for exploring the modulation of dependent variables in relation to various levels of independent variables and co-variables. The findings yielded by this research would allow to further define the processes involved in processing of words of the first, second and third languages and could ultimately be used for detecting the mechanisms of visual recognition of words that are shared between the languages, as well as those with substantial difference.

On the other hand, the project will focus on two automatic mechanisms that are undoubtedly linked to the processing of words of the second and third languages: spontaneous activation in translations and processes of inhibition of inactive languages during the task. Various studies have demonstrated that a word in the active language automatically activates the representation associated by translation into another language (ex.: table-mesa). In balanced bilingual individuals with an early start, representation of the word's translation in the first language (L1) is automatically activated when they read a word in their second language (L2), and vice versa. In turn, research has demonstrated that in situation with medium levels of competence in the second language, co-activation of languages does not occur as automatically. Nevertheless, no similar research has been carried out in connection with automatic activation of the representations in a third language (L3) and its translations into L1 or L2. This project will find out whether the readers are able to automatically activate the translations in three languages. Therefore, we will use both behavioral and electrophysiological techniques. Trilingual participants will complete the tasks of lexical decision and of passive reading in experimental context involving concealed principles, which would allow exploring the degree of automation as far as relations between the words. In addition to using behavioral techniques, the researchers will also look into neural correlation of such effects by collecting electrophysiological data of the participants by virtue of brain's Potential Related to Events (PREs), in order to define the temporal direction of different processes implied therein.

For the purposes of exploring the mechanisms of inhibition connected with suppression of non-active languages when only one language is used, the research will look into the effects of the effort of changing the code or language in trilingual samples. The mere fact of reading two successive words in two distinct languages implies a significant cognitive effort, since the language activated by the first word must be inhibited in order to activate the language of the second word. The research focused on exploring the such effort in relation with visual recognition of words, both at behavioral and electrophysiological levels, have shown that the effort related to the switching of a language is directly proportionate to a competence level in the language subject to inhibition. Nevertheless, no evidence has been obtained in relation to trilingual participants, since only bilingual studies have been carried out up to date. This project will intend to discover whether, after reading in the third language, both the first and the second languages are inhibited, or only the native one. It will also focus on behavioral and electrophysiological effects (using PREs) arising from the suppression of less fluent languages (L2 and L3) upon performing a task of reading the words in L1.

PI 2012-15
DEVELOPMENT OF NEURAL MECHANISMS INVOLVED IN LONG-TERM MEMORY RETENTION AND RECUPERATION

[Funding Agency
The Basque Government

[Time Frame:
01/2012 - 12/2013

[Budget:
€45,090

[Coordinator:
BCBL - PI P.M. (Kepa) Paz-Alonso

It is often considered that learning depends on studying and memory testing mainly serves for the evaluation of learned materials. Recent behavioral research suggests that, in comparison with repeated studying, the practices of memory recuperation or repeated memory evaluation may lead to an increase of up to 150% of the volume of information retained over a long-term (Karpicke and Roediger, 2008). The empirical evidence produced by the research in Cognitive Neuroscience and Neuropsychology has shown the involvement of structures located in the medial temporal lobes (LTM: the hippocampus and parahippocampal gyrus) and in various regions of lateral prefrontal cortex (CPFI, frontal, lateral, inferior) in the tasks of codification and recuperation of information stored in the long-term memory (Viard and cols, 2010). These brain areas are subject to significant maturative changes at the structural and functional levels, associated with behavioral improvements observed in relation to memory tasks from middle childhood until adulthood (Paz-Alonso at al. 2009; Shing at al. 2011).
Nevertheless, to date, we do not know the specifics of neural mechanisms that determine a positive outcome of the practices of recuperation in the consolidation of long-term memory. The principal objective of this research project is to identify the neural patterns of the positive effects of memory recuperation, as well as its development and refinement from middle childhood until the adulthood. For these purposes, we suggest to undertake a study of independent samples, employing magnetic resonance, over a total of 75 participants, distributed in three age groups for each study:
8-9 year old children, 11-12 year old children and adults.

The results of this project could make an important contribution to the scientific advances, both of theoretical and practical nature. From the theoretical perspective, this project has a capacity for examining the main hypothesis suggested in regard to the positive effects of recuperation practices, such as greater development of the footprint of memory, favorably affecting creation of additional routes for accessing such information and the existence of appropriate transfer of processes due to the final recuperation operations, which are similar to those involved during the coding of information. Additionally, the results of this project could provide a break-through empirical evidence of the principle existing models regarding long-term memory consolidation (Standard Theory, Multiple Traces Theory), which suggest a distinct degree of implication of the LTM in the recuperation of already consolidated information. Lastly, this project has a potential of making a contribution to the development of the existing knowledge on refinement of neural networks and the white matter involved in the episodic memory tasks, which allow interaction between CPF and LTM areas. From the practical perspective, the results of this project could contribute to the development of educational programs on various subjects (for example, history, languages), aimed at populations of various ages and characteristics (for example, school-aged, university level, special education). Such programs could foster a more efficient learning, which implies a lesser time investment and a more permanent retention of information, less subject to be forgotten.

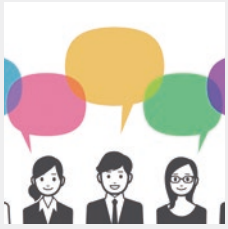
PI 2014-1-38
LINGUISTIC ABILITIES IN BILINGUAL AND MONOLINGUAL SPEAKERS

[Funding Agency
The Basque Government

[Budget:
€49,094

[Time Frame:
11/2014 - 10/2016

[Coordinator:
BCBL - PI Simona Mancini



A very controversial topic in the study of bilingualism is whether individuals speaking two (or more) languages have an advantage compared to those who only speak one. While several pieces of evidence have attempted to show bilinguals' advantage in different executive function tasks (see Byalistok et al. 2012 for a review), many other studies have reported evidence against it (see Duñabeitia & Carreiras, 2015). However, to date very few studies have directly compared monolinguals and bilinguals from a longitudinal perspective, during the learning of a new language (and, specifically, of its syntax), using on-line experimental techniques.

The goal of this project was to evaluate i) the effects of bilingualism on language learning, both in early and late stages of acquisition; and ii) if such effects are modulated by the interaction of the L1/L2 and foreign typological properties. More specifically, monolingual Spanish and bilingual (Spanish-Basque-Spanish) speakers will be compared during the learning of a miniature grammar (MG) of Berber, a language spoken in North Africa. The typological properties of the MG were manipulated at the sentence level, by introducing patterns of subject-verb agreement between subject and verb that were both common (i.e. typologically close) and uncommon (typologically distant) among the three languages spoken by participants (English, Spanish and Basque). This will permit direct examination of whether the typological distance factor played a crucial role in the presence/absence of a bilingual advantage, and whether its influence changed at different stages of processing.

Participants were trained in Berber vocabulary and syntax and their learning was evaluated by means of a production task, in which they were required to describe a picture presented on a computer screen. Accuracy and response times were recorded and analyzed at two stages: an early (low proficiency) and a later one (high proficiency). This allowed careful examination of their learning trajectory and gave insight into the differences and similarities between monolinguals and bilinguals.

Results did not reveal any bilingual advantage in terms of speed of learning and general proficiency, while typological factors (shared vs. non-shared rule) were found to interact with the linguistic profile of the participants. We attribute these results to bilinguals' enhanced metalinguistic awareness, which allows them a more efficient learning of different manifestations of shared syntactic rules.

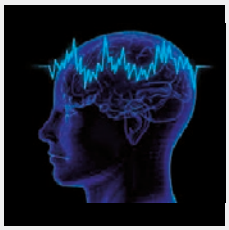
PI 2015-1-27
GARUNA: BILINGUALISM, NEUROSCIENCE AND THIRD AGE

[Funding Agency
Basque Government

[Time Frame:
09/2015 - 12/2016

[Budget:
€19,004

[Coordinator:
BCBL - PI Jon Andoni Duñabeitia



Population in Europe is aging and many of the socioeducational policies should be redirected in order to provide the elderly with an optimal quality of life, based on solid intervention programs and scientific backing. This project aims at promoting neuroplasticity of the adult brain, offering an innovative intervention method supported by recent evidence, which suggests that acquired bilingualism contributes to cognitive reserve in the elderly through the improvement of cognitive abilities and restructuring of brain neuroarchitecture. A group of Spanish speaking monolingual elderly individuals (over 60 years old) will complete a longitudinal training program, through which they will acquire a new language (Euskera); in the meantime, common markers associated with neurocognitive declivity related to aging will be analyzed through scientific monitoring. Recent evidence suggests that acquired bilingualism could improve cognitive functions in the elderly which, at the same time, could lead to structural and functional changes in the brain that could protect against cognitive deterioration associated with both normal and pathological aging (v.g., neurodegenerative diseases). The longitudinal approach of the present investigation project is complemented by a series of transversal comparisons in the different areas of the intervention program between the critical group and two control groups (monolinguals and simultaneous and balanced bilinguals). Therefore, this project will offer critical evidence at different basic and applied scientific levels about the impact of bilingualism on the elderly, both at behavioral and neural levels, as well as about the consequences that acquiring a second language at the third age implies for the cognitive system.

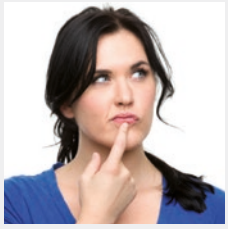
PI 2015-1-25
COPA: HOW THE LISTENER PROCESSES ACCENT

[Funding Agency
Basque Government

[Budget:
€54.518

[Time Frame:
09/2015 - 12/2017

[Coordinator:
BCBL - PI Clara Martin



The objective of this project is to define how language comprehension gets modulated in a native listener when communicating with a nonnative speaker. This topic is of great importance, as native listeners have to interact everyday with non-native speakers of either a second or another language (around 9.7% of the total population of the European Union is composed of residents born in a foreign country.) Learning a pronunciation similar to the one of a native speaker is one of the biggest difficulties for adult students of a second language and, therefore, the majority of non-native speakers have a "foreign accent". This means that the verbal communication between native and non-native speakers is not only a problem for non-native speakers who have to convert messages into a second language (which has been the main focus of previous investigation in this field), but also for native interlocutors who have to process and understand speech with a strong accent. Therefore, to better understand how verbal communication works, we need to explore ways in which language gets influenced by the accent of a non-native interlocutor. We will achieve this by studying how fundamental aspects of sentence comprehension are modulated by accented speech.

On the other hand, foreign accented-speech will be used as a tool to explore language comprehension at a theoretical level. In the last 30 years, extensive knowledge has been acquired about the mechanisms of comprehension of oral language and its neural correlates but, despite this knowledge, the automaticity of the steps in language processing is still subject of debate. Theoretically, it is important to identify which stages of language comprehension processing are automatic, controlled and socially adaptable, which means they can be modulated by external social signals. The present project will provide experimental evidence about the extent to which the different stages of language comprehension can be penetrated by social external signals (e.g. the speaker's accent) or, on the contrary, are automatic and invariant with respect to the characteristics of the speaker.

We will further analyze this experimental question in two linguistic domains: syntax and semantics. Within the syntactic domain, we will explore whether (and in which stage) native listeners disregard morphosyntax-violations produced by non-native speakers, and whether it depends on familiarity with the error and/or the accent. Within the semantic domain, we will study whether native listeners adjust their lexical-semantic processing of a critical word in a sentence, depending on the speaker's accent. Also, we will better characterize the spatial location of accent processing.

Overall, this project will provide critical pragmatic information about the influence of non-native accents in everyday conversations and the fundamental theoretical knowledge in the penetration of the comprehension system of external social signals, such as the speaker's accent.

Gipuzkoako Foru Aldundia

EXP.65/15 NEUROBIOLOGY OF LANGUAGE PRODUCTION IN VARIABLE COMPLEXITY-CONDITIONS

[Funding Agency
Provincial Government of Gipuzkoa

[Time Frame:
10/2015 - 09/2016

[Budget:
€35,962

[Coordinator:
BCBL - PI P.M. (Kepa) Paz-Alonso

The principal aim of research into neural correlates in language production and superior executive functions in Bertsolaris is to examine the access and storage of the representations of these experts' linguistic production, as well as the role of superior cognitive abilities in their production capacity. This study will therefore compare three groups of participants with various levels of experience in linguistically controlled rhyme and production: Professional Bertsolaris, Bertso Eskolak students or verse production apprentices, and adults with no previous experience in this sense. In order to achieve an optimal comparison of these participant groups' ability to perform the study tasks, the Bertso Eskolak students and the adults with no prior experience will be selected with equal age, years spent in formal education, lateralization or manual preference, intelligence and other variables related with language acquisition (e.g. mother tongue, learning other languages…) to the professional Bertsolaris.

The study participants will participate in three experimental sessions, each lasting approximately 2 hours. One initial behavioral study will examine their individual capacities, fluid reasoning, working memory, inhibitory control, attention networks and speed of processing information. In the second session, magnetic resonance will be used to collect brain function activation data in a fluid verbal task with semantic, phonological and rhyme conditions of varying difficulty (easy and hard). During this second session, data about brain structure and function will also be collected for the resting brain. Finally, in the third session, professional Bertsolaris and Bertso Eskolak students will perform a simple verse production task (Kopla or popular folk song) as well as a more discursive verse (Zortziko). Functional Magnetic Resonance Imaging will also be used in this session to examine the neural activations associated with the presentation of the subject of the verse, their preparation and their production.

Gipuzkoako Foru Aldundia

2016-CIEN-000061-01 ARCHITECTURE OF THE BILINGUAL BRAIN

[Funding Agency
Provincial Government of Gipuzkoa

[Time Frame:
10/2016 - 09/2017

[Budget:
€36,000

[Coordinator:
BCBL - PI Jon Andoni Duñabeitia

Recent evidence suggests that multilingualism contributes to brain and cognitive reserve in the elderly, since it improves specific cognitive abilities and facilitates restructuration of the brain neuroarchitecture and temporarily palliates the effects of cognitive declivity associated with both normal and/or pathological aging. Nevertheless, the results obtained so far are not conclusive and there are still many doubts with respect to the neuroachitectonic changes produced by the continued use of more than one language from childhood through to senescence.

To better understand brain substrates of bilingualism across lifespan, we will investigate which cognitive processes and neural substrates or mechanisms of these processes differ or are common among monolingual children, young adults and elderly (who speak and know only one language) and native multilinguals (who know and speak more than one language from birth). The project will have a transversal investigation approach to offer critical evidence at basic and applied scientific levels about the impact of multilingualism (both at brain and cognitive levels) on childhood, young adulthood and critically on the elderly, thus exploring the relationship among multilingualism, neuroplasticity and neuroprotection.

PROJECTS FUNDED BY OTHER INSTITUTIONS

RESEARCH INTO DRAVET'S SYNDROME AND UNTREATABLE CHANNELOPATHIES

[Funding Agency
DRAVET FOUNDATION

[Type of project:
Private Foundation

[Time Frame:
07/2011 – 06/2013

[Budget:
€200,000

[Coordinator:
BCBL - PI Manuel Carreiras

The objective of this study is to characterize the various language-related deficits presented by children with Dravet's syndrome, given that this is one of the principal alterations manifested. This simultaneous EEG and spectroscopy study will allow us to characterize the intercritical patterns of epilepsy, electrophysiologically and metabolically, and to facilitate the location of the afore-mentioned potentials studied. This will contribute to a better understanding of the disease and the potential interventions at diagnostic and treatment level.

09-RNP-089
CROSS-DISCIPLINARY APPROACHES TO UNDERSTANDING WORD STRUCTURE IN THE LANGUAGES OF EUROPE

[Funding Agency
European Science Foundation

[Time Frame:
2011 - 2015

[Budget:
€565,000

[Coordinator:
Pisa University - PI Vito Pirelli PhD

[Spanish PI:
BCBL – PI Manuel Carreiras

[Partners:
University of Antwerp (Belgium), University of Vienna (Austria), Jozef Stefan Institute (Slovenia), Université de Toulouse (France), Slovak Academy of Science (Slovak Republic), Helsinki University of Technology (Finland), Zurich University (Switzerland), Lund University (Sweden), National Research Council (CNR – Italy), Siegen University (Germany), Pazmany Peter Catholic University (Hungary), University of Zagreb (Croatia), Norwegian University of Science and Technology (Norway), BCBL.

Morphologically complex words are common to all European languages. They represent a fundamental part of what we mean by human language knowledge and the basic building blocks of language productivity. Nonetheless, words remain a challenging realm of scientific inquiry, at the interface between lexicon and grammar, requiring integration of a number of orthogonal disciplines and approaches, ranging from psycho- and neuro-linguistics, to theoretical, variationist and historical linguistics, to memory processes and computational models of (sub) symbolic processing.

Scientists across Europe are currently pursuing important lines of work on word structure, mostly supported by nationally funded projects or bi-lateral cooperation programs. There nonetheless seems to be a growing need for a larger-scale integrated European effort, focusing on common medium-term objectives, to promote interdisciplinary cross-fertilization and synergy, and optimize research investments in terms of more convergent and complementary efforts. The European research scenario is particularly conducive to these goals, due to the robustly empirical character of its methodological stance and the unique range of relevant scientific domains where, at present, European scientists appear to have a huge potential for major breakthroughs.

By bringing together experts in various scientific domains and of different theoretical inclinations, this Research Networking Program intends to advance our current awareness of the theoretical, typological, psycholinguistic, computational and neurophysiological evidence about word and processing, with a view to promoting novel research and assessment methods for grammar architecture and language physiology. This will be achieved through knowledge networking, dissemination and scientific meetings over a four-year period. Moreover, NetWordS will have a highly interdisciplinary profile, will promote the training and development of young scientists through short visits and exchange grants, and will encourage the integration of new partners. The program will also have a clear global dimension thanks to collaborations with the Mental Lexicon Research Group in Canada.

NPRP 6-378-5-035
LEARNING TO READ IN TWO ALPHABETS:
TYPICAL DEVELOPMENT AND READING DISORDERS

[Funding Agency
Qatar Foundation

[Type:
Private Foundation

[Time Frame:
04/2014 - 03/2017

[Budget:
€339,804

[Coordinator:
BCBL - PI Manuel Carreiras

This project addresses challenges related to the development of reading skills. One general objective is to understand school failure when children have to face learning in two alphabets, and how this phenomenon could be linked to reading deficits. Equally importantly, we also aim to develop a perspective about the factors helping the children succeed. The main objective of the project is to study the mechanisms of literacy acquisition in two alphabets (Arabic and Roman), as well as to investigate the relations between reading difficulties (dyslexia) in two very different languages (in Arabic and in English) that use different alphabets (Arabic, Roman).

IN[16]_CJS_PSI_0037
BRAIN CHANGES ASSOCIATED WITH ADULT LITERACY

[Funding Agency
Fundación BBVA

[Time Frame:
10/2016 - 03/2018

[Budget:
€34,000

[Coordinator:
BCBL - PI Jon Andoni Duñabeitia

[Spanish PI:
BCBL – PI Manuel Carreiras

Recent evidence suggests that multilingualism contributes to brain and cognitive reserve in the elderly, since it improves specific cognitive abilities and facilitates restructuration of the brain neuroarchitecture and temporarily palliates the effects of cognitive declivity associated with both normal and/or pathological aging. Nevertheless, the results obtained so far are not conclusive and there are still many doubts with respect to the neuroachitectonic changes produced by the continued use of more than one language from childhood through to senescence. To better understand brain substrates of bilingualism across lifespan, we will investigate which cognitive processes and neural substrates or mechanisms of these processes differ or are common among monolingual children, young adults and elderly (who speak and know only one language) and native multilinguals (who know and speak more than one language from birth). The project will have a transversal investigation approach to offer critical evidence at basic and applied scientific levels about the impact of multilingualism (both at brain and cognitive levels) on childhood, young adulthood and critically on the elderly, thus exploring the relationship among multilingualism, neuroplasticity and neuroprotection.

C. GRANTS

PI	Grant	Funding Agency	Amount	Period
Carreiras, Manuel	GA 237907 - ITN LCG LANGUAGE, COGNITION & GENDER	European Commission	353.933 €	01/10/2009 30/09/2013
Carreiras, Manuel	GA 295362 - BI-LITERACY: LEARNING TO READ IN L1 AND IN L2	European Commission	2.487.000 €	01/05/2012 30/04/ 2017
Carreiras, Manuel	GA 613465 - ADVANCING THE EUROPEAN MULTILINGUAL EXPERIENCE	European Commission	306.710 €	01/03/2014 28/02/2019
Frost, Ram	GA 692502 - STATISTICAL LEARNING AND L2 LITERACY ACQUISITION: TOWARDS A NEUROBIOLOGICAL THEORY OF ASSIMILATING NOVEL WRITING SYSTEMS	European Commission	800.000 €	01/07/2016 30/06/2021
Carreiras, Manuel	CSD 2008 – 00048 COEDUCA – COGNITION AND EDUCATION	Spanish Ministry	4.000.000 €	15/12/2008 15/12/2013
Nieuwland, Mante	PSI2010 - 18087 - TELL ME SOMETHING I DON'T KNOW - INFORMATIVENESS AND KNOWLEDGE OF THE REAL WORD IN UNDERSTANDING LANGUAGE FROM A COGNITIVE NEUROSCIENCE PERSPECTIVE	Spanish Ministry	145.200 €	01/01/2011 31/12/2013
Samuel , Arthur	PSI 2010-17781 - AUTOMATICITY OF SECOND LANGUAGE PROCESSING IN SPANISH-BASQUE BILINGUALS	Spanish Ministry	108.900 €	01/01/2011 30/06/2014
Davidson, Doug	PSI 2011-24802 - THE ROLE OF OSCILLATORY ACTIVITY IN THE LEXICAL AND GRAMMATICAL PLASTICITY OF LANGUAGE LEARNERS	Spanish Ministry	96.800 €	01/01/2012 30/06/2015
Dumay, Nicolas	PSI 2011-24048 – THE IMPACT OF MEMORY RECONSOLIDATION ON VOCABULARY ACQUISITION: A BEHAVIORAL AND NEURAL INVESTIGATION	Spanish Ministry	88.330 €	01/01/2012 31/12/2014
Salillas, Elena	PSI 2011-23995 - NUMBER SEMANTICS IN BILINGUALS	Spanish Ministry	68.970 €	01/01/2012 31/12/2014
Carreiras, Manuel	PSI 2012-31448 - PROCESAMIENTO EN LENGUA DE SIGNOS, DACTILOLOGÍA Y LECTURA EN SORDOS Y EN CODAS: CORRELATOS NEURONALES DE LA CODIFICACIÓN ORTOGRÁFICA	Spanish Ministry	128.700 €	01/01/2013 31/12/2015
Paz-Alonso, P.M. (Kepa)	PSI 2012-32093 - NEURODEVELOPMENTAL BASES OF EPISODIC MEMORY RETRIEVAL	Spanish Ministry	58.500 €	01/01/2013 31/12/2015
Lallier, Marie	PSI 2012-32128 - ATYPICAL OSCILLATORY BRAIN ACTIVITY, TEMPORAL PROCESSING DEFICITS AND DEVELOPMENTAL DYSLEXIA: WHAT ARE THE LINKS?	Spanish Ministry	58.500 €	01/01/2013 31/12/2015
Duñabeitia, Jon Andoni	PSI 2012-32123 - TRANSLATION RECOGNITION IN BILINGUALS ACROSS LIFESPAN	Spanish Ministry	52.650 €	01/01/2013 31/12/2015
Molinaro, Nicola	PSI 2012-32350 - LEARNING A NEW LANGUAGE: THE ROLE PLAYED BY COLLOCATIONAL REGULARITIES	Spanish Ministry	70.200 €	01/01/2013 31/12/2015
Yee, Eiling	PSI 2012-32107 - CONCEPTS IN CONTEXT: USING CONTEXT TO REVEAL THE DYNAMIC NATURE	Spanish Ministry	64.350 €	01/01/2013 31/12/2015
Caballero, Cesar	PSI 2013-42343-P - MULTIMODAL NEUROIMAGING OF OSCILLATORY NETWORKS DURING WORKING MEMORY	Spanish Ministry	60.500 €	01/01/2014 31/12/2016

PI	Grant	Funding Agency	Amount	Period
Davidson, Doug	PSI 2014-53346-P NEUROANATOMICAL AND NEUROPHYSIOLOGICAL CHARACTERIZATION OF DRAVETS SYNDROME EPILEPSY	Spanish Ministry	73.810 €	01/01/2015 31/12/2017
Baart, Martijn	PSI 2014-51874-P THE HEALTHY AND IMPAIRED MULTISENSORY TALKING BRAIN	Spanish Ministry	57.838 €	01/01/2015 31/12/2017
Samuel , Arthur	PSI 2014-53277-P LEXICAL ACTIVATION OF WORDS WITHIN OTHER WORDS	Spanish Ministry	68.728 €	01/01/2015 31/12/2017
Molnar, Monica	PSI 2014-54512-P NEURAL AND PHYSIOLOGOCAL CORRELATES OF ATTENTION DEVELOPMENT IN MONOLINGUAL AND BILINGUAL INFANTS	Spanish Ministry	18.150 €	01/01/205 31/12/2017
Salillas, Elena	PSI 2014-53351-P BILINGUAL MATH: FROM LANGUAGE TO MAGNITUDE	Spanish Ministry	46.585 €	01/01/2015 31/12/2017
Martin, Clara	PSI 2014-54500-P SPEAKER'S NON-NATIVE ACCENT PROCESSING IN SPEECH	Spanish Ministry	79.981 €	01/01/2015 31/12/2017
Iglesias, Eugenio	TEC 2014-51882-P MULTIMODAL, HIGH-RESOLUTION MODELING OF THE THALAMUS FOR NEUROIMAGING STUDIES: APPLICATION TO DYSLEXIA	Spanish Ministry	78.045 €	01/01/2015 31/08/2016
Molinaro, Nicola	PSI 2015-65694-P PREDICTIVE CODING AND PREDICTIVE TIMING ACROSS MODALITIES AND COGNITIVE DOMAINS	Spanish Ministry	88.209 €	01/01/2016 31/12/2018
Paz-Alonso, P.M. (Kepa)	PSI 2015-65696-P NEURODEVELOPMENT OF MAGNOCELLULAR AND PARVOCELLULAR VISUAL PATHWAYS AND THEIR CONTRIBUTION TO VISUAL RECOGNITION AND TYPICAL AND ATYPICAL READING	Spanish Ministry	72.700 €	01/01/2016 31/12/2018
Carreiras, Manuel	APCIN 2015-061 MULTI-LEVEL INTEGRATIVE ANALYSIS OF BRAIN LATERALIZATION FOR LANGUAGE	Spanish Ministry	231.000 €	01/12/2015 30/11/2018
Duñabeitia, Jon Andoni	PSI 2015-65689-P THE IMPACT OF MIXING LANGUAGES DURING CONCEPT LEARNING	Spanish Ministry	64.251 €	01/01/2016 31/12/2018
Lallier, Marie	PSI 2015-65338-P DICHOTIC LISTENING: A WINDOW ONTO BILINGUAL READING DEVELOPMENT	Spanish Ministry	64.009 €	01/01/2016 31/12/2018
Carreiras, Manuel	PSI 2015-67353-R BRAIN MECHANISMS OF READING IN GOOD DEAF READERS	Spanish Ministry	108.900 €	01/01/2016 31/12/2018
Giezen, Marcel and Costello, Brendan	PSI 2016-76435-P TOWARDS THE DEVELOPMENT OF EVIDENCE-BASED ASSESSMENT TOOLS FOR SPANISH SIGN LANGUAGE	Spanish Ministry	84.700 €	30/12/2016 29/12/2019
Soto, David	PSI 2016-76443-P BRAIN MECHANISMS FOR HUMAN WORKING MEMORY AND METACOGNITION ACROSS DIFFERENT STATES OF AWARENESS	Spanish Ministry	58.080 €	30/12/2016 29/12/2019
Bourguignon, Mathieu	PSI 2016-77175-P WHAT KIND OF LISTENER ARE YOU? A DEGENERACY APPROACH TO SPEECH PROCESSING	Spanish Ministry	87.725 €	30/12/2016 29/12/2019

PI	Grant	Funding Agency	Amount	Period
Mancini, Simona and Alemán, José	FFI2016-76432-P LANGUAGE ATOMS: AN INVESTIGATION OF MOOD, PERSON AND TENSE FEATURES	Spanish Ministry	54.450 €	30/12/2016 29/12/2019
Duñabeitia, Jon Andoni	PI 2012-74 - THE TRILINGUAL LEXICON	Basque Government	23.924 €	01/01/2012 31/12/2013
Paz-Alonso, P.M. (Kepa)	PI 2012-15 DEVELOPMENT OF NEURAL MECHANISMS INVOLVED IN LONG-TERM MEMORY RETENTION AND RECUPERATION	Basque Government	45.090 €	01/01/2012 31/12/2013
Mancini, Simona	PI 2014-1-38 HABILIDADES LINGUISTICAS EN HABLANTES BILINGÜES Y MONOLINGÜES	Basque Government	49.094 €	01/11/2014 31/10/2016
Duñabeitia, Jon Andoni	PI 2015-1-27 GARUNA: BILINGÜISMO, NEUROCIENCIA Y TERCERA EDAD	Basque Government	19.004 €	23/09/2015 22/12/2016
Martin, Clara	PI 2015-1-25 COPA: COMO EL OYENTE PROCESA EL ACENTO	Basque Government	54.518 €	23/09/2015 22/12/2017
Paz-Alonso, P.M. (Kepa)	EXP.65/15 NEUROBIOLOGIA DE LA PRODUCCIÓN DEL LENGUAJE EN CONDICIONES DE COMPLEJIDAD VARIABLE	Gipuzkoa Government	35.962 €	01/10/2015 0/09/2016
Duñabeitia, Jon Andoni	2016-CIEN-000061-01 ARQUITECTURA DEL CEREBRO BILINGÜE		36.000 €	01/10/2016 30/09/2017
Carreiras, Manuel	RESEARCH INTO DRAVET'S SYNDROME AND UNTREATABLE CHANNELOPATHIES	DRAVET FOUNDATION	200.000 €	01/07/11 30/06/13
Carreiras, Manuel	09-RNP-089 CROSS-DISCIPLINARY APPROACHES TO UNDERSTANDING WORD STRUCTURE IN THE LANGUAGES OF EUROPE	European Science Foundation	565.000 €	2011 2015
Carreiras, Manuel	NPRP 6-378-5-035 LEARNING TO READ IN TWO ALPHABETS: TYPICAL DEVELOPMENT AND READING DISORDERS	Qatar Foundation	339.804 €	01/04/2014 31/03/2017
Duñabeitia, Jon Andoni	IN[16]_CJS_PSI_0037 CAMBIOS CEREBRALES ASOCIADOS A LA ALFABETIZACIÓN DE ADULTOS	Fundación BBVA	34.000 €	01/10/2016 31/03/2018

A. PUBLICATIONS

B. OPEN ACCESS

C. PARTICIPATION IN CONFERENCES & CONFERENCE PROCEEDINGS

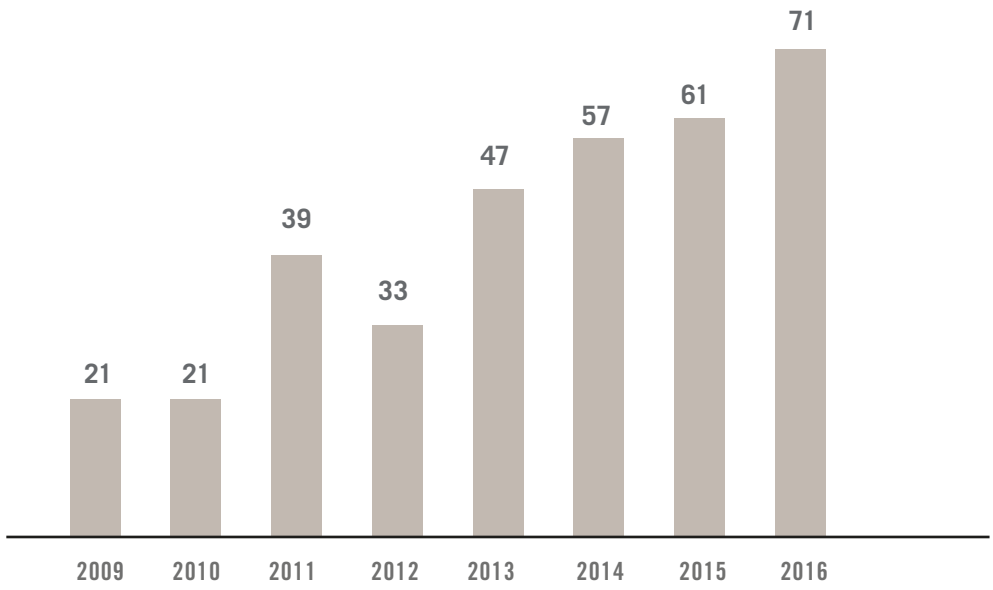
D. MASTER IN COGNITIVE NEUROSCIENCE OF LANGUAGE - CNL

E. DOCTORAL THESES

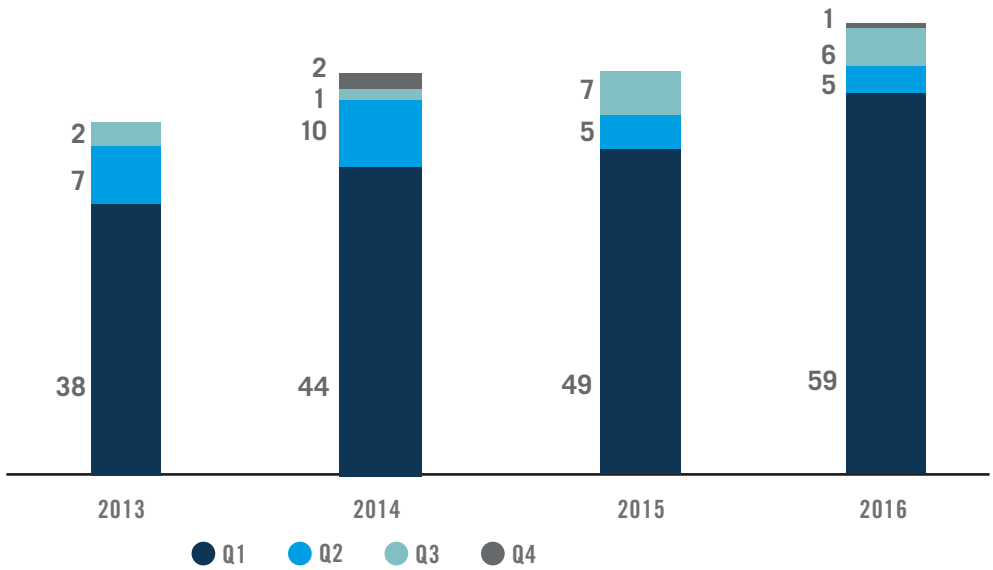
SCIENTIFIC PERFORMANCE

A. PUBLICATIONS

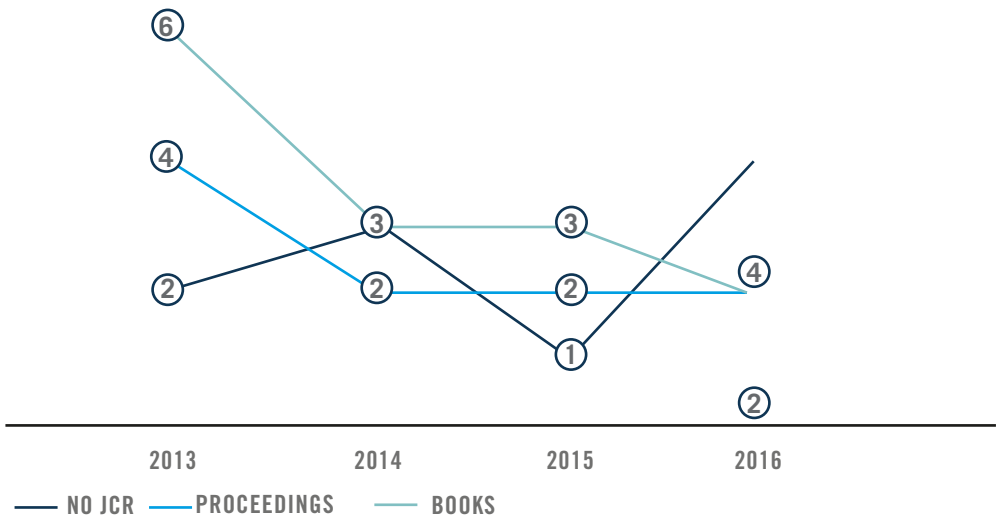
ISI PUBLICATIONS 2009 - 2016



ISI PUBLICATIONS 2013 - 2016



NO ISI PUBLICATIONS 2013-2016



Top journals, numbers of papers published, and impact factors during the period

Journal Name	No	IF*
Trends in Cognitive Sciences	3	17,85
Neuron	1	13,97
Trends in Neurosciences	1	12,50
Proceedings of the National Academy of Sciences of the United States of America	1	9,42
Current Biology	1	8,98
Neuroscience and Biobehavioral Reviews	1	8,58
Cerebral Cortex	4	8,28
Movement Disorders	1	6,01
Journal of Neuroscience	3	5,92
Psychological Science	7	5,47
The journals of gerontology. Series A, Biological sciences and medical sciences	1	5,47
NeuroImage	17	5,46
Scientific Reports	2	5,22
Journal of Memory and Language	13	5,21
Human Brain Mapping	3	4,96
Frontiers in Cellular Neuroscience	1	4,60
Medical Image Analysis	1	4,56
Cognitive Psychology	3	4,53
Journal of Psychiatric Research	1	4,46
Schizophrenia Research	1	4,45
Cortex	6	4,31
Developmental Science	2	3,98
NeuroImage: Clinical	2	3,85
Frontiers in Human Neuroscience	5	3,63
Journal of Cognitive Neuroscience	2	3,55
Journal of Neuropsychology	1	3,53
Journal of Neurosurgery	3	3,44
Cognition	7	3,41

Journal Name	No	IF*
Frontiers in behavioural Neuroscience	1	3,39
Journal of Experimental Psychology: Human Perception and Performance	2	3,35
Experimental Gerontology	1	3,35
Biological Psychology	1	3,23
Developmental Psychology	1	3,11
Psychonomic Bulletin & Review	6	3,08
Psychophysiology	2	3,07
PLoS ONE	11	3,05
Behavior Research Methods	3	3,04
Brain and Language	6	3,03
Neuropsychologia	7	2,98
Journal of Experimental Psychology: Learning, Memory and Cognition	5	2,77
Frontiers in Psychology	20	2,46
Neurocomputing	1	2,39
Bilingualism: Language and Cognition	2	2,33
British Journal of Psychology	1	2,24
Language and Cognitive Processes	4	2,10
Research in developmental disabilities	2	1,88
Language Learning	5	1,86
Annals of Dyslexia	1	1,79
Applied Psycholinguistics	1	1,58
Journal of Deaf Studies and Deaf Education	1	1,55
Language, Cognition and Neuroscience	8	1,47
Journal of Phonetics	1	1,22
Mind Brain and Education	1	1,18
Behavioral Sciences and the Law	1	1,05
Language and Speech	1	1,04

Note: *Impact factors for 2015, taken from latest Thomson Reuters Journal Citation Reports.
We list selected Q1 journals, in which BCBL researchers published during the 2013-2016 period.

2013

Journal Articles

1. Armstrong, B. C.*, & Plaut, D. C. (2013). *Simulating overall and trial-by-trial effects in response selection with a biologically-plausible connectionist network.* In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), Proceedings of the 35th Annual Conference of the Cognitive Science Society (pp. 139-144). Austin, TX: Cognitive Science Society

2. Baart, M., Vroomen, J., Shaw, K., & Bortfeld, H. (2013). *Phonetic information in audiovisual speech is more important for adults than for infants; preliminary findings.* In S. Ouni, F. Berthommier, & A. Jesse (Eds.). Proceedings of the 12th International Conference on Auditory-Visual Speech Processing (pp. 61 - 64). Annecy, France

3. Baus, C., Carreiras, M., & Emmorey, K. (2013). When does Iconicity in Sign Language Matter? *Language and Cognitive Processes,* 28:3, 261-271. Doi: 10.1080/01690965.2011.620374

4. Baus, C., Costa, A., & Carreiras, M. (2013). On the effects of second language immersion on first language production. *Acta Psychologica,* 142(3): 402-9. Doi: 10.1016/j.actpsy.2013.01.010

5. Beyersmann, E., Duñabeitia, J.A., Carreiras, M., Coltheart, M., & Castles, A. (2013). Early morphological decomposition of suffixed words: Masked priming evidence with transposed-letter nonword primes. *Applied Psycholinguistics,* 34, 869–892. Doi: 10.1017/S0142716412000057

6. Biro, M., Ković, V., Novović, Z., Pejović, J., Sokić, J., & Sovilj, P. (2013). ERP correlates of placebo and "anti-placebo" effects. *Primenjena psihologija,* 6(4), 339-354

7. Bobes, M.A., Lage Castellanos, A., Quiñones, I., García, L., & Valdes-Sosa, M. (2013). Timing and Tuning for Familiarity of Cortical Responses to Faces. *PLoS ONE* 8(10): e76100. Doi: 10.1371/journal.pone.0076100

8. Caballero, C., Van de Ville, D., Grouiller, F., Thornton, R., Lemieux, L., Seeck, M., Lazeyras, F., & Vulliemoz, S. (2013). Mapping interictal epileptic discharges using mutual information between concurrent EEG and fMRI. *NeuroImage*, 68, 248–262. Doi: 10.1016/j.neuroimage.2012.12.011

9. Caffarra, S., Pesciarelli, F., & Cacciari, C. (2013). The interaction between language and visual spatial attention systems in grammatical gender processing. *An N2pc study, Cognitive Neuroscience*, 4, (3-4), 217-224. Doi: 10.1080/17588928.2013.823392

10. Carreiras, M., Perea, M., Gil-López, C., Abu Mallouh, R., & Salillas, E. (2013). Neural correlates of visual versus abstract letter processing in Roman and Arabic scripts. *Journal of Cognitive Neuroscience,* 25:11, 1975–1985. Doi: 10.1162/jocn_a_00438

11. Chica*, A. B., Paz-Alonso*, P.M., Valero-Cabre, A., & Bartolomeo, P. (2013). Neural bases of the interactions between spatial attention and conscious perception. *Cerebral Cortex,* 23, 1269-1279. Doi: 10.1093/cercor/bhs087. *Equal contribution

12. Clifton, C., & Carreiras, M. (2013). Overview: does language production shape language form and comprehension? *Frontiers in Psychology,* 458: 4. Doi: 10.3389/fpsyg.2013.00458

13. Davidson, D. J., & Martin, A. (2013). Modeling accuracy as a function of response time with the generalized linear mixed effects model. *Acta Psychologica,* 144, 83–96. Doi: 10.1016/j.actpsy.2013.04.016

14. Della Puppa, A., De Pellegrin, S., d´Avella, E., Gioffre, G., Munari, M., Saladini, M., Salillas, E., Scienza, R., & Semenza, C. (2013). Right parietal cortex and calculation processing. Intra-operative functional mapping of multiplication and addition. *Journal of Neurosurgery,* 119(5):1107-11. Doi: 10.3171/2013.6.JNS122445

15. Della Puppa, A., De Pellegrin, S., Salillas, E., & Semenza, C. (2013). Calculation processing in right parietal cortex. Possible implications for neurosurgery. Editorial: Functional mapping, Sagher, M.D. *Journal of Neurosurgery,* 119(5): 1105-1106. Doi: 10.3171/2013.4.JNS13560

16. Duchon, A., Perea, M., Sebastián-Gallés, N., Martí, A., & Carreiras, M. (2013). EsPal: One-stop Shopping for Spanish Word Properties. *Behavior Research Methods*, 45: 1246-1258. Doi: 10.3758/s13428-013-0326-1

17. Duñabeitia, J.A., & Molinaro, N. (2013). The wide-open doors to lexical access. *Frontiers in Psychology*, 4:471. Doi: 10.3389/fpsyg.2013.00471

18. Duñabeitia, J.A., Dimitropoulou, M., Estévez, A., & Carreiras, M. (2013). The influence of reading expertise in mirror-letter perception: Evidence from beginning and expert readers. *Mind, Brain and Education*, 7(2), 124-135

19. Duñabeitia, J.A., Dimitropoulou, M., Morris, J., & Diependaele, K. (2013). The role of form in morphological priming: Evidence from bilinguals. *Language and Cognitive Processes,* 28(7), 967-987. Doi: 10.1080/01690965.2012.713972

20. Frost, R., & Keuleers, E. (2013). What can we learn from monkeys about orthographic processing in humans? A reply to Ziegler et al. *Psychological Science*, 24(9), 1868–1869. Doi: 10.1177/0956797613482145

21. Frost, R., Siegelman, N., Narkiss, A., & Afek, L. (2013). What predicts successful literacy acquisition in a second language? *Psychological Science*, 24, 1243-1252. Doi: 10.1177/0956797612472207

22. Hantsch, A., & Mädebach, A. (2013). What does the articulatory output buffer know about alternative picture names? Evidence against the response-exclusion hypothesis. *Language and Cognitive Processes,* 28:5, 684-700. Doi: 10.1080/01690965.2011.595725

23. Hernandez, M., Guerrero, G.D., Cecilia, J.M., Garcia, J.M., Inuggi, A., Jbabdi, S., Behrens, T.E.J., & Sotiropoulos, S.N. (2013). Accelerating Fibre Orientation Estimation from Diffusion Weighted Magnetic Resonance Imaging Using GPUs. *PLoS ONE*, 8(4): e61892. Doi:10.1371/journal.pone.0061892

24. Hernandez, M., Martin, C.D., Barcelo, F., & Costa, A. (2013). Where is the bilingual advantage in task-switching? *Journal of Memory & Language*, 69, 257-276. Doi: 10.1016/j.jml.2013.06.004

25. Hu, F.K., Fan, Z., Samuel, A.G., & He, S-C. (2013). Effects of display complexity size on location and feature inhibition. *Attention, Perception & Psychophysics,* 75:1619–1632. Doi: 10.3758/s13414-013-0509-y

26. Karahano˘glu, F.I., Caballero, C., Lazeyras, F., & Van De Ville, D. (2013). Total Activation: FMRI Deconvolution through Spatio-Temporal Regularization. *Neuroimage*, 73,121–134. Doi: 10.1016/j.neuroimage.2013.01.067

27. Lallier, M., Carreiras, M., Tainturier, M.J., Savill, N., & Thierry, G. (2013). Orthographic transparency modulates the grain size of orthographic processing: Behavioral and ERP evidence from bilingualism. *Brain Research*, 1505, 47-60. Doi: 10.1016/j.brainres.2013.02.018

28. Lallier, M., Donnadieu, S., & Valdois, S. (2013). Developmental dyslexia: Exploring how much phonological and visual attention span disorders are linked to simultaneous auditory processing deficits. *Annals of Dyslexia*, 63:97–116. Doi: 10.1007/s11881-012-0074-4

29. Lallier, M., Donnadieu, S., & Valdois, S. (2013). Investigating the role of visual and auditory search in reading and developmental dyslexia. *Frontiers in Human Neuroscience*, 7, 597. Doi: 10.3389/fnhum.2013.00597

30. Lallier, M., Thierry, G., & Tainturier, M. J. (2013). On the importance of considering individual profiles when investigating the role of auditory sequential deficits in developmental dyslexia. *Cognition*, 126(1),121-127. Doi: 10.1016/j.cognition.2012.09.008

31. Laszlo, S., & Armstrong, B. C.* (2013). Applying the dynamics of post-synaptic potentials to individual units in simulation of temporally extended ERP reading data. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society (pp. 2826-2831).* Austin, TX: Cognitive Science Society

32. Maccari, L., Casagrande, M.,Martella, D., Anolfo, M., Rosa, C., Fuentes, L.J., & Pasini, A . (2013). Change Blindness in Children With ADHD A Selective Impairment in Visual Search? *Journal of Attention Disorders*, 17(7), 620–627. Doi: 10.1177/1087054711433294

33. Mancini, S., Molinaro, N., & Carreiras, M. (2013). Anchoring Agreement in Comprehension. *Language and Linguistics Compass*, 7/1: 1–21. Doi: 10.1111/lnc3.12008

34. Marin-Garcia, E., Ruiz-Vargas, J.M., & Kapur, N. (2013). Mere exposure effect can be elicited in transient global amnesia. *Journal of Clinical and Experimental Neuropsychology*, 35:10, 1007-1014. Doi:10.1080/13803395.2013.844774

35. Martin, C.D., Strijkers, K., Santesteban, M., Escera, C., Hartsuiker, R.J., & Costa, A. (2013). The impact of early bilingualism on controlling a language learned late: an ERP study. *Frontiers in Psychology*, 4, 815. Doi: 10.3389/fpsyg.2013.00815

36. Martin, C.D., Thierry, G., Kuipers, J-R., Boutonnet, B., Foucart, A., & Costa, A. (2013). Bilinguals reading in their second language do not predict upcoming words as native readers do. *Journal of Memory & Language*, 69, 574–588. Doi: 10.1016/j.jml.2013.08.001

37. Massol, S., Duñabeitia, J. A., Carreiras M., & Grainger, J. (2013). Evidence for Letter-Specific Position Coding Mechanisms. *PLoS ONE* 8(7): e68460. Doi: 10.1371/journal.pone.0068460

38. Molinaro, N., Barber, H.A., Pérez, A., Parkkonen, L., & Carreiras, M. (2013). Left fronto-temporal dynamics during agreement processing: Evidence for feature-specific computations. *Neuroimage*, 78, 339-352. Doi: 10.1016/j.neuroimage.2013.04.025

39. Molinaro, N., Barraza, P., & Carreiras, M. (2013). Long-range neural synchronization supports fast and efficient reading: EEG correlates of processing expected words in sentences. *Neuroimage*, 72, 120-132. Doi: 10.1016/j.neuroimage.2013.01.031

40. Molinaro, N., Canal, P., Vespignani, F., Pesciarelli, F., & Cacciari, C. (2013). Are complex function words processed as semantically empty strings? A reading time and ERP study of Collocational Complex Prepositions. *Language and Cognitive Processes*, 28 (6), 762-788. Doi: 10.1080/01690965.2012.665465

41. Nieuwland, M.S. (2013). "If a lion could speak …": Online sensitivity to propositional truth-value of unrealistic counterfactual sentences. *Journal of Memory & Language*, 68, 54–67. Doi: 10.1016/j.jml.2012.08.003

42. Nieuwland, M.S., Martin, A.E., & Carreiras, M. (2013). Event-related brain potential evidence for animacy processing asymmetries during sentence comprehension. *Brain & Language*, 126(2), 151-158. Doi: 10.1016/j.bandl.2013.04.005

43. Paz-Alonso, P. M., Bunge, S.A., Anderson, M. C., & Ghetti, S. (2013). Strength of coupling within a mnemonic control network differentiates those who can and cannot suppress memory retrieval. *The Journal of Neuroscience*, 33 (11), 5017–5026. Doi: 10.1523/JNEUROSCI.3459-12.2013

44. Paz-Alonso, P.M., Gallego, P., & Ghetti, S. (2013). Age differences in hippocampus-cortex connectivity during true and false memory retrieval. *Journal of International Neuropsychological Society*, 19(10), 1031-1041. Doi: 10.1017/S1355617713001069

45. Paz-Alonso, P.M., Ghetti, S., Ramsay, I., Solomon, M., Yoon, J., Carter, C.S., & Ragland, J.D. (2013). Semantic processes leading to true and false memory formation in schizophrenia. *Schizophrenia Research*, 147, 320–325. Doi: 10.1016/j.schres.2013.04.007

46. Paz-Alonso, P.M., Goodman, G.S., & Ibabe, I. (2013). Adult eyewitness memory and compliance: Effects of post-event misinformation on memory for a negative event. *Behavioral Sciences and the Law,* 31(5), 541–558. Doi: 10.1002/bsl.2081

47. Perea, M., abu Mallouh, R., & Carreiras, M. (2013). Early access to abstract representations in developing readers: Evidence from masked priming. *Developmental Science*, 16, 564-573. Doi: 10.1111/desc.12052

48. Rodríguez-Pujadas, A., Sanjuán, A., Ventura-Campos, N., Román, P., Martin, C.D., Barceló, F., Costa, A., & Ávila, C. (2013). Bilinguals use language-control brain areas more than monolinguals to perform non-linguistic switching tasks. *PLoSONE*, 8(9): e73028. Doi: 10.1371/journal.pone.0073028

49. Roux, F., Wibral, M., Singer, W., Aru, J., & Uhlhaas, P.J. (2013). The Phase of Thalamic Alpha Activity Modulates Cortical Gamma-Band Activity: Evidence from Resting-State MEG Recordings. *Journal of Neuroscience*, 33(45):17827-17835. Doi: 10.1523/JNEUROSCI.5778-12.2013

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51. White, K.S., Yee, E., Blumstein, S.E., & Morgan, J. (2013). Adults show less sensitivity to phonetic detail in unfamiliar words, too. *Journal of Memory & Language*, 68, 362–378. Doi: 10.1016/j.jml.2013.01.003

52. Yee, E., Chrysikou, E., Hoffman, E., & Thompson-Schill, S.L. (2013). Manual Experience Shapes Object Representation. *Psychological Science*, 24(6), 909-919. Doi: 10.1177/0956797612464658

53. Zouridakis, G., Baart, M., Stekelenburg, J. J., & Vroomen, J. (2013). Speech perception: single trial analysis of the N1/P2 complex of unimodal and audiovisual evoked responses. Proceedings of the 13th IEEE International Conference on Bioinformatics and Bioengineering (paper ID 165).

Book chapters/books

1. Davidson, D.J. (2013). *Brain Activity During Second Language Processing* (ERP). In C. A. Chapelle (Ed.) Encyclopedia of Applied Linguistics. Wiley.

2. Hernandez, M., Martin, C.D., Sebastian-Gallés, N., & Costa, A. (2013). *Bilingualism beyond language: On the impact of bilingualism on executive control*. Cambridge Handbook of Biolinguistics (Boeck, x., Grohmann, K., eds.), Cambridge University Press. pp 160-177.

3. Mancini, S., Molinaro, N., & Carreiras, M. (2013). *Anchoring agreement*. In M. Sanz, M. Tanenhaus, M. & Laka, I. (Eds.), Language Down the Garden Path, Oxford: Oxford University Press. pp 280-293.

4. Paz-Alonso, P.M., Ogle, C.M., & Goodman, G.S., (2013). *Children's memory in scientific case studies of child sexual abuse: A review*. In B.S. Cooper, D. Griesel, & M. Ternes (Eds.), Applied issues in investigative interviewing, eyewitness memory, and credibility assessment pp. 143-171.

5. Rueda, M.R., & Paz-Alonso, P.M. (2013). *Executive function and emotional development*. In R. E. Tremblay, M. Boivin, & R. D. Peters (Eds.), Encyclopedia on early childhood development (pp. 1-6). Montreal, QC: Centre of Excellence for Early Childhood Development and the Strategic Knowledge Cluster on ECD.

6. Yee, E., Chrysikou, E.G., & Thompson-Schill, S.L. (2013). *Semantic Memory*. In Kevin Ochsner and Stephen Kosslyn (Eds.), The Oxford Handbook of Cognitive Neuroscience pp. 353-374. Oxford University Press.

2014

Journal Articles

1. Acha, J., & Carreiras, M. (2014). Exploring the mental lexicon: a methodological approach to understanding how printed words are represented in our minds. *The Mental Lexicon*, 9:2, 196 –231. Doi: 10.1075/ml.9.2.03ach

2. Acuña-Fariña, J.C., Meseguer, E., & Carreiras, M. (2014). Gender and number agreement in comprehension in Spanish. *Lingua*, 143, 108-128. Doi: 10.1016/j.lingua.2014.01.013

3. Antón, E., Duñabeitia, J.A., Estévez, A., Hernández-Cabrera, J.A., Castillo, A., Fuentes, L.J., Davidson, D.J., & Carreiras, M. (2014). Is there a bilingual advantage in the ANT task? Evidence from children. *Frontiers in Psychology*, 5:398. Doi: 10.3389/fpsyg.2014.00398

4. Baart, M., Stekelenburg, J. J., & Vroomen, J. (2014). Electrophysiological evidence for speech-specific audiovisual integration. *Neuropsychologia*, 53, 115-121. Doi: 10.1016/j.neuropsychologia.2013.11.011

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75. Villameriel, S., Dias, P., Costello, B., & Carreiras, M. (2016). Cross-language and cross-modal activation in hearing bimodal bilinguals. *Journal of Memory & Language*, 87, 59–70. Doi: 10.1016/j.jml.2015.11.005

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77. Yee, E., & Thompson-Schill, S.L. (2016). Putting concepts into context. *Psychonomic Bulletin & Review*, 23:1015–1027. Doi 10.3758/s13423-015-0948-7.

Book chapters/books

1. Mancini, S. (2016). *Physiology of Language*. In T. Shackelford & V. Weekes-Schakelford (eds). Encyclopedia of Evolutionary Psychology. Springer.

2. Ostiz-Blanco, M., Pina Calafi, A., Lizaso Azcárate, M., & Grau Carrión S. (2016). *ACMUS: Comparative assessment of a musical multimedia tool*. Bottino, R., Jeuring, J., Veltkamp, R.C. (eds.) Lecture Notes in Computer Science, 10056 (pp. 321-330), Springer International Publishing.

IN PRESS (DECEMBER 2016)

Journal Articles

1. Armstrong, B.C., Dumay, N., Kim, W., & Pitt, M.A. (in press). Generalization from newly learned words reveals structural properties of the human reading system. *Journal of Experimental Psychology*: General.

2. Armstrong, B.C., Frost, R., & Christiansen, M. H. (in press). The Long Road of Statistical Learning Research: Past, Present, and Future. *Philosophical Transactions of the Royal Society: Biological Sciences*.

3. Baart, M., Armstrong, B.C., Martin, C. D., Frost, R., & Carreiras, M. (in press). Cross-modal noise compensation in audiovisual words. *Scientific Reports*.

4. Bastarrika, A., & Davidson, D.J. (in press). An Event Related Field Study of Rapid Grammatical Plasticity in Adult Second-Language Learners. *Frontiers in Human Neuroscience*.

5. Branzi, F.M., Calabria, M., Gade, M., Fuentes, L.J., & Costa, A. (in press). On the bilingualism effect in task switching. *Bilingualism: Language and Cognition*.

6. Caballero-Gaudes, C., & Reynolds, R.C. (in press). Methods for cleaning the BOLD fMRI signal. *Neuroimage*.

7. Caffarra, S., Barber, H., Molinaro, N., & Carreiras, M. (in press). When the end matters: influence of gender cues during agreement computation in bilinguals. *Language, Cognition & Neuroscience*.

8. Caffarra, S., Martin, C.D., Lizarazu, M., Lallier, M., Zarraga, A., Molinaro, N., & Carreiras, M. (in press). Word and object recognition during reading acquisition: MEG evidence. *Developmental Cognitive Neuroscience*.

9. Campanella, S., Absil, J., Sinde, C. C., Schroder, E., Peigneux, P., Bourguignon, M., Petieau, M., Metens, T., Nouali, M., Goldman, S., Cheron, G., Verbanck, P., & De Tiège, X. (in press). Neural correlates of correct and failed response inhibition in heavy versus light social drinkers: an fMRI study during a go/no-go task by healthy participants. *Brain Imaging and Behavior*.

10. Canal, P., Pesciarelli, F., Vespignani, F., Molinaro, N., & Cacciari, C. (in press). Basic composition and enriched integration in idiom processing: an EEG study. *Journal of Experimental Psychology: Learning, Memory, and Cognition*.

11. Dias, P., Villameriel, S., Giezen, M.R., Costello, B., & Carreiras, M. (in press). Language switching across modalities: evidence from bimodal bilinguals. *Journal of Experimental Psychology: Learning, Memory, and Cognition*.

12. Duñabeitia, J.A., Crepaldi, D., Meyer, A.S., New, B., Pliatsikas, C., Smolka, E., & Brysbaert, M. (in press). MultiPic: A standardized set of 750 drawings with norms for six European languages. *Quarterly Journal of Experimental Psychology*.

13. Giezen, M. R., & Emmorey, K. (in press). Evidence for a bimodal bilingual disadvantage in letter fluency. *Bilingualism: Language and Cognition*.

14. Giezen, M.R., Costello, B., & Carreiras, M. (in press). Why space is not one-dimensional: Location may be categorical and imagistic. *Behavioral and Brain Sciences*.

15. Hansen, L.B., Morales, J., Macizo, P., Duñabeitia, J.A., Saldaña, D., Fuentes, L.J., Carreiras, M., & Bajo, M.T. (in press). Reading comprehension and immersion schooling: Evidence from component skills. *Developmental Science*.

16. Ho, N.F., Iglesias, J.E., Sum, M.Y., Kuswanto, C., Sitoh, Y.Y., Souza, J., Hong, Z., Fischl, B., Roffman, J., Zhou, J., Sim, K., & Holt, D. (in press). Progression from selective to general involvement of hippocampal subfields in schizophrenia. *Molecular Psychiatry*.

17. Lallier, M., Molinaro, N., Lizarazu, M., Bourguignon, M., & Carreiras, M. (in press). Amodal atypical neural oscillatory activity in dyslexia: A cross-linguistic perspective. *Clinical Psychological Science*.

18. Larraza, S., Samuel, A.G., & Oñederra, M.L. (in press). Where do dialectal effects on speech processing come from? Evidence from a cross-dialect investigation. *The Quarterly Journal of Experimental Psychology*.

19. Mancini, S., Quiñones, I, Molinaro, N., Hernandez, J.A., & Carreiras, M. (in press). Disentangling meaning in the brain: left-temporal involvement in agreement processing. *Cortex*.

20. Martin, A.E., Monahan, P.J., & Samuel, A.G. (in press). Prediction of agreement and phonetic overlap shape sublexical identification. *Language and Speech*.

21. May, L., Gervain, J., Carreiras, M., & Werker, J.F. (in press). The Specificity of the Neural Response To Speech at Birth. *Developmental Science*.

22. Molnar, M., Polka, L., Ménard, L. Baum, S., & Steinhauer, K. (in press). Vowel categorization of monolingual and simultaneous bilingual speakers of English and French: Effects of language experience and language mode. *Journal of the Acoustical Society of America*.

23. Oliver, M., Carreiras, M., & Paz-Alonso, P.M. (in press). Functional dynamics of dorsal and ventral reading networks in bilinguals. Cerebral Cortex.

24. Ordin, M., & Mennen, I. (in press). Cross-linguistic differences in bilinguals' fundamental frequency ranges. *Journal of Speech, Language and Hearing Research*.
25. Ordin, M., Polyanskaya, L., Laka, I., & Nespor, M. (in press). Cross-linguistic differences in the use of durational cues for the segmentation of a novel language. *Memory and Cognition*.

26. Pejovic, J., & Molnar, M. (in press). The development of spontaneous sound-shape matching in monolingual and bilingual infants during the first year. *Developmental Psychology*.

27. Polyanskaya, L., Ordin, M., & Busa, M. (in press). Relative Salience of Speech Rhythm and Speech Rate on Perceived Foreign Accent in a Second Language. *Language and Speech*.

28. Pourquié M. (in press). Afasiaren azterketa hizkuntza ezberdinetan neurozientzia kognitiboaren ikuspegitik [Aphasia research in different languages from the perspective of cognitive neuroscience]. *EKAIA Euskal Herriko Unibertsitateko Zientzi eta Teknologi Aldizkaria*.

29. Ramos, S.*, Fernández García, Y.*, Antón, E., Casaponsa, A., & Duñabeitia, J.A. (in press). Does learning a language in the elderly enhance switching ability? *Journal of Neurolinguistics*. *Equal contribution, corresponding authors.

30. Romero-Rivas, C., Corey, J. D., Garcia, X., Thierry, G., Martin, C. D., & Costa, A. (in press). World knowledge and novel information integration during L2 speech comprehension. *Bilingualism, Language and Cognition*.

31. Roux, F., Armstrong, B.C., & Carreiras, M. (in press). Chronset: An automated tool for detecting speech onset. *Behavior Research Methods*.

32. Semenza, C.*, Salillas, E.*, Di Pellegrin, S., & Della Puppa, A. (in press). Balancing the two hemispheres in simple calculation. Evidence from direct cortical electrostimulation. *Cerebral Cortex*. *Equal contribution, corresponding authors.

33. Siegelman, N., Bogaerts, L., & Frost, R. (in press). Measuring individual differences in statistical learning: Current pitfalls and possible solutions. *Behavior Research Methods*.

34. Siegelman, N., Bogaerts, L., Christiansen, M.H., & Frost, R. (in press). Towards a theory of individual differences in statistical learning. *Philosophical Transactions of the Royal Society: Biological Sciences*.

35. Smeds, E., Piitulainen, H., Bourguignon, M., Jousmäki, V., & Hari, R. (in press). Effect of interstimulus interval on cortical proprioceptive responses to passive finger movements. *European Journal of Neuroscience*.

36. Smeds, E., Vanhatalo, S., Piitulainen, H., Bourguignon, M., Jousmäki, V., & Haria, R. (in press). Corticokinematic coherence as a new marker for somatosensory afference in newborns. *Clinical Neurophysiology*.

37. Soto, D., (in press). How do we keep information 'on-line'? *Trends in Cognitive Sciences*.

Book chapters/books

1. Kartushina, N. (in press). *Interactions between native and non-native vowels in French-Danish contact: production training study*. In M.Yavas, M.Kehoe, and W.Cardoso (Eds.), Bilingual Phonology: Romance in Contact with Germani

B. OPEN ACCESS

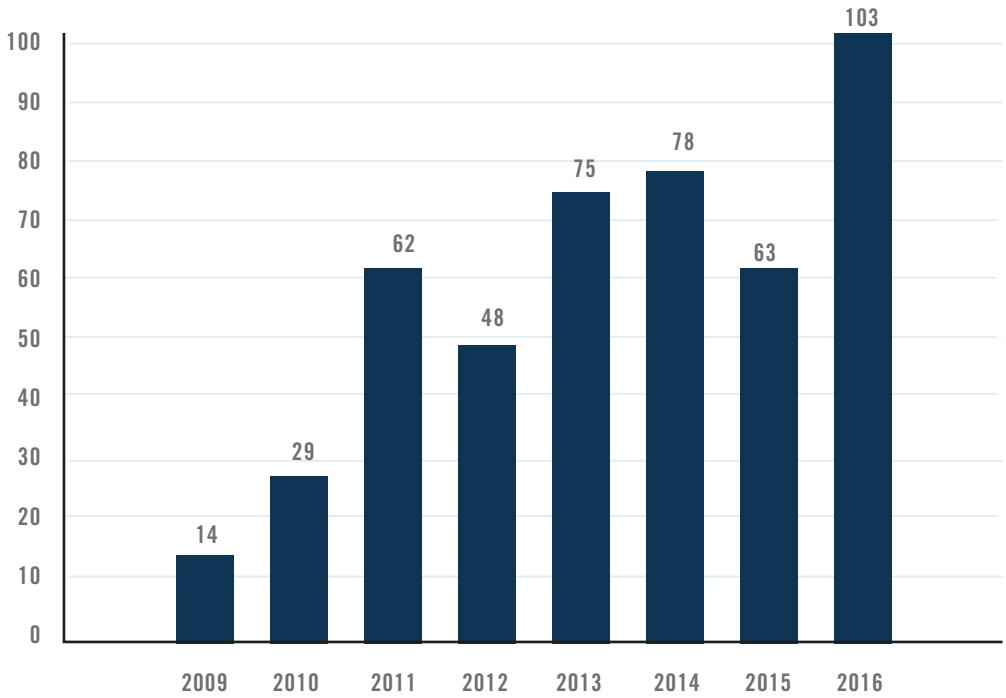
In order to optimize the impact of publicly-funded research both at European and national levels, since it is essential to enhance economic returns and improve competitiveness through knowledge, in 2016 the BCBL launched its "Open Access" policy so that results of publicly-funded research get disseminated broader and faster in the benefit of researchers, the innovation field and society in general.

To this end, the BCBL has made an agreement with the University of the Basque Country (UPV/EHU) to use ADDI (Archivo Digital para la Docencia y la Investigación) as its official repository to register all the scientific production of the center since January 2016.

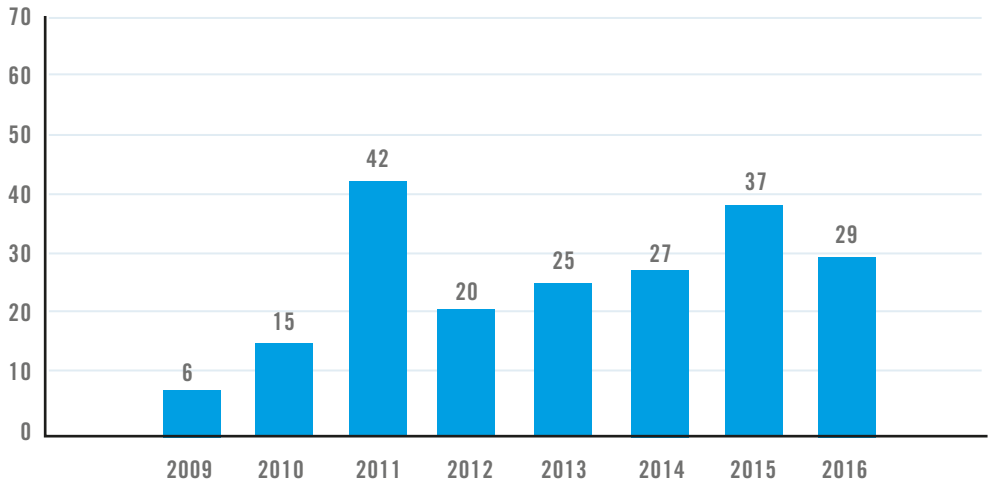
ADDI is the digital archive for learning and research materials of the University of the Basque Country (UPV/EHU) designed to organize, archive, preserve and disseminate via open-access the intellectual output generated as a product of the teaching and research activities and, therefore, includes PhD thesis, Master's thesis, end-of-degree projects, scientific papers, dissertations, book chapters, teaching material, etc.

C. PARTICIPATION IN CONFERENCES & CONFERENCE PROCEEDINGS

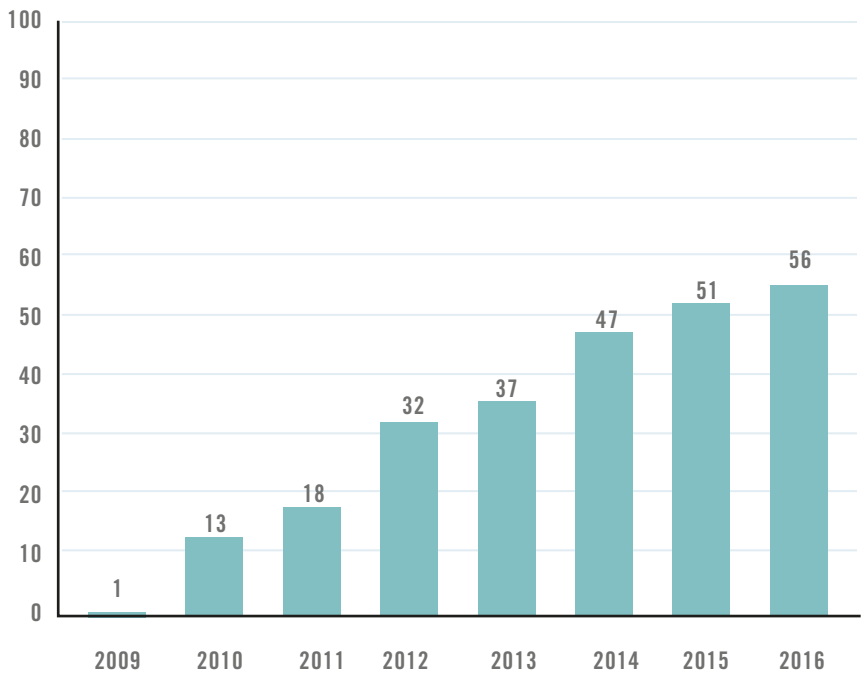
POSTER PRESENTATIONS



ORAL PRESENTATIONS



INVITED TALKS



	2009	2010	2011	2012	2013	2014	2015	2016	TOTAL
POSTER PRESENTATIONS	14	29	62	48	75	78	63	103	472
ORAL PRESENTATIONS	6	15	42	20	25	27	37	29	201
INVITED TALKS	1	13	18	32	37	47	51	56	255

2013

Poster Presentations

1. Antón, E., Casaponsa, A., Dimitropoulou, M., Carreiras, M. & Duñabeitia, J.A. (November, 2013). Masked language-switching priming effects in trilingual readers. Poster presented at the 54th Annual Meeting of the Psychonomic Society, Toronto, Canada.

2. Antón, E., & Dumay, N. (March, 2013). Neighbours from hell: affect effects in visual word recognition. Poster presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

3. Antón, E., Duñabeitia, J.A., Macizo, P., Hernández, J.A., Estévez, A., Bajo, M.T., Fuentes, L.J., & Carreiras, M. (March, 2013). Inhibitory advantage in bilingual children: myth or reality? Poster presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

4. Armstrong, B.C., & Laszlo, S. (August, 2013). Putting emergence to the test: Modeling the effects of context in the time and frequency domain on the N400 Component. Poster presented at the 35th Annual Meeting of the Cognitive Science Society (CogSci 2013), Humboldt University, Berlin, Germany.

5. Armstrong, B. C., & Laszlo, S. (November, 2013). Examining the N400 repetition effect in the frequency domain with a combined empirical and computational approach. Poster presented at the 54th Annual Meeting of the Psychonomic Society, Toronto, Canada.

6. Baart, M., de Boer-Schellekens, L., & Vroomen, J. (May, 2013). Lipread-induced phonetic recalibration in dyslexia. Poster presented at the IWORDD Workshop, Donostia-San Sebastián, Spain.

7. Baart, M., Vroomen, J., Shaw, K., & Bortfeld, H. (January, 2013). Infants' audiovisual speech integration does not hinge on phonetic knowledge. Poster presented at the 5th Workshop on Speech in Noise, Vitoria-Gasteiz, Spain.

8. Baart, M., Vroomen, J., Shaw, K., & Bortfeld, H. (June, 2013). Infants' audiovisual speech integration does not hinge on phonetic knowledge. Poster presented at Workshop on Infant Language Development (WILD 2013), Donostia-San Sebastián, Spain.

9. Bastarrika, A. & Davidson, D.J. (July, 2013). Does eye-closure improve your memory? Poster presented at the 3rd International Max-Planck Research School (IMPRS 2013) Summer School, Leipzig, Germany.

10. Bastarrika, A., Monahan, P. J., & Davidson, D.J. (April, 2013). The auditory contralateral advantage as a model system to study connectivity. Poster presented at 20th Annual Meeting of the Cognitive Neuroscience Society (CNS 2013), San Francisco, USA.

11. Bortfeld, H., Baart, M., Shaw, K., & Vroomen, J. (November, 2013). Infants' audiovisual speech integration does not hinge on phonetic knowledge. Poster at the Annual Meeting of the Society for the Neurobiology of Language, San Diego, USA.

12. Caballero Gaudes, C., Van De Ville, D., Grouiller, F., Thornton, R. Lemieux, L., Seeck, M., Lazeyras, F. & Vulliemoz, S. (June, 2013). Information-theoretic analysis of interictal epileptic discharges using simultaneous EEG-fMRI. Poster presented at 19th Annual Meeting of the Organization of Human Brain Mapping, (OHBM 2013), Seattle, USA.

13. Caballero-Gaudes, C., Karahanoglu, F.I., Lazeyras, F. & Van de Ville, D. (April, 2013). Single Trial Characterization of the BOLD Response at 3T Using Structured Sparse Functionals with Paradigm Free Mapping. Poster presented at Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM 2013), Salt Lake City, USA.

14. Caffarra, S., Siyanova, A., Pesciarelli, F., Vespignani, F. & Cacciari, C. (October, 2013). The role of gender-to-ending consistency in Italian agreement processing. Poster presented at LIII Annual Meeting of the Society for Psychophysiological Research (SPR 2013), Florence, Italy.

15. Casaponsa, A., Carreiras, M., & Duñabeitia, J.A. (April, 2013). Language switching in multilingual reading: It's all about bigrams! Poster presented at 20th Annual Meeting of the Cognitive Neuroscience Society (CNS 2013), San Francisco, USA.

16. Casaponsa, A., Carreiras, M., & Duñabeitia, J.A. (March, 2013). Little things in life are important (at least for multilinguals). Poster presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

17. Corey, J., Garcia, X., Martin, C.D., Thierry, G., & Costa, A. (September, 2013). Is that so? An ERP study on the auditory comprehension of new knowledge. Poster at the 19th Architectures and Mechanisms for Language Processing Conference (AMLaP 2013), Marseille, France.

18. Costello, B. & Carreiras, M. (July, 2013). LSE lexicon: vital statistics. Poster presented at Poster presented at Theoretical Issues in Sign Language Research (TISLR11 2013), London, UK.

19. Costello, B. (July, 2013). Three important considerations for sign language agreement: location, location, location. Poster presented at Theoretical Issues in Sign Language Research (TISLR11 2013), London, UK.

20. De Baene, W., Brass, M., & Carreiras, M. (May, 2013). Neural underpinnings of language inhibition in multilinguals. Poster presented at International Workshop on Bilingualism and Cognitive Control, Krakow, Poland.

21. Dimitropoulou, M., Duñabeitia, J.A., & Carreiras, M. (March, 2013). Does L2 proficiency modulate cognate masked translation priming effects? Electrophysiological evidence. Poster presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

22. Dumay, N., & Bowers, J.S. (July-August, 2013). Do voices survive lexical consolidation? Poster presented at the 35th Annual Conference of the Cognitive Science Society, Berlin, Germany.

23. Duñabeitia, J.A., Quiñones, I., & Carreiras, M. (April, 2013). Are there different brain mechanisms for letter, symbol and digit position coding? fMRI evidence for orthographic specificity. Poster presented at 20th Annual Meeting of the Cognitive Neuroscience Society (CNS 2013), San Francisco, USA.

24. Frost, S., Molfese, P., Paz-Alonso, P.M., Bick, A., Wen-Jui, K., Pugh, Ken., Rueckl, J. (November 2013). Properties of the writing system determine the overlap of the speech and reading systems in the brain. Poster presentation at the 54th Annual meeting of the Psychonomics Society, Toronto, Canada.

25. Garcia, X., Martin, C.D., Potter, D., Melinger, A., & Costa, A. (September, 2013). Excuse me Sir, shall I use your word frequency? Poster at the 19th Architectures and Mechanisms for Language Processing Conference (AMLaP 2013), Marseille, France.

26. García Pentón, L., Pérez, Fernández A., Iturria-Medina, Y., & Carreiras, M. (May, 2013). Bilingualism tiger anatomical connectivity changes in the brain. Poster presented at The International Workshop on Bilingualism and Cognitive Control, Krakow, Poland.

27. Gil, C., Carreiras, M. & Salillas, E. (March, 2013). Bilingual number codes: Interactions between verbal and visuospatial WM components. An ERP study. Poster presented at 11th International Symposium of Psycholinguistics. Tenerife, Spain.

28. Grouiller, F., Darqué, A., Caballero Gaudes, C., Ha-Vinh Leucter, R. Huppi, P., & Lazeyras. F. (June, 2013). To smell or not to smell: Habituation of the brain to sustained odorant stimulation revealed by fMRI. Poster presented at 19th Annual Meeting of the Organization of Human Brain Mapping, (OHBM 2013), Seattle, USA.

29. Gwilliams, L. E., Monahan, P.J., & Samuel, A.G. (June, 2013). Why an Avalanche is faster than an Explosion: Evidence from a Grammatical Decision Task. Poster presented at The 8th International Morphological Processing Conference, Cambridge, UK.

30. Hansen, L.B., Macizo, P., Carreiras, M., Fuentes, L. & Bajo, M.T. (March, 2013). Emergent Bilingualism and Verbal Working Memory Development at School Age. Poster presented at the 11th International Symposium of Psycholinguistics, Tenerife, Spain.

31. Karahanoglu, F.I., Grouiller, F., Caballero Gaudes, C., Seeck, M., Vulliemoz, S., & Van De Ville, D. (June, 2013). Localizing Sources of Interictal Epileptic Discharges using Total-Activation Regularized BOLD FMRI. Poster presented at 19th Annual Meeting of the Organization of Human Brain Mapping, (OHBM 2013), Seattle, USA.

32. Lallier, M., Acha, J. & Carreiras, M. (March, 2013). Influence of orthographic transparency on letter string processing in French-Basque and Spanish-Basque bilingual children. Poster presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

33. Lallier, M., Donnadieu, S., & Valdois, S. (May, 2013). Visual and auditory search performance in dyslexic children. Poster presented at the IWORDD Workshop, Donostia-San Sebastián, Spain.

34. Lallier, M., Carreiras, M., Thierry, G., & Tainturier, M.J. (August-September, 2013). Early childhood language exposure shapes auditory temporal attentional skills in adulthood. Poster presented at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

35. Lallier, M., Molnar, M., & Carreiras, M. (September, 2013) Perceptual tone grouping abilities of typically developing and at risk of dyslexia infants from Spanish-Basque monolingual and bilingual language backgrounds. Poster presented at VII International Conference on Language Acquisition, Bilbao, Spain.

36. Laszlo, S., & Armstrong, B. C.* (July, 2013). Applying the dynamics of post-synaptic potentials to individual units in simulation of temporally extended ERP reading data. Poster presented at the Proceedings of the 35th Annual Conference of the Cognitive Science Society, Berlin, Germany. * = presenter

37. Larraza, S. & Samuel, A.G. (November, 2013). Do Spanish-Basque and French-Basque Simultaneous Bilinguals Perceive Basque Dialectal Variation Differently? Poster presented at the 54th Annual Meeting of the Psychonomic Society, Toronto, Canada.

38. Larraza, S. & Samuel, A. (August-September, 2013). How is Dialectal Variation Treated by Bilinguals with Different Native Dialects? Poster presented at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

39. Larraza, S. & Samuel, A. (September, 2013). Perceiving Dialectal Variation in L2: The effect of AoA. Poster presented at the 19th Architectures and Mechanisms for Language Processing Conference (AMLaP 2013), Marseille, France.

40. Leone-Fernández, B., Carreiras, M., Hernández-Cabrera, J.A. & Barber, H.A. (March, 2013). The Spanish verb "to be" for transient versus permanent states: an ERP study of syntax - semantics interaction. Poster presented at the 11th International Symposium of Psycholinguistics, Tenerife, Spain.

41. Lerma-Usabiaga, G., García-Penton, L. Carreiras, M., & Paz-Alonso, P.M. (November, 2013). Hippocampal structural differences associated with mnemonic control across different methodologies. Poster presented at the Annual Meeting of the Society for Neuroscience, San Diego, USA.

42. Lerma-Usabiaga, G., Paz-Alonso, P.M., Quiñones, I., Caballero, C., Oliver, M., Suarez-Coalla, M. P., Cuetos, F., Duñabeitia J. A., & Carreiras, M. (November, 2013). Structural and functional correlates of the left thalamus in dyslexia. Poster presented at the Annual Meeting of the Society for Neuroscience, San Diego, USA.

43. Mancini, S. Carreiras, M. & Molinaro, N. (August-September, 2013). Birds don't speak: an eye-movement study of the morphosyntax-pragmatics interface in agreement processing. Poster presented at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

44. Martin, C.D., Blanco, E., Duñabeitia, J.A. (November, 2013). Do handedness and language dominance work hand-in-hand? Poster presented at the 54th annual meeting of the Psychonomic Society, Toronto, Canada.

45. Martin, C.D., Garcia, X., Breton, A., Thierry, G., & Costa, A. (April, 2013). Semantic and world-knowledge integration during second language comprehension. Poster presented at 20th Annual Meeting of the Cognitive Neuroscience Society (CNS 2013), San Francisco, USA.

46. Martínez, A., Salillas, E. (October, 2013) Code Switching in Bilinguals. An ERP Study. Poster presented at International Conference on Multilingualism, Montreal, Canada.

47. Massol, S., Duñabeitia, J.A., Carreiras, M., & Grainger, J. (March, 2013). Effects of contiguous and non-contiguous character transpositions in perceptual matching. Poster presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

48. Massol, S., Midgley, K. J., Holcomb, P. J., & Grainger, J. (August-September, 2013). Effects of size and case on masked repetition priming with nonwords: An ERP investigation. Poster presented at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

49. Massol, S., Midgley, K. J., Holcomb, P. J., & Grainger, J. (November, 2013). Repetition Priming With Nonwords: ERP Evidence for Case and Size Sensitivity. Poster presentation at the 54th Annual Meeting of the Psychonomic Society, Toronto, Canada.

50. Molinaro, N., Lallier, M, Lizarazu, M., Bourguignon, M., & Carreiras, M. (May, 2013). Evidence in favor of the sluggish attentional shifting hypothesis of dyslexia: A magnetoencephalography study in dyslexic children. Poster presented at the IWORDD Workshop, Donostia-San Sebastián, Spain.

51. Molinaro, N., Lallier, M., Lizarazu, M., Bourguignon, M., & Carreiras, M. (April, 2013). Brain-tuning to amplitude modulations at different frequencies: Evidence for increased theta and reduced beta synchronization in dyslexic children. Poster presented at the 3rd Oxford-Kobe symposium on Dyslexia, Oxford, UK.

52. Molinaro, N., Mancini, S., Quiñones, I., & Carreiras, M. (2013, April). Who is doing what? Left temporal involvement for sentence reading. Poster presented at the 20th Meeting of the Cognitive Neuroscience Society, San Francisco, USA.

53. Molinaro, N., Paz-Alonso, P.M., Duñabeitia, J.A., & Carreiras. (August-September, 2013). Semantic combinatorial processing of low-typical expressions. Poster presented at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

54. Molnar, M. & Bease-Berk, M. (June, 2013). The role of language context and language dominance in the development of bilingual infant babbling. Poster presented at Workshop on Infant Language Development (WILD 2013), Donostia-San Sebastián, Spain.

55. Molnar, M., Lallier, M. & Carreiras, M. (March, 2013). Perceptual tone grouping of monolingual and bilingual infants (with and without familial risk of dyslexia). Poster presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

56. Molnar, M., Lallier, M. & Carreiras, M. (June, 2013). Tone perception abilities of typically developing and infants at risk of dyslexia from monolingual and bilingual language backgrounds. Poster presented at Workshop on Infant Language Development (WILD 2013), Donostia-San Sebastián, Spain.

57. Molnar, M., Peña, M., Quiñones, I., Baart, M., Caballero, C., & Carreiras, M. (November, 2013). Monolingual and bilingual infants follow different developmental patterns in neural specialization of native speech processing. Poster at the Boston University Conference on Language Development (BUCLD 2013), Boston, USA.

58. Oliver, M., Carreiras, M., Paz-Alonso, P.M. (November, 2013). Language orthography and task demands modulate the engagement of regions within the reading networks. Poster presented at the Annual Meeting of the Society for Neurobiology of Language, San Diego, USA.

59. Oliver, M., Carreiras, M., Paz-Alonso, P.M. (November, 2013). Sensitivity of the visual word form are to reading demands. Poster presented at the Annual Meeting Society for Neuroscience. San Diego, USA.

60. Orihuela, K.B., Carreiras, M., & Duñabeitia, J.A. (March, 2013). The more I read, the less I know you? Influence of literacy in object recognition. Poster presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

61. Paz-Alonso, P.M., Quiñones, I., Caballero, C., Oliver, M., Suarez-Coalla, M.P., Cuetos, F., Duñabeitia, J.A., & Carreiras, M. (May, 2013). Neural correlates of the ran in typical and atypical developing readers. Poster presented at the IWORDD Workshop, Donostia-San Sebastián, Spain.

62. Paz-Alonso, P.M., Quiñones, I., Caballero, C., Oliver, M., Suárez-Coalla, M.P., Cuetos, F., Duñabeitia, J.A., & Carreiras, M. (April, 2013). Neurodevelopmental correlates of the rapid-automatized-naming in typical and atypical developing readers. Poster presented at 3rd Oxford-Kobe symposium on Dyslexia, Oxford, UK.

63. Paz-Alonso, P.M., Rueda, M.R., Guerra, S., Oliver, M., & Carreiras, M. (April, 2013). Training executive functions induced neural changes in reading. Poster presented at 20th Annual Meeting of the Cognitive Neuroscience Society (CNS 2013), San Francisco, USA.

64. Pejović, J., Molnar, M. & Martin, C. (June, 2013). The development of sound-shape correspondence in the monolingual and bilingual mind. Poster presented at Workshop on Infant Language Development (WILD 2013), Donostia-San Sebastián, Spain.

65. Pejović, J. Molnar, M., & Martin, C. (July, 2013). The development of sound-shape correspondence in the monolingual and bilingual mind. Poster presented at the Basque Neuroscience Meeting (Neurogune 2013), Bilbao, Spain.

66. Pérez, A., Gillon Dowens, M., Molinaro, N., Iturria-Medina, Y., & Carreiras. (May, 2013). Complex functional EEG network properties differ in late L2 learners as compared to native-speakers. Poster presented at The International Workshop on Bilingualism and Cognitive Control, Krakow, Poland.

67. Pufahl, A., & Samuel, A.G. (November, 2013). Let sleeping dogs lie: The persistence of co-occurring variability in memories supporting speech perception. Poster presented at the 54th annual meeting of the Psychonomic Society, Toronto, Canada.

68. Quiñones I., Molinaro N., Mancini S., Hernández J.A. & Carreiras M. (April, 2013). Conflict and integration in sentence processing: fMRI evidence. Poster presented at 20th Annual Meeting of the Cognitive Neuroscience Society (CNS 2013), San Francisco, USA.

69. Roux, F., de Baene, W., & Carreiras, M. (November, 2013). A framework for the automated analysis of speech production data. Poster presented at the Annual Meeting of the Society for Neurobiology of Language, San Diego, USA.

70. Roux, F., Wibral, M., Singer, W., Aru, J., & Uhlhaas, P.J. (November, 2013). The phase of thalamic alpha activity entrains cortical gamma-band activity in parietal cortex: evidence from resting state meg recordings. Poster presented at the Annual Meeting of the Society for Neuroscience, San Diego, USA.

71. Rueda, M.R., Paz-Alonso, P.M., Guerra, S., Oliver, M., & Carreiras, M. (April, 2013). Functional changes in frontal regions induced by training executive functions in middle childhood. Poster presented at Society for Research in Child Development, Seattle, USA.

72. Shitova, N.M., Bastarrika, A., Monahan, P.J., & Davidson, D.J. (July, 2013). Oscillatory activity associated with the contralateral and ipsilateral auditory pathways. Poster presented at the Basque Neuroscience Meeting (Neurogune 2013), Bilbao, Spain.

73. Su, J., Molinaro, N. Mancini, S. & Carreiras, M. (June, 2013). The ERP correlates during the processing of gender stereotypes in Spanish. Poster presented at the Language, Cognition & Gender. Final Conference of the Initial Training Network on Language, Cognition and Gender (ITN LCG 2013), Bern, Switzerland.

74. Urizar, X., & Samuel, A.G. (March, 2013). Hesitation markers in Basque: A corpus-based study among Basque L1 native speakers. Poster presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

75. Zhang, X., & Samuel, A.G. (November, 2013). Activation of embedded words in spoken word recognition: The effect of position and proportion. Poster presented at the 54th annual meeting of the Psychonomic Society, Toronto, Canada.

Oral Presentations

1. Acha, J., Sistiaga, A., & Lallier, M. (2013, November). What is the role of morphemes when learning to read in agglutinative languages? Evidence from Basque-Spanish bilingual children. Oral presentation at the Lexical workshop for the 54th Annual Meeting of the Psychonomic Society, Toronto, Canada.

2. Armstrong, B. C. (February, 2013). More neurally-realistic computational models better explain empirical data: Evidence from studies of word comprehension and response selection. Oral presentation at the 25th Annual Winter Conference on Neural Plasticity, Curacao, Netherlands Antilles.

3. Armstrong, B. C., & Plaut, D. C. (July, 2013). Simulating overall and trial-by-trial effects in response selection with a biologically-plausible connectionist network. Oral presentation at the 35th Annual Conference of the Cognitive Science Society, Berlin, Germany.

4. Baart, M., Vroomen, J., Shaw, K., & Bortfeld, H. (August-September, 2013). Phonetic information in audiovisual speech is more important for adults than for infants; preliminary findings. Oral presentation at the 12th International Conference on Auditory-Visual Speech Processing (AVSP 2013) (pp. 61 - 64). INRIA, Annecy, France.

5. Bastarrika, A., Monahan, P.J., & Davidson, D.J. (July, 2013). Contralateral Advantage as a model system to study connectivity, Oral presentation at the auditory Basque Neuroscience Community Meeting (Neurogune 2013), Bilbao, Spain.

6. Baus, C., Sebanz, N., de la Fuente, V., Branzi, F.M., Martin, C.D., & Costa, A. (September, 2013). Joint Production: the effect of predicting other's upcoming words on speech production. Oral presentation at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

7. Caffarra, S., Siyanova-Chanturia, A., Pesciarelli, F, Vespignani, F., & Cacciari, C. (August, 2013). Gender-to-ending consistency and agreement processing in Italian: two independent effects? Oral presentation at the XVIIIth Conference of the European Society for Cognitive Psychology (ESCOP), Budapest, Hungary.

8. Costello, B. & Carreiras, M. (September 2013). Una radiografía fonológica de LSE. Oral presentation at the Congreso CNLSE 2013, Madrid, Spain.

9. De Baene, W., Salillas, E., & Carreiras, M. (August, 2013). Control in bilingual language comprehension. Paper presented at the Workshop on Neurobilingualism, Groningen, The Netherlands.

10. Dumay, N., Bowers, J.S., & Damian, M.F. (January, 2013). The impact of neighbour acquisition on phonological retrieval. Oral presentation at the Abstracts of the Meeting of the Experimental Psychology Society (p. 2), University College London, London, UK.

11. Duñabeitia, J.A. & Carreiras, M. (August-September, 2013). How does literacy shape letter processing? Oral presentation at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

12. Foucart, A., Martin, C.D., Thierry, G., Moreno, E., Kuipers, J-R., Boutonnet, B., Calabria, M., & Costa, A. (September 2013). Can bilinguals guess what's coming? Word anticipation in L2 sentence reading. Oral presentation at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

13. Mancini, S., Molinaro, N, Avilés, A. & Carreiras, M. (March, 2013). Humanity Matters: eye-tracking reveals late sensitivity to human and non-human subjects in agreement comprehension. Paper presented at 11th International Symposium of Psycholinguistics, Tenerife, Spain.

14. Massol, S., Carreiras, M., & Duñabeitia, J. A. (November 2013). Perceiving and overseeing consonantal overlap: what, when and how? Oral presentation at the 7th Tucson Lexical Processing Workshop, London, Canada.

15. Molinaro, N., Paz-Alonso, P.M., Duñabeitia, J.A. & Carreiras, M. (March, 2013). Beyond word meaning: Combining contrasting concepts relies on the dorsal pathway. Oral presentation at the 11th International Symposium of Psycholinguistics, Tenerife, Spain.

16. Molnar, M., Gervain, J., Peña, M., Baart, M., Quiñones, I. & Carreiras, M. (June, 2013). Language discrimination in monolingual and bilingual infants of Spanish and Basque. Oral presentation at Workshop on Infant Language Development (WILD 2013), Donostia-San Sebastián, Spain.

17. Molnar, M., Lallier, M., & Carreiras, M. (August-September, 2013). Perceptual tone grouping of monolingual and bilingual infants: A window into early syntax acquisition. Oral presentation at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

18. Molnar, M., Peña, M., Quiñones, I., Baart, M., Caballero, C. & Carreiras, M. (October, 2013). Native speech processing is supported by different neural specialization in young monolingual and bilingual infants. Oral presentation at the International Conference on Multilingualism, McGill University, Montreal, Canada.

19. Molnar, M., Peña, M., Caballero, C., Baart, M., Quiñones, I, & Carreiras, M. (November, 2013). Different neural specializations support native speech processing of young monolingual and bilingual infants. Oral presentation at the Annual Meeting of the Society for the Neurobiology of Language, San Diego, USA.

20. Paz-Alonso, P.M. (April, 2013). Developmental changes in control processes over memory retrieval: Behavioral and neuroimaging evidence. Oral presentation at Society for Research in Child Development, Seattle, USA.

21. Paz-Alonso, P.M. (April, 2013). Neurocognitive processes supporting semantic encoding underlie developmental differences in true and false memories. Oral presentation at Society for Research in Child Development, Seattle, USA.

22. Rueda, M.R., Pozuelos, J.P., Combita, L.M., Abundis, A., & Paz-Alonso, P.M. (April, 2013). Progress on training children's executive attention: Understanding individual differences and building bridges to education. Oral presentation at Society for Research in Child Development, Seattle, USA.

23. Salillas, E. Gil, C., Martinez, A., & Carreiras, M. (August-Septmeber, 2013). ERPs reveal a durational processing deficit in Developmental Dyscalculia. Oral presentation at the 18th Conference of the European Society for Cognitive Psychology (ESCOP 2013), Budapest, Hungary.

24. Samuel, A.G., & Frost, R. (November, 2013). Do lexical representations support phonetic perception in non-native listening as they do in native listening? Talk presented at the 54th annual meeting of the Psychonomic Society. Toronto, Canada.

25. Zouridakis, G., Baart, M., Stekelenburg, J. J., & Vroomen, J. (November, 2013). Speech perception: single trial analysis of the N1/P2 complex of unimodal and audiovisual evoked responses. Oral presentation at the 13th IEEE International Conference on BioInformatics and BioEngineering (IEEE BIBE 2013), Chania, Greece.

Invited Talks

1. Armstrong, B. C. (March, 2013). Designing better experiments using the SOS algorithm and software. Invited talk at the Computational Methods in Psychology seminar, State University of New York, Binghamton, USA.

2. Armstrong, B. C. (November, 2013). Cross-linguistic influences on the "fuzziness" of letter position coding: connectionist simulations of English and Hebrew. Invited talk at the Reading and Language Group, University of Pittsburgh, Pittsburgh, USA.

3. Caffarra, S., Siyanova, A., Pesciarelli, F., Vespignani, F., & Cacciari, C. (June, 2013). The role of the word ending during the processing of gender agreement in Italian. Language, Cognition & Gender. Invited talk at Final Conference of the Initial Training Network on Language, Cognition and Gender (ITN LCG 2013), Bern, Switzerland.

4. Carreiras, M. (January, 2013). Living in Babel: effects of bilingualism on cognitive processes & brain mechanisms. Invited talk at the seminar of the Welcome Trust Centre for Neuroimaging, London, UK.

5. Carreiras, M. (January, 2013). Cerebros lectores: ¿Qué cambia cuando aprendemos a leer? Invited talk at the seminar of JAKIUNDE, Donostia-San Sebastián, Spain.

6. Carreiras, M. (January, 2013). Babel: ¿maldición o bendición? Invited talk at the seminar of Donostia Kultura, Donostia-San Sebastián, Spain.

7. Carreiras, M. (January, 2013). La Lectura: mecanismos cognitivos y neurales. Invited talk at the seminar of the University of A Coruña, A Coruña, Spain.

8. Carreiras, M. (March, 2013). Lectura y bilingüismo. Invited talk at the seminar of Bizkaia Xede / Mondragon Unibertsitatea, Arrasate, Spain.

9. Carreiras, M. (April, 2013). Research methods in Psycholinguistics. Invited talk at the 31st International Conference AESLA, Universidad de La Laguna, La Laguna, Spain.

10. Carreiras, M. (May, 2013). Living in Babel: Effects of Bilingualism on Cognitive Processes and Brain Mechanisms. Invited talk at the Postgraduate Research Conference 2012-2013: Opening Ceremony and Multilingual Academy, Hong Kong.

11. Carreiras, M. (May, 2013). Mechanisms of agreement. Invited talk at the 3er Workshop em Processamento Anafórico, Universidade Federal Fluminense, Nitéroi, Brazil.

12. Carreiras, M. (August, 2013). Efectos del aprendizaje de la lectura y de una segunda lengua en las redes neuronales. Invited talk at the XIV Reunión Nacional y III Encuentro Internacional de la AACC, Asociación Argentina de Ciencias del Comportamiento, Córdoba, Argentina.

13. Carreiras, M. (August, 2013). Neurociencia y Educación: un viaje del laboratorio a la escuela. Invited talk at seminar of the University of Buenos Aires, Argentina.

14. Carreiras, M. (September 2013). Aprender a leer e aprender a falar en outra lingua: correlatos neuronales. Invited talk at the 21st Conference of the Brazilian Society of Speech-Language Therapy, SBFa - Sociedade Brasileira de Fonoaudiologia, Porto de Galinhas, Brazil.

15. Carreiras, M. (September 2013). Procesamiento de signos: correlatos conductuales y neuronales de los parámetros configuracionales. Invited talk at the Congreso CNLSE 2013, Madrid, Spain.

16. Carreiras, M. (October, 2013). Living in Babel: brain mechanisms in second language learners. Invited talk at the University of California San Diego, La Jolla, USA.

17. Carreiras, M. (October, 2013). Lectura, mente y cerebro. Invited talk at III Xornadas Galegas de Dislexia, AGADIX, Lugo, Spain.

18. Carreiras, M. (October, 2013). How to handle two languages in one brain: some mysteries about bilingualism. Invited talk at International Conference on Multilingualism, McGill University, Montreal, Canada.

19. Carreiras, M. (December, 2013). El cerebro bilingüe. Invited talk at Primer Encuentro Vasco-Chileno de Investigación Biomédica at Pontificia Universidad Católica de Chile, Santiago de Chile, Chile.

20. Costello, B. (September, 2013). El cerebro que signa: el lenguaje al alcance de nuestras manos. Invited talk as part of the II Semana de Lengua de Signos organized by The Deaf People's Association of Navarre (ASORNA), Pamplona, Spain.

21. Costello, B. (November, 2013). El proyecto LSE-Sign y últimas tendencias en investigación de lengua de signos [The LSE-Sign project and recent trends in sign language research]. Invited talk for Trainee Sign Language Interpreters, Botika Zahar Institute, Bilbao, Spain.

22. Davidson, D. (March, 2013). Event-related spectral power to spoken words during L2 retrieval practice. Invited talk at the "Magic Moments" lexicalization workshop in Nijmegen, Germany.

23. Duñabeitia, J.A. (April, 2013). Inhibitory advantage in bilingual children: myth or reality? Invited talk at Paap's laboratory, San Francisco State University, San Francisco, USA.

24. Duñabeitia, J.A. (April, 2013). Letter position and letter identity: Two sides of the same coin? Invited talk at the University Pompeu Fabra, Barcelona, Spain.

25. Duñabeitia, J.A. (November, 2013). What can simultaneous balanced bilinguals show us? Myths, facts and trends. Invited talk at the Workshop Learning New Words in L2, Lille, France.

26. Frost, R. (April 19, 2013). Literacy acquisition in a second language. Invited talk at Universitat Pompeu Fabra, Barcelona, Spain.

27. Lerma-Usabiaga, G., Paz-Alonso, P.M. (November, 2013). Neuroimaging in childhood. Talk at 11ª Jornadas del proyecto INMA, Donostia-San Sebastián, Spain.

28. Hanulikova, A. (January 24, 2013). Comprehending foreign-accented speech. Invited talk at Faculty of Biology, University of Freiburg, Freiburg, Germany.

29. Lallier, M. (June, 2013). Cross-linguistic interactions on reading and reading subprocesses: Evidence in early bilinguals. Invited talk at Psychology department of Genoa University, Italy.

30. Lallier, M. (November, 2013). Neuropsychological assessment in childhood. Talk at 11ª Jornadas del proyecto INMA, Donostia-San Sebastián, Spain.

31. Martin, C.D. (April 11, 2013). Auditory feedoback and bilingualism. Invited talk at Houde's laboratory, University of California San Francisco, San Francisco, USA.

32. Martin, C.D. (April 12, 2013). Sentence processing in a second language. Invited talk at Paap's laboratory, San Francisco State University, San Francisco, USA.

33. Massol, S. (June, 2013). Letter coding mechanisms: evidence from the perceptual matching task. Invited talk at Laboratoire de Psychologie Cognitive. Marseille, France.

34. Molinaro, N. (January 10, 2013). Brain dynamics underlying combinatorial semantics. Invited talk at University of Trento, Trento, Italy.

35. Molinaro, N. (September, 2013). Composing meaning in the Human Brain. Invited talk at University of Milano-Bicocca, Milano, Italy.

36. Roux, F. (July 3, 2013). Alpha and Gamma-Band Oscillations in MEG-Data: Networks, Function and Development. Invited talk at MEG Center, Frankfurt, Germany.

37. Samuel, A. (May 28, 2013). Dynamic Lexical Activity: Supporting Speech Perception in L1 and L2. Colloquium at the University of York, York, UK.

2014

Poster Presentations

1. Antón, E., Thierry, G., Carreiras, M. & Duñabeitia, J.A. (July, 2014). Mixing languages in a bilingual learning context: beneficial or detrimental? Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastián, Spain.

2. Antón, E., Thierry, G., Carreiras, M. & Duñabeitia, J.A. (November, 2014). Multilingual vs. Monolingual Concept Acquisition: Which is Stronger? Poster presented at the 55th Annual Meeting of the Psychonomic Society Annual Meeting, Long Beach, USA.

3. Antzaka, A., Lallier, M., Acha, J., & Carreiras, M. (December, 2014). The visual attention span in young readers´ lexical decision: Does the presence of morphological information modulate its role? Poster presented at "APPREC – Learning Written Language: Diversity of languages, Uniqueness of disorders", in Strasbourg, France.

4. Antzaka, A. & Yee, E. (June, 2014). How does recent attention to colour modify colour's salience as a semantic feature? Poster presented at the workshop "Color in Concepts: Color Representation and Processing in Language and Cognition", Düsseldorf, Germany.

5. Armstrong, B.C., Barreiro Abad, E., & Samuel, A.G. (November, 2014). Cascaded vs. stage-like semantic access in spoken and written word recognition: Insights from lexical decision. Poster presented at the 55th Annual Meeting of the Psychonomic Society Annual Meeting, Long Beach, USA.

6. Armstrong, B.C., Ruiz-Blondet, M., & Laszlo, S. (2014, November). A neural network method for simulating the time-course of simple context-sensitive word recognition simultaneously in the time and frequency domains. Poster presented at the 2014 Annual Meeting of the Society for Neuroscience, Washington D.C. USA.

7. Aurtenetxe, S., Castellanos, N.P., Cuesta, P., Garces, P., & López, M.E., Pineda, J., Bajo, R., Marcos, A., Delgado, M., Llanero, M., & Maestu, F. (October, 2014). Aberrant oscillations during memory retention in mild cognitive impairment. Poster presented at Tübingen MEG symposium, Tübingen, Germany.

8. Baart, M., & Samuel, A.G. (November, 2014). The N200 Lexicality Effect is Unaffected by Lip-read Context. Poster presentation at the 55th Annual Meeting of the Psychonomic Society, Long Beach, USA.

9. Baart, M., & Samuel, A.G. (August, 2014). Early robust auditory lexical processing revealed by ERPs. Poster presented at the the 6th Annual Meeting of the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

10. Baart, M., & Samuel, A.G. (June, 2014). Audiovisual speech integration is not modulated by the lexicon. Poster presented at the 15th International Multisensory Research Forum (IMRF 2014), Amsterdam, The Netherlands.

11. Bastarrika, A., & Davidson, D.J. (August, 2014). Is eye-closure alpha related to memory-success alpha? Poster presented at the 19th Conference on Biomagnetism (BIOMAG 2014), Halifax, Canada.

12. Bergouignan, L., Nyberg, L. & Ehrsson, H. (July, 2014). Hippocampus dependency to in-body encoding. Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastian, Spain.

13. Blanco, B., Molnar, M., Carreiras, M., & Caballero-Gaudes, C. (July, 2014). Investigating resting state functional connectivity in bilingual and monolingual infants with near infrared spectroscopy. Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastian, Spain.

14. Boddy, P., Yee, E. (April, 2014). What the Ear Hears Affects What the Eyes See: Semantic Interference on Visual Task. Poster presented at 21st Annual Meeting of Cognitive Neuroscience Society (CNS 2014), Boston, USA.

15. Boddy, P., Yee, E. (May, 2014). What the ear hears affects what the eyes see: semantic interference on visual task. Poster presented at the Workshop on Concepts, Actions and Objects, Rovereto, Italy.

16. Bortfeld, H., Shaw, K., & Baart, M. (August, 2014). Infants can perceive audiovisual speech asynchrony (if it's asynchronous enough). Poster presented at the 6th Annual Meeting of the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

17. Caballero-Gaudes, C. (July, 2014). Investigating the dynamics of human brain function at rest with paradigm free mapping and BOLD fMRI. Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastian, Spain.

18. Caffarra, S. & Barber, H. (April, 2014). The role of gender-to-ending consistency in Spanish sentence processing. Poster presented at 21st Annual Meeting of Cognitive Neuroscience Society (CNS), Boston, USA.

19. Casaponsa, A., Carreiras, M., Duñabeitia, J. A. (July, 2014). Bilingual language discrimination: Electrophysiological evidence for language selectivity. Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastian, Spain.

20. Casaponsa, A., Antón, E., Carreiras, M., & Duñabeitia, J.A. (August, 2014). Masked language switch cost effects: now you see them, now you don´t. Poster presented at the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

21. Casaponsa, A., Carreiras, M., Antón, E., Pérez, A., & Duñabeitia, J. A. (November, 2014). Psycholinguistic forecast of nonnative language comprehension achievement. Poster presented at the 55th Annual Meeting of the Psychonomic Society, Long Beach, USA.

22. Chow, W. Y., MacMillan, G., Shah, S., Kurenkov, I., Lau, E., & Phillips, C. (2014). Partial use of available information in the early stages of verb prediction. Poster presented at the 27th Annual CUNY Human Sentence Processing Conference, Columbus, USA.

23. Dumay, N., & Aristei, S. (July 16-18, 2014). Semantic cumulative interference and the cascading of information in speech production. Poster presented at International Workshop on Language Production, Geneva, Switzerland.

24. Duñabeitia, J.A., Carreiras, M., & Pérez-Fernández, A. (August, 2014). Fading out a foreign language. Poster presented at the 2014 meeting of the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

25. Duñabeitia, J.A., Ivaz, L., Casaponsa, A. & Carreiras, M. (November, 2014). Word translation processes across childhood and adolescence. Poster presented at the 55th Annual Meeting of the Psychonomic Society, Long Beach, USA.

26. Duñabeitia, J.A., Quiñones, I., & Carreiras, M. (2014). Reading minds: How and where does orthographic processing occur in the brain? Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastián, Spain.

27. Fariña, N., Betancort, M. & Gutiérrez-Sigut, E. (June, 2014). Effect of iconicity in deaf readers. Poster presented at Formal and Experimental Advances in Sign Language Theory Colloquium (FEAST 2014), Venice, Italy.

28. Fernández-García, Y., García-Pentón, L., Carreiras, M. & Duñabeitia, J.A. (July 24, 2014). Digging into the bilingual brain in the elderly. Poster presented at Development, Functions and Disorders of the Nervous System 2014, Montreal, Canada.

29. Fernández-García, Y., García-Pentón, L., Quiñones, I., Carreiras, M. & Duñabeitia, J.A. (June, 2014). Does age of second language acquisition modulate grey-matter volume in the elderly? Poster Presented at the 20th Annual Meeting of the Organization for Human Brain Mapping (OHBM 2014), Hamburg, Germany.

30. García-Pentón, L., Duñabeitia, J.A., Fernández-García, Y., Pérez Fernández, A., Quiñones, I., & Carreiras, M. (June, 2014). How does bilingualism shape neural networks in the youth and the elderly? Poster presented at the 20th Annual Meeting of the Organization for Human Brain Mapping (OHBM 2014), Hamburg, Germany.

31. García-Pentón, L., Duñabeitia, J.A., Fernández, Y., Pérez, A. & Carreiras, M. (July, 2014). How does lifelong bilingualism alter the structure and connectivity of the brain: Preliminary results. Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastián, Spain.

32. Gil, C., Carreiras, M., & Salillas, E. (January, 2014). Bilingual number codes differ in the access of the mental number line: electrophysiological evidence during a Working Memory task. Poster presented at the 32nd European Workshop on Cognitive Neuropsychology, Bressanone, Italy.

33. Ishida, M., Samuel, A.G., & Arai, T. (November, 2014). Perception of locally time-reversed words and pseudo-words. Poster presentation at the 55th Annual Meeting of the Psychonomic Society, Long Beach, USA.

34. Lallier, M., Lizarazu, M., Molinaro, N., Bourguignon, M. & Carreiras, M. (April, 2014). Oscillations cérébrales et troubles phonologiques dans la dyslexie développementale. Poster presented at 2ème Réunion de printemps de la SOFTAL, Société Francophone des Troubles d'Apprentissage et du Langage, Paris, France.

35. Lerma-Usabiaga, G., García-Penton, L., Bunge, S., Carreiras, M. & Paz-Alonso, P.M. (June, 2014). Functional and structural changes associated with nmemonic control. Poster Presented at the 20th Annual Meeting of the Organization for Human Brain Mapping (OHBM 2014). Hamburg, Germany.

36. Lerma-Usabiaga, G, Iglesias, J.E., Carreiras, M., Paz-Alonso, P.M. (July, 2014). Optimization of the hippocampal segmentation along its longitudinal axis. Poster presented at Neurogune, 2nd Basque Neuroscience Meeting. Donostia-San Sebastián, Spain.

37. Lerma-Usabiaga, G., Quiñones, I., Caballero, C., Oliver, M., Duñabeitia, J.A., Carreiras, M. & Paz-Alonso, P.M. (August, 2014). Multimodal MRI converging evidence underlying the role of the left thalamus in dyslexia. Poster presented at the Society for Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

38. Lerma-Usabiaga, G., Quiñones, I., Caballero, C., Oliver, M., Duñabeitia, J.A., Carreiras, M., Paz-Alonso, P.M. (August 2014). Structural and functional correlates of the left thalamus in dyslexia. Poster presentation at the Neurobiology of Language congress, Amsterdam, The Netherlands.

39. Lizarazu, M., Lallier, M., Bourguignon, M., Paz-Alonso, P.M., Lerma, G., Carreiras, M., & Molinaro, N. (August, 2014). Evidence for age-related effects in auditory entrainment in dyslexia: an MEG study. Poster presented at the 19th International Conference on Biomagnetism (BIOMAG 2014), Halifax, Canada.

40. Lizarazu, M., Lallier, M., Bourguignon, M., Carreiras, M. & Molinaro, N. (July, 9). Atypical neural synchronization to auditory stimuli in adults and children with and without dyslexia: an MEG study. Poster Presented at Neurogune, 2nd Basque Neuroscience Meeting. Donostia-San Sebastián, Spain.

41. Marin-Garcia, E., Mattfeld, A.T., Candon K.C., & Gabrieli, J.D.E. (April, 2014). The "testing effect": Retrieval related functional neuroimaging differences after a week delay. Poster presented at 21st Annual Meeting of Cognitive Neuroscience Society (CNS 2014), Boston, USA.

42. Marin-Garcia, E., Mattfeld, A.T., Candon, K.C. & John D. E. Gabrieli, J.D.E. (July, 2014). Neurobiological bases of the testing effect: functional neuroimaging after a week delay. Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastián, Spain.

43. Marin-Garcia, E., Mattfeld, A.T., Candon, K.C. & John D. E. Gabrieli, J.D.E. (July, 2014). The 'testing effect': functional neuroimaging and connectivity differences after a week delay. Poster presented at International Workshop on Learning and Memory Consolidation, Donostia-San Sebastián, Spain.

44. Marin-Garcia, E., Mattfeld, A.T., & Gabrieli, J.D.E. (November, 2014). Resting state connectivity related with retrieval practice. Poster presented at 44th Annual Meeting of Society for Neuroscience (SfN 2014), Washington DC, USA.

45. Martin, C.D., Duñabeitia, J.A., Niziolek, C.A., Carreiras, M., & Houde, J.F. (April, 2014). What affects auditory feedback in speech motor control? Poster presented at 21st Annual Meeting of Cognitive Neuroscience Society (CNS 2014), Boston, USA.

46. Martin, C., Molnar, M., & Carreiras, M. (August, 2014). It's good to see you again: Bilinguals rely on visual interlocutor identity for activating appropriate language modes. Poster presented at the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

47. Martínez, A. & Salillas, E. (January, 2014). A dominant code for math in balanced bilinguals. Electrophysiological evedence from code switching. Poster presented at the 32nd European Workshop on Cognitive Neuropsychology, Bressanone, Italy.

48. Massol, S., Berdasco, E., Molinaro, N., Duñabeitia, J.A., & Carreiras, M. (2014). Cross-Language Effects in a Picture-Word Matching Task: An ERP Investigation. Poster presented at the 55th Annual Meeting of the Psychonomic Society Annual Meeting, Long Beach, California, USA.

49. Mattfeld, A.T., Marin-Garcia, E., Candon, K.C., & Gabrieli, J.D.E. (April, 2014). Transfer of "testing effect": Generalization of memory benefits derived from testing practice to studied only items. Poster presented at 21st Annual Meeting of Cognitive Neuroscience Society (CNS 2014), Boston, USA.

50. Medeiros, J.A.V., & Duñabeitia, J.A. (December, 2014). Factors determining suffix priming. Poster presented at "3° Colóquio Internacional sobre Leitura: Processos de leitura e perturbações", Lisboa, Portugal.

51. Molinaro, N., Lizarazu, M., Bourguignon, M., Lallier, M., & Carreiras, M. (August, 2014). Phonological disorders in dyslexia: MEG evidence for left inferior frontal locus of the impairment. Poster presented at the 19th Conference on Biomagnetism (BIOMAG 2014), Halifax, Canada.

52. Molinaro, N., Lizarazu, M., Bourguignon, M., Lallier, M., & Carreiras, M. (April, 2014). Reduced low-frequency sampling of speech in dyslexic readers. Poster presented at 21st Annual Meeting of Cognitive Neuroscience Society (CNS 2014), Boston, USA.

53. Molinaro, N., Quiñones, I., Mancini, S., & Carreiras, M. (June, 2014). Fine-grained Selectivity of the Anterior Temporal Cortex to Agreement Features. Poster Presented at the 20th Annual Meeting of the Organization for Human Brain Mapping (OHBM 2014). Hamburg, Germany.

54. Molinaro, N., Quiñones, I., Mancini, S., & Carreiras, M. (July, 2014). Fine-grained Selectivity of the Anterior Temporal Cortex to Agreement Features. Poster Presented at Neurogune, 2nd Basque Neuroscience Meeting. Donostia-San Sebastián, Spain.

55. Molnar, M., Blanco, B., Carreiras, M. & Caballero-Gaudes, C. (August, 2014). Functional connectomes in monolingual and bilingual infants during resting state. Poster presented at the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

56. Molnar, M. & Carreiras, M. (July, 2014). Young bilingual infants ability of linking novel interlocutors to familiar languages. Poster presented at International Workshop on Learning and Memory Consolidation, Donostia-San Sebastián, Spain.

57. Molnar, M., Pejović, J., Yee, E. & Carreiras, M. (July 3-5, 2014). Are all bilingual infants created equal? Cognitive gains in preverbal Basque-Spanish bilingual and Spanish monolingual infants. Poster presented at XIX Biennial International Conference on Infant Studies, Berlin, Germany.

58. Monsalve, I.F., Pérez, A., & Molinaro, N. (August, 2014). Oscillatory responses to highly predictable words differentiate between expectations based on semantic or associative contextual constraints. Poster presented at the Annual Meeting of the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

59. Monsalve, I.F., Pérez, A., & Molinaro, N. (July, 2014). Oscillatory responses to highly predictable words differentiate between expectations based on semantic or associative contextual constraints. Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastián, Spain.

60. Oliver, M., Carreiras, M. & Paz-Alonso, P.M. (August, 2014). Ventral and dorsal reading networks are modulated by task demands and language orthography: Regional and functional connectivity evidence. Poster presented at the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

61. Oliver, M., Carreiras, M. & Paz-Alonso, P.M. (June, 2014). Task and language orthography modulation of the ventral and dorsal reading networks. Poster Presented at the 20th Annual Meeting of the Organization for Human Brain Mapping (OHBM 2014). Hamburg, Germany.

62. Paz-Alonso, P.M., Frost, S.J., Oliver, M., Molfese, P.J., Bick, A., Wen-Jui, K., Wu, D.H., Tzeng, O., Pugh, K.R., Rueckl, J., Frost, R., & Carreiras, M. (April, 2014). Network dynamics of reading and speech systems across languages. Poster Presented at the 21st Annual Meeting of the Cognitive Neuroscience Society (CNS 2014), Boston, US.

63. Pejović, J., Molnar, M., & Martin, C. (2014). What is the shape of bubano? The sound-shape correspondence in 4-month-old-infants. Poster presented at the 21st Annual Meeting of Cognitive Neuroscience Society (CNS 2014), Boston, USA.

64. Pejović, J., Molnar, M., Martin, C., & Yee, E. (August, 2014). Shape-sound matching abilities are limited in young monolingual and bilingual infants. Poster presented at the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

65. Pérez, A., García-Pentón, L., Canales-Rodríguez, E.J., Lerma-Usabiaga, G., Davidson, D., Alemán-Gómez, Y., Iturria-Medina, Y. Acha, J., & Carreiras., M. (19-24, July 2014). Brain morphometry of Dravet Syndrome. Poster presented at the International Society for Developmental Neuroscience (ISDN 2014) & NeuroDevNet 2014 Joint Meeting, Montreal, Canada.

66. Pérez, A., García, L., Lerma, G., Canales, E., & Carreiras, M. (July, 2014). Brain Morphology of Dravet Syndrome. Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastián, Spain.

67. Quiñones, I., Duñabeitia, J.A., & Carreiras, M. (June, 2014). Recycled brain regions for reading? Evidence for interconnectivity between face and word processing. Poster presented at the 20th Annual Meeting of the Organization for Human Brain Mapping (OHBM 2014), Hamburg, Germany.

68. Quiñones, I., Duñabeitia, J.A., & Carreiras, M. (July, 2014). Look at my face and tell me what's written… if you can! Poster presented at Neurogune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastián, Spain.

69. Quiñones, I., Duñabeitia, J.A., & Carreiras, M. (August, 2014). Recycling the fusiform gyrus for reading? Poster presentation at the Society for the Neurobiology of Language (SNL 2014), Amsterdam, The Netherlands.

70. Romero-Rivas, C., Martin, C., & Costa, A. (October, 2014). On-line adaptation in spoken sentence comprehension: processing foreign-accented speech. Poster presented at Congress of the Spanish Society for Experimental Psychology (SEPEX 2014), Murcia, Spain.

71. Romero-Rivas, C., Martin, C., & Costa, A. (October, 2014). Is semantic memory shaped by the speaker's accent? Converging evidences from speech comprehension and the DRM false memory paradigm studies. Poster presented at Congress of the Spanish Society for Experimental Psychology (SEPEX 2014), Murcia, Spain.

72. Roux, F., Mohr, H., Wibral, M., Singer, W., & Uhlhaas, P.(July, 2014). Age related changes of MEG alpha and gamma-band activity reflect the late maturation of distractor-inhibition during working memory maintenance. Poster presented at the 12th International Conference on Cognitive Neuroscience (ICON 2014), Brisbane, Australia.

73. Rueckl, J., Frost, S.J., Molfese, P.J., Paz-Alonso, P.M., Wen-Jui, K., Bick, A., Mencl, E., Wu, D.H., Tzeng, O., Frost, R., Carreiras, M., & Pugh, K.R. (April, 2014). How properties of the writing system determine the convergence of the speech and reading systems in the brain. Poster Presented at the 21st Annual Meeting of the Cognitive Neuroscience Society (CNS 2014), Boston, USA.

74. Schlöffel, S., Lallier, M., Martin, C., & Carreiras, M. (December, 2014). How does language proficiency influence the decoding of unfamiliar letter strings in bi-literate children? Poster presented at "APPREC – Learning Written Language: Diversity of languages, Uniqueness of disorders", Strasbourg, France.

75. Schlöffel, S., Martin, C., Lallier, M., Caffarra, S. & Carreiras, M. (July, 2014). Does orthographic depth influence non-linguistic processing. Poster presented at NeuroGune, 2nd Basque Neuroscience Meeting, Donostia-San Sebastián, Spain.

76. Schlöffel, S., Martin, M., Lallier, S., Caffarra, S. , & Carreiras, M. (September, 2014). Does the orthographic depth of one language affect reading in another? Poster presented at the 24th annual conference of the European Second Language Association (EUROSLA 2014), York, United Kingdom.

77. Shaw, K., Gaafar, J., Baart, M., & Bortfeld, H. (November 2014). Infants perceptually tune to multisensory Speech. Poster presentation at the 55th Annual Meeting of the Psychonomic Society, Long Beach, USA.

78. Zhang, X., & Samuel, A.G. (November, 2014). Phonological and semantic activation and lexical competition in spoken word recognition. Poster presentation at the 55th Annual Meeting of the Psychonomic Society, Long Beach, USA.

Oral Presentations

1. Antón. E., Thierry, G., Carreiras, M., & Duñabeitia, J.A. (September, 2014). On the positive effects of mixing languages for concept learning. Oral presentation at Congress of the Spanish Society for Experimental Psychology (SEPEX 2014), Murcia, Spain.

2. Arganda-Carreras, I., Iglesias, J.E., Jenett, A., Manoliu, T., Rouyer, F., & Andrey, P. (October, 2014). Group-wise registration methods to construct statistical atlases of Drosophila adult brains. Oral presentation at the VIB Conference on Bioimage Informatics, Leuven, Belgium.

3. Armstrong, B. C. (2014). Probing the structure of neural representations via the frequency and time Domains: Co-ordinated computational and electrophysiological studies. Oral presentation at the 26th Annual Winter Conference on Neural Plasticity, Vieques Island, U. S. Caribbean.

4. Armstrong, B. C. (July, 2014). Understanding the time-course of ambiguous word comprehension. Oral presentation at the European Cognitive Psychology (ESCOP 2014), Society Summer School, Donostia-San Sebastian, Spain.

5. Armstrong, B. C. (2014, July). SOS: An algorithm and software for the Stochastic Optimization of Stimuli. Oral presentation at the European Cognitive Psychology (ESCOP 2014), Society Summer School, Donostia-San Sebastian, Spain.

6. Armstrong, B. C., Martin, C., Carreiras, M., & Frost, R. (2014, July). Grapheme-phoneme mappings are not necessarily symmetrical: A cross-linguistic comparison. Oral presentation at the 29th Annual Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science, Toronto, Canada.

7. Casaponsa, A., Carreiras, M., Antón, E., Pérez, A., & Duñabeitia, J.A. (September, 2014). Predicting nonnative language achievement with the cognate effect. Oral presentation at Congress of the Spanish Society for Experimental Psychology (SEPEX 2014), Murcia, Spain.

8. Chow, W. Y., Li, N., Wang, S., & Phillips, C. (2014). Are our eyes really faster than our brains? Evidence from Mandarin Chinese reading. Oral presentation at the second East Asian Psycholinguistics Colloquium, Chicago, USA.

9. Gil, C., Carreiras, M., & Salillas, E. (September, 2014). The impact of speaking two languages on the Mental Number Line: Electrophysiological evidence during a verbal WM task. Oral presentation at Congress of the Spanish Society for Experimental Psychology (SEPEX 2014), Murcia, Spain.

10. Iglesias, J.E., Van Leemput, K., Augustinack, J., Fischl, B., Lerma-Usabiaga, G., Paz-Alonso P.M. & Carreiras, M. (July, 2014). Segmenting substructures from in vivo brain MRI using priors derived from autopsy brain samples. Oral Presentation at Neurogune meeting. Donostia-San Sebastián, Spain.

11. Lallier, M., Martin, C., Acha, J., & Carreiras, M. (December 3-5, 2014). Impact of cross-linguistic interactions on reading in bilingual children. Oral presentation at the International Conference "Learning Written Language: Diversity of languages, Uniqueness of disorders", Strasbourg, France.

12. Martínez, A., & Salillas, E. (January, 2014). A dominant code for math in balanced bilinguals. Electrophysiological evedence from code switching. Oral presentation at the 32nd European Workshop on Cognitive Neuropsychology, Bressanone, Italy.

13. Martinez, A., & Salillas, E. (September, 2014). Balanced bilinguals show unbalanced dominance for the linguistic math codes: Electrophysiological evidence from code switching. Oral Presentation at Congress of the Spanish Society for Experimental Psychology (SEPEX 2014), Murcia, Spain.

14. Molnar, M., Martin, C. Ibañez, A, & Carreiras, M. (August, 2014). It's good to see you again: Bilinguals rely on interlocutor identity as a cue for language activation. Oral presentation at ESLP, Rotterdam, The Netherlands.

15. Molnar, M., Quiñones, I., Baart, M., Caballero, C., Peña, M., & Carreiras, M. (July, 2014). Neural specialization for native speech processing in young Spanish monolingual and Basque-Spanish bilingual infants. Oral Presentation at Neurogune meeting, Donostia-San Sebastián, Spain.

16. Paz-Alonso, P.M. (November 2014). Functional and structural evidence underlying the role of thalamus in dyslexia. Oral presentation at the Annual conference on the Biological Foundation of Languages, Chinese University of Hong Kong, Hong Kong.

17. Paz-Alonso, P.M. (May, 2014). Neurodevelopmental changes in network dynamics underlying encoding and retrieval of true and false memories. Talk presented at the 2nd conference of the European Society for Cognitive and Affective Neuroscience (ESCAN 2014), Dortmund, Germany.

18. Paz-Alonso, P.M.,(November 2014). Neural dynamics underlying reading and speech systems as a function of language orthography. Oral presentation at the symposium on L1 reading across different languages and L2 literacy acquisition, Taipei, Taiwan.

19. Paz-Alonso, P.M. & Carreiras, M. (April, 2014). Network dynamics of reading and speech systems across languages. Oral presentation at the First and Second Language Literacy Conference: New Directions in Cross-Language Research. New Haven, USA.

20. Paz-Alonso, P.M. & Carreiras, M. (October, 2014). Neural dynamics underlying the retrieval practice effect. Oral presentation at the Congress of the Spanish Society for Experimental Psychology (SEPEX 2014), Murcia, Spain.

21. Paz-Alonso, P.M., Lerma-Usabiaga, G. & Carreiras, M. (April, 2014). Neural correlates of verse improvisation. Oral presentation at the First and Second Language Literacy Conference: New Directions in Cross-Language Research. New Haven, USA.

22. Ruiz-Blondet, M., Khalifian, N., Armstrong, B. C., Jin, Zanpeng, J., Kurtz, K. J., Laszlo, S. (July, 2014). Brainprint: Identifying unique features of neural activity with machine learning. Oral presentation at the 36th Annual Conference of the Cognitive Science Society, Quebec City, Canada.

23. Roux, F., de Baene, W., & Carreiras, M. (November, 2014). A framework for the automated analysis of speech production data. Oral presentation at the 55th Annual Meeting of the Psychonomic Society, Long Beach, USA.

24. Roux, F., Wibral, M., Singer, W., & Uhlhaas, P. (November, 2014). Age related changes of MEG alpha and gamma-band activity reflect the late maturation of distractor-inhibition during adolescence. Oral presentation at the Annual meeting of the society for Neuroscience, Washington, USA.

25. Samuel, A.G. (November, 2014). How much processing time is needed to drive perceptual recalibration of speech? Poster presentation at the 55th Annual Meeting of the Psychonomic Society, Long Beach, USA.

26. Shaw, K., Baart, M., & Bortfeld, H. (June, 2014). Infants can perceive asynchronies in audiovisual speech. Oral presentation at the 15th International Multisensory Research Forum, Amsterdam, The Netherlands.

27. Villameriel, S., Dias, P., Costello, B., & Carreiras, M. (September, 2014). Bilingüismo LSE/castellano: activando y cambiando entre lenguas. Oral presentation at Congreso CNLSE sobre adquisición, aprendizaje y evaluación de la lengua de signos española, Madrid, Spain.

Invited Talks

1. Armstrong, B. C. (2014). Understanding the time-course of ambiguous word comprehension. Invited talk at the Department of Psychology, Exeter University, Exeter, UK.

2. Armstrong, B. C. (2014). SOS: An algorithm and software for the Stochastic Optimization of Stimuli. Invited talk at the Department of Psychology, Exeter University, Exeter, UK.

3. Armstrong, B. C. (November 2014). The temporal dynamics of ambiguous word comprehension. Invited talk at the Department of Psychology, Binghamton University, Binghamton, USA.

4. Armstrong, B. C. (November 2014). Diffusion Model and Connectionist Approaches to Decision Making. Invited talk at the Computational Modeling Research Group, Binghamton University, Binghamton, USA.

5. Bastarrika, A. (November 6, 2014). El aprendizaje fuera de las aulas: La investigación. Invited talk at Curso de formación para FLL Euskadi dentro de la sesión "En clase o en la calle: nunca dejamos de aprender", Tecnun-University of Navarra, Donostia-San Sebastián, Spain.

6. Boddy, P. (September, 2014). Context and Concepts. Invited talk at the European Campus of Excellence (ECE) Memory and Mind Summer School, Bochum, Germany.

7. Caballero, C. (October 6, 2014). Paradigm Free Mapping: Mathematical foundations, models and applications. Invited talk at the Scientific and Statistical Computing Core, NIH Medical Center, Bethesda, Washington DC, USA.

8. Carreiras, M. (March 20, 2014). The bilingual brain: Plasticity and processing from cradle to grave. Invited talk at 4th Latin American School for Education, Cognitive and Neuronal Sciences, University of the Republic, Punta del Este, Uruguay.

9. Carreiras, M. (April, 2014). Orthographic coding: Processing letters and digits. First and Second Language Literacy: New Directions in Cross-Language Research. Invited talk at Haskins Laboratories, New Haven, USA.

10. Carreiras, M. (May 16-17, 2014). Avances en la investigación: cerebro, lectura y dislexia. Invited talk at IV Jornadas Técnicas de ASANDIS-Dislexia: Legislación y Realiad Educativa, ASANDIS, Málaga, Spain.

11. Carreiras, M. (June 20, 2014). The Literate Multilingual Brain. Invited talk at a seminar at the Instituto Cajal, CSIC, Madrid, Spain.

12. Carreiras, M. (June 27, 2014). Procesamiento del lenguaje y bilingüismo. Invited talk at the XIII Curso Nacional de Neurociencia at the Universidad Pablo de Olavide, Carmona, Spain.

13. Carreiras, M. (September 2, 2014). La ciencia del habla. Invited talk at La ciencia de nuestras vidas, XXXIII Cursos de Verano at UPV/EHU, Donostia-San Sebastián, Spain.

14. Carreiras, M. (September 14, 2014). Gestionando dos lenguas: Mecanismos cognitivos y plasticidad cerebral en bilingües. Invited talk at the Congress of the Spanish Society for Experimental Psychology (SEPEX 2014), Murcia, Spain.

15. Carreiras, M. (September 19, 2014). Neurociencia y Educación: un viaje a través del bilingüismo y la lectura. Invited talk at La Laguna University, La Laguna, Spain.

16. Carreiras, M. (October 10, 2014). The bilingual brain: Plasticity and processing from cradle to grave. Invited talk at Brain & Language Research Institute, Marseille, France.

17. Carreiras, M. (October 17, 2014). The Literate Brain. Invited talk at jornada de inauguración de Máster en Neurociencia Cognitiva y del Comportamiento, Granada, Spain.

18. Carreiras, M. (November 5, 2014). Reading in two languages. Invited talk at The Biological Foundation of Languages, Taiwan.

19. Carreiras, M. (November 7, 2014). Reading and dislexia: Cognitive processes and Brain mechanisms. Invited talk at International Symposium on the Biological Foundations of Language, Hong-Kong.

20. Davidson, D.J. (September 26, 2014). Electrophysiological models of connectivity. Invited talk at Basque Center for Applied Mathematics, Bilbao, Spain.

21. Davidson, D.J. (October 4, 2014). Electrophysiological changes during grammar learning and the role of feedback. Invited talk at the symposium "Second Language in the Brain", University of Greenwich, London, UK.

22. Davidson, D.J. (October 6, 2014). Neural correlates of second language plasticity. Invited talk at University of York, York, UK.

23. Duñabeitia, J.A. (June, 2014). Las ventajas y desventajas del cerebro bilingüe. Invited talk at Laboragune, Leioa, Spain.

24. Duñabeitia, J.A. (July, 2014). Neurociencia cognitiva de las lenguas. Invited talk at TuInnovas, Bilbao, Spain.

25. Duñabeitia, J.A. (October 9, 2014). Ordering letters in the brain: How, when, where and why does orthographic coding occur? Invited talk at the University of Kent, Canterbury, UK.

26. Duñabeitia, J.A. (November, 2014). Impacto del bilingüismo en las personas de edad avanzada. Invited talk at the Segundo Encuentro Vasco-Chileno de Investigación Biomédica, Bilbao, Spain.

27. Fariña, N. (November, 2014). El proyecto LSE-Sign y los últimos estudios sobre lengua de signos e interpretación (The LSE-Sign project and recent studies on sign language and interpretation). Invited talk for Trainee Sign Language Interpreters, La Laboral Institute, San Cristóbal de La Laguna, Spain.

28. Iglesias, J.E. (December 18, 2014). An algorithm for optimal fusion of atlases with different labeling protocols. Invited talk at Invited talk at the Computational Radiology Laboratory, Boston Children's Hospital / Harvard Medical School, Boston, USA.

29. Lallier, M. (December 8, 2014). Atypical auditory sampling in Developmental Dyslexia. Invited talk at Learning, Educational Achievement, and Life Course Development, LEAD Graduate School, Tübingen University, Tübingen, Germany.

30. Lallier, M. (December 8, 2014). Impact of bilingualism on Reading Development. Invited talk at Learning, Educational Achievement, and Life Course Development, LEAD Graduate School, Tübingen University, Tübingen, Germany.

31. Larraza, S. (May 6, 2014). Hizkuntza eta Burmuinaren Arteko Elkarrizketa (The Conversation Between Language and Brain). Invited talk at Workshop about the Transmission of Basque organized by the Eta kitto! Association for the Basque Language, Eibar, Spain.

32. Mancini, S. (May 27, 2014). Mechanisms of Agreement. Invited talk at CISCL, Interdepartmental Center on Cognitive Studies on Language, Siena, Italy.

33. Martin, C.D. (November 19, 2014). Estructura gramatical y contenido semántico. Shakespeare y la neurociencia. Invited talk at Mestizajes Workshop at the Donostia International Physics Center (DIPC), Donostia-San Sebastián, Spain.

34. Martin, C.D. (November 2014). Anticipation during language comprehension in a bilingual environment. Invited talk at University of Lyon, Lyon, France.

35. Martin, C.D. (November 2014). The active role of comprehenders during L2 sentence processing. Invited talk at the Laboratory DDL, University of Lyon, France.

36. Massol, S. (November 14, 2014). The time-course of visual word recognition: an ERP perspective. Invited talk at the department of Psychology, DePaul University, Chicago, USA.

37. Massol, S. (November 19, 2014). Does the context modulate semantic access in bilinguals? Invited talk at Neurocognition Lab, San Diego, USA.

38. Massol, S. (November 24, 2014). The time-course of visual word recognition: an ERP perspective. Invited talk at the department of Psychology, Binghamton, USA.

39. Molinaro, N. (June 19, 2014). The "Neural entrainment" phenomenon in dyslexic readers. Invited talk at Department of Biomedical Sciences, University of Modena and Reggio Emilia, Modena, Italy.

40. Molinaro, N. (July, 2014) Tracking the generation of prediction while reading. Invited talk at workshop on "Language Prediction, Experimental Evidence and Theoretical Implications", Rovereto, Italy.

41. Oliver, M. (October, 2014). Modulation of the ventral and dorsal networks as a function of language orthography and reading tasks: fMRI evidence. Invited talk at Congress of the Spanish Society for Experimental Psychology (SEPEX 2014), Murcia, Spain.

42. Roux, F. (January, 2014). Alpha and Gamma Oscillations in MEG-data: Networks, function and development. Invited talk at CNRS, Toulousse, France.

43. Roux, F. (March 10, 2014). Alpha and Gamma-Band Oscillations in MEG-Data: Networks, function & development. Invited talk at University of Glasgow, Institute for Neuroscience and Psychology, Glasgow, UK.

44. Roux, F. (April, 2014). A model of oscillatory activity in visual WM: possible applications to auditory WM? Invited talk at University College London (UCL), London, UK.

45. Roux, F. (August, 2014). Alpha and gamma-band oscillations during working memory: Networks, function. Invited talk at symposium 1: The functional role of cross frequency coupling, at the 19th Conference on Biomagnetism (BIOMAG 2014), Halifax, Canada.

46. Roux, F. (August, 2014). Age related changes of MEG alpha and gamma-band activity reflect the late maturation of distractor-inhibition during working memory maintenance. Invited talk at symposium 2: Brain oscillations and network connectivity in typical and atypical neurocognitive development, at the 19th Conference on Biomagnetism (BIOMAG 2014), Halifax, Canada.

47. Samuel, A. G. (February, 2014). Second Language Listening: Three Current Projects. Colloquium at the Speech–Language–Hearing Sciences Program, City University of New York Graduate Center, New York, USA.

2015

Poster Presentations

1. Adam-Darque, A. Grouiller, F., Leuchter, R.H., Caballero-Gaudes, C., Lazeyras, F., & Huppi, P. (June, 2015). Olfactory perception in newborns using fMRI. Poster presentation at Annual Meeting of the Organization for Human Brain Mapping (OHBM 2015), Honolulu, Hawaii, USA.

2. Aganj, I., Iglesias, J.E., Reuter, M., Sabuncu, M.R., & Fischl, B. (October 5-9, 2015). Mid-space-independent symmetric data term for pairwise deformable image registration. Poster presentation at MICCAI 2015, Munich, Germany.

3. Antón, E., Thierry, G. & Duñabeitia, J.A. (September, 2015). Concept learning in mixed-language contexts. Poster presented at the 19th Conference of the European Society for Cognitive Psychology (ESCOP 2015), Paphos, Cyprus.

4. Antzaka, A., Carreiras, M. & Lallier, M. (September, 2015). The visual attention span and reading in transparent orthographies: when is a large orthographic grain useful? Poster presentation at the 2015 Architectures and Mechanisms for Language Processing, Valletta, Malta.

5. Antzaka, A., Lallier, M., Caffarra, S., Schlöffel, S., Martin, C., & Carreiras, M. (October, 2015). Learning to read in Basque: Investigating the influence of phonological awareness, rapid automatized naming, visual attention span and language background on reading development in bilingual children. Poster presentation at the 2015 Reading in the Forest-International Workshop on Reading and Dyslexia, Kaiserslautern, Germany.

6. Aristia, J. & Armstrong, B.C. (June, 2015). Adaptive effects in lexical decision: Implications for models of response selection. Poster presented at the Model-based Neuroscience Summer School, Amsterdam, The Netherlands.

7. Aurtenetxe, S., Molinaro, N., Davidson, D. & Carreiras, M. (March 28-31, 2015). How are numbers and letters processed in the human brain? Poster presented at the Cognitive Neuroscience Society (CNS 2015) Annual Meeting, San Francisco, USA.

8. Baart, M. (June, 2015). Digitizing the electrophysiological N1 and P2 to reveal general effects of audiovisual speech integration. Poster presented at the 16th International Multisensory Research Forum (IMRF 2015), Pisa, Italy.

9. Bastarrika, A. (October, 2015). Helduen burmuinek berdin prozesatzen al dituzte ikasi berri duten hizkuntza eta ama hizkuntza? Bizitza zientifikoen 5. Topaketa, Eureka! Zientza Museoa, Donostia-San Sebastián, Spain.

10. Bastarrika, A. & Davidson. D.J. (2015, October). MEG correlates of short-term grammatical plasticity: Grammatical number processing in Spanish learners of Basque. Poster presentation at the 7th Annual Meeting of the Society for the Neurobiology of Language (SNL 2015), Chicago, USA.

11. Blanco, B., Caballero, C., Molnar, M. & Carreiras, M. (June, 2015). Influence of bilingual exposure in the developing brain networks. Poster presented at the 2015 Brain Networks satellite meeting, Zaragoza, Spain.

12. Boddy, P. & Yee, E. (October, 2015). Experience Related Interference to Object Semantics from Visual Task. Poster presentation at the 2015 meeting of the Society for the Neurobiology of Language (SNL 2015), Chicago, USA.

13. Boddy, P. & Yee, E. (May, 2015). Experience related interference to object semantics from visual task. Poster presentation at Concepts Actions and Objects workshop (CAOS 2015), Rovereto, Italy.

14. Boddy, P. & Yee, E. (July, 2015). Visual Properties of Object Semantics are Experience Related. Poster presented at Embodied and Situated Language Processing (ESLP), Lyon, France.

15. Boddy, P. & Yee, E. (October, 2015). Visual properties of object semantics are experience related. Poster presentation at the 7th Annual Meeting of the Society for the Neurobiology of Language (SNL 2015), Chicago, USA.

16. Caballero-Gaudes, C., Saad, Z., Raemaekers, M., Ramsey, N. & Petridou, N. (June, 2015). Few spontaneous BOLD events are sufficient for single subject mapping of functional networks at 7T. Poster presentation at Annual Meeting of the Organization for Human Brain Mapping (OHBM 2015), Honolulu, USA.

17. Caballero-Gaudes, C., Saad, Z., Raemaekers, M., Ramsey, N. & Petridou, N. (June, 2015). Individual-subject mapping of functional networks from sparse spontaneous BOLD events. Electronic poster presentation at the International Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM 2015), Toronto, Canada.

18. Caffarra, S., Molinaro, N., Davidson, D. & Carreiras, M. (March 28-31, 2015). Influence of L1-L2 similarity, AoA, proficiency, immersion on L2 syntactic processing: an empirical review on available ERP results. Poster presented at the Cognitive Neuroscience Society (CNS 2015) Annual Meeting, San Francisco, USA.

19. Dias, P. (October, 2015). El procesamiento del lenguaje en personas sordas. Poster presentation at the 5° ENCUENTRO DE VIDAS CIENTIFICAS, Museo de la ciencia Eureka! Donostia-San Sebastian, Spain.

20. Dias, P., Villameriel, S., Costello, B. & Carreiras, M. (July, 2015). Language switch cost in bimodal bilinguals: is there a price? Poster presented at the 2nd International Conference on Sign Language Acquisition (ICSLA 2015), Amsterdam, The Netherlands.

21. Delgado Alvarado, M., García Penton, L., Jiménez Urbieta, H., Gago Calderón, B., Ruiz Martínez, J., Bergareche Yarza, A.M Martí Masso, J. F., Caballero, C., Carreiras, M., & Rodríguez Oroz, M. C. (November, 17-21, 2015). Cambios en sustancia gris en pacientes con enfermedad de Parkinson y bloqueos de la marcha. Poster presentation at LXVII Reunión Anual de la Sociedad Española de Neurología, Valencia, Spain.

22. Dumay, N. (September 17-20, 2015). Sleep promotes reminiscence more than it protects against forgetting. Poster presentation at the 19th Conference of the European Society for Cognitive Psychology (ESCOP 2015), Paphos, Cyprus.

23. Ho, N.F., Iglesias, J.E., Sum, M.Y., Fischl, B., Zhou, J., & Sim, K. (March, 28 – April, 01, 2015). Longitudinal study of hippocampal subfield volumes in schizophrenia and bipolar disorder. Poster presentation at International Congress of Schizophrenia Research, the Broadmoor, Colorado Springs, USA. Abstract can be found in Schizophrenia Bulletin, 41, S257-258.

24. Larraza, S., Molnar, M. & Samuel, A. (June, 2015). The development of phonemic discrimination in Basque-Spanish bilingual infants. Poster presentation at Workshop on Infant Language Development (WILD 2015), Stockholm, Sweden.

25. Lerma-Usabiaga, G., Iglesias, J.E. & Paz-Alonso, P.M. (March 28-31, 2015). PCA-based automatic segmentation of hippocampal longitudinal axis. Poster presented at the Cognitive Neuroscience Society (CNS 2015) Annual Meeting, San Francisco, USA.

26. Lerma-Usabiaga, G., Carreiras, M., Paz.-Alonso, P.M. (October, 2015). Neurodevelopmental trajectories of thalamic volume in control and dyslexic readers. Poster presentation at the annual meeting of the Society for Neurobiology of Language (SNL 2015), Chicago, USA.

27. Ivaz, L., Costa, A. & Duñabeitia, J. A. (July, 2015). Do automatic emotional responses depend on the language? The case of foreign languages. Poster presented at the 12th International Symposium of Psycholinguistics, Valencia, Spain.

28. Ivaz, L., Costa, A. & Duñabeitia, J. A. (September, 2015). The emotional impact of being myself: Emotions and foreign language processing. Poster presented at the 19th Conference of the European Society for Cognitive Psychology (ESCOP 2015), Paphos, Cyprus.

29. Ivaz, L., Costa, A., & Duñabeitia, J. A. (November, 2015). How much do i like myself in a foreign language context? Poster presented at the 56th Annual Meeting of the Psychonomic Society, Chicago, USA.

30. Mancini, S. Ristic, B. Molinaro, N. & Carreiras, M. (March 19-21, 2015). Morphosyntax can be stronger than discourse: evidence from agreement processing. Poster presented at the 27th conference on human sentence processing (CUNY 2015). Los Angeles, USA.

31. Martin, C.D., Niziolek, C.A., Duñabeitia, J.A., Carreiras, M. & Houde, J.F. (March 28-31, 2015). How to explain individual variability in speech motor control. Poster presented at the Cognitive Neuroscience Society (CNS 2015) Annual Meeting, San Francisco, USA.

32. Martinez, A. & Salillas, E. (September, 2015). Developmental dyscalculia in bilinguals. A combined ERP–source analysis study. Poster presented at the 19th Conference of the European Society for Cognitive Psychology (ESCOP 2015), Paphos, Cyprus.

33. Massol, S., Molinaro, N., Duñabeitia, J. A. & Carreiras, M. (July, 2015). An ERP investigation of lexico-semantic access in bilinguals engaged in a language-specific context. 12th International Symposium of Psycholinguistics, Valencia, Spain.

34. Massol, S., Molinaro, N., Duñabeitia, J. A., & Carreiras, M. (September, 2015). Bilinguals' lexical interactions between languages in monolingual contexts. Poster presented at the 19th Conference of the European Society for Cognitive Psychology (ESCOP 2015), Paphos, Cyprus.

35. Medeiros, J. (October 26, 2015). Por qué, cómo y dónde hacer divulgación científica. Poster presentation at the 5° ENCUENTRO DE VIDAS CIENTIFICAS, Museo de la ciencia Eureka! Donostia-San Sebastian, Spain.

36. Medeiros, J. & Duñabeitia, J. A. (August, 2015). Impact of individual differences on masked suffix priming. Poster presented at the XII International Symposium of Psycholinguistics, Valencia, Spain.

37. Molnar, M., Blanco, B., Carreiras, M., & Caballero, C. (October, 2015). Inter-hemispheric resting-state connections and language development in the first year of life. Poster presentation at the 7th Annual Meeting of the Society for the Neurobiology of Language (SNL 2015), Chicago, USA.

38. Molnar, M. & Carreiras, M. (June, 2015). Bilingual infants' ability of associating languages to voices. Poster presentation at Workshop on Infant Language Development (WILD 2015), Stockholm, Sweden.

39. Molnar, M. & Carreiras, M. (June, 2015). Language preferences of monolingual infants from bilingual and monolingual communities. Poster presentation at Workshop on Infant Language Development (WILD 2015), Stockholm, Sweden.

40. Molnar, M., Pejovć, J., & Carreiras, M. (2015, October). Neuro-physiological adaptation to bilingual and monolingual environments begins in infancy. Poster presentation at the 7th Annual Meeting of the Society for the Neurobiology of Language (SNL 2015), Chicago, USA.

41. Monsalve, I. & Molinaro, N. (November, 2015). Beta oscillations mediate lexical predictions in the visual domain. Poster presentation at the 2015 Tübingen MEG Symposium, Tübingen, Germany.

42. Oliver, M., Carreiras, M. & Paz-Alonso, P.M. (2015, October). Age of acquisition of the second language modulates structural and functional dynamics in bilingual reading. Poster presentation at the 7th Annual Meeting of the Society for the Neurobiology of Language (SNL 2015), Chicago, USA.

43. Oliver, M., Carreiras, M. & Paz-Alonso, P.M. (November, 2015). The influence of age of acquisition in bilingual reading. Poster presented at the 45th meeting of the Society for Neuroscience (SfN 2015), Chicago, USA.

44. Oliver, M., Paz-Alonso, P.M., Quiñones, I., Caballero, C., Suarez-Coalla, M.P., Duñabeitia, J.A., Cuetos, F. & Carreiras, M. (March 28-31, 2015). Neural correlates of orthographic consistency in readers with and without dyslexia. Poster presented at the Cognitive Neuroscience Society (CNS 2015) Annual Meeting, San Francisco, USA.

45. Paz-Alonso, P.M. & Carreiras, M. (March 28-31, 2015). Neural dynamics underlying retrieval-practice effects. Poster presented at the Cognitive Neuroscience Society (CNS 2015) Annual Meeting, San Francisco, USA.

46. Pejović, J., Molnar, M., Yee, E. & Martin, M. (June 10-12, 2015). Development of the sound-shape correspondence effect. Poster presented at Workshop on Infant Language Development (WILD 2015), Stockholm, Sweden.

47. Pejović, J., Molnar, M., Yee, E. & Martin, M. (June, 2015). Cross-modal correspondence changes over development. Poster presented at the 12th International Symposium of Psycholinguistics, Valencia, Spain.

48. Postiglione, F., Finocchiaro, C., De Martino, M. & Molinaro, N. (June 2015). More than a noun, less than a verb. Observing the noun-verb distinction from the noun-verb continuum perspective. Poster presentation at the 9th International Morphological Processing Conference, Potsdam, Germany.

49. Pourquié, M. (September 17-22, 2015). Testing the lexical/functional divide in aphasia. Poster presentation at the 16th Science of Aphasia conference, Aveiro, Portugal.

50. Pourquié, M. & Royle, P. (May 28-29, 2015). Multilingual language assessment: More benefits than challenges. Poster presented at the Bilingual Brain Symposium, Montreal, Canada.

51. Ríos, P., Molnar, M., Lizarazu, M., & Lallier, M. (October 25-28, 2015). The importance of attentional tracking of slow speech modulations for speech intelligibility and reading development. Poster presentation at Reading in the Forest - International Workshop on Reading and Dyslexia, University of Kaiserlautern, Kaiserlautern, Germany.

52. Rosenblum, L.D., Dorsi, J., & Samuel, A.G. (November, 2015). Lexical and visual influences on selective adaptation of speech. Poster presentation at Psychonomic Society, Chicago, USA.

53. Roux, F., Frost, R., & Carreiras, M. (2015, June). Predicting individual differences in sequence learning from oscillatory activity in human MEG-data. Poster presentation at the ESI Systems Neuroscience Conference, Frankfurt, Germany.

54. Roux, F., Frost, R., & Carreiras, M. (June, 2015). Predicting individual differences in sequence learning from oscillatory activity in MEG-data. Poster presentation at Interdisciplinary Advances in Statistical Learning, Donostia-San Sebastian, Spain.

55. Roux, F., Frost, R. & Carreiras, M. (July, 2015). Predicting individual differences in sequence learning from oscillatory activity in human MEG-data. Poster presentation at 9th World Congress International Brain Research Organization (IBRO 2015), Rio de Janeiro, Brazil.

56. Roux, F., Frost, R., & Carreiras, M. (October, 2015). Predicting sequence learning from oscillatory activity in MEG-data. Poster presentation at the 2015 meeting of the Society for Neuroscience (SfN 2015), Chicago, USA.

57. Roux, F., Frost, R., & Carreiras, M. (November, 2015). Predicting individual differences in sequence learning from oscillatory activity in MEG-data. Poster presentation at Tübingen MEG Symposium, Tübingen, Germany.

58. Sacchet, M.D., Livermore, E., Iglesias, J.E., Glover, G.H. & Gotlib, I.H. (June 14-18, 2015). Subcortical volumes differentiate among affective disorders. Poster presented at the Organization for Human Brain Mapping (OHBM 2015), Honolulu, USA.

59. Schlöffel, S., Lallier, M., Carreiras, M., & Martin, C. (October, 2015). On the influence of the orthographic system beyond linguistic processes. Poster presentation at International Workshop on Reading and Dyslexia, Kaiserslautern, Germany.

60. Schlöffel, S., Lallier, M., Carreiras, M., & Martin, C. (September, 2015). Does noun capitalization in German affect auditory speech perception? Poster presented at Conference of the European Society for Cognitive Psychology (ESCOP 2015), Paphos, Cyprus.

61. Sundara, M., Molnar, M. & Frota, S. (June, 2015). When infants get the question: The development of boundary tone perception. Poster presentation at Workshop on Infant Language Development (WILD 2015), Stockholm, Sweden.

62. Zhang, X., & Samuel, A.G. (November, 2015). Is spoken word recognition automatic? The effect of cognitive load on lexical activation and competition. Poster presentation at Psychonomic Society, Chicago, USA.

63. Zheng, Y., & Samuel, A.G. (November, 2015). Transfer effects between language and music. Poster presentation at Psychonomic Society, Chicago, USA.

Oral Presentations

1. Armstrong, B. C. (January, 2015). Neurocomputational underpinnings of lexical semantic processing dynamics. Oral presentation at the 2015 Winter Conference on the Neurobiology of Learning and Memory, Park City, USA.

2. Armstrong, B. C. (February, 2015). Brainprint: Assessing the uniqueness, collectability, and permanence of a novel method for ERP biometrics. Oral presentation at the 27th Annual Winter Conference on Neural Plasticity, Barbados, U.S. Caribbean.

3. Armstrong, B. C., & Frost, R. (June, 2015). Critical synthesis of the interdisciplinary advances in statistical learning, introduction to the round-table discussion, & closing remarks [Co-chairs of the session & co-presenters]. Oral presentation at Interdisciplinary Advances in Statistical Learning, Donostia-San Sebastian, Spain.

4. Armstrong, B., Martin, C., Carreiras, M. & Frost, R. (June 28, 2015). Orthographic depth and the impact of feedforward and feedback consistency: evidence from visual and auditory noise. Oral presentation at workshop on Reading in different Orthographies, BCBL, Donostia-San Sebastián, Spain.

5. Armstrong, B.C., Perea, M. & Samuel, A.G. (June, 2015). Semantic access in written and spoken word comprehension: evidence for interactions between the time-course of stimulus presentation and modality. Oral presentation at the 30th Annual Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science, Ottawa, Canada.

6. Adam-Darque, A. Grouiller, F., Leuchter, R.H., Caballero-Gaudes, C., Lazeyras, F. & Huppi, P. (June, 2015). Olfactory perception in newborns using fMRI. Oral presentation at Annual Meeting of the Organization for Human Brain Mapping, (OHBM 2015), Honolulu, USA.

7. Antón, E., Thierry, G., Goborov, A. & Duñabeitia, J.A. (December, 2015). Languages in formal schooling: Where are the negative consequences? Oral presentation at Night Whites, St. Petersburg, Russia.

8. Baese-Berk, M., & Samuel, A.G. (November, 2015). Effects of production and task-switching on learning to perceive speech sounds. Oral presentation at the 56th Annual Meeting of the Psychonomic Society (PS 2015), Chicago, USA.

9. Barberà, G. & Costello, B. (September, 2015). ¿Cómo se expresa la referencia impersonal? Análisis contrastivo entre LSC y LSE. Oral Presentation at Congreso 2015 del Centro de Normalización de la lengua de signos española, Madrid, Spain.

10. Bastarrika, A., Caballero, C., & Davidson, D. (December, 2015). MEG correlates of short-term grammatical plasticity: Grammatical number processing in Spanish learners of Basque. Oral presentation at Night Whites: The third St. Petersburg Winter Workshop on Experimental Studies of Speech and Language, St Petersburg, Russia.

11. Blanco, B., Molnar, M., Caballero-Gaudes, C. & Carreiras, M. (June, 2015). Brain network activity in 4-month-old bilingual and monolingual infants. Oral presentation at Workshop on Infant Language Development (WILD 2015), Stockholm, Sweden.

12. Caballero-Gaudes, C., Saad, Z.S., Raemaekers, M., Ramsey, N.F., & Petridou, N. (May 30-21, 2015). Individual-subject mapping of functional networks from sparse spontaneous BOLD events. Oral presentation at Annual Meeting of International Society of Magnetic Resonance in Medicine (ISMRM 2015), Toronto, Canada.

13. Dias, P. (October, 2015). El procesamiento del lenguaje en personas sordas. Oral presentation at the 5° ENCUENTRO DE VIDAS CIENTIFICAS, Museo de la ciencia Eureka! Donostia-San Sebastian, Spain.

14. Dumay, N., & Aristei, S. (September 17-20, 2015). Cumulative semantic interference without lexical selection. Oral presentation at the 19th Conference of the European Society for Cognitive Psychology (ESCOP 2015), Paphos, Cyprus.

15. Dumay, N., & Aristei, S. (November 19-22, 2015). Cumulative semantic interference without lexical selection. Oral presentation at the 56th Annual Meeting of the Psychonomic Society (PS 2015), Chicago, USA.

16. Duñabeitia, J.A. & Carreiras, M. (September, 2015). How does bilingualism shape non-linguistic cognitive abilities across lifespan? Oral presentation at the 19th Conference of the European Society for Cognitive Psychology (ESCOP 2015), Paphos, Cyprus.

17. Duñabeitia, J.A. & Carreiras, M. (March, 2015). Looking beyond letters: The impact of literacy on visual discrimination. Oral presentation at the inaugural International Convention of Psychological Science (ICPS 2015), Amsterdam, The Netherlands.

18. Laszlo, S., & Armstrong, B. (2015, September). Using advanced statistics in Psychophysiology [Co-chairs/presenters: Laszlo & Armstrong]. Invited contribution as part of the Education and Training Committee Roundtable Discussion Series. Oral presentation at the 2015 Annual Meeting of the Society for Psychophysiology, Seattle, USA.

19. Lerma-Usabiaga, G., Iglesias, J.E. & Paz-Alonso. P.M. (October 21, 2015). Hippocampal longitudinal axis segmentation: PCA-based automated segmentation tool. Oral presentation at 45th meeting of the Society for Neuroscience (SfN 2015), Chicago, USA.

20. Martin, C.D., Molnar, M., & Carreiras, M. (October 2015). The proactive bilingual brain: Using interlocutor identity to generate predictions for language processing. Oral presentation at 34th Second Language Research Forum, Atlanta, USA.

21. May, L., Gervain, J., Carreiras, M. & Werker, J. (March 19-21, 2015). Tuned for speech?: Neural activation to spoken and whistled language in young infants. Oral presentation at Symposium: Tuning Into Language: behavioral and neural differentiation of speech and non-speech in infancy at the society for research in child development (SRCD 2015), Biennial Meeting, Philadelphia, USA.

22. Medeiros, J. & Duñabeitia, J. A. (August, 2015). Impact of individual differences on masked suffix priming. Oral presentation at the 7th International Summerschool on Literacy Research (Ludo School), Egmond an Zee, The Netherlands.

23. Molnar, M., Blanco, B., Caballero, C. & Carreiras, M. (July 20-23, 2015). Bilingual exposure shapes resting state brain networks by 4 months of age. Oral presentation at the Symposium "How exposure to language shapes the human infant brain during the first 6 months of life", at the ISDP meeting, Donostia-San Sebastian, Spain.

24. Oliver, M. (June 4, 2015). The left ventral occipito-temporal cortex in reading: a focal point of the current debate, Oral presentation at Psychologie & Gehirn, Frankfurt, Germany.

25. Oliver, M., Carreiras, M., & Paz-Alonso, P.M. (June 2015). Neural modulation of the left VOT in bilingual reading. Oral presentation at the German Psychological Society, Section Biological Psychology, Frankfurt, Germany.

26. Oliver M., Carreiras M. & Paz-Alonso, P.M. (July, 2015). Functional dynamics of the bilingual brain. Oral presentation at International Symposium of Psycholinguistics, Valencia, Spain.

27. Paz-Alonso, P.M., Guerra, S., Carreiras, M. & Rueda, M.R. (March, 2015). Functional connectivity changes over middle childhood induced by training higher cognitive functions. Oral presentation at the International Conference in Psychological Science (ICPS 2015), Amsterdam, The Netherlands.

28. Paz-Alonso, P.M., Lerma-Usabiaga, G., Oliver, M., Quiñones, I., Caballero, C. & Carreiras, M. (June 28, 2015). Thalamic-cortical connections in dyslexia. Oral presentation at workshop on Reading in different Orthographies, BCBL, Donostia-San Sebastian, Spain.

29. Perea, M., Abu Mallouh, R., & Carreiras, M. (November 19-22, 2015). Masked repetition priming in a semi-cursive script (Arabic). Oral presentation at the 56th Annual Meeting of the Psychonomic Society (PS 2015), Chicago, USA.

30. Pourquié, M. (November, 2015). A cross-linguistic behavioral study of agrammatism in Basque and French. Oral presentation at IV Clinical Linguistics International Congress, Barcelona, Spain.

31. Quiñones, I., Molinaro, N., Mancini, S., & Carreiras, M. (June, 2015). From minimal dependencies to sentence context: Evidence for a common neural system involving different functional networks working hand by hand. Oral presentation at the 9th International Morphological Processing Conference 2015, Potsdam, Germany.

32. Ríos, P., Molnar, M., Lizarazu, M. & Lallier, M. (July, 2015). Role of attentional tracking of slow speech amplitude envelope for speech intelligibility and reading development. Oral presentation at the XII International Symposium of Psycholinguistics, Valencia, Spain.

33. Ríos, P., Molnar, M., Lizarazu, M. & Lallier, M. (August, 2015). Role of attentional tracking of slow speech amplitude envelope for speech intelligibility and reading development. Oral presentation at the 7th International Summerschool on Literacy Research (Ludo School), Egmond an Zee, The Netherlands.

34. Ristic, B., Molinaro, N. & Mancini, S. (December, 2015). Number attraction in Serbian: What is more attractive? Oral presentation at The Third St. Petersburg Winter Workshop on Experimental Studies of Speech and Language, St. Petersburg, Russia.

35. Schlöffel, S., Lallier, M., Carreiras, M., & Martin., C. (September, 2015). On the influence of the orthographic system beyond linguistic processes. Oral presentation at Conference of the European Society for Cognitive Psychology (ESCOP 2015), Paphos, Cyprus.

36. Sundara, M., Molnar, M. & Frota, S. (August 10-14, 2015). The perception of boundary tones in infancy. Oral presentation at the 18th International Congress of Phonetic Sciences (ICPhS 2015). Glasgow, Scotland, UK.

37. Villameriel, S., Dias, P., Costello, B. & Carreiras, M. (July, 2015). Cross-language and cross-modal activation in hearing bimodal bilinguals. Oral presentation at the 2nd International Conference on Sign Language Acquisition (ICSLA 2015), Amsterdam, The Netherlands.

Invited Talks

1. Armstrong, B. C. (June, 2015). Interdisciplinary approaches to language research: A brief overview. Invited talk at the Psychology Department at Bishop's University, Québec, Canada.

2. Armstrong, B. C. (April, 2015). What can biologically-inspired models teach us about statistical learning? Invited talk at the Advances in Statistical Learning Seminar, The Hebrew University, Jerusalem, Israel.

3. Bourguignon, M. (October, 2015). The corticokinematic coherence. In the symposium "Coherence analysis between electrophysiological signals provides new insights into the mechanisms underlying control and perception of motor action" at the 16th ACAPS International Congress, Nantes, France.

4. Caballero-Gaudes, C. (June, 2015). Paradigm free mapping: Mathematical foundations and applications. Invited talk at the Section on Functional Imaging Methods, NIH Medical Center, Bethesda, Washington DC, USA.

5. Caffarra, S. (June 18, 2015). Does the ending matter? Influence of gender-to-ending consistency during agreement processing. Invited talk at the 9th International Morphological Processing Conference, Potsdam, Germany.

6. Carreiras, M. (January, 2015). Brain correlates in first and second language reading. Invited talk at Bilingualism and learning to read across languages and writing systems, NIAS Workshop, Amsterdam, The Netherlands.

7. Carreiras, M. (April 18, 2015). Neurociencia y educación: demoliendo mitos para construir puentes. Invited talk at TEDxRíodelaPlata (TEDx), Buenos Aires, Argentina.

8. Carreiras, M. (April 24, 2015). The bilingual brain: Plasticity and processing from cradle to grave. Invited talk at seminario of University of Minho, Oporto, Portugal.

9. Carreiras, M. (May 29, 2015). Mecanismos cognitivos y plasticidad cerebral en bilingües. Invited talk at a seminar, University of Castilla La Mancha, Albacete, Spain.

10. Carreiras, M. (September 7, 2015). The bilingual brain: Plasticity and processing from cradle to grave. Invited talk at 12th Polish Neuroscience Society Congress, Medical University of Gdansk, Gdansk, Poland.

11. Carreiras, M. (October 2, 2015). Neurociencia y Dislexia: Detección temprana. Invited talk at I Foro de dislexia y otras dificultades de aprendizaje, Dislebi, Bilbao, Spain.

12. Carreiras, M. (October 7, 2015). Mechanisms of Agreement. Invited talk at the Experimental Psycholinguistics Conference, UNED, Madrid, Spain.

13. Carreiras, M. (October 27, 2015). Atypical auditory sampling and impaired connectivity in dyslexia. Invited talk at Reading in the Forest, International Workshop on Reading and Dyslexia, University of Kaiserslautern, Annweiler, Germany.

14. Carreiras, M. (October 31, 2015). Mechanisms of agreement. Invited talk at the workshop/seminar Gender and Number in Romance Conference, Bergische Universität Wuppertal, Wuppertal, Germany.

15. Carreiras, M. (November 7, 2015). Lenguaje y envejecimiento. Invited talk at 6º Congreso Nacional CENTAC de Tecnologías de la Accesibilidad (CENTAC 2015), Bilbao, Spain.

16. Carreiras, M. (December 7, 2015). Neurociencia Cognitiva del Lenguaje. Invited talk at VI Reunión Gallega de Jóvenes Investigadores en el Extranjero, INIBIC, UDC, USC and Fundación Barrié, A Coruña, Spain.

17. Costello, B. (February 6, 2015). How do you/we/they get impersonal in Spanish Sign Language (LSE)? A first look. Invited talk at the Workshop on sign languages and R-impersonal pronouns at the CNRS Pouchet, Paris, France.

18. Costello, B. (June 15, 2015). Getting (more) impersonal in LSE. Invited talk at Meeting on impersonals and passives in sign languages, Universitat Pompeu Fabra, Barcelona, Spain.

19. Costello, B. (November 25, 2015). Space, reference and identity: agreement in LSE (Spanish Sign Language). Invited talk at LANGUAGE Seminar, LSPC, Paris, France.

20. Costello, B. (November 25, 2015). Idiosyncratic aspects of LSE (Lengua de Signos Española). Invited talk at LANGUAGE Seminar, LSPC, Paris, France.

21. Davidson, D.J. (May 13, 2015). Electrophysiological studies of lexical and grammatical plasticity. Invited talk at University of Hong Kong, Hong Kong, China.

22. Davidson, D.J. (May 15, 2015). Multi-level regression models. Invited talk at University of Hong Kong, Hong Kong, China.

23. Dias. P., Fariña, N. & Villameriel, S. (June, 2015). Zeinu hizkuntza burmuinean/La lengua de signos en el cerebro. Invited talk at Gipuzkoako Pertsona Gorren Elkartea/Asociación de Personas Sordas de Gipuzkoa, Donostia-San Sebastián, Spain.

24. Duñabeitia, J.A. (January, 2015). Questioning bilingual myths. Invited talk at Utrecht University, Utrecht, The Netherlands.

25. Duñabeitia, J.A. (June, 2015). Breaking bilingual education rules. Invited talk at the Language Learning Workshop: Issues on Second language processing, Barcelona, Spain.

26. Duñabeitia, J.A. (September 4, 2015). Cambiando la educación desde la neurociencia cognitiva. Invited talk at the Curso Singularidad Tecnológica, Mejoramiento Humano y Neuroeducación at the Universidad Internacional Menéndez Pelayo (UIMP), Santander, Spain.

27. Duñabeitia, J.A. (September 12, 2015). ¿Qué es y cómo se hace la neurociencia? Invited talk at the Curso Nuevos Paradigmas en Educación: Inteligencias Múltiples, Neurociencia y Pensamiento, Granada, Spain.

28. Duñabeitia, J.A. (October 23, 2015). Lifelong bilingualism in the elderly. Invited talk at the Language and perception across the lifetime workshop, Sevilla, Spain.

29. Duñabeitia, J.A. (December 1, 2015). Proyecto Garuna: reserva cognitiva y bilingüismo adquirido en la tercera edad. Invited talk at the III Encuentro Vasco-Chileno de Investigación Biomédica, Santiago, Chile.

30. Duñabeitia, J.A. (December 11, 2015). Bilingüismo y neurociencia. Invited talk at the Universidad Europea del Atlántico, Santander, Spain.

31. Fernández García, Y. (December 11, 2015). Cambios neuroanatómicos asociados al bilingüismo en el envejecimiento normal. Invited talk at the Universidad Europea del Atlántico, Santander, Spain.

32. García-Pentón, L. (December 11, 2015). Cambios neuroanatómicos asociados al bilingüismo en niños y jóvenes. Invited talk at the Universidad Europea del Atlántico, Santander, Spain.

33. Giezen, M.R. (October, 2015). A new window on bilingualism: Insights from bilinguals of signed and spoken languages. Invited talk in the VL2 Student Network Lecture Series, NSF Center on Visual Language and Visual Learning, Gallaudet University, Washington DC, USA.

34. Lallier, M. (February 24, 2015). Learning to read in biliterate/bilingual children. Invited talk at Laboratoire de Psychologie et Neurocognition, Grenoble, France.

35. Lallier, M. (March 6, 2015). Impact of the age of bilingual exposure on reading development: The role of cross-linguistic phonological similarity. Invited talk at the Symposium on "Multilingualism and early childhood: an educational challenge", University of Luxembourg, Luxembourg. (participation to a Public Round Table).

36. Lerma-Usabiaga, G., Iglesias, J.E., & Paz-Alonso, P.M. (December 4, 2015). Hippocampal longitudinal axis segmentation: PCA-based automated segmentation tool. Invited talk at Stanford University Psychology Department, Stanford, USA.

37. Mancini, S. (May 5, 2015). Decomposing agreement: The what, when and where of agreement processing. Invited talk at University of Siena, Siena, Italy.

38. Mancini, S. (November 25, 2015). The importance of (dis-)agreeing in language comprehension. Invited talk at Cross Experimental Workshop on Agreement, University of Nis, Nis, Serbia.

39. Martin, C.D. (May, 2015). How to explain individual variability in speech motor control. Invited talk at workshop on speech monitoring and action control, Laboratoire Parole et Language, Aix-en-Provence, France.

40. Martin, C.D. (October 2015). ERP evidence for word prediction in L2, Invited talk at the Colloquium on Anticipation and Expectation in L2 Processing and Learning, 34th Second Language Research Forum, Atlanta, USA.

41. Martin, C.D. (November 27, 2015). Interlocutors' faces prime language activation in bilinguals. Invited talk at School of Psychology, Bangor University, Gwynedd, UK.

42. Molinaro, M. (November 23, 2015). Neural entrainment in Developmental Dyslexia. Invited talk at the Department of Psychology, Complutense University, Madrid, Spain.

43. Molnar, M. (October 22-23, 2015). Preverbal infants' adaptation to monolingual and bilingual environments. Invited talk at the 3rd Training School on "Language and perception across the lifetime", University of Seville, Sevilla, Spain.

44. Molnar, M. (October 28, 2015). What is all the bilingual fuss about? Invited talk at the "Donostia Week INN" Innovation Week, Donostia-San Sebastián, Spain.

45. Pourquié , M. (April 22, 2015). Aphasiology from a cross-language perspective (focus on agrammatic verb processing). Invited talk at Euskal Herriko Unibertsitatea, Hizkuntzalaritza eta Euskal ikasketak saila, Vitoria-Gasteiz, Spain.

46. Ristic, B. (November 25, 2015). Number attraction in subject-verb agreement: the case of Serbian. Invited talk at Cross-Experimental Workshop on Agreement, University of Nis, Nis, Serbia.

47. Roux, F. (July, 2015). Predicting individual differences in sequence learning from oscillatory activity in human MEG-data. Instituto de Biofísica Carlos Chagas Filho, Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil.

48. Roux, F. (October 29, 2015). Decoding sequential structure from rhythmic brain activity. Invited talk at Catalan Institution for Research and Advanced Studies (ICREA), Barcelona, Spain.

49. Vadillo, O., Lalier, M. & Cafarra, S. (April 28, 2015). Haur elebidunen garapena. Invited talk at the workshop Haur Hekuntzako Tailerrak at Easo Politeknikoa, Donostia, Spain.

50. Villameriel, S. (January 19, 2015). Activation and Changing between languages in bimodal bilinguals. Invited talk at Centro López Vicuña, Palencia, Spain.

51. Villameriel, S. (November 28, 2015) La lengua de signos en el cerebro y los bilingües bimodales. Invited talk at Fundación Vinjoy, Oviedo, Spain.

2016

Poster Presentations

1. Aguilar-Mateu, K., Fernández García, Y., Llibre, J., Morgade, R.M., Garrudo, A., Galán, L., Bobes, M.A., Castro, A.M., & Santos, Y. (December 8-12, 2016). Mild Cognitive Impairment longitudinal study in a Cuban population: 10 years later. Poster presentation at Global Brain Health Institute (GBHI) Annual Conference & Cuban Neurosciences Center (CNEURO 2016) Meeting, Havana, Cuba.

2. Antzaka, A., Lallier, M., Acha, J., & Carreiras, M. (May 6, 2016). Morphological awareness and visual attention span in reading development: Is their role modulated by lexicality and morphological complexity when reading aloud or copying? Poster presentation at the International Workshop on Reading and Developmental Dyslexia (IWORDD 2016), Bilbao, Spain.

3. Armstrong, B.C., Dumay, N., Kim, W., & Pitt, M.A. (May 6, 2016). Generalization from newly learned words reveals structural properties of the human reading system. Poster presentation at the International Workshop on Reading and Developmental Dyslexia (IWORDD 2016), Bilbao, Spain.

4. Arnaez-Telleria, J., Lerma-Usabiaga, G., Carreiras, M., & Paz-Alonso, P.M. (July, 2016). Functional and structural evidence of hippocampal involvement on the Testing effect. Poster presentation at the International Conference on Memory (ICOM6), Budapest, Hungary.

5. Arnaez-Telleria, J., Lerma-Usabiaga, G., Carreiras, M, & Paz-Alonso, P.M. (April, 2016). Functional and structural correlates of the testing effect. Poster presentation at the 2016 Annual Meeting of the Cognitive Neuroscience Society (CNS 2016), New York, USA.

6. Arnaez-Telleria, J., Oliver, M., Carreiras, M., & Paz-Alonso, P. M. (June, 2016). Age-of-acquisition of the L2 alters bilinguals' reading networks connectivity at rest. Poster presentation at the 22nd Annual Meeting of the Organization for Human Brain Mapping (OHBM 2016), Geneve, Switzerland.

7. Baart, M. (September 1-3, 2016). Quantifying early electrophysiological effects of audiovisual speech integration. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

8. Bastarrika, A. (October, 2016). Burmuina ezagutzeko teknikak. Poster presentation at Bizitza zientifikoen topaketak, Eureka! Zientzia Museoa, Donostia-San Sebastián, Spain.

9. Bastarrika, A. (November, 2016). Burmuina ezagutzeko teknikak. Poster presentation at Bizitza zientifikoen topaketak, Eureka! Zientzia Musoea, Donostia-San Sebastián, Spain.

10. Biondo, N., Vespignani, F., Rizzi, L. & Mancini, S. (September 1-3, 2016). A matter of time (and features): comparing temporal concord and subject-verb agreement. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

11. Boddy, P., & Yee, E. (November 17-20, 2016). Does Smelling Pine Cones Make it Harder to Think About Strawberries? Poster presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

12. Bourguignon, M., Piitulainen, H., Smeds, E., Zhou, G., Jousmäki, V., & Hari, R. (October 2016). Below-3-Hz cortical dynamics adjusts steady muscle contraction. Poster presentation at the 20th international conference on biomagnetism (BIOMAG 2016), Seul, South Korea.

13. Blanco, B., Molnar, M., & Caballero, C. (June, 2016). Application of network based statistics to investigate infants' functional connectivity. Poster presentation at the 22nd Annual Meeting of the Organization for Human Brain Mapping (OHBM 2016), Geneve, Switzerland.

14. Blanco, B., Molnar, M., & Caballero, C. (October, 2016). Influence of bilingual exposure on early brain network development. Poster presentation at the 2016 Meeting of the Society for functional Near Infra-red Spectroscopy (fNIRS 2016), Paris, France.

15. Branzi, F.M., Martin, C.D., Carreiras, M., & Paz-Alonso, P. (August 17-20, 2016). Proactive and reactive control during bilingual lexical access is driven by different portions within the prefrontal cortex. Poster presentation at the 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

16. Branzi, F.M., Martin, C.D., Carreiras, M., & Paz-Alonso, P. (September 1-3, 2016). Proactive and reactive control during bilingual lexical access is driven by different portions within the prefrontal cortex. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

17. Branzi, F.M., Paz-Alonso, P.M., Martin, C.D., & Carreiras, M. (April 2-5, 2016). Proactive and reactive control during bilingual lexical access is driven by different portions within the prefrontal cortex. Poster presentation at the 2016 Annual Meeting of the Cognitive Neuroscience Society (CNS 2016), New York, USA.

18. Caffarra, S., Barber, H., Molinaro, N., & Carreiras, M. (March, 2016). The role of language dominance on early bilinguals' syntactic analysis. Poster presented at CUNY, Gainsville, USA.

19. Caffarra, S., Martin, C. D., Lizarazu, M., Lallier, M., Zarraga, A., Molinaro, N., & Carreiras, M. (June, 2016). The effects of reading acquisition on verbal and nonverbal skills. Poster presentation at Neurogune 2016 conference, Bilbao, Spain.

20. Caffarra, S., Molinaro, N., Davidson, D., & Carreiras, M. (September, 2016). Influential factors of second language syntactic analysis: An empirical review. Poster presentation at the Conference of Multilingualism (COM), Ghent, Belgium.

21. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (June 30-July 2, 2016). Detección y evaluación del TEL. Poster Presentation at XXX Congreso Internacional de la Asociación Española de Logopedia, Foniatría y Audiología e Iberoamericana de Fonoaudiología (AELFA-IF), Bilbao, Spain.

22. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (June 30-July 2, 2016). El lenguaje en el cerebro. Poster Presentation at XXX Congreso Internacional de la Asociación Española de Logopedia, Foniatría y Audiología e Iberoamericana de Fonoaudiología (AELFA-IF), Bilbao, Spain.

23. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (June 30-July 2, 2016). Introducción y desarrollo típico del lenguaje infantil. Poster Presentation at XXX Congreso Internacional de la Asociación Española de Logopedia, Foniatría y Audiología e Iberoamericana de Fonoaudiología (AELFA-IF), Bilbao, Spain.

24. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (June 30-July 2, 2016). La investigación y su aplicación. Poster Presentation at XXX Congreso Internacional de la Asociación Española de Logopedia, Foniatría y Audiología e Iberoamericana de Fonoaudiología (AELFA-IF), Bilbao, Spain.

25. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (June 30-July 2, 2016). Trastorno específico del lenguaje: prevalencia y variabilidad. Poster Presentation at XXX Congreso Internacional de la Asociación Española de Logopedia, Foniatría y Audiología e Iberoamericana de Fonoaudiología (AELFA-IF), Bilbao, Spain.

26. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (June 30-July 2, 2016). ¿Cómo ayudar? Las ayudas cambian a medida que evoluciona el TEL. Poster Presentation at XXX Congreso Internacional de la Asociación Española de Logopedia, Foniatría y Audiología e Iberoamericana de Fonoaudiología (AELFA-IF), Bilbao, Spain.

27. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). El lenguaje en el cerebro. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

28. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). Hizkuntza garunean. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

29. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). La investigación y su aplicación. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

30. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). Ikerketa eta bere aplikazioak. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

31. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). Detección y evaluación del TEL. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

32. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). AHAE hauteman eta ebaluatzea. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

33. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). Introducción y desarrollo típico del lenguaje infantil. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

34. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). Haurraren hizkuntza garapenerako sarrera. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

35. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). ¿Cómo ayudar? Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

36. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). Nola lagundu? Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

37. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). Trastorno específico del lenguaje: prevalencia y variabilidad. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

38. Doñate, U., Fariña, N., Galparsoro, N., Sierra, C., & Vadillo, O. (March 14-20, 2016). Adierazpen hizkuntzaren arazo espezifikoa: prebalentzia eta aldakortasuna. Poster Presentation at Brain Awareness Week, Donostia-San Sebastián, Spain.

39. Duñabeitia, J.A., Carreiras, M., Gillon-Dowens, M., & Pérez, A. (April, 2016). Brain oscillations in bilingual speech processing. Poster presentation at the Annual Meeting of the Cognitive Neuroscience Society, New York, USA.

40. Fariña, N., Duñabeitia, J.A., & Carreiras, M. (May 5-8, 2016). The role of phonological and orthographic coding in skilled deaf readers. Poster presentation at International Meeting of the Psychonomics Society, Granada, Spain.

41. Fariña, N., Pérez, A., Duñabeitia, J.A., & Carreiras, M. (August 17-20, 2016). Do skilled deaf readers access phonological codes? Poster presentation at the 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

42. Fariña, N., Pérez, A., Duñabeitia, J.A., & Carreiras, M. (June 27, 2016). Reading in deaf. Poster presentation at Neurogune 2016 conference, Bilbao, Spain.

43. Fernández García, Y. García-Pentón, L., Carreiras, M., & Duñabeitia, J.A. (September 11-13, 2016). Structural brain changes associated with lifelong bilingualism. Poster presentation at Conference on Multilingualism (COM 2016), Ghent, Belgium.

44. García-Penton, L., Fernández, Y., Duñabeitia, J.A., & Carreiras, M. (August, 2016). Grey matter changes associated to bilingualism across lifespan: combining voxel-based morphometry (VBM) and cortical thickness (CT). Poster presentation at the 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

45. Gascoyne, L., & Bastarrika, A., Caballero, C., Davidson, D., & Brookes, M. (October, 2016). The role of cortical oscillations in speech processing in adult naive speakers of a second language. Poster presentation at BIOMAG 2016 Conference, Seul, South Korea.

46. Giezen, M., Villameriel, S., Dias, P., & Carreiras, M. (November 17-20, 2016). Lexical access and cross-language activation in deaf readers: Evidence from the visual world paradigm. Poster presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

47. Guediche, S., Reilly, M., Santiago, C., Laurent, P., & Blumstein, S.E. (31 October - 1 November, 2016). Sentence meaning relationships influence the perception of speech under adverse listening conditions. Poster presentation at 2nd Workshop on Psycholinguistic Approaches to Speech Recognition in Adverse Condition, Nijmegen, The Netherlands.

48. Ivaz, L., Costa, A., & Duñabeitia, J.A. (August, 2016). Won't get fooled again? Lie production and lie perception in native and non-native languages. Poster presentation at the 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

49. Ivaz, L., Costa, A., & Duñabeitia, J. A. (September, 2016). How much do i like myself in a foreign language context? Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

50. Ivaz, L., Costa, A., & Duñabeitia, J. A. (November, 2016). Won't get fooled again? Lie production and lie perception in native and non-native languages. Poster presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

51. Kapnoula, E.C., Edwards, J., & McMurray, B. (October, 2016). Phoneme categorization gradiency is advantageous for coping with ambiguities: Evidence from individual differences. Poster presentation at the 2nd Workshop on Psycholinguistic Approaches to Speech Recognition in Adverse Conditions, Nijmegen, The Netherlands.

52. Kartushina, N. (June, 2016). The relationship between non-native speech perception and production in L2 learners: Revisited. Poster presentation at Current and future challenges in Psycholinguistics: Workshop in honour of Uli H. Frauenfelder, University of Geneva, Geneva, Switzerland.

53. Kartushina, N., & Martin, C. (September 3, 2016). Variability and plasticity in L2 speech production: An articulatory-feedback training study. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

54. Lerma-Usabiaga, G., Carreiras, M, & Paz-Alonso, P.M. (April, 2016). Maturational differences in thalamic structural asymmetry in control and dyslexic readers. Poster presentation at the 2016 Annual meeting of the Cognitive Neuroscience Society (CNS 2016), New York, USA.

55. Lerma-Usabiaga, G., Iglesias, J.E., Insausti, R., Greve, D., & Paz-Alonso. P.M. (June, 2016). Automated Segmentation of the Human Hippocampus Longitudinal Axis. Poster presentation at the 22nd Annual Meeting of the Organization for Human Brain Mapping (OHBM 2016), Geneve, Switzerland.

56. Lindborg, A., Baart, M., & Andersen, T. S. (June 15 -18, 2016). Speech specific audiovisual integration suppresses induced theta-band oscillations. Poster presentation at the 17th International Multisensory Research Forum (IMRF 2016), Suzhou, China.

57. Lizarazu, M., Lallier, M., Bourguignon, M., Carreiras, M., & Molinaro, N. (May 5, 2016). Neural mechanisms underlying speech pre-processing. Poster presentation at the International Workshop on Reading and Developmental Dyslexia (IWORDD 2016), Bilbao, Spain.

58. Lizarazu, M., Lallier, M., Bourguignon, M., Carreiras, M., & Molinaro, N. (May 5, 2016). Speech on the edge in dyslexia. Poster presentation at the International Workshop on Reading and Developmental Dyslexia (IWORDD 2016), Bilbao, Spain.

59. Lizarazu, M., Lallier, M., Bourguignon, M., Carreiras, M., & Molinaro, N. (October, 2016). Low frequency oscillations mediate de-multiplexing and encoding mechanisms during speech pre-processing. Poster presentation at the 20th International Conference on Biomagnetism (BIOMAG 2016), Seoul, Korea.

60. Luthra, S., Fuhrmeister, P., Guediche, S., Blumstein, S.E., & Myers, E.B. (November 17-20, 2016). Neural correlates of task-irrelevant perceptual learning of non-native speech sounds. Poster presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

61. Malik-Moraleda, S., Carreiras, M., & Duñabeitia, J.A. (September, 2016). Character processing in literacy acquisition. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

62. Mancini, S., Massol, S., Duñabeitia, J.A., Carreiras, M., & Molinaro, M. (August 17-20, 2016). What verbs can do: an ERP study on Basque. Poster presentation at the 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

63. Mancini, S., Ristic, B., Carreiras, M., & Molinaro, N. (September 1-3, 2016). Timing the contribution of morphosyntax and context to sentence comprehension: an eyetracking study. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

64. Marín-García, E. (July, 2016). How is my research contributing to society? Cognitive and neural consequences of being bilingual. Poster presentation at Marie Skłodowska-Curie Actions Conference ESOF Satellite Event, Manchester, UK.

65. Marin-Garcia, E., & Paz-Alonso, P.M. (April, 2016). When Language meets Memory: Language use modulates relational semantic processing in bilinguals. Poster presentation at the 2016 Annual Meeting of the Cognitive Neuroscience Society (CNS 2016), New York, USA.

66. Marin-Garcia, E., & Paz-Alonso, P.M. (July, 2016). Language use modulates relational semantic processing. Poster presentation at the International Conference on Memory (ICOM 2016), Budapest, Hungary.

67. Marín-García, E., Paz-Alonso, (November 17-20, 2016). Semantic processing in bilinguals: the role of implicit and explicit manipulations on false memories. Poster presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

68. Martin, C.D., Molnar, M., & Carreiras, M. (June 27, 2016). The proactive bilingual brain: Using interlocutor identity to generate predictions for language processing. Poster presentation at Neurogune 2016 conference, Bilbao, Spain.

69. Martin, C.D., Underwood, A., & Molinaro, N. (September, 2016). Second language vocabulary learning: Adults suffer social inhibition. Poster presentation at the Conference on Multilingualism, Ghent, Belgium.

70. Martin, C.D., Branzi, F., & Bar, M. (August, 2016). Prediction is production: ERP evidence in sentence comprehension. Poster presentation at the Society for the Neurobiology of Language (SNL 2016), London, UK.

71. Martin, C., Underwood, A., & Molinaro, N. (November 17-20, 2016). I'm doing better on my own: Social inhibition in vocabulary learning in adults. Poster presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

72. Martinez, A., & Salillas E. (June 27, 2016). Distance effect in bilinguals. An ERP study. Poster presentation at Neurogune 2016 conference, Bilbao, Spain.

73. Martinez, A., & Salillas E. (August, 2016). Unbalanced math in bilingual minds. Poster presentation at the 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

74. Molnar, M., Blanco, B., Carreiras, M., & Caballero, C. (May 26-28, 2016). The relationship between inter-hemispheric resting-state connections and vocabulary development in the first year of life. Poster presentation at XX Biennial International Conference on Infant Studies, New Orleans, USA.

75. Molnar, M., & Pejović, J. (May, 2016). Early visual perceptual development in monolingual and bilingual 4-month-old infants. Poster presentation at the XX Biennial International Conference of Infant Studies, New Orleans, USA.

76. Molinaro, N., Giannelli, F., Caffarra, S., & Martin, C.D. (April 3, 2016). The native language tunes prediction processes across multiple languages. Poster presentation at the 23rd Annual Meeting of Cognitive Neuroscience Society (CNS 2016), New York, USA.

77. Monsalve, I.F., & Molinaro, N. (October, 2016) Phonemic properties of expected words modulate pre-stimulus alpha oscillations. Poster presentation at the 20th International Conference on Biomagnetism (BIOMAG 2016), Seoul, Korea.

78. Nozari, N., Martin, C., McCloskey, N., & Gordon, B. (September 1-3, 2016). An adjustable-resource model of cognitive control in sentence production. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

79. Oliver, M., Carreiras, M., Iturria-Medina, Y., & Paz-Alonso, P.M. (February 28-29, 2016). Age of acquisition of the second language modulates structural and functional dynamics of bilingual reading. Poster presentation at Conference on Educational Neuroscience, Abu Dhabi, UAE.

80. Oliver, M., Carreiras, M., Iturria-Medina, Y., & Paz-Alonso, P.M. (April 2-5, 2016). Structural and functional dynamics of bilingual reading as a function of the age-of-acquisition. Poster presentation at the 2016 Annual Meeting of the Cognitive Neuroscience Society (CNS 2016), New York, USA.

81. Oliver, M., Carreiras, M., & Paz-Alonso, P.M. (June, 2016). Age-of-acquisition induces structural and functional changes in bilinguals. Poster presentation at the 22nd Annual Meeting of the Organization for Human Brain Mapping (OHBM 2016), Geneve, Switzerland.

82. Ordin, M., & Mennen, I. (September, 2016). Switching pitch profile in bilingual speech as a socially-determined behavioral pattern. Poster presentation at Workshop on Language Evolution "Linking social effects in language processing to social effects in language evolution", Nijmegen, The Netherlands.

83. Ostiz-Blanco, M. (November, 2016). Videojuegos y música para ayudar a las personas. Poster presentation at the 6° ENCUENTRO DE VIDAS CIENTIFICAS, Museo de la ciencia Eureka! Donostia-San Sebastián, Spain.

84. Ostiz-Blanco, M., Pina, A., Lizaso, M., & Grau, S. (December 5-7, 2016). ACMUS: Comparative assessment of a musical multimedia tool. Poster presentation at the Game and Learning Alliance International Conference (Gala Conf 2016), Utrecht, The Netherlands.

85. Pejović, J., Molnar, M., & Yee, E. (May, 2016). Audiovisual matching abilities of 4.5-month-old monolingual and bilingual infants. Poster presentation at the XX Biennial International Conference of Infant Studies, New Orleans, USA.

86. Pejović, J., Yee, E., & Molnar, M. (August, 2016). Audiovisual matching ability in 4.5-month old monolingual and bilingual infants. Poster presentation at the 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

87. Pérez, A., Carreiras, M., & Duñabeitia, J.A. (August, 2016). Do you listen to your brain? Oscillatory activity and speech perception. Poster presentation at the 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

88. Pourquié, M., Royle, P., & St Denis A. (September 1-3, 2016). Verb processing assessment in Specific Language Impairment. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

89. Quiñones, I., Mancini, S., Caballero, C., Hernández-Cabrera, J.A., Barber, H., Molinaro, N., & Carreiras, M. (August 17-20, 2016). Parietal circuit distinguishing between feminine and masculine entities: an fMRI study of gender agreement processing. Poster presentation at the 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

90. Ríos, P., Molnar, M., Lizarazu, M., & Lallier, M. (May 5, 2016). The importance of attentional tracking of slow speech modulations for speech intelligibility and reading development. Poster presentation at the International Workshop on Reading and Developmental Dyslexia (IWORDD 2016), Bilbao, Spain.

91. Ristic, B., Mancini, S., & Molinaro, N. (July 25-27, 2016). Attraction from afar: What influences verb number choice in Basque sentence production. Poster presentation at the 9th International Workshop on Language Production, San Diego, USA.

92. Ristic, B., Mancini, S., & Molinaro, N. (September 1-3, 2016). Proactive number attraction: The case of Basque sentence production. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

93. Rosenthal, C.R., Andrews, S.R., Miller, T.D., Kennard, C., & Soto, D. (July 19, 2016). Discrete networks underlie learning to recognise conscious and non-conscious sequences of events. Poster presentation at the International Conference on Memory (ICOM6), Budapest, Hungary.

94. Roux, F., Frost, R., & Carreiras, M. (October 1-6, 2016). Predicting individual differences in sequence learning from oscillatory activity in human MEG-data. Poster presentation at 20th international BIOMAG meeting, Seoul, Korea.

95. Samuel, A.G., & Dumay, N. (June 24, 2016). How long do perceptual adjustments from selective adaptation last? Poster presentation at current and future challenges in Psycholinguistics: Workshop in honour of Uli H. Frauenfelder, University of Geneva, Geneva, Switzerland.

96. Samuel, A., & Dumay, N. (June 24, 2016). Selective adaptation lasts for hours and is resilient to other speech interference. Poster presentation at current and future challenges in Psycholinguistics: workshop in honour of Uli H. Frauenfelder, University of Geneva, Switzerland.

97. Schlöffel, S., Marie, L., Manuel , C., & Martin, C. (May 5, 2016). Do abstract orthographic features affect auditory speech perception? Poster presentation at the International Workshop on Reading and Developmental Dyslexia (IWORDD 2016), Bilbao, Spain.

98. Wolpert, M., Caffarra, S., & Mancini, S. (September 1-3, 2016). Addressee Identity and Basque Allocutivity. Poster presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

99. Zarraga, A., Lizarazu, M. Lallier, M., & Molinaro, N. (March, 2016). Beta oscillations and reading abilities. Poster presentation at the 2016 Latin American School for Education (LASchool), Buenos Aires, Argentina.

100. Zarraga, A., Lizarazu, M., Lallier, M., Bourguignon, M., Carreiras, M. and Molinaro, N. (October, 2016) Neural entrainment to speech edges in dyslexia: an MEG study. Poster presentation at the 20th International Conference on Biomagnetism (BIOMAG 2016), Seul, South Korea.

101. Zheng, Y., & Samuel, A.G. (November 17-20, 2016). Does seeing an Asian face make speech sound more accented? Poster presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

102. Zugarramurdi, C., Armstrong, B.C., Cabana, A., Valle Lisboa, J., & Plaut, D.C. (May 5-8, 2016). Relative meaning frequencies for homonyms in two Spanish dialects. Poster presentation at International Meeting of the Psychonomics Society, Granada, Spain.

103. Zugarramurdi, C., Lallier, M., Valle-Lisboa, J.C., & Carreiras, M. (August, 2016). Using Brain Rhythms to improve behavioral predictors of reading. Poster presentation at the Society for the Neurobiology of Language (SNL 2016), London, UK.

Oral Presentations

1. Armstrong, B.C., Dumay, N., Kim, W.J., & Pitt, M.A. (November 17-20, 2016). Generalization from newly learned words reveals structural properties of the human reading system. Oral presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

2. Arnaez-Telleria, J., Lerma-Usabiaga, G., Carreiras, M., & Paz-Alonso, P.M. (July, 2016). Functional and structural evidence of hippocampal involvement on the Testing effect. Oral presentation at the International Conference on Memory (ICOM6), Budapest, Hungary.

3. Blumenfeld, H.K., Giezen, M.R., & Wade, S. (2016, May). Unexpected non-target-language cues reveal language-cognition links in Spanish-English bilingual listeners. Oral presentation at a panel on cognitive control and language processing in bilinguals and monolinguals, International Meeting of the Psychonomic Society (PS 2016), Granada, Spain.

4. Caffarra, S. (2016). Influence of L1-L2 similarity, AoA, proficiency, immersion on L2 syntactic processing: a meta-analysis on available ERP results. Oral presentation at the Workshop on Sentence Processing in Multilingual and Other Less Commonly Studies Populations, Potsdam, Germany.

5. Caffarra, S., Martin, C., Lizarazu, M., Lallier, M., Zarraga, A., Molinaro, N., & Carreiras, M. (May 5, 2016). Consequences of learning to read on word and object recognition: MEG evidence. Oral presentation at the International Workshop on Reading and Developmental Dyslexia (IWORDD 2016), Bilbao, Spain.

6. Costello, B. (February, 2016). "Defective" agreeing verbs in LSE: An OT account. Oral presentation at the DGfS Workshop Sign language agreement revisited: new theoretical and experimental perspective, Konstanz, Germany.

7. Dumay, N., & Massol, S. (November 17-20, 2016). No lexical engagement without memory consolidation: behavioural and electrophysiological evidence from masked priming and Reicher-Wheeler. Oral presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

8. Duñabeitia, J.A., & Carreiras, M. (May 7, 2016). Learning a new language in the elderly. Oral presentation at the International Meeting of the Psychonomic Society (PS 2016), Granada, Spain.

9. Iglesias, J.E., Paz-Alonso, P.M., Lerma-Usabiaga, G., Insausti, R., Miller, K., & Caballero-Gaudes, C. (April 13-16, 2016). Simultaneous Bayesian correction of slab boundary artifacts and bias field for high resolution ex vivo MRI. Oral presentation at International Symposium on Biomedical Imaging (ISBI 2016), Prague, Czech Republic.

10. Hoareau, M., Pejović, J., & Yeung, H. (May 2016). Infants´ oral gestures influence their auditory speech perception. Oral presentation at the XX Biennial International Conference of Infant Studies, New Orleans, USA.

11. Kartushina, N., Hervais-Adelman, A., Frauenfelder, U., & Golestani, N. (June, 2016). How and why learning to produce non-native sounds affects native production. Oral presentation at the 8th International Symposium on Second Language Speech (New Sounds 2016), Aarhus, Denmark.

12. Lerma-Usabiaga, G., Iglesias, J.E., Insausti, R., Greve, D., & Paz-Alonso. P.M. (July 17-22, 2016). Automated segmentation of the human hippocampus along its longitudinal axis. Oral presentation at International Conference On Memory (ICOM 2016), Budapest, Hungary.

13. Lizarazu, M., Lallier, M., Bourguignon, M., Carreiras, M., & Molinaro, N. (October, 2016). Integration and prediction in language. Oral presentation at the 20th International Conference on Biomagnetism (BIOMAG 2016), Seul, South Korea.

14. Martin, C.D., Branzi, F., & Bar, M. (September 1-3, 2016). Prediction is production: ERP evidence in sentence comprehension. Oral presentation at the 22nd Architectures and Mechanisms for Language Processing Conference (AMLaP 2016), Bilbao, Spain.

15. Martin, C.D., Molnar, M., & Carreiras, M. (June, 2016). The proactive bilingual brain: Using interlocutor identity to generate predictions for language processing. Oral presentation at Neurogune 2016 conference, Bilbao, Spain.

16. Massol, S., Carreiras, M., Grainger, J., & Duñabeitia, J.A. (May, 2016). The locus of letter-specific position coding mechanisms. Oral presentation at International Meeting of the Psychonomic Society (PS 2016). Granada, Spain.

17. Molinaro, N. (October, 2016). Entraining to auditory stimuli in developmental dyslexia. Oral presentation at the 20th International Conference on Biomagnetism (BIOMAG 2016), Seul, South Korea.

18. Molinaro, N., Lizarazu, M., Lallier, M., Bourguignon, M., & Carreiras, M. (May 6, 2016). Auditory rhythms in developmental dyslexia. Oral presentation at the International Workshop on Reading and Developmental Dyslexia (IWORDD 2016), Bilbao, Spain.

19. Oliver, M., Carreiras, M., & Paz-Alonso, P.M. (September 7-9, 2016). Age of acquisition of the second language modulates structural and functional dynamics of bilingual reading. Oral presentation at VIIIth International Conference of Language Acquisition, Palma de Mallorca, Spain.

20. Oliver, M., Paz-Alonso, P.M., Lerma, G., Caballero, C., Quiñones, I., Suarez-Coalla, M.P., Duñabeitia, J.A., Cuetos, F., & Carreiras, M. (May 6, 2016). Functional dynamics of orthographic consistency in dyslexic and control readers. Oral presentation at the International Workshop on Reading and Developmental Dyslexia (IWORDD 2016), Bilbao, Spain.

21. Paz-Alonso, P.M., Arnaez-Telleria, J., Lerma-Usabiaga, G., & Carreiras, M. (July, 2016). Neurodevelopmental correlates of the testing effect. Oral presentation at the International Conference on Memory (ICOM6), Budapest, Hungary.

22. Paz-Alonso, P.M., & Carreiras, M. (January, 2016). Neural dynamics of print and speech in four contrasting languages. Oral presentation at the Literacy Dialog NBRC international Meeting, Manesar, India.

23. Perea, M., Mallouh, R.A., Mohammed, A., Khalifa, B., & Carreiras, M. (November 17-20, 2016). The role of diacritical marks in the early stages of written- word recognition in Arabic. Oral presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

24. Pourquié, M. (October 27-28, 2016). Disentangling atypical from typical forms of agrammatism. Oral presentation at Language Contact from an I-language Perspective, Donostia, Spain.

25. Pourquié, M. (November 15, 2016). Verb inflection and argument structure in Specific Language Impairment. Oral presentation at International conference on Speech Language Pathology and Audiology, University of Montreal, Montreal, Canada.

26. Pourquié, M. (November 17, 2016). Verb lexical and inflectional processing assessment in Specific Language Impairment. Oral presentation at VOCUM conference 3rd edition, Language under scrutiny: technology and corpus, University of Montreal, Montreal, Canada.

27. Salillas E. (May 7, 2016). ERPs reveal a preferred code for complex calculation in proficient bilinguals. Symposium at the International Meeting of the Psychonomic Society (PS 2016), Granada, Spain.

28. Samuel, A.G. (November 17-20, 2016). Long-term priming effects of embedded words. Oral presentation at the 57th Annual Meeting of the Psychonomic Society (PS 2016), Boston, USA.

29. Shing, Y.L., Brod, G., Meyer, A-K., Paz-Alonso, P.M., & Fandakova, Y. (July, 2016). Neural mechanisms of episodic memory development: Effects of school entry. Oral presentation at the International Conference on Memory (ICOM6), Budapest, Hungary.

Invited Talks

1. Aleman-Bañon, J. (April 5 , 2016). Using event-related potentials to examine morphosyntactic processing in adult second language learners. Invited talk at the Centre for Research on Bilingualism, Stockholm University, Stockholm, Sweden.

2. Armstrong, B. C. (2016, January). Computational and Empirical Investigations of Semantics, Reading, & Language. Invited talk at the Psychology Department and the Center for French & Linguistics, University of Toronto Scarborough, Scarborough, Canada.

3. Arnaez, J. (May 23, 2016). Ikasteko teknikak: Ikasi ahazteko edo ikasi gogoratzeko? Invited talk at Pint of Science 2016, Donostia-San Sebastián, Spain.

4. Baart, M. (September 30, 2016). Perceiving non-speech as speech based on a moving mouth. Findings from infants, children, and adults. Invited talk at the Beyond Language Learning Workshop, Barcelona, Spain.

5. Bastarrika, A. (May 23, 2016). Zer ikusi dute Jennifer Anistonek eta zure amamak? Kontzeptu zelulak. Invited talk at Pint of Science 2016, Donostia, Spain.

6. Bergouignan, L. (June 9, 2016). When mind and body interacts: childhood memories, an example of body constrained memory access. Invited talk at Memory and Subjectivity; A philosophy-psychology workshop, Grenoble, France.

7. Caballero-Gaudes, C. (September 21-23, 2016). The power of BOLD deconvolution for mapping the brain's functional dynamics in individual subjects. Invited talk in symposium Dynamic Functional Connectivity - Resting state conference, Vienna, Austria.

8. Caffarra, S. (May 25, 2016). Diferencias que cuentan: no todos los bilingües se crean iguales. Invited talk at Pint of Science 2016, Donostia-San Sebastián, Spain.

9. Caffarra, S. (February 18-21, 2016). Influence of gender-to-ending consistency on monolingual and bilingual agreement processing. Invited talk at 17th International Morphology Meeting, Vienna, Austria.

10. Carreiras, M. (January 22, 2016). Cognitive assessment in bilingual patients. Invited talk at Low Grade Glioma. Approach & Technology to become chronic disease, QuirónSalud/ Hospital Ramón y Cajal/ Hospital Universitario de Cruces, Madrid, Spain.

11. Carreiras, M. (January 26, 2016). Understanding Language in the Brain: from the lab to the actual world. Invited talk at seminario of CIC Biomagune, Donostia-San Sebastián, Spain.

12. Carreiras, M. (February 1-2, 2016). Brain changes associated with learning to read in children. Invited talk at The Role of native language literacy in multi-literate societies, National Brain Research Centre of India, Manesar, India.

13. Carreiras, M. (February 12, 2016). Atypical auditory sampling and impaired connectivity in dyslexia. Invited talk at seminario of Instituto de Neurociencias (INCYL), Salamanca, Spain.

14. Carreiras, M. (February 26, 2016). Lenguaje: bases biológicas y mecanismos cognitivos. Invited talk at seminario of Universidad de Santiago de Compostela, Santiago de Compostela, Spain.

15. Carreiras, M. (April, 2016). The bilingual brain: Plasticity and processing from cradle to grave. Invited talk at 4th Panhellenic Conference on Cognitive Psychology, University of Athens, Athens, Greece.

16. Carreiras, M. (May 27, 2016). Bases biológicas y mecanismos cognitivos. Invited talk at I Jornadas sobre avances en investigación Biomédica Traslacional, Tenerife, Spain.

17. Carreiras, M. (June 15-17, 2016). Neuroscience and Education: Second Language Learning and Early Biomarkers for Dyslexia. Invited talk at VIII International Congress of Psychology and Education (CIPE 2016), Universidad de Alicante, Alicante, Spain.

18. Carreiras, M. (June 30, 2016). Avances en la investigación: cerebro y lectura. Invited talk at XXX Congreso Internacional AELFA - IF/CLPV, Colegio de Logopedas del Pais Vasco, Bilbao, Spain.

19. Carreiras, M. (August 17-20, 2016). The consequences of bilingualism for cognitive and neural function. Invited talk at 8th Annual Meeting of the Society for the Neurobiology of Language (SNL 2016), London, UK.

20. Carreiras, M. (September 25-28, 2016). Brain activation during bilingual reading in shallow and deep L2 orthographies. Invited talk at Hebrew University of Jerusalem, Jerusalem, Israel.

21. Carreiras, M. (October 6-7, 2016). Understanding Language in the Brain. Invited talk at III Jornadas "Y tú, ¿qué investigas?", Instituto de Biología Molecular y Celular (IBMC), Elche, Spain.

22. Carreiras, M. (October 8, 2016). Neurociencia y Educación: de los neuromitos a la evidencia. Invited talk at Universidad de la Rioja, Logroño, Spain.

23. Carreiras, M. (December 12, 2016). Wine, Mind and Brain. Invited talk at Jornadas de Culinary Interación ¿Qué pasa cuando la cocina se asoma a otras realidades?, Basque Culinary Center, Donostia-San Sebastián, Spain.

24. Costello, B. (November 25, 2016). Las bases neurológicas del procesamiento de la lengua de signos española. Invited talk given at II Jornada Científica de Reflexión "Estudios sobre la situación del alumnado con sordera en España" (organized by Confederación Española de Familias de Personas Sordas – FIAPAS), Ministerio de Educación, Cultura y Deporte, Madrid, Spain.

25. Dumay, N. (June 6, 2016). On the key role of memory consolidation in the formation of lexical representations. Invited talk at a seminar at the University of Geneva, Switzerland.

26. Duñabeitia, J.A. (January 22, 2016). Neurociencia y educación: ¿Sabemos cómo aprende nuestro cerebro? Invited talk at the Congreso Innovación iDuka, Murcia, Spain.

27. Duñabeitia, J.A. (February 10, 2016). Educando cerebros: Neurociencia y Educación. Invited talk at the Programa Educando Para el Futuro 2016 IberCaja, Zaragoza, Spain.

28. Duñabeitia, J.A. (May 27, 2016). Emotions and foreign languages: oil and water. Invited talk at the School of Psychology Seminar series, University of Bangor, Bangor, UK.

29. Duñabeitia, J.A. (June 28-29, 2016). Neurociencia y educación. Invited workshop at San Viator School, Vitoria-Gasteiz, Spain.

30. Duñabeitia, J.A. (September 11, 2016). Breaking bilingual education rules. Invited talk at the Conference on Multilingualism (COM 2016), Ghent, Belgium.

31. Duñabeitia, J.A. (September 24, 2016). La neurociencia cognitiva y el aprendizaje. Invited talk at the Congreso Cambio Educativo, Desarrollo del Talento, Gijón, Spain.

32. Giezen, M.R. (June, 2016). Language development in deaf children following cochlear implantation. Invited talk at Facultat de Traducció i Interpretació, Universitat Pompeu Fabra, Barcelona, Spain.

33. Giezen, M.R. (June, 2016). Language processing in bilinguals of signed and spoken languages. Invited talk at Laboratori de llengua de signes catalana, Universitat Pompeu Fabra, Barcelona, Spain.

34. Iglesias, J.E. (February 13, 2016). Building brain atlases with ex vivo MRI and histology for automated analysis of in vivo MRI: Application to substructures of the hippocampus, amygdala and thalamus. Invited talk at Institute of Biomedicine of Seville (IBiS), Seville, Spain.

35. Ivaz, L. (October 7, 2016). Emotions and lie perception and production in native and non-native languages. Invited talk at the Amsterdam Center for Language and Communication (ACLC), Faculty of Humanities, University of Amsterdam, Amsterdam, The Netherlands.

36. Lallier, M. (September, 2016). Lineas de investigación de desarrollo bilingüe en niños con desarrollo atípico. Curso de Verano de las Universidades Navarras 2016: Proceso inclusivo de niñas y niños con desarrollo atípico en un sistema educativo y social plurilingue, Lesaka, Spain.

37. Lallier, M., (October 28, 2016) Reading acquisition in Bilinguals. Invited talk at Mente-Cerebro research group, Navarra University, Pamplona, Spain.

38. Mancini, S. (May 25, 2016). El cerebro y las reglas universales del lenguaje. Invited talk at Pint of Science 2016, Donostia-San Sebastián, Spain.
39. Martin, C.D. (October, 2016). Reading in the brain. Invited talk at Universidad de Navarra, Donostia-San Sebastián, Spain.

40. Molnar, M. (September 30, 2016). The building blocks of language in early childhood. Invited talk at Rehabilitation Sciences Institute, Faculty of Medicine, University of Toronto, Toronto, Canada.

41. Ostiz, M., & Grau, S. (June 30, 2016). Una aproximación desde la música al tratamiento de la dislexia. Invited talk at Universidad Pública de Navarra, Pamplona, Spain.

42. Paz-Alonso, P.M. (July, 2016). Functional and structural correlates of atypical reading. Invited talk at the Center for Cognitive Sciences, University of Kaiserslautern, Kaiserslautern, Germany.

43. Paz-Alonso, P.M. (October, 2016). Multimodal MRI converging evidence underlying the role of thalamus in developmental dyslexia. Invited talk at the Department of Anatomy & Graduate Program in Neuroscience, School of Medicine, Universidad Autónoma de Madrid, Madrid, Spain.

44. Ríos, P. (May 24, 2016). ¿Por qué somos inconsecuentes durante la adolescencia? Una perspectiva cerebral. Invited talk at Pint of Science 2016, Donostia-San Sebastián, Spain.

45. Salillas, E. (January 22, 2016). Functional pre & post-surgical evaluation of the LGG. Role of MEG in plasticity evaluations. Invited talk at Low Grade Glioma course, at Hospital Universitario Quirón, Madrid, Spain.

46. Salillas E. (May 7, 2016). ERPs reveal a preferred code for complex calculation in proficient bilinguals. Invited talk at the Symposium SY21 of the International Meeting of the Psychonomic Society, Granada, Spain.

47. Salillas E. (March 4, 2016). How the language for early learning shapes the bilingual numerical system. Invited talk at University of North Florida, Jacksonville, USA.

48. Salillas E. (May 19-20, 2016). Linguistic traces in core numerical knowledge. Keynote speaker at Math Cognition and Learning Conferences, Fort Worth, USA.

49. Samuel, A. (April 1, 2016). Picking Apart Perceptual Recalibration: An Exercise in Applying Experimental Methods. Invited talk at Sociolinguistic Variation and Language Processing (SVALP) conference, at Virginia Tech University, Blacksburg, USA.

50. Samuel, A.G., & Dumay, N. (January 4, 2016). The When and Where of Selective Adaptation for Speech. Invited talk at the Auditory Cognitive Neuroscience Society, Tucson, USA.

51. Villameriel, S. (April 11, 2016). Bilingües sordos y oyentes en lengua de signos y lengua oral. Invited talk at Centro de FPE López Vicuña, Palencia, Spain.

52. Villameriel, S. (May 24, 2016). Mitos y realidades del uso de gestos y signos con bebés. Invited talk at Pint of Science 2016, Donostia-San Sebastián, Spain.
53. Villameriel, S. (September 2, 2016). Cerebro y lengua de signos, adquisición y bilingües bimodales. Invited talk at Berritzegune Nagusia, Bilbao, Spain.

54. Villameriel, S. (October 29, 2016). Centro de investigación en neurociencia cognitiva y lenguage: sinergias entre investigación, universidad y empresa. Invited talk at III jornada autonómica de ILSE: servicios comunitarios, centros docentes, grado universitario. Centro Margarita Nelken, Coslada, Spain.

55. Villameriel, S. (November 8, 2016). La lengua de signos en el cerebro. Invited talk at Aretoa Gorbeia, Vitoria-Gasteizko Berritzeguneetan, Vitoria-Gazteiz, Spain.

56. Wilson, L.B. (June 3, 2016). A behavioural and functional imaging investigation of phonological processing in autism. Invited talk at University of Seville, Seville, Spain.

D. MASTER IN COGNITIVE NEUROSCIENCE OF LANGUAGE - CNL

The Master in Cognitive Neuroscience of Language has been taught since the academic year 2011-2012. One of the aims of this graduate program is to train interdisciplinary researchers in the Cognitive Neuroscience of Language to advance further and transfer this knowledge to the areas of Health and Education. The program allows the degree holder to pursue a research career by developing a PhD thesis. The duration of the program is one academic year, with 60 ECTS credits. The students develop research skills through the mentorship of experts and by completing the Master's Research Project at the end of the program. The BCBL has offered several scholarships to those students considered to have the best profile in the evaluation process.

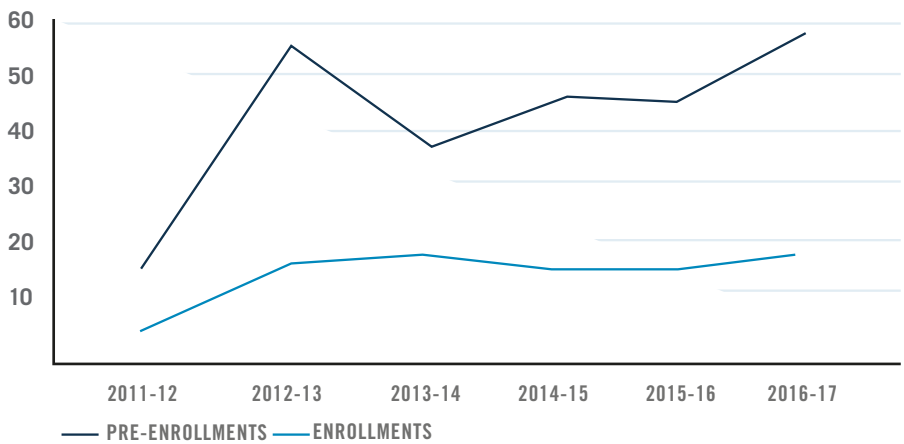
Main details:

[Academic director: Manuel Carreiras
[Duration: One academic year, 60 ECTS (European Credits Transfer System)
[Language of instruction: English
[Lecturers: 28 per year approximately
[Subjects: 2 compulsory courses and 13 optional of which 8 may be chosen by each student. 36 ECTS
[Final Master Dissertation: 24 ECTS

The figure below shows the evolution of the applications and enrollments to the Master, in which the interest for the program at international level is reflected. There is a maximum number of 15 enrollments for students with the best academic records, therefore ensuring the teaching quality through personalized attention.

STUDENTS PRE-ENROLLED AND ENROLLED:

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
PRE ENROLLMENTS	14	55	38	44	43	56
ENROLLMENTS	5	14	15	13	13	14



So far, 74 students have participated in this Master throughout its 6 editions, 19 of whom have joined the BCBL to complete their doctoral training. Others have joined a wide range of international centers such as New York University, Saarland University, Donders, Max Planck Institute for Psycholinguistics or University of Jyväskylä among others.

D. DOCTORAL THESES

AUTOMATIC ACTIVATION OF TRANSLATION EQUIVALENTS IN BILINGUAL VISUAL WORD RECOGNITION

a. Supervisors: Manuel Carreiras & Jon Andoni Duñabeitia
b. PhD student: **Maria Dimitropoulou**
c. Defended in 2013 (Summa cum laude)

LISTENING TO DIALECTAL VARIATION IN A SECOND-LANGUAGE: NOT JUST UNAVOIDABLE BUT NECESSARY

a. Supervisors: Arthur G. Samuel & Miren Lourdes Oñederra
b. PhD student: **Saioa Larraza**
c. Defended in 2014 (Excellent)

FROM MINIMAL DEPENDENCIES TO SENTENCE CONTEXTS: NEURAL CORRELATES OF AGREEMENT PROCESSING

a. Supervisors: Manuel Carreiras & Nicola Molinaro
b. PhD student: **Iliana Quiñones**
c. Defended in 2016 (Excellent)

NUMBER REPRESENTATION IN BILINGUALS. THE ROLE OF EARLY LEARNING IN THE MENTAL NUMBER LINE REPRESENTATION

a. Supervisors: Elena Salillas & Manuel Carreiras
b. PhD student: **Cristina Gil López**
c. Defended in 2016 (Summa cum laude)

BILINGUALISM AND VISUAL WORD RECOGNITION

a. Supervisors: Jon Andoni Duñabeitia & Manuel Carreiras
b. PhD student: **Aina Casaponsa**
c. Defended in 2016 (Summa cum laude)

NEURAL CORRELATES OF BILINGUAL READING: EFFECTS OF ORTHOGRAPHIC DEPTH AND AGE OF ACQUISITION OF A SECOND LANGUAGE IN BRAIN FUNCTION AND STRUCTURE

a. Supervisors: P.M. (Kepa) Paz-Alonso & Manuel Carreiras
b. PhD student: **Myriam Oliver**
c. Defended in 2016 (Summa cum laude)

THE EFFECTS OF FOREIGN-ACCENTED SPEECH ON LANGUAGE COMPREHENSION AND RETRIEVAL PROCESSES

a. Supervisors: Albert Costa Martínez & Clara D. Martin
b. PhD student: **Carlos Romero Rivas**
c. Defended in 2016 (Summa cum laude)

A. ORGANIZATION OF CONFERENCES & WORKSHOPS

B. SEMINARS

C. SCIENCE OUTREACH ACTIVITIES

D. BCBL IN THE MEDIA

E. PARTICIPA WEBSITE

SCIENCE OUTREACH AND VISIBILITY

A. ORGANIZATION OF CONFERENCES & WORKSHOPS

From the beginning, the BCBL has played an active role in the promotion of research in Cognitive Neuroscience and Language, organizing international conferences and workshops annually and involving the most influential researchers in the field of cognitive neuroscience of language.

These conferences are a natural environment for excellent research, the first step to internationalization, and the best opportunity for young researchers to learn and interact with the world leaders in the field. These events are a great opportunity for the BCBL's researchers to attend lectures, discuss their work with other attendees and, of course, expand their network.

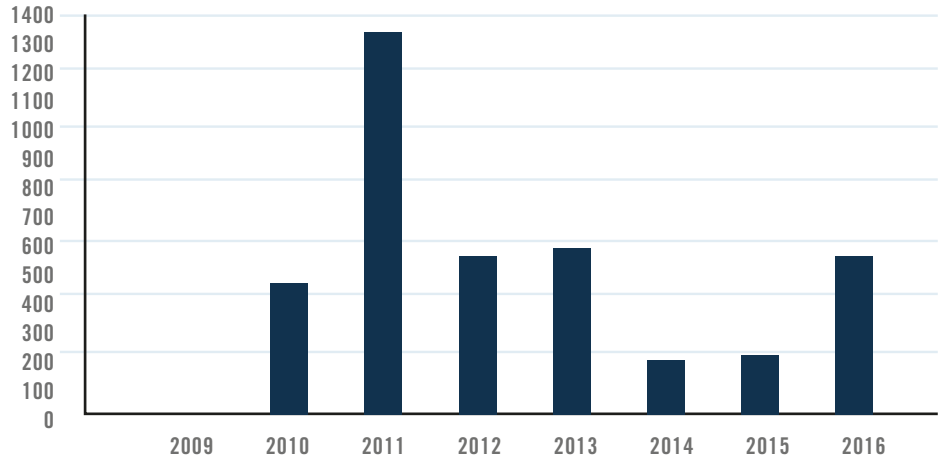
The BCBL organized and hosted 10 international conferences and workshops during the period 2013-2016.

In particular, the BCBL launched the "WILD" and "Statistical Learning" congresses, of which 2 editions have already been held.

Furthermore, we have enriched the format of the "IWORDD" congress by introducing an additional section designed for practitioners who deal with dyslexia on a daily basis.

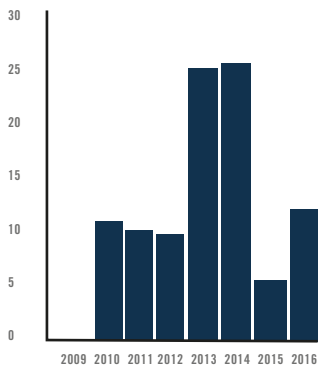
The following charts show the yearly number of attendees and the number of proceedings per year, respectively:

	2009	2010	2011	2012	2013	2014	2015	2016	TOTAL
ATTENDEES	0	440	1310	550	577	197	205	540	3819

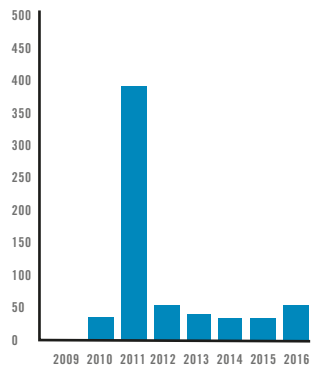


	2009	2010	2011	2012	2013	2014	2015	2016	TOTAL
KEYNOTE PRESENTATIONS	0	12	10	9	25	26	5	13	100
ORAL PRESENTATIONS	0	37	388	48	36	31	38	45	623
POSTERS	0	78	485	306	184	86	97	322	1558

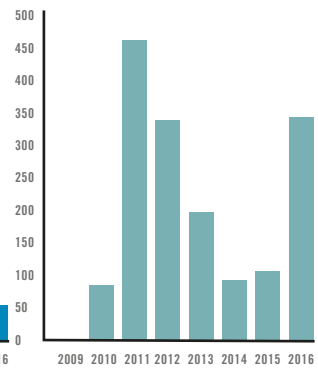
Keynote Presentations



Oral Presentations



Posters



2013

WILD. Workshop on Infant Language Development (WILD)

June 20 / 22

This was the first Workshop on Infant Language Development (WILD). The overarching goal of WILD was to bring together scientists with different perspectives and methodological approaches to the study of early language and cognitive development. This scientific meeting was created to highlight recent research on a wide range of topics within monolingual and bilingual development, including speech perception and production; word learning; the development of syntax and morphology; brain mechanisms and first language acquisition; recent advances in infant brain imaging techniques (i.e., EEG, NIRS); atypical language development; language and cognition; early bilingualism; multilingual development; the role of culture in language development; gestures and non-verbal communication in infants and toddlers.

Organizing committee:

Monika Molnar
Postdoctoral Researcher, BCBL.
P.M. (Kepa) Paz-Alonso
Postdoctoral Researcher, BCBL.
Melissa Baese-Berk
Postdoctoral Researcher, BCBL.
Postdoctoral Researcher, Michigan State University.
Arthur Samuel
Ikerbasque Research Professor, BCBL.
Manuel Carreiras
Scientific Director, Ikerbasque Research Professor, BCBL.

Attendees: 187
Keynote presentations: 6
Invited Speakers:

[Richard Aslin
University of Rochester, USA
"Distributional language learning: Mechanisms and models of category formation"

[Krista Byers-Heinlein,
Concordia University, Canada
"It takes two languages to tango: Bilingual processing in infancy"

[Jenny Saffran,University of Wisconsin, USA "Sounds and meanings working together: Word learning as a collaborative effort"

[Nuria Sebastian, Universitat Pompeu Fabra, Spain
"Are bilingual infants out of control?"

[Daniel Swingley, University of Pennsylvania, USA
"Word learning in infancy"

[Marilyn Vihman, University of York, UK
"The role of production in infant word learning"

IWORDD- International Workshop on Reading and Developmental Dyslexia

May 30 / June 1

Our aim with this workshop was to promote the exchange of ideas between world-class dyslexia experts through debates and talks, and facilitate transfer of knowledge between practitioners and scientists.
The ultimate goal was to understand the causes of dyslexia and improve detection protocols and remediation techniques.

Part one:
Theoretical Perspectives IWORDD
May 30 / 31

This part was dedicated to the science and was centered around six debates among invited speakers. Since IWORDD aimed to encompass the wide variety of theoretical views on developmental reading disorders, debates involved international experts chosen to represent this diversity of approaches. This series of debates was complemented by talks and poster presentations selected from abstract submissions.

Topics involved in the debates

1. Results and non-results in the neuroimaging of dyslexia (Franck Ramus & Heinz Wimmer)
2. The nature of the visual deficits in developmental dyslexia (Andrea Facoetti & Trichur Vidyasagar)
3. Speech perception problems as a risk factor for dyslexia: Phonemic and allophonic processing perspectives (Paavo H. T. Leppänen & Willy Serniclaes)
4. A phonological deficit or a broader auditory deficit as a core impairment of dyslexia? (Merav Ahissar & Pol Ghesquière)
5. The phonological deficit: Cause or consequence of reading disorders? (Kate Nation & Anne Castles)
6. Are there subtypes of developmental dyslexia? (Joel B. Talcott & Sylviane Valdois

Organizing committee:

Marie Lallier
Postdoctoral Researcher, BCBL
Nicolas Dumay
Staff Scientist, BCBL
Manuel Carreiras
Scientific Director, BCBL
Pawel Kuszelewski
Outreach Manager, BCBL

Attendees: 178
Keynote presentations: 12
Oral presentations: 12
Poster presentations: 74
Invited speakers:

[Franck Ramus - CNRS - Laboratoire de Sciences Cognitives et Psycholinguistique, Institute of Cognitive Studies, Ecole Normale Supérieure, Paris, France.

[Heinz Wimmer - University of Salzburg, Austria.

[Willy Serniclaes - CNRS, Laboratoire de Psychologie de la Perception, U. Paris Descartes (Directeur de Recherches Emerite). Unité de Neurosciences Cognitive, U. Libre de Bruxelles (Prof. Honoraire).

[Merav Ahissar - Department of Psychology, Faculty of Social Sciences - The Hebrew University of Jerusalem, Israel.

[Pol Ghesquière - Katholieke Universiteit Leuven, Belguim.

[Kate Nation - University of Oxford, UK.

[Anne Castles - Department of Cognitive Science, Macquarie University, Australia.

[Andrea Facoetti - Developmental & Cognitive Neuroscience Lab, General Psychology Department, University of Padova, Italy. Developmental Neuropsychology Unit, "E. Medea" Scientific Institute, Bosisio Parini, Lecco, Italy.

[Trichur Vidyasagar - Department of Optometry & Vision Sciences and Melbourne Neurosciences Institute, University of Melbourne, Australia.

[Joel B. Talcott - Aston Brain Centre, Aston University, Birmingham UK.

[Sylviane Valdois - Laboratoire de Psychologie et Neurocognition, Université Pierre Mendès-France.

[Paavo H. T. Leppänen - Department of Psychology, University of Jyväskylä, Finland.

Part two:
IWORDD
De la Teoría a la Práctica - Teoriatik Praktikara - From Theory to Practice
June 1

The aim of this conference was to promote the transfer of knowledge and interaction among researchers, parents, teachers and practitioners.
"IWORDD -- From Theory to Practice" was centered around six keynote lectures by international experts tailored to a broad audience, followed by a round-table discussion. For this part of the workshop, simultaneous interpretation in Spanish, English and Basque was provided.

Attendees: 212
Keynote presentations: 7
Keynote lectures & invited speakers:

[The diagnosis of dyslexia and the different reading profiles. Anne Castles - Macquarie University, Australia.

[Refining our understanding of developmental dyslexia and co-occurring difficulties. Joel B. Talcott - Aston Brain Centre, Aston University, Birmingham UK.

[The dominant theoretical perspective and the difficulties with learning to read and write in a regular orthography. Heinz Wimmer - University of Salzburg, Austria.

[Dyslexia in transparent languages: The case of Spanish. Manuel Carreiras - Basque Center on Cognition Brain and Language, Spain.

[Dyslexia remediation programs: What to look for and how to pick one? Sylviane Valdois - Université Pierre Mendès-France.

[The neural and genetic bases of dyslexia. Franck Ramus - CNRS - Laboratoire de Sciences Cognitives et Psycholinguistique, Institute of Cognitive Studies, Ecole Normale Supérieure, Paris, France.

[Linking research with educational policy: Insights from monolingual and bilingual schooling contexts. Marketa Caravolas - Bangor University, UK.

2014

Second meeting of the BASQUE RESEARCH COMMUNITY IN NEUROSCIENCE

July 9

Neurogune
2nd BASQUE NEUROSCIENCE MEETING 2014

Neuroscience is a strategic area of knowledge worldwide. Aging and mental illnesses, apart from the basis of the functioning of our brain are big questions and challenges of our society. The Basque Government together with, BCBL - Basque Center on Cognition, Brain and Language, Biodonostia Health Research Institute and Achucarro center are supporting the organization of the second meeting of the Basque research community in all the areas of neuroscience.

Organizing committee:

Manuel Carreiras
Scientific Director. Ikerbasque Research Professor, BCBL.
Mª Cruz Rodríguez-Oroz
Ikerbasque Research Professor, BioDonostia.
Miguel Angel Arocena
General Manager, BCBL.
María Domercq
Senior Researcher, Achucarro.
Jaime Sagarduy
General Manager, Achucarro.

Scientific committee:

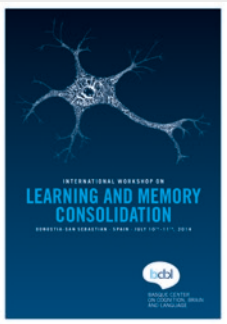
Manuel Carreiras
Scientific Director.
Ikerbasque Research Professor, BCBL.
Mª Cruz Rodríguez-Oroz
Ikerbasque Research Professor, BioDonostia.
Adolfo López de Munáin
Scientific Director, Biodonostia Health Research Institute.
Gurutz Linazasoro Cristóbal
Scientific Director, Cita Alzheimer.
Rosario Sánchez Pernaute
Principal Investigator, Inbiomed.
Carlos Matute
Scientific Director, Achucarro & UPV/EHU.
Amanda Sierra
Ikerbasque Research Professor, Achucarro & UPV/EHU.
Ugo Mayor
kerbasque Research Professor, CIC bioGUNE.
Abraham Martín
Research Associate, CIC biomaGUNE.
Joaquín Fuentes
Chief of child and adolescent psychiatry department, POLICLINICA & Scientific advisor, GAUTENA.

Attendees: 97
Keynote presentations: 1
Oral presentations: 12
Poster presentations: 70
Invited Speakers:

[Javier de Felipe
"Exploring the synaptome: promising new technologies"

International Workshop on Learning and Memory Consolidation

July 10 / 11



Workshop dedicated to the mechanisms of learning and memory consolidation. The aim was to provide a multidisciplinary platform to discuss the processes of memory formation, with a strong emphasis on the offline neural changes leading to memory stabilization and enhancement. Our hope was to bring together researchers working on these issues at various levels of analysis, i.e., cellular, systemic and behavioral, and with data coming from humans as well as other species.

Organizing committee:

Nicolas Dumay
University of Exeter, UK and BCBL, Spain
Doug Davidson
BCBL, Spain

Scientific committee:

Blair Armstrong
BCBL, Spain
Doug Davidson
BCBL, Spain
Nicolas Dumay
University of Exeter, UK and BCBL, Spain
Geoffrey Hall
University of York, UK
Jessica Payne
University of Notre Dame, Indiana, USA
P.M. (Kepa) Paz-Alonso
BCBL, Spain
Frederic Roux
BCBL, Spain
Atsuko Takashima
Radboud University, The Netherlands

Attendees: 100
Keynote presentations: 5
Oral presentations: 19
Poster presentations: 16
Invited speakers:

[Jan Born, Universität Tübingen, Germany "Sleep-dependent formation of memory"

[Michael Hasselmo, Boston University, Massachusetts, USA "Acetylcholine and the cortical dynamics of encoding and consolidation"

[Daniel Margoliash, University of Chicago, Illinois, USA "Learning and Memory Consolidation in Songbirds"

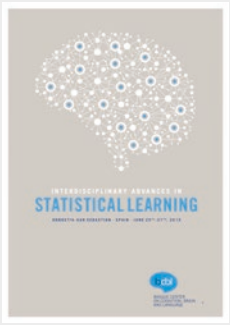
[Matthew Wilson, Massachusetts Institute of Technology, Massachusetts, USA "Sequential event memory formation and reactivation in the hippocampus and beyond"

[John Wixted, University of California, San Diego, USA "A Cellular and Systems Consolidation Theory of Forgetting"

2015

STATISTICAL LEARNING

June 25 / 27



The conference discussed statistical learning and its underlying mechanisms from behavior to neuroscience, in various domains such as language, music, vision, and audition, with data from adult participants, development, individual differences, computational modeling, and non-human species. The conference included keynote speakers, regular talks, panel discussions, and poster sessions. Selected papers presented at the conference were the basis of an edited volume or a Special Issue.

Organizing committee:

Blair Armstrong
Postdoctoral researcher, BCBL, Spain.
Manuel Carreiras
Scientific Director, Ikerbasque Research Professor, BCBL, Spain.
Ram Frost
Professor, The Hebrew University of Jerusalem, Israel.
Frédéric Roux
Postdoctoral researcher, BCBL, Spain.

Scientific committee:

Blair Armstrong
BCBL, Spain.
Manuel Carreiras
BCBL, Spain.
Ram Frost
Professor, The Hebrew University of Jerusalem, Israel.
Marie Lallier
BCBL, Spain.
Monika Molnar
BCBL, Spain.
Frédéric Roux
BCBL, Spain.

Attendees: 205
Keynote presentations: 5
Oral presentations: 38
Poster presentations: 97
Invited speakers:

[Richard Aslin
University of Rochester, USA

[Morten Christiansen
Cornell University, USA

[Elissa Newport
Georgetown University, USA

[Linda Smith
Indiana University, USA

[Nicholas Turk-Browne
Princeton University, USA

Theme speakers:

[Axel Cleermans
Université Libre de Bruxelles-
Consciousness and implicit learning

[Rebecca Gomez-
University of Arizona Development

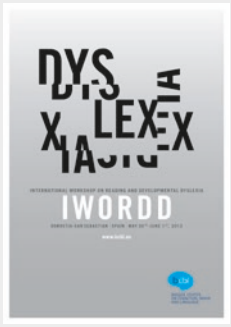
[Barbara Knowlton
UCLA- Neurobiology and cognitive neuroscience

[Kenny Smith
University of Edinburgh- Evolution and cross-species comparisons

[Erik Thiessen
Carnegie-Melon University
Computational Modeling
Chairman: Manuel Carreiras

2016

IWORDD
International Workshop On Reading and Developmental Dyslexia
May 5-7



As part of its scientific activities, the Basque Center on Cognition, Brain and Language (www.bcbl.eu) with the UPV-EHU organized the second edition of IWORDD: International Workshop On Reading and Developmental Dyslexia. Our aim with this workshop was to promote exchange of ideas between world-class dyslexia experts through talks and round tables, and facilitate transfer of knowledge between practitioners and scientists.
The workshop was split into two parts and its ultimate goal was to understand the causes of dyslexia and improve detection protocols and remediation techniques.
IWORDD took place from Thursday May 5th to Saturday May 7th 2016 in Bilbao, Spain.

Part one:
IWORDD · Theoretical Perspectives
May 5 / 6

For each of the two first days, the invited experts discussed their perspectives on one hot theoretical issue of great interest for the current state of the field. More particularly, that edition of IWORDD focused on featuring research investigating reading and its disorders using cutting-edge neuroimaging approaches. The invited speakers addressed the issue of the neurocognitive bases of developmental dyslexia (May 5) and of the remediation of developmental dyslexia and the related brain changes (May 6). The following renowned speakers in the field contributed to the high quality of IWORDD via a dynamic format centered around keynote lectures and round tables. This was complemented by talks and poster presentations selected from abstract submissions.

Organizing committee:

Manuel Carreiras
Scientific Director, BCBL, Professor UPV-EHU
Marie Lallier
Postdoctoral Researcher, BCBL
Joana Acha
Associate professor, UPV-EHU
Pello Salaburu
Director of Basque Institute, Professor UPV-EHU

Scientific committee

Manuel Carreiras
Scientific Director, BCBL, Professor UPV-EHU
Marie Lallier
Postdoctoral Researcher, BCBL
Joana Acha
Associate professor, UPV-EHU

Attendees: 115
Keynote presentations: 5
Oral presentations: 12
Poster presentations: 46
Keynote speakers:

[Fumiko Hoeft - LENS, Psychiatry & Dyslexia Center, University of California San Francisco (UCSF), Haskins Laboratories & Faculty of Psychiatry, Keio University School of Medicine, Japan.

[Frank Ramus - CNRS, Laboratoire de Sciences Cognitives et Psycholinguistique, Institute of Cognitive Studies & Ecole Normale Supérieure, France.
[Sylviane Valdois - CNRS, Laboratoire de Psychologie et Neurocognition & Université Pierre Mendès-France, France.

[Ken Pugh - Haskins Laboratories, University of Connecticut, Dept. of Linguistics, Yale University & Dept. of Diagnostic Radiology, Yale University School of Medicine, USA.

[Nina Kraus - Auditory Neuroscience Lab, Communication Sciences, Neurobiology & Physiology, Otolaryngology, Northwestern University, USA.

Part Two:
IWORDD - From Theory to Practice
May / 7

The second part promoted the transfer of knowledge and interaction among researchers, parents, teachers and practitioners. IWORDD - From Theory to Practice was centered around six keynotes by international experts tailored to a broad audience, followed by a round-table discussion. For this part, simultaneous interpretation in Spanish, English and Basque was provided.

Attendees: 125
Keynote presentations: 5
Keynote speakers:

[Fumiko Hoeft - LENS, Psychiatry & Dyslexia Center, University of California San Francisco (UCSF), Haskins Laboratories & Faculty of Psychiatry, Keio University School of Medicine, Japan.

[Frank Ramus - CNRS, Laboratoire de Sciences Cognitives et Psycholinguistique, Institute of Cognitive Studies & Ecole Normale Supérieure, France.

[Sylviane Valdois - CNRS, Laboratoire de Psychologie et Neurocognition & Université Pierre Mendès-France, France.

[Ken Pugh - Haskins Laboratories, University of Connecticut, Dept. of Linguistics, Yale University & Dept. of Diagnostic Radiology, Yale University School of Medicine, USA.

[Nina Kraus - Auditory Neuroscience Lab, Communication Sciences, Neurobiology & Physiology, Otolaryngology, Northwestern University, USA.

AMLAP
September 1 / 3

In September 2016, the 22nd AMLaP conference, Architectures and Mechanisms for Language Processing took place in Bilbao. AMLaP 2016 aimed to bring together psychological, computational, and theoretical perspectives on the cognitive mechanisms underlying any aspect of human language processing. Contributions to AMLaP which explicitly relate empirical and experimental findings to cognitive mechanisms of language processing were especially encouraged. The conference included keynote speakers, regular talks, panel discussions, and poster sessions. Topics relevant to the conference included (but were not limited to):

[bilingual language processing
[computational models (symbolic and connectionist)
[corpus-based studies and statistical mechanisms
[cross-linguistic studies
[dialogue processing
[discourse
[language comprehension
[language production
[lexical processing
[learning mechanisms
[models of acquisition
[neurobiology of language processing
[parsing and interpretation
[pragmatics
[prosody
[semantic processing

Organizing committee:

Manuel Carreiras
Scientific Director, Ikerbasque Research Professor, BCBL
Itziar Laka
Professor in Linguistics and Basque Studies Department, UPV-EHU
Pello Salaburu
Director of Basque Institute, Professor UPV-EHU

Scientific committee:

Manuel Carreiras
Scientific Director, Ikerbasque Research Professor, BCBL
Simona Mancini
Postdoctoral Researcher, BCBL
Nicola Molinaro
Staff Scientist, BCBL
Doug Davidson
Staff Scientist, BCBL

Attendees: 300
Keynote presentations: 3
Oral presentations: 33
Poster presentations: 276
Invited speakers:

[Anne-Lise Giraud
University of Geneva, Switzerland

[N. Bonnie Nozari
Johns Hopkins University, USA

[Robert T. Knight
UC Berkeley, USA

BCBL organizes research seminars with participation of invited external speakers. All these seminars take place at the BCBL Auditorium. The access is free to the scientific community of the area and the announcements are posted at www.bcbl.eu/activities_and_seminars/seminars.

2013

1. Wouter Duyck, *Ghent University, Belgium*. January 17, 2013

2. Matt Brookes, *The University of Nottingham, UK*. February 05, 2013

3. Evelyn Eger, *INSERM-CEA Cognitive Neuroimaging Unit, France*. February 21, 2013

4. Bernard Mazoyer, *Groupe d'Imagerie Neurofonctionnelle, CNRS, CEA, Université de Bordeaux, France*. March 07, 2013

5. Francois-Xavier Alario, *Laboratoire de Psychologie Cognitive, CNRS, France*. March 14, 2013

6. Edith Kaan, *University of Florida, USA*. April 10, 2013

7. Leah Roberts, *University of York, UK*. April 18, 2013

8. Letitia R. Naigles, *University of Connecticut, USA*. April 30, 2013

9. Sven Mattys, *University of York, UK*. May 2, 2013

10. Helen Tager-Flusberg, *Boston University, USA*. May 3, 2013

11. Maria José Ezeizabarrena, *University of Basque Country (UPV-EHU), Spain*. May 16, 2013

12. Inbal Arnon, *University of Haifa, Israel*. May 23, 2013

13. William Marslen-Wilson, *University of Cambridge, UK*. June 6, 2013

14. Lorraine Komisarjevsky Tyler, *University of Cambridge, UK*. June 7, 2013

15. Antoni Valero-Cabre, *Hopital Pitié-Salpetriere, France*. June 13, 2013

16. Loretxu Bergouignan, *Karolinska Institutet, Sweden*. July 4, 2013

17. Mariano Sigman, *Universidad de Buenos Aires, Argentina*. September 16, 2013

18. Janet Werker, *University of the British Columbia, Canada*. September 17, 2013

19. Catherine Best, *University of Western Sydney, Australia*. September 27, 2013

20. Michael A. Webster, *University of Nevada, USA*. October 3, 2013

21. Mª Cruz Rodríguez-Oroz, *BioDonostia Research Institute, Spain*. October 17, 2013

22. Christos Pliatsikas, *University of Kent, UK*. October 29, 2013

23. Albert Costa, *Universitat Pompeu Fabra (UPF), Spain*. November 15, 2013

24. Juan Carlos Arango, *Universidad de Deusto, Spain*. November 21, 2013

25. Martin Cooke, *University of Basque Country (UPV-EHU), Spain*. December 12, 2013

2014

26. Michael Ramscar, *Tübingen University, Germany*. January 23, 2014

27. Jesus M. Cortés, *BioCruces Health Research Institute, Spain*. February 6, 2014.

28. Gerry Altmann, *University of York, UK*. February 18, 2014

29. Esther Torrego, *University of Basque Country (UPV-EHU), Spain*. February 20, 2014

30. Guillaume Thierry, *Bangor University, UK*. February 26, 2014

31. Ricardo Insausti, *Universidad de Castilla La-Mancha, Spain*. February 27, 2014

32. Guillaume Thierry, *Bangor University, UK*. February 28, 2014

33. Roi Cohen Kados, *University of Oxford, UK*. March 12, 2014

34. Mark Gibson, *Universidad de Navarra, Spain*. March 27, 2014

35. Miguel Valencia, *Universidad de Navarra, Spain*. April 9, 2014

36. Christian Fiebach, *Goethe Universität Frankfurt, Germany*. May 7, 2014 (noon)

37. Christian Fiebach, *Goethe Universität Frankfurt, Germany*. May 7, 2014 (PM)

38. Sarah Laszlo, *Binghamton University, the State University of New York, USA*. May 15, 2014

39. Pietro Guccione, *Politecnico di Bari, Italy*. May 27, 2014

40. Ignacio Arganda, *Massachusetts Institute of Technology, USA*. May 30, 2014

41. Jean Vroomen, *Tilburg University, The Netherlands*. July 3, 2014

42. Sebastián J. Lipina, *Unidad de Neurobiología Aplicada (UNA, CEMIC-CONICET), Argentina*. July 25, 2014

43. Alan J. Power, *University of Cambridge, UK*. September 25, 2014

44. Fumiko Hoeft, *Haskins Laboratories, USA*. September 29, 2014

45. **Manuel Perea**, *Universitat de València, Spain*. October 9, 2014

46. Natalia Kartushina, *University of Geneva, Switzerland*. October 16, 2014

47. Heather Bortfeld, *University of Connecticut, USA*. October 30, 2014

48. David Soto, *Imperial College London, UK*. October 31, 2014

49. Iñigo Gabilondo, *Biomedical Research Institute, Spain*. November 3, 2014

50. Rodrigo Quian Quiroga, *University of Leicester, UK*. November 18, 2014

51. Lluís Fuentemilla, *University of Barcelona, Spain*. November 20, 2014

2015

52. Silvia De Santis, *Cardiff University, UK.* January 22, 2015

53. Sidarta Ribeiro, *Federal University of Rio Grande do Norte, Brazil.* January 26, 2015

54. Simon Hanslmayr, *University of Birmingham, UK.* February 26, 2015

55. Alexander Leemans, *Utrecht University, The Netherlands.* April 16, 2015

56. Ole Jensen, *Donders Institute for Brain, Cognition and Behaviour, The Netherlands.* April 28, 2015

57. Juan Manuel Toro, *ICREA, Universitat Pompeu Fabra, Spain.* May 14, 2015

58. Mohamed L. Seghier, *University College London (UCL), UK.* May 21, 2015

59. Nadja Tschentscher, *MRC Cognition and Brain Sciences Unit, UK.* June 4, 2015

60. Niels Janssen, *Universidad de La Laguna, Spain.* June 9, 2015

61. Morten H. Christiansen, *Cornell University, University of Southern Denmark, USA & Denmark.* June 30, 2015

62. Anastasia Yendiki, *Martinos Center for Biomedical Imaging, USA.* July 10, 2015

63. Javier Gonzalez-Castillo, *National Institute of Mental Health (NIMH), USA.* July 16, 2015

64. Sonja Rossi, *Medical University of Innsbruck, Austria.* July 23, 2015

65. Lucie Ménard, *Université du Québec à Montréal, Canada.* September 17, 2015

66. Ken R. Paap, *San Francisco State University, USA.* October 20, 2015

67. Ken R. Paap, *San Francisco State University, USA.* October 29, 2015

68. Moshe Bar, *Bar-Ilan University Ramat- Gan, Israel.* November 19, 2015

69. Miguel Merchan, *Universidad de Salamanca, Spain.* November 27, 2015

70. Ruth de Diego-Balaguer, *Universitat de Barcelona, Spain.* December 10, 2015

2016

71. Alfonso Nieto-Castañon, *Boston University, USA.* January 12, 2016

72. Francisco Clascá, *Universidad Autónoma de Madrid, Spain.* January 14, 2016

73. Sung-Joo Lim, *University of Lübeck, Germany.* January 21, 2016

74. Bencie Woll, *University College London (UCL), UK.* February 4, 2016

75. Arturo E. Hernandez, *University of Houston, USA.* February 11, 2016

76. Aviv Mezer, *Edmond and Lily Safra Hebrew University of Jerusalem, Israel.* April 21, 2016

77. Douglas Mewhort, *Queen's University, Canada.* May 3, 2016

78. Manon Jones, *Bangor University, UK.* May 4, 2016

79. Ignacio Saez, *University of California, USA.* June 13, 2016

80. Linda Polka, *McGill Montreal, Canada.* June 14, 2016

81. Jason D. Yeatman, *University of Washington's Institute for Learning & Brain Sciences (I-LABS), USA.* June 23, 2016

82. Sergi Grau, *Fundación CIM, Spain.* June 29, 2016

83. Tim Vogels, *University of Oxford, UK.* September 22, 2016.

84. Anne Christophe, *Ecole normale supérieure / PSL Research University / CNRS / EHESS, France.* October 20, 2016

85. Leonides Canuet Delis, *Universidad Autonoma de Madrid, Spain.* October 28, 2016

86. Joao Correia, *Maastricht University, the Netherlands.* November 3, 2016

87. Kate Watkins, *University of Oxford, UK.* November 17, 2016

88. Joachim Gross, *University of Glasgow, UK.* December 2, 2016

C. SCIENCE OUTREACH ACTIVITIES

The BCBL has performed several dissemination activities both for the scientific community through conferences, seminars and congresses and for the citizenship and society at large through various media outlets.

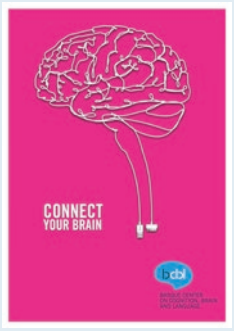
Regarding the latter, our communication activities have pursued the following main objectives:

1. To publicize the existence of the BCBL and position it at the local, national and international levels as the Research Center of Excellence in Cognitive Neuroscience and Language.
2. To make the knowledge generated in the BCBL broadly available by disseminating the scientific advances achieved among the wider society.

Additionally, the BCBL has created and developed a complete program of scientific activities, consisting of several workshops as well as talks by external speakers and public lectures, addressed to all sectors of society.
One of the most remarkable events celebrated during this period was the "Brain Awareness Week". This science week has already been held on two occasions with outstanding success and high level of citizen participation.

The aim of these events is to popularize "Cognitive Neuroscience of Language" and make it more comprehensible to society at large, using less scientific jargon than in regular conferences.

2013



"Brain Talk" was a public event associated with the Iwordd congress. Its aim was to offer a scientific perspective of the latest advances in research, assessment and treatment of dyslexia.

When learning to read gets hard: Dyslexia and Cognitive Neuroscience [Cuando aprender a leer cuesta: Dislexia y Neurociencia Cognitiva]

May 29, Sala de actos Kutxa – Andía, Donostia-San Sebastián.

[Full development of the "Conecta tu cerebro" (connect your brain) contest, sponsored by the Basque Government through their program for special actions. In this contest, students in the second year of high school from educational centers of Gipuzkoa, Bizkaia and Álava asked questions about cognitive neuroscience and the life of a BCBL researcher. All the enquiries were answered in two videos via a specific Youtube channel:

http://www.youtube.com/user/bcblburmuina

[Full development of the project named "El Cerebro Viaja Contigo" (The brain travels with you), cofunded by the FECYT (Spanish Foundation for Science and Technology). This project consisted of the monthly emission of 10 short videos of 20 seconds in the main urban bus-routes of Donostia-San Sebastián. These videos explain the main language and learning disorders, the latest findings of the main neuroscientists and the functioning of some techniques used for research in cognitive neuroscience.

[Organization of a public conference within the Brain Talks cycle and several collaborations in scientific dissemination conferences:

[Carreiras, M. (January 25, 2013). Cerebros lectores: ¿Qué cambia cuando aprendemos a leer?, Jakiunde, Donostia-San Sebastián.

[Carreiras, M. (February 6, 2013). Babel: ¿maldición o bendición?, Donostia Kultura, Donostia-San Sebastián.

[Carreiras (March 12, 2013) Lectura y bilingüismo. Bizkaia Xede / Mondragon Unibertsitatea, Arrasate.

2015

I Brain Awareness Week
March 9/13
Various dissemination talks
150 attendees

This was the first Brain Awareness Week held in Donostia-San Sebastián, organized jointly between the BCBL and Eureka! Museum. It is an international campaign aimed to raise awareness about the progress and advantages of research related to the brain, and it is coordinated by "Dana Alliance for Brian Initiatives" and "European Dana Alliance for the Brain". Each year, schools, universities, hospitals, research centers and other organizations worldwide organizations join forces to disseminate the knowledge about the brain, neuroscience and other related fields.

ACTIVITIES FOR CHILDREN

There were workshops for future scientists aimed to teach the functioning and structure of the brain through fun and educational activities. How neurons work or what an optical illusion is and how it happens were some of the topics included in the workshop.

Activity for lower Primary grades (6-8 years old)

What is the brain for and how can I look after it?
Children observed the brain structure and debated about how it works. They also discussed about what to do to keep their brains fit.

Activities for middle Primary grades (8-10 years old)

Thinking of brains
Children observed the brain structure and delved into the following concepts: the differences between brains, how the brain adapts depending on our needs, the use of the skull, the function of the backbone and what vertebrates and invertebrates are.

Getting to know the neuron
Children worked on the definition of the neuron, its structure, functions and types. They also did practical activities to understand how it works and learned about diseases related to the brain.

Activity for the higher Primary grades (10-12 years old)

Brain Illusions
This activity showed how our brain processes what it perceives and children did practical activities to understand the mechanisms of perception.

Activity for the lower Secondary grades (12-14 years old)

Famous brains!
Teenagers reflected on quotes of great thinkers about the brain and cognition. They also discussed about the validity of each quote, taking into account the knowledge we have nowadays, and created a timeline to verify how the vision about the brain has changed over time.

Are you brainy?
Test your knowledge about the brain
This activity helped students debunk the myths about the brain and tested their knowledge through different games.

ACTIVITIES FOR ADULTS

Adults enjoyed 18 brief talks over 3 days. These talks were addressed to the general public interested in knowing more about neuroscience. In order to cover as many topics as possible, each session comprised 5 talks of 15 minutes, with breaks to allow the audience to participate.

Events to thank the audience: "Gracias" and "Eskerrik asko"
Additionally, two dissemination events were celebrated in June and November ("Gracias" and "Eskerrik asko") to thank the volunteer participants who have taken part in our experiments. There, they received feedback about the results of the experiments they had volunteered for, highlighting the importance of disseminating the findings. These two events were held in the Aquarium of Donostia-San Sebastián, with great support and high attendance of participants.
These kinds of scientific meetings are especially relevant since they manage to bring together the PI of the projects with participants and create a collaboration network between both parts, in which participants realize the usefulness of volunteering.
It was the first time the BCBL organized a meeting in which different groups of participants meet and we succeeded in disseminating science and get new participants for future investigations.

Eskerrik asko
160 attendees
Our research center brought together 17 schools of Donostia-San Sebastián to appreciate their collaboration and invite them to participate in upcoming studies.
The BCBL works on research projects about dyslexia, bilingualism, cognitive abilities and cognitive processes related to the students' performance in reading and math.
Before an audience composed of parents of students, teachers and heads and managers of schools, the Scientific Director of our center, Manuel Carreiras, offered a talk in which he explained the new neuroscientific challenges related to education and the advances of studies on language development in childhood and learning disorders. Our center aimed at offering to the wider society in general, and the educational community in particular, information about our upcoming research projects, and offer schools the possibility to collaborate. Furthermore, attendees were informed about the results obtained in our studies and were able to ask questions.

Gracias
150 attendees
This scientific meeting took place in Donostia-San Sebastián on 10 June, aiming to thank participants for having collaborated in 4 projects carried out at the BCBL and giving them feedback of the results obtained.

That is why we named the meeting "Gracias" (Thank you), since it unites in one single word the objective of the event, which is thanking and acknowledging the volunteer participation in our research projects. The Principal Investigators disseminated the results in a comprehensible way so that the audience, consisting of people from all ages, could understand all the data.

The aforementioned projects required special groups of people that collaborated with the BCBL selflessly, since they firmly believed that contributing to science could help driving a country.

2016

The Innovation Week, Donostia WeekINN 2016

The Innovation Week was a week full of activities around strategy and innovation organized by a variety of business fields, educational entities, public bodies, research and technology centers, entrepreneurs and society at large. It aimed at offering a space for visibility, contrast, training, information and learning and encouraged innovation in Donostia-San Sebastián.

More than 70 entities and agents collaborated throughout the week and all the activities enabled participants sharing their experiences with innovation. The 2016 edition, more specifically, encouraged cities to retain, develop and attract talent. The BCBL contributed with two scientific talks for scholars and an open talk for the citizenship in the city center.

Donostia 2016- Olatu talka: "Háblame despacio que quiero volar" exhibition

Within the framework of Olatutalka the BCBL, together with the TEL association (Specific Language Impairment association), organized an exhibition with information boards and interactive games around SLI. The exhibition was chosen as one of the opening events of the "European Capital of Culture" thanks to the collaboration of Kutxa Fundazioa-Donostia Solidaria.

Pint of Science

It is a platform which allows people to discuss about science with the researchers who carry experiments out. It is a nonprofit organization, managed by volunteers, created by a community of postgraduate and postdoctoral researchers. The annual festival lasts 3 days and it is held simultaneously in different bars and pubs worldwide. The BCBL contributed with its edition in Donostia-San Sebastián with the following talks:

- Ikasteko teknikak: Ikasi ahazteko edo ikasi gogoratzeko? (Learning strategies: learn to forget or learn to remember).
- ¿Por qué somos inconsecuentes durante la adolescencia? (Why are we inconsistent during adolescence?).
- Una perspectiva cerebral (A brain perspective).
- El cerebro y las reglas universales del lenguaje (The brain and universal rules of language).
- Diferencias que cuentan: no todos los bilingües se crean iguales (Differences that matter: not all bilinguals are created equally).

Brain Awareness Week

The BCBL organized the second edition of the Brain Week in March 14-20 in the "Eureka!" Science Museum. A variety of activities were organized for adults and children, aiming at making such a complex and mysterious topic like the brain accessible to the wider public. Regarding attendance, 250 children between 6-12 years of age coming from 5 different schools and 400 adults participated in the talks. The dissemination talks for adults were carried out by specialists from the BCBL, who explained their studies related to neuroscience and education with a didactic approach. The program for scholars included talks, interactive workshops and activities especially adapted for children between 6 and 14 years old.

This free talk, associated with the "Iwordd" congress, was open to the public and offered a scientific perspective of the latest advances in research, assessment and treatment of dyslexia, as well as an explanation of how to implement them in the educational world. This conference, called "Reading and dyslexia: a view from Neuroscience), carried out by the Scientific Director of the BCBL, Manuel Carreiras, included information about the neural circuits dedicated to reading, how they fail in the case of dyslexia and the signs for early detection of the disorder.

D. BCBL IN THE MEDIA

In addition, to disseminate the knowledge generated, the BCBL made a qualitative leap in 2013-16 thanks to its presence in national communication media and its entry into the social networks. The benchmarks of dissemination and communication achieved by the BCBL are as follows:

Traditional Channels:

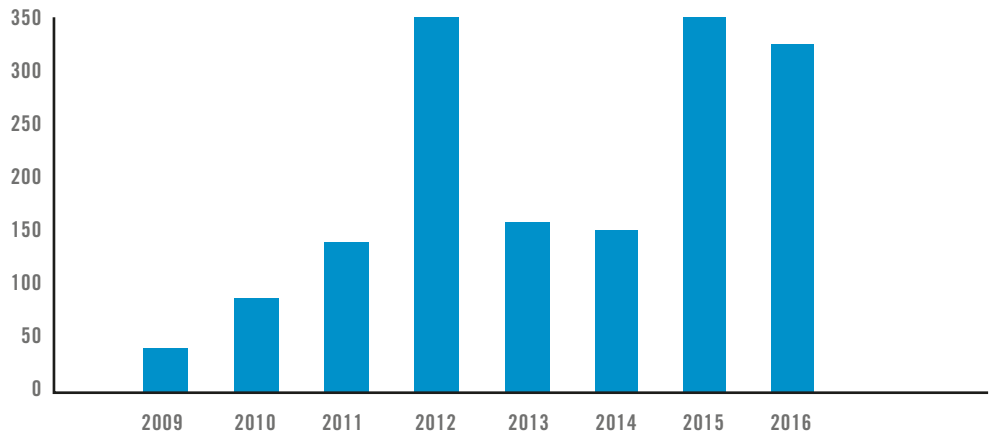
After starting with sporadic appearances in local media, a fortnightly presence in the local and national communication media has been achieved during this period.

In addition to achieving certain public recognition in the communication media thanks to the milestones attained by the center (e.g., "Severo Ochoa" grant…), the BCBL is regularly consulted by different media as an expert adviser in cognitive neuroscience, management in the scientific field and promoting scientific vocation among the youth.

In this regards, the BCBL had significant presence in national and international communication media and generated audiovisual material about the research outcomes during the 2013-16 period.

Regarding online press, written press, radio and TV, the BCBL produced 1057 impacts over the 2013-16 period.

TOTAL MEDIA APPEARANCES



In general, the activity of the center in social media follows a positive trend both in the number of followers and the interactions achieved. Having a growing social media community is positive for the center, as it facilitates dissemination of the message to a broader public. Social networks provide an alternative to the communication media to inform society about the center's activity. Given the statistics of the shared contents, the strategy of disseminating contents from third parties has proved to be a great success, as it is helping to enlarge our followers' database, which is beneficial for us when publishing contents of the center or looking for participants for studies.

Social networks:

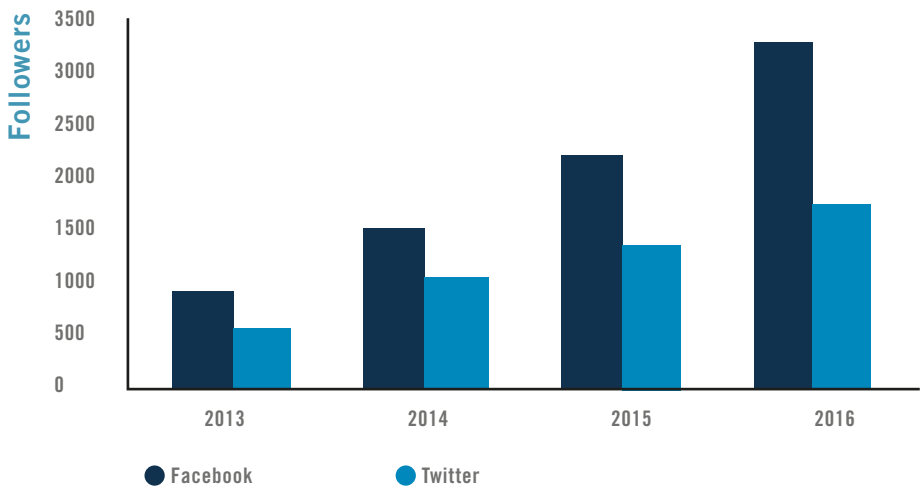
Below there are some figures with information about the activity and evolution of followers on Facebook and Twitter. In general, results are positive and confirm the existence of a digital community that follows the activity of the center through social networks.

Nowadays, the Twitter account of the BCBL has 1,759 followers, compared to the 435 followers in 2012.

At present, the Facebook account of the BCBL has 3,329 followers, compared to the 621 followers in 2012. This account shares information daily about neuroscience and it is always reviewed by experts of our center, thus becoming a reference in the field of Neuroscience.

The BCBL also has a Youtube channel which hosts 63 videos that have generated 13,779 views since its creation.

The contents are predominantly disseminative, divided into contents created by the researchers at the BCBL and talks and presentations related to the research lines of the center.



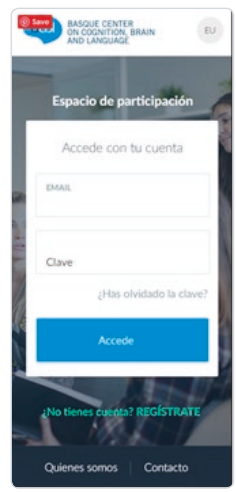
E. PARTICIPA WEBSITE

The studies and scientific publications of the BCBL have been possible thanks to the voluntary participation of the citizens, mainly residing in Gipuzkoa. It is essential to have an extensive database in order to carry out the relevant studies, for which the BCBL has developed numerous initiatives previously mentioned in the present document, highlighting the creation of a web system to manage the research studies.

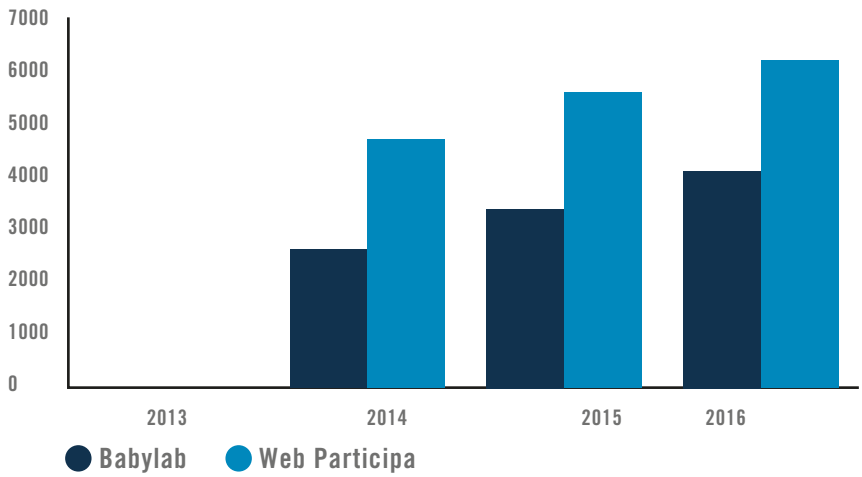
The following presents the main data about the participants on our database and the number of participations in our studies.

During the 2013-2016 period the BCBL completed more than 25,000 experimental sessions involving more than 10,000 participants, thus providing the local community with an important grass-roots group for learning about and developing an appreciation for our research, and scientific research more generally. Since the BCBL opened, the number of participants has increased, indicating that our efforts to interact with the local community and involve them actively as part of our mission are bearing fruit and predict a very optimistic future trajectory.
In order to carry out all the experiments developed at the BCBL, we need the active participation of babies, children and adults (between 18 and 35 years old), as well as elderly participants.

The "Web Participa" website (www.bcbl.eu/participa) comprises over 6,000 users, aged between 18 and 78 who, according to their linguistic profile, are allowed to sign up for the studies carried out at the BCBL.



With respect to the volunteers in our database, see below the development over the past years:



These are the main figures regarding participants and participations for experiments with adults:

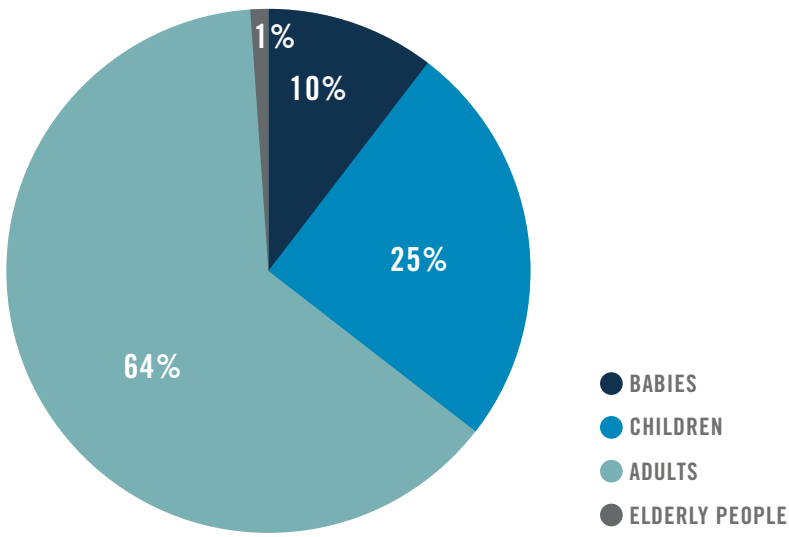
Breakdown of experimental sessions by type of participant and technique, along 2013-2016 period

	BABYLAB	KIDS		ADULTS						
	BABYLAB	SCHOOLS	JUNIOR	FMRI	EYETRACK	EEG	MEG	BEHAVIORAL	MURCIA	TOTAL
2013	491	700	1109	1037	366	587	282	2296	110	6978
2014	649	279	939	350	131	546	296	2546	253	5989
2015	759	300	900	301	453	375	173	2384	120	5765
2016	593	887	949	537	180	688	243	2265	150	6492
TOTAL	2492	2166	3897	2225	1130	2196	994	9491	633	**25224**

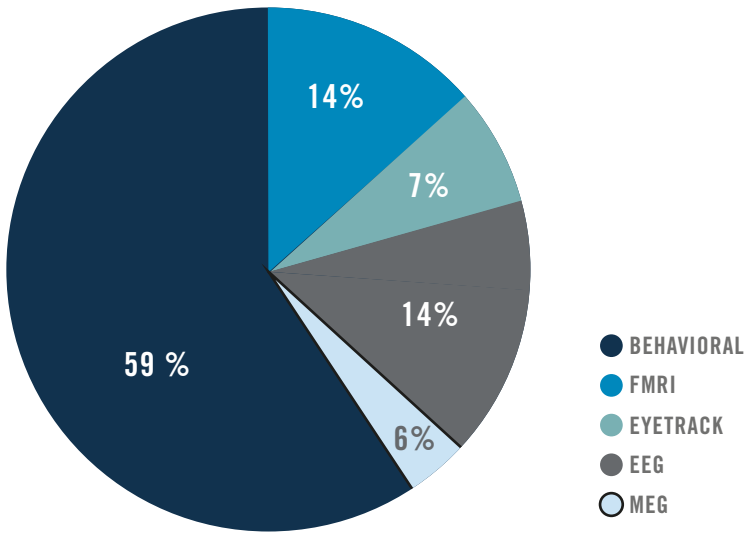
2013-2016 Average experiments per year

BABIES	KIDS	MRI	EYETRACKING	EEG	MEG	BEHAVIORAL
623	1515	556	282	549	248	2372

PARTICIPANTS 2013-2016



ADULTS PARTICIPATION & TECHNIQUES 2013-2016



And finally, the evolution of babies, children and adults participation in our experiments since the beginning of the BCBL

*2011-2012: a very extensive project focused on kids was run.

	Babies	Children	Adults
2010	150	530	150
2011	250	3184	1654
2012	290	2251	3063
2013	491	1809	4678
2014	649	1218	4122
2015	759	1200	3806
2016	593	1836	4063

A. FUNDING SOURCES

B. APPLICATION OF FUNDS

FUNDING

A. FUNDING SOURCES

The activity of the BCBL is financed by funds deriving from various entities and programs. The major part of the funding obtained comes from competitive grants and public entities. However, direct aid is also granted to the activity of the BCBL (or a specific investment/project), as well as funds deriving from private entities, although the latter are not very significant.

Due to their significance, two of the financing programs are highlighted below:

1. The BCBL was created in the framework of the Basque Government's BERC initiative (Basque Excellence Research Center). This initiative provides the BCBL with direct support, which gets renewed every four years. The initial aim of this funding was to cover the start-up of the center and thereafter the operational costs generated yearly.

The direct funding for this BERC initiative was higher in the first year of activity than in subsequent years, as 2009 was the year when all investments in equipment and facilities were made.

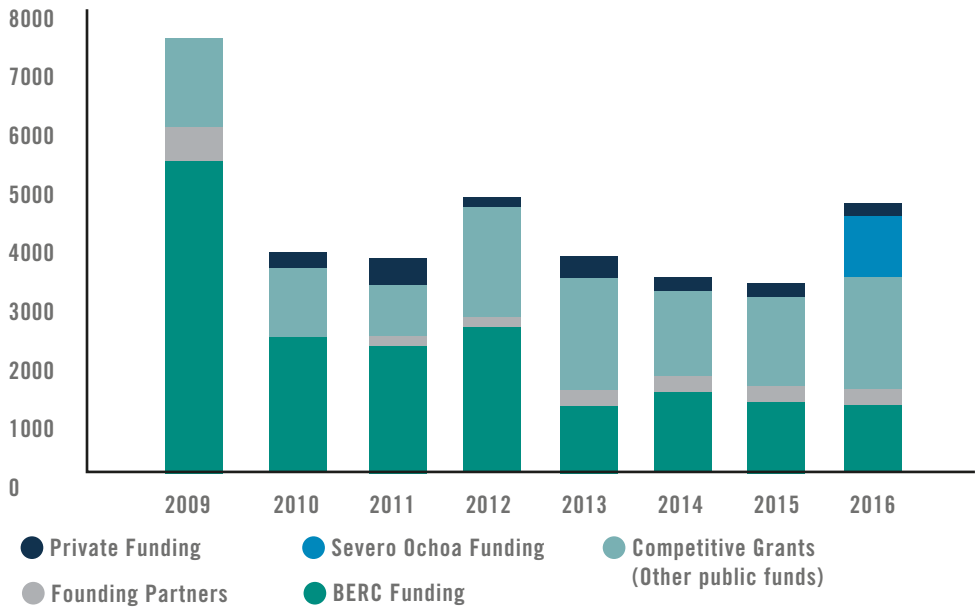
2. In 2015, the BCBL was awarded with the "Severo Ochoa Centers of Excellence" support and accreditation grant by the Spanish Ministry of Economy and Competitiveness, for the 2016-2019 period. This accreditation aims to promote excellence in scientific research in Spain. The program seeks to boost research activities taking place in specific institutional and organizational environments, in which a scientific community works closely together to achieve common objectives, facilitating interaction among its members and, at the same time, showing a high degree of openness to international collaboration. It is aimed at recognizing existing centers and units that perform cutting-edge research and are among the world's best in their respective areas. The impact and international scientific leadership of these centers and units are essential for obtaining such distinction.

Regarding the financial impact, the "Severo Ochoa" program supports the BCBL's activity, with a total amount of €4 million for the 2016-2019 period and 18 Phd positions.

Additionally, since its establishment, the BCBL has received competitive financial support derived from research projects (see section 4_Projects), which accounts for a larger percentage of the total annual budget every tax year.

The following chart shows de evolution of funding sources since the beginning of the center until the end of 2016. As we can see, BERC initiative's direct funding percentage has been decreasing year by year. In 2016, with the addition of the "Severo Ochoa" funding to the general budget of the BCBL, the percentage of the help granted by BERC got even lower.

FUNDING DISTRIBUTION PER YEAR 2009-2016



Furthermore, in the following table we highlight the ratio of each type of funding. The BCBL has an objective established by the Basque Government regarding the percentages of Direct and Competitive Support, requesting the direct support to be less than the 67% of the total annual budget (2013-2017 goal).

Competitive Grants are supposed to play an increasingly significant role in the total budget as time passes, meaning decreasing dependency on the main promoter. These are the achieved ratios year by year, improving clearly the request of the 67% from the Basque Government (main promoter of the center):

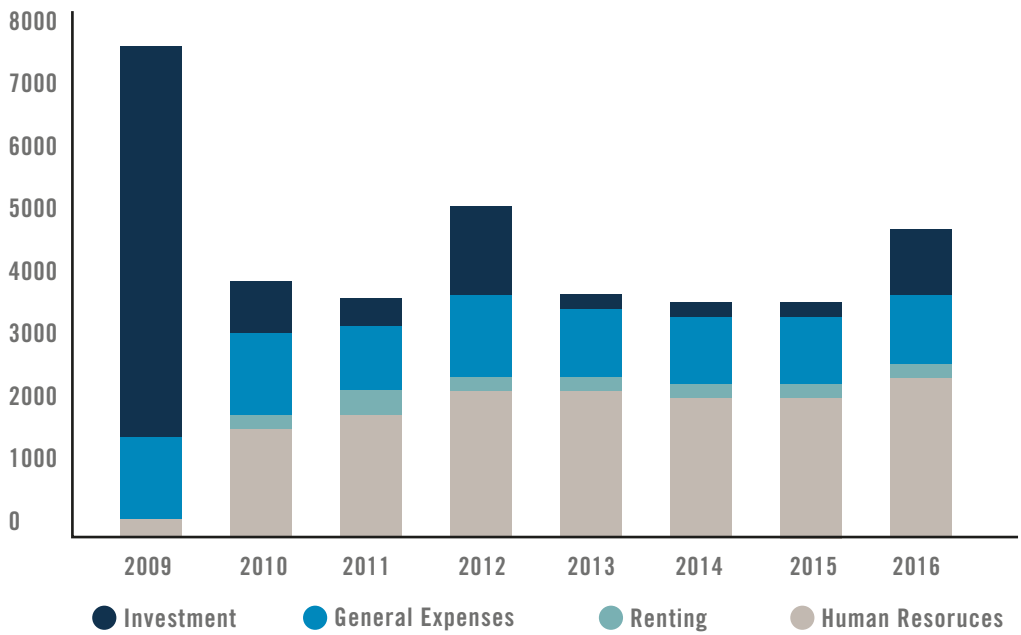
	2009	2010	2011	2012	2013	2014	2015	2016
DIRECT SUPPORT (BERC)	79%	69,7%	64,1%	56%	41%	57,6%	50,7%	36,6%
COMPETITIVE GRANTS	21%	29,9%	28,1%	39,7%	52,3%	39,1%	44,5%	59,7%
PRIVATE FUNDING	0%	0,5%	7,8%	4,3%	6,7%	3,3%	4,7%	3,7%

B. APPLICATION OF FUNDS

The main use of funds are shown in the graph called "Expense Distribution". 2009 was the start-up year. Major investments were carried out (especially in lab facilities) and there were no significant operational costs, as there was very little activity that year. Following initial start-up, 2010-2012 were mainly spent in recruiting the initial research and administration teams, as well as finishing the lab and IT investments looking for a normal working routine.

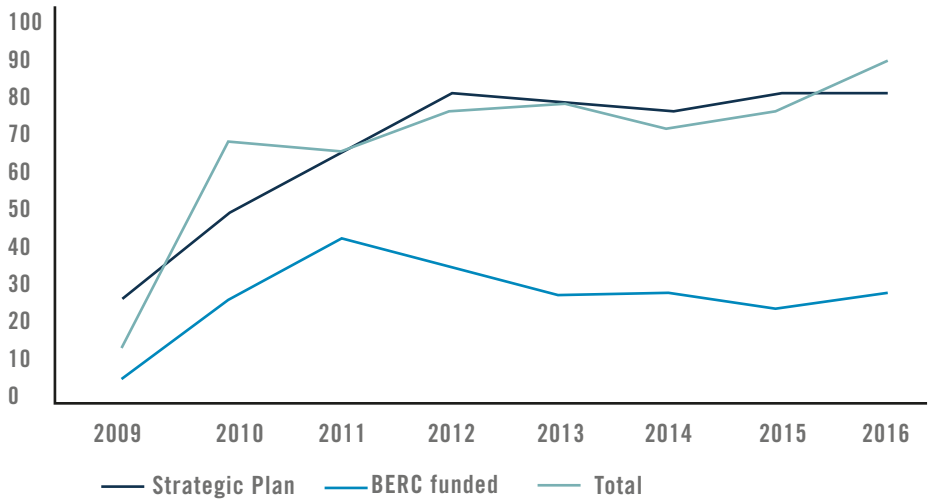
2013, 2014 and 2015 were years for consolidation, especially in regard to Human Resources and general expenses. Little investment was made. However, in 2016, due to the "Severo Ochoa" grant, there was significant investment as well as little increase in human resources.
For the following years, we will again be searching for a stable path in an approximate annual budget of €4.5 M.

EXPENSE DISTRIBUTION



The following chart shows the evolution of the number of staff members at the center. The dark blue line reflects the objective established in the BCBL's Strategic Plan, the blue line is the number of people whose salary is directly funded by the BERC grant, and the green line represents the actual total number of employees at the BCBL year by year.

HUMAN RESOURCES (Number of people)

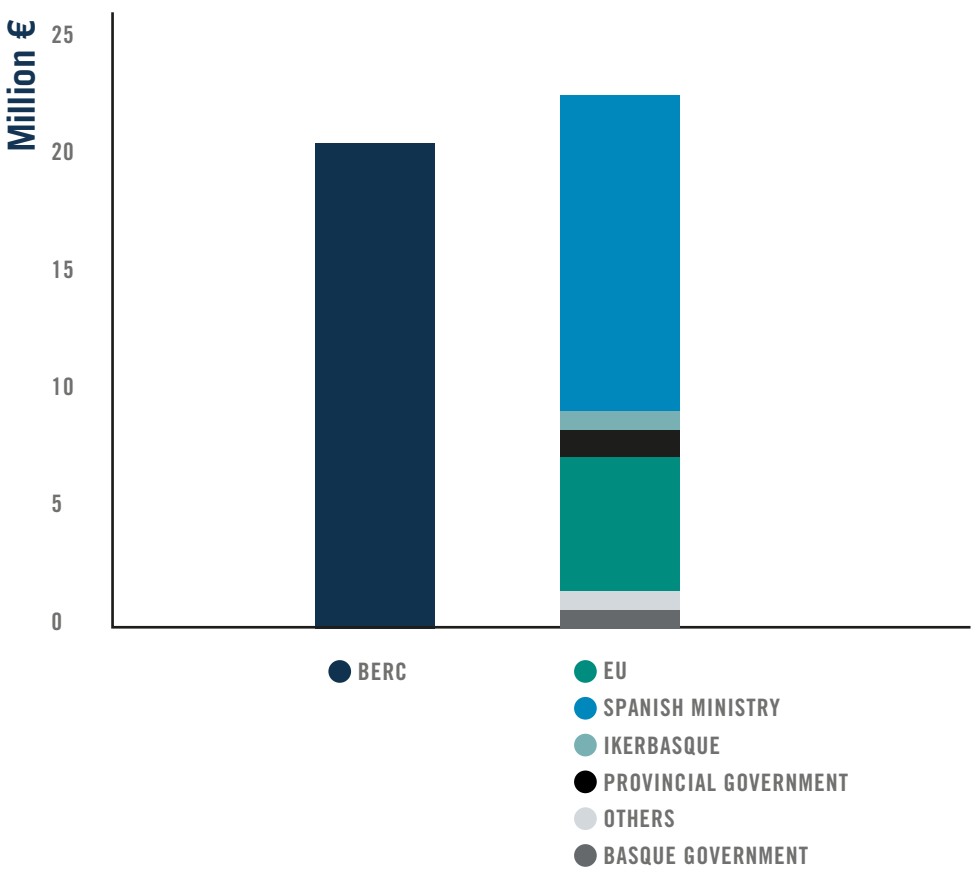


Source / Cost Type	2013	2014	2015	2016
BERC Funding (Basque Government)	1.450	1.935	1.641	1.537
Founding Partners	160	198	224	270
Competitive Grants (Public funds)	2.051	1.440	1.636	1.945
Severo Ochoa Funding (Spanish Ministry)	0	0	0	1.000
Private Funding	264	124	173	181
Total Income BCBL	3.925	3.697	3.674	4.933
Staff	2.538	2.476	2.546	2.768
Renting	242	234	230	234
General Expenses (Travels, consumables, equipment, outsourcing)	979	825	800	965
Investment funds	166	162	98	966
Total Costs BCBL	3.925	3.697	3.674	4.933

The main conclusion of this chart would be that the BCBL is following the path of the Strategic Plan and that less than half of the total amount of personnel is financed by BERC grants. This means that the BCBL has competitive self-obtained budget for more than half of the staff working at the center.

PAYBACK

Besides, the chart below shows the investment made by the BERC program for the years 2009-2016, compared to the other grants obtained during the same period. This indicates that the "investment" made by the BERC program has a €1.1 per euro payback coming from external competitive support (profitability of 110 %).



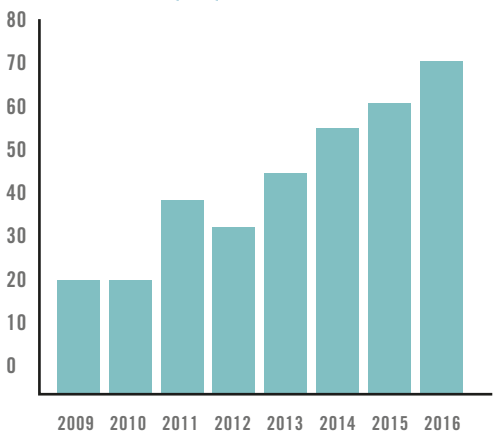
SUMMARY OF INDICATORS

The following table provides some indicators for the years 2013-2016:

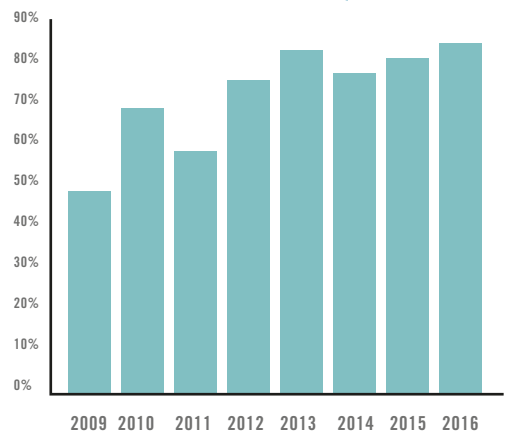
	2013	2014	2015	2016
INDICATORS	**Real**	**Real**	**Real**	**Real**
Number of indexed articles	47	57	61	71
% of indexed articles Q1	80.9%	77.2%	80.3%	83.1%
Number of citations during the given year of all indexed articles published by the center	258	545	734	919
H index of the center for the indexed articles published until the given year	11	17	21	26
Total Ikerbasque Personnel	5	5	5	6
% of external funding	63%	48%	55%	68%
Finalized PhD Thesis	1	1	0	5
Finalized Master Thesis	12	14	11	10
Requested ERC grants	1	6	3	7

Additionally, the charts bellow show the evolution of the key indicators for the whole period 2009-2016

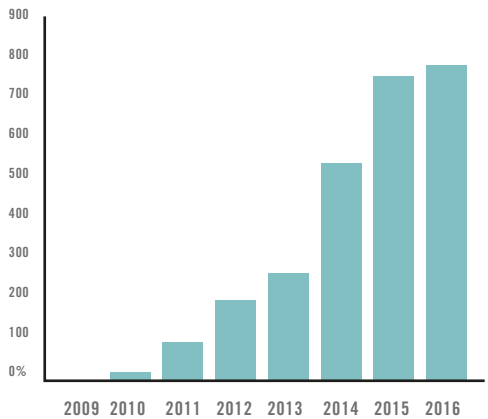
NUMBER OF Q1-Q4 INDEXED ARTICLES



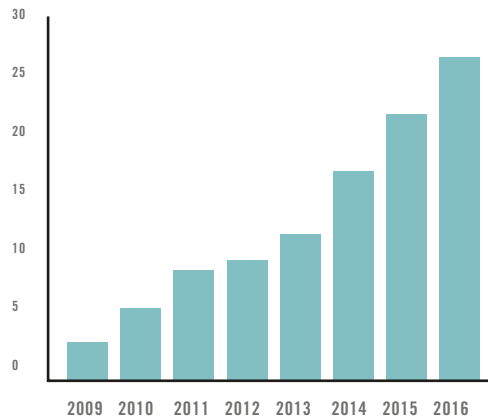
% OF INDEXED ARTICLES Q1



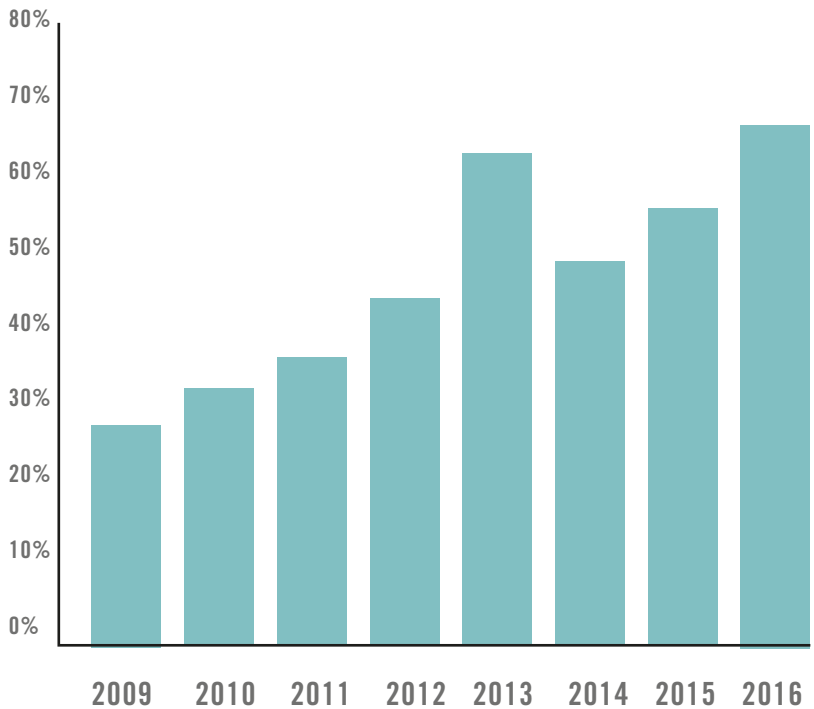
NUMBER OF CITATIONS DURING THE GIVEN YEAR OF ALL INDEXED ARTICLES PUBLISHED BY THE CENTER



H INDEX OF THE CENTER FOR THE INDEXED ARTICLES PUBLISHED UNTIL THE GIVEN YEAR



% OF EXTERNAL FUNDING



Master of cognitive neuroscience of language

3 ikerbasque research fellows

3 ikerbasque research professors

166 personal grant applications

End of 2016: 91 people in the BCBL. 30 supported by BCBL budget, 61 by external funding.

34 externally funded ongoing projects within the period

External funding Rate vs. Objective: 68% Vs. 33% in 2016

7 supervised and defended thesis during the period 2013-2016

236 indexed papers published during the period 2013-2016

673 scientific proceedings presented during the period 2013-2016 by BCBL researchers

67 granted individual fellowships

11 events to disseminate science

So far, 74 students have participated in this Master's throughout its 6 editions, 19 of whom have joined the BCBL to complete their doctoral training

Conferences and workshops organized by bcbl: 9 international conferences organized with 1519 attendees

287 applications in overall (all types)

82 grant applications for research projects

Human resources: 26 different nationalities working at the center (2013-2016)

Participations during 2013-2016:
Babies 2.492
Children 6.063
Adults 16.670
Elderly people 200

www.bcbl.eu

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EXCELENCIA SEVERO OCHOA
2016-2019