

University at Buffalo | State University of New York  
Social and Behavioral Sciences Institutional Review Board  
IRB ID Number: IRB00003128  
515 Capen Hall | Buffalo, NY 14260  
SBSIRB@research.buffalo.edu  
Telephone: (716) 645-6474  
Federal Wide Assurance ID Number: FWA00008824

DATE: 3/15/2012  
TO: Dr. Juergen Bohnemeyer  
LIN  
FROM: Joel O. Raynor, Chair  
Christian Marks, Administrator  
RE: Study #2838: Spatial language and cognition beyond Mesoamerica  
Approval of Proposal Amendments

The following amendments to the above referenced protocol were reviewed and approved by the Social and Behavioral Sciences Institutional Review Board (SBSIRB) at the University at Buffalo:

Sponsor Initiated Amendments to the Protocol (Version  
Date:Bohnemeyer\_2838\_amendment\_03142012).

Additions to Study Personnel.

Huang, Lo, and Cheng are researchers of Mandarin and Taiwanese. Nakagawa is a researcher of Japanese.

The SBSIRB has also determined that the study continues to meet the requirements for exemption under 45CFR46.101(b). Due to its exempt status, the study approval does not expire. The SBSIRB has also determined that this study presents no greater than minimal risks to participants. This exemption has been approved under the following categories:

Exemption 2: Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

For all participants in this study, the IRB has approved a verbal consent procedure that waives the requirement of signed documentation of informed consent because the study presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context as outlined in 45 CFR 46.117.

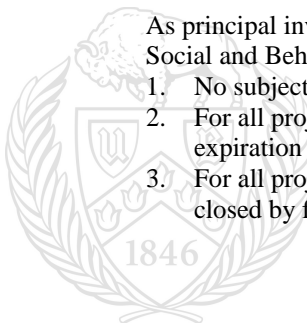
The following HIPAA mechanisms have been approved in conjunction with this study:

As this protocol does not use individually identifiable health information, no HIPAA authorizations are provided with this study.

This approval includes all documents/materials accompanying this memo in a password protected pdf file with the University at Buffalo Crest/SBSIRB approval watermark.

As principal investigator for a study involving human participants, you assume certain responsibilities to the Social and Behavioral Sciences Institutional Review Board. Specifically:

1. No subjects may be enrolled prior to the IRB approval date.
2. For all projects that have not been granted an exemption, the study may not be conducted beyond the expiration date without re-approval by the IRB.
3. For all projects that have not been granted an exemption, the SBSIRB must be notified when a project is closed by filling out a continuation/renewal form and submitting it to the SBSIRB.



4. Report all Serious Events/Problems (SEPs) to the SBSIRB according to the timetable on the SEP Initial Report Form.
5. Conduct the protocol exactly as approved unless a protocol amendment is prospectively approved by the IRB. Changes in research procedures, recruitment or consent processes shall not be initiated by research investigators without IRB review and approval, except where necessary to eliminate apparent immediate hazards to subjects.
6. Comply with all IRB decisions, conditions, and requirements. Principal Investigators are responsible for making sure that studies are conducted according to the protocol and for all actions of the staff and sub-investigators with regard to the protocol.
7. It is the responsibility of the Principal Investigator to secure any other required approvals before research begins.

A copy of this approval will go on file under your name and the study number/title above. Please refer to this number/title in all future correspondence about the project.

Thank you for this submission to the IRB and we wish the best for you and your participants. Should you have any questions regarding human participants, please contact the SBSIRB Administrator at the address above.

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**UNIVERSITY AT BUFFALO Renewal of Protocol HS1A Summary Form for IRB**

**Protocol Number:** 2838  
**Title of Project:** Spatial language and cognition beyond Mesoamerica

**Level of Review:** Exempt  
**Categories:** 2

**Current Approval Period:** 3/15/2012 to  
**Initial Approval Date:** 8/14/2007

**Principal Investigator:** Dr. Juergen Bohnemeyer LIN, jb77@buffalo.edu  
716-645-0127 x

**Faculty Sponsor:**

**Sites:** UB \_\_\_  
RIA \_\_\_  
Kaleida \_\_\_  
ECMC \_\_\_  
VAMC \_\_\_  
RPCI \_\_\_  
Field sites in Cameroon, Côte d'Ivoire, Japan, Malaysia,  
Mexico, Nicaragua, Spain, Taiwan, and Vietnam

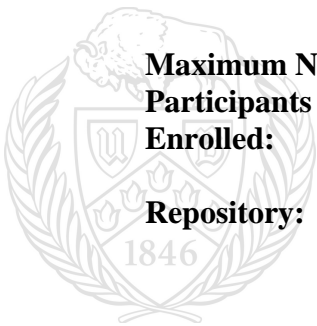
**Support:** External  
**Sponsor and Address:** National Science Foundation, 1800 G Street NW Room 436,  
Washington, DC 20550

**Sponsored Programs Application Number:** NSF Award No. BCS-0723694

**Subject Populations:** Pregnant Women X  
Neonates \_\_\_  
Prisoners \_\_\_  
Children \_\_\_  
Students \_\_\_  
Employees of a Specific Organization \_\_\_  
Mentally Ill or Cognitively Impaired \_\_\_  
Economically or Educationally Disadvantaged X

**Maximum Number of Participants to be Enrolled:** Associated with the local protocol: 544  
Nationally under all protocols associated with this study  
(where applicable):544

**Repository:** 642 Baldy Hall, University at Buffalo (office of PI)



### **Consent Procedures Approved:**

For all participants in this study, the IRB has approved a verbal consent procedure that waives the requirement of signed documentation of informed consent because the study presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context as outlined in 45 CFR 46.117.

### **HIPAA Procedures Approved:**

As this protocol does not use individually identifiable health information, no HIPAA authorizations are provided with this study.

### **Special Determinations Related to this Approval:**

#### **Key Study Personnel:** (First, Last, Email, Role on Project, CITI Completion Date)

Juergen Bohnemeyer, jb77@buffalo.edu, PI, 2/14/2011  
Carolyn O'Meara, ckomeara@buffalo.edu, consultant, 2/21/2011  
Gabriela Pérez Báez, gp22@buffalo.edu, consultant, 3/11/2011  
Juan Jesus Vázquez Álvarez, xun71@hotmail.com, consultant, 3/16/2011  
Salomé Gutiérrez Morales, salogumo@gmail.com, consultant, 3/23/2011  
Gilles Polian, gillespolian@yahoo.com, consultant, 2/27/2011  
Alejandra Capistrán Garza, ale\_capistran@hotmail.com, consultant, 2/23/2011  
Elena Benedicto, ebenedi@purdue.edu, consultant, 7/15/2011  
Nestor Green, nestorhgreen@gmail.com, consultant, 7/15/2011  
Selene Hernández Gómez, brunbergs@gmail.com, consultant, 7/11/2011  
Sandra Rocío Cruz Gómez, sandrarociocruz@hotmail.com, consultant, 7/23/2008  
Roberto Sántiz Gómez, robesago@hotmail.com, consultant, 7/23/2008  
Alyson Eggleston, ageggle@purdue.edu, consultant, 10/30/2011  
Gloria Fendly, consultant  
Tomas Gomez, yalabin@hotmail.com, consultant  
Modesta Dolores, nangtapuna2@yahoo.com.mx, consultant  
Susana Budier, saihsaih2007@yahoo.es, consultant  
Demetrio Antolin, consultant  
Rodrigo Romero Méndez, rod.romero@gmail.com, consultant, 3/14/2011  
Randi Tucker, randituc@buffalo.edu, RA, 5/31/2010  
Susan Smythe Kung, susansmythekung@yahoo.com, consultant, 3/25/2011  
Elizabeth Salomon, elisalomon12@yahoo.es, consultant  
Huichen Hsiao, huichen.hsiao@gmail.com, consultant, 2/1/2011  
Jesse Lovegren, lovegren@buffalo.edu, consultant, 8/2/2009  
John Olstad, jtolstad@gmail.com, consultant, 2/20/2011  
Niclas Burenhult, Niclas.Burenhult@mpi.nl, consultant, 3/28/2011  
Rik van Gijn, Rik.vanGijn@mpi.nl, consultant, 3/13/2011  
Tatiana Nikitina, tavnik@gmail.com, consultant, 1/31/2011  
Vincent Hirtzel, hirtzel@hotmail.com, consultant, 3/10/2011  
Samuel Herrera, sam.herrera@gmail.com, consultant, 3/18/2011  
Duylinh Nguyen, duylinhn@buffalo.edu, consultant, 9/26/2011  
Shih-Yi Huang, Other  
WeiHsuan Lo, Other

Yu-Xin Cheng, Other  
Natsuko Nakagawa, natsukon@buffalo.edu, Other, 9/6/2010

This document is a summary of the information provided by the investigator to the SBSIRB as a part of the above referenced approved protocol. When a protocol is approved by the SBSIRB, this document is provided to the investigator and/or faculty sponsor electronically in conjunction with an approval memo and the approved research protocol materials as a single password protected pdf document with a University at Buffalo Crest watermark. All pages of this document will also contain a footer that includes consecutive pagination along with the approval and expiration dates of the current documentation. When documentation is provided in this manner the project is approved and **no signatures of the investigator, faculty sponsor or IRB representative are required to further document approval** by the University at Buffalo IRB.

The approved pdf file should be **printed and placed in the investigator's indicated repository**. This document **must be used with the watermark and footer** to produce copies of **consent documents** to be signed by participants when signed documentation of consent is a part of the approved protocol. It is recommended but not required that any advertisements, consent information sheets or other printed materials approved as a part of this protocol also be used with the watermark and footer.

This document **will not be signed** unless an investigator needs a signed document in order to meet the requirements of research sponsors or other persons outside of the University at Buffalo. In these cases the investigator must send or bring one hard copy of this full document to the IRB administrator who will provide an appropriate signature and date below.

Signature of IRB Chair or designee: \_\_\_\_\_

Date: \_\_\_\_\_



**SPATIAL LANGUAGE AND COGNITION BEYOND MESOAMERICA  
Study # 2838 –amendments - memo**

Dr Jürgen Bohnemeyer, Department of Linguistics (PI)

I would like to request approval for the following amendments (the edited portions of the protocol and consent forms have been highlighted), engendered by the addition of researchers, Shih-Yi Huang, WeiHsuan Lo, and Yu-Xin Cheng on Mandarin and Taiwanese and researcher Natsuko Nakagawa on the Japanese dialects of the study. These researchers have completed the educational requirements and will be performing established and approved tasks with speakers of Chinese and Japanese languages. Other than the addition of these researchers to their respective language research teams, no changes are made to this protocol.



## SPATIAL LANGUAGE AND COGNITION BEYOND MESOAMERICA Study # 2838 - Project description

Dr Jürgen Bohnemeyer, Department of Linguistics (PI)

**1. Purpose** – The proposed activity continues the work of the project *Spatial language and cognition in Mesoamerica* (MesoSpace), a comparative study of the representation of space in 15 indigenous languages of Mexico and Central America. The overarching question is that of linguistic vs. nonlinguistic determinants of frame of reference (FoR) use in language and internal cognition. MesoSpace has confirmed the co-occurrence of a bias against relative (observer-projected) FoRs and the highly productive use of “meronymic” terminologies that are based primarily on object geometry across the languages of the Mesoamerican (MA) area. To test the hypothesis that shape-based meronymy, used as a resource in spatial descriptions, is in fact a causal influence in FoR selection, the proposed activity will examine four non-MA languages of South America, Africa, and Asia for which preliminary reports suggest the presence of MA-style geometric meronymy. The alternative hypothesis, according to which FoR selection is not directly driven by language, but exclusively by non-linguistic factors, will be tested in eight Asian populations. The project will perform statistical analyses to discover any correlation between the collected linguistic and cognitive data and these language external factors. Among MA languages, the MesoSpace team will further investigate an unexpected apparent side effect of the predominance of object-centered geometry: the current project phase has produced preliminary evidence that the “principle of canonical orientation” may be language-specific. Finally, the group will intensify its efforts towards a typology of meronym systems in MA and beyond.

**2. Participants** – Native speakers of 19 indigenous languages of Bolivia, Cameroon, Côte d’Ivoire, Malaysia, Mexico, and Nicaragua plus Catalan, Mandarin, Taiwanese (Min Nan Chinese), Vietnamese, two dialects of Japanese, and three dialects of Spanish (European, Mexican, and Nicaraguan Spanish) will be tested, at between 16 and 80 participants per language. Mandarin speakers in Taiwan will be tested in a lab environment at National Taiwan Normal University in Taipei. All other participants will be tested in their local communities by the PI and collaborating field workers. The Mesoamerican languages of the sample have been selected based on the expertise of the field researchers and with a view towards achieving coverage of as many different branches of as many different language families within and adjacent to the Mesoamerican cultural and linguistic area as possible. The research team includes specialists on languages out of three of the eight branches of the Mayan language family: Tzeltalan (Tzeltal, Dr Gilles Polian), Cholán (Chol, Juan Jesus Vázquez Álvarez), and Yucatecan (Yucatec, PI). Two of the three branches of the Mixe-Zoquean family are represented: Mixean (Ayutla Mixe, Dr Rodrigo Romero Méndez) and Gulf Zoquean (Sierra Popoluca, Dr Salomé Gutiérrez). Three languages of different branches of the Otomanguean language family are included: Otomí and Juchiteco (i.e., Isthmus) and San Lucas Quiaviní Zapotec (Dr Gabriela Pérez Báez). Three different varieties of Otomí are represented: San Ildefonso Tultepec Otomí (Nestor Green, Selene Hernández Gómez), San Jerónimo Acapulco Otomí (Nestor Green), and Santa Ana Hueytlalpan Otomí (Selene Hernández Gómez). Purépecha (or Tarascan, an isolate; Dr Alejandra Capistrán Garza) is likewise included in the sample. Huehuetla Tepehua is included as a representative of Totonacan (Dr Susan Smythe Kung). Seri, a language of uncertain affiliation, spoken hundreds of miles north of the MA area, is included as a control. There is no evidence of contact between Seri and MA languages, and yet Seri shows some of the traits of interest, such as dispositional roots and relational nouns in locative descriptions. Seri thus seems suitable as a control to isolate possible areal features. With the same motivation, Sumu, a Misumalpan language spoken just south of the Mesoamerican area on the Miskito Coast of Nicaragua, is included (Alyson Eggleston, Dr Elena Benedicto). Spanish is added as a baseline and because of its ubiquitous status as a socially

dominant contact language in the MA area. Monolingual Spanish speakers will be recorded in communities in Mexico and Nicaragua selected to be as compatible as possible in socio-economic terms and in terms of level of schooling, exposure to mass media, etc., to the other field sites. European Spanish is added for two reasons. It permits pitting language against culture as determinants of language use – rural Spanish-speaking communities in Mexico and Nicaragua pattern linguistically with European Spanish-speaking communities, but culturally with Mexican and Nicaraguan rural communities speaking predominantly indigenous languages. And a comparison may allow the MesoSpace team also to catch possible influences of the indigenous languages on the New World varieties of Spanish. The European Spanish data will be collected in Cataluña, so Catalan speakers are added as yet another population to again have the potential to tease apart linguistic and cultural determinants of language use.

MesoSpace has confirmed the co-occurrence of a bias against relative (observer-projected) frames of reference and the highly productive use of “meronymic” terminologies that are based primarily on object geometry across the languages of the Mesoamerican (MA) area. However, MA languages are believed to form a *sprachbund*, so they might share the two correlated features - shape-based meronyms as a central resource of spatial descriptions and a bias against relative frames - independently of one another. To strengthen the case for a causal relation, the investigation must be extended to non-MA languages that likewise make pervasive use of geometric meronymies in their spatial descriptions. For the proposed new phase of the project, a number of languages have been identified which show initial evidence of involvement of geometric meronymy in spatial representations: Dr Niclas Burenhult has agreed to carry out the MesoSpace studies with speakers of Jahai, a Mon-Khmer language spoken by about 1,000 hunter-gatherers on the Malay Peninsula. Jesse Lovegren, a member of the PI’s lab, will investigate the meronymy of Mungbam, called *Abar* in the Ethnologue (ISO:mij), a language spoken by about 2000 people on the northern edge of the Cameroon Grassfields linguistic area. It is presently classified as Western Beoid (Benue-Congo). *Mungbam* is an acronym representing the villages where the five distinct dialects of the language are spoken. Wan is a Southeastern Mande language spoken by about 22,000 people in Côte d’Ivoire. The proposed studies on Wan will be carried out by Dr Tatiana Nikitina. Yurakaré is an unclassified language spoken by an estimated 2,500 speakers in central Bolivia. The Yurakaré studies will be carried out by R. van Gijn and V. Hirtzel.

It will furthermore be examined in this new phase of the project whether the apparent bias of literate and urban populations towards relative reference is an artifact of Eurocentric language samples. The interest in this set of studies derives from Li & Gleitman's (2002) hypothesis that literacy, education, population geography, and topography are the only true determinants of population biases in the use of spatial frames of reference. As opposed to language, which Levinson (1996, 2003) and Pederson et al. (1998), inter alia, suggest is a determinant in its own right and possibly specifically serves a mediating role, allowing the members of a community to converge on a particular pattern of FoR use in response to those other factors. Li & Gleitman instead suggest that the observed correlation between language and FoR use is an artifact of speakers of different languages differing in terms of those other variables. One of the stronger pieces of evidence in support of Li & Gleitman's position is the finding that across the world, larger, urban, better educated, and more literate populations tend to gravitate towards relative FoRs. The hypothesis that FoR selection is not directly driven by language, but exclusively by non-linguistic factors, will be tested in a number of Asian populations, all of which show preliminary evidence of a preference for intrinsic over relative reference despite high levels of literacy, education, and urbanization. Dr Huichen Hsiao, with the assistance of Shih-Yi Huang, WeiHsuan Lo, and Yu-Xin Cheng, has agreed to carry out studies with monolingual Mandarin speakers, monolingual Taiwanese (Min Nan Chinese) speakers, Mandarin-Taiwanese bilinguals, and Mandarin-English bilinguals. Taiwanese is closely related to Mandarin, yet monolingual speakers tend to be illiterate and less educated than Mandarin speakers. A comparison of literate monolingual Mandarin speakers and illiterate monolingual Taiwanese speakers may thus allow us to distinguish between language and



literacy/education as factors involved in FoR choice. Bilinguals have long been considered a particularly important test population for studies testing language as a possible causal factor in internal cognition. Yet, very few such studies have been carried out to date, and none have been published in the domain of spatial FoRs. Jesse Lovegren and Duylinh Nguyen will test Vietnamese speakers in Vietnam. As in the case of Mandarin, pilot data have shown a preference for intrinsic interpretations. The case of Vietnamese is particularly interesting because Vietnamese is written in an orthography based, not on the Han characters, but on the Roman alphabet, introduced by French missionaries and codified by the French colonial regime. Danziger & Pederson (1998) report that the ability to discriminate enantiomorphs is positively correlated with literacy in a Roman script and thus possibly with habituation in the use of relative FoRs. Thus, if literacy is a factor in determining FoR use, Vietnamese speakers should make more frequent use of relative FoRs than Mandarin speakers.

John Olstad and Natsuko Nakagawa will test four populations of Japanese speakers: members of urban and rural communities on the mainland and Okinawa. While previous research has shown Japanese speakers to strongly prefer relative frames of reference (Kita 2006), preliminary evidence from work Olstad conducted on Okinawa suggests a preference for intrinsic frames there. The source of the contrast between the two varieties is unclear. There is no evidence of a presence of geomorphic frames on Okinawa, so topography should not be a factor. There was no obvious contrast in literacy between the two populations of the earlier study, and Okinawa, while small, is more than twice as densely populated as Japan's main island Honshū and overall fairly urban. A 2x2 design matching rural against urban speakers from both islands will isolate any impact of population geography.

With the exception of Dr. Hsiao, whose work is lab-based, all collaborators have established field sites and are both seasoned field researchers and experts on their field languages. The procedures to be applied, as detailed below, are well within the range of methods practiced by the team members in their own research, and thus within the range of methods endorsed by the institutions with which the researchers are affiliated – which include the Max Planck Institute for Psycholinguistics and some of the leading academic institutions across disciplines in Mexico. Two of the graduate students are native speakers of their field languages (S. Gutiérrez and J. J. Vázquez). The participants will be tested at the researchers' field sites. All researchers work with the knowledge and approval of the local community. Through the involvement and collaboration of national researchers and institutions, national laws governing the work of foreign or foreign-funded researchers in Bolivia, Cameroon, Côte d'Ivoire, Malaysia, Mexico, Nicaragua, and Taiwan are satisfied.

Alyson Eggleston and Dr Elena Benedicto will be assisted by members of the Sumu community Gloria Fendly, Tomasa Gomez, Modesta Dolores, Susana Budier, Demetrio Antolin, and Elizabeth Salomon. Due to their limited internet access, it is at present not practicable for these Sumu researchers to comply with the educational requirement in human participant protection by completing the online CITI tutorial. Dr Benedicto and Eggleston have instead taken on the role of instructing these community members in the contents of the CITI tutorial.

In addition to speakers of the 25 languages mentioned above, UB undergraduate students will be asked to participate in pilots to test the materials that will be used in the field. Each student will participate in these pilots for a maximum of one hour. The pilots will be conducted in April of 2011.

**3. Recruitment** – The participants will be recruited for voluntary participation from the local population at the researchers' field sites on the basis of oral diffusion of information about the study through the researchers' networks of community relations. Mandarin speakers, mainly students from National Taiwan Normal University, will be recruited via flier and receive payment for the sessions they participate in.

For the pilots conducted to test the research materials, UB students will be recruited from five undergraduate courses of the UB Linguistics Department, LIN 355 *Child Language Development*, taught by Dr Eon-Suk Ko, LIN 315 *Language in its social setting* taught by the

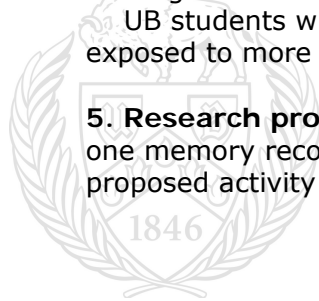
PI, LIN 207 *Language, Society, and the Individual*, two sections, one taught by Dr. David Zubin and one by Randi Tucker, and LIN 200 *Language in Pluralistic America* taught by Dr. Jeff Good. Participation in the pilots offers educational benefits to the students: LIN 207 and LIN 315 have modules dealing with questions of language, culture, and cognition; LIN 355 involves familiarization with methods of experimental research in psycholinguistics, and LIN 200 has a component dedicated to the study of the indigenous languages of the Americas. The PI and/or a research assistant will give a five-minute introduction of the project in these courses at least one week prior to the beginning of the pilots. Students will be given the opportunity to ask questions during these introductions. Afterwards, every student is handed a copy of the consent form, which provides further information. Those who wish to enroll in the pilots can do so by putting their name on a sign-up sheet to be circulated during the following class. The sign-up sheet will be collected by a research assistant at the end of the class. If the students appear at the agreed time and place and sign the consent form, they receive one percent of credit for the course whether or not they participate in the pilot.

**4. Consent process** – Each participant will be tested in a series of individual sessions that may span the duration of the field worker’s stay at the site. At the beginning of their first session, participants are given a copy of an information sheet that lays out the purpose of the research, the activities in which they are asked to participate, and who will have access to the material recorded with their participation. The information sheet furthermore clearly states the voluntary nature of the speakers’ participation, their right to end it at any moment, and their right to restrict access to recordings or transcripts or have them deleted, and provides them with contact information in case of future questions. The information sheet will be provided in the following languages: French – in Côte d’Ivoire; Japanese – in Japan; Spanish - in Bolivia, Mexico, Nicaragua, and Spain; Mandarin and Taiwanese – in Taiwan. The researchers will explain its contents to illiterate participants and translate it for participants not speaking the contact languages used. In any case, the researchers will discuss the contents with the participants to make sure that they are clearly understood and obtain the participants’ oral consent on this basis. All versions of the information sheet are appended to this document, preceded by an English translation.

Written consent will not be required of the participants for this study because they will be exposed to no more than minimal risk and because their identity could not be traced to this study by any means other than through a signed consent form. Participants in many of the field sites would refuse to participate if written consent would have to be obtained because of culturally endemic suspicion towards government bureaucracies and because they may have family members living or having lived in the United States as undocumented workers. Illiteracy is an additional problem in many cases. In the case of the Jahai of Malaysia and the speakers of Mungbam in Cameroon, even the use of an unsigned printed information sheet is not practicable. Even with the signature requirement waived, the use of a printed consent document written in officialese would be met with apprehension by the members of these two cultures. The use of a dominant national language (English in Cameroon, Malay in Malaysia) would further reinforce this negative effect. The three researchers in question, Burenhult, Lovegren, and Nguyen will instead negotiate appropriate translations of the English information sheet in the native language with community elders and/or other authoritative community representatives and will present the resulting text orally to the participants, making sure that the participants understand the content.

UB students will be asked to sign a written consent form even though they will not be exposed to more than minimal risk.

**5. Research procedures** - Tests will include various procedures of linguistic elicitation and one memory recognition experiment. A brief description of the four sub-studies of the proposed activity follows below.



**Reference to body and object parts** – “Meronyms” are nouns that denote a part of an object, or a region projected from a part of an object, when possessed by a nominal that refers to the object. The research team will survey the semantics of the meronym system of each language and analyze the results to compile a semantic typology. This typology will show where the languages of the sample converge and how they differ in the labeling of the same geometrically or functionally defined object parts, following the model of the classic ethnosemantic studies of lexicalization in domains such as color, kinship, and ethnobotanical taxonomy. The data collection procedure for this study combines several different tasks. First, a picture book is provided for the elicitation of human, animal and plant body parts. Participants identify body parts by drawing approximate boundaries on the pictures and provide labels for the parts. Next, they are shown a set of real-world exemplars of artifacts of everyday use in MA culture, identified through pictures in the elicitation manual. To the extent that the identification of artifact parts is partly influenced by functional properties, it is expected to deviate from purely shape-based principles. Artifacts of Western culture with parts commonly identified functionally in Spanish are included as well, especially where the Spanish labels for these deviate from the labels predicted by geometry. For example, what speakers of English or Spanish would identify as the rear part of a bus or truck based on the direction in which the vehicle canonically moves would be identified as the ‘buttocks’, not the ‘back’, in Tzeltal; the ‘back’ may in fact be the roof of the vehicle (depending on the exact shape). Clashes such as this make it possible to investigate whether Spanish usage has an influence on meronymic terminology, especially in bilingual speakers.

Finally, the participants are shown a set of novel objects, shaped so as to test specific predictions derived from a naming algorithm that has been proposed for Tzeltal. Potential clashes between some of the criteria in the algorithm will be built into the stimuli to determine to what extent all speakers of all languages rank the principles in the same way. For instance, it has been suggested that the base or ‘buttocks’ of an object is always that part on the main or “model” axis that is most flat or least featured; which of these criteria takes precedence if the properties diverge, i.e., if the model axis ends on one side in a highly featured flat part and on the other in an otherwise featureless convex part? Similarly, a sharp protrusion on a part delimiting the model axis is predicted to be identified as a ‘nose’; but what happens when a sharp protrusion occurs on a part orthogonal to the model axis? These objects will be employed in a “referential communication” task with two participants per trial separated from one another by a screen. The two participants are given copies of each novel object - one per trial - which are identical except for bits of Play-Doh placed on various parts of the object on one copy, but not the other. The participant who has the copy without the Play-Doh is given a set of unattached pieces of Play-Doh and the first participant’s task is to verbally identify the parts with bits of Play-Doh on them such that the second participant can put bits of Play-Doh on these parts on their copy of the object. The first two tasks are conducted with ten speakers of each language; the referential communication task is carried out with five pairs of speakers. The tasks are videotaped.

**Placement with respect to body and object parts** – Of particular interest is the use of meronyms in locative descriptions. Many Otomanguean languages lack adpositions altogether and canonically employ meronyms as heads of the “ground phrase” (the expression that denotes the place at which the “figure” is located); some Mayan languages use a generic preposition augmented by a meronym, while others have mixed systems in which some meronyms head the ground phrase and others combine with a “generic” preposition whose main function seems to be to mark the conversion from object to place function. Meronyms used in reference to spatial regions are not always identical to those used to identify the parts from which the regions are projected. In both Ayoquesco Zapotec and Yucatec Maya, the ‘front’ part of a table is the top, whereas the ‘front’ region is the region closest to the observer provided none of the sides is intrinsically designated as ‘front’. The shape and function of the parts appear to be less important in the identification of the regions projected from them. To study the use of meronyms in locative descriptions, a second referential communication task

with the novel objects mentioned above will be conducted. In this case, one participant per trial describes the location of coins on, in, under, or near salient parts of the objects so that the other can place a coin in the corresponding location. The task is conducted with five pairs of speakers per language. The data are analyzed both for the use of meronyms and for the frames of reference employed (see below).

**The distribution of linguistic frames of reference** – Spatial frames of reference (FoRs) are coordinate systems used to “project” a place function (typically a spatial region) from a referential ground. Three types of FoRs are distinguished in language use and internal cognition: “intrinsic” or object-centered systems, where the geometrical or functional structure of the ground itself is projected onto space (as when a tree closest to the intrinsic front of a house is referred to as being *in front of the house*); “relative” or observer-centered systems, where the geometrical/functional structure of the viewer’s body is projected onto the ground (as when a tree in the line of vision between speaker and house is referred to as being *in front of the house* while the speaker is in fact facing the side or back of the house); and “absolute” systems, which are projected onto the ground without a unique vantage point from which they are projected (e.g., if a tree is *north of the house*, it is so regardless of where the observer is positioned or how the house is oriented). Intrinsic and absolute FoRs may be grouped as “allocentric” against “egocentric”, i.e., observer-based/relative FoRs.

To study FoR preferences in language in table-top space, a modified version of the Men and Tree picture matching task developed by the members of the Space Project at the Max Planck Institute for Psycholinguistics will be administered to the languages of the sample. Men and Tree consists of four sets of 12 photographs. It is designed for a referential communication task in which two participants per trial, seated next to each other, each with a copy of the same set of pictures, attempt to match corresponding pictures through verbal interaction while screened off from each other. To uniquely identify each picture, the participants have to exploit the minimal spatial contrasts among the objects featured in the pictures. For the first phase of the project, the original pictures were replaced with four new sets featuring, instead of a toy man and toy tree, a real soccer ball as “figure” (the object to be located) and a real chair as referential “ground” (the object with respect to which the figure is located). The new stimulus items are better suited to bringing out the various test populations’ preferences among the three types of frames of reference - relative, absolute, and intrinsic - whereas the Men and Tree set was appropriate for the discrimination of relative and absolute responses, but effectively suppressed intrinsic responses. The task is conducted with five pairs of speakers per language and will be video-taped. Should a possible effect of multilingualism be detected, it will be followed up with additional participants as necessary to assess the impact of the participants’ L2-competence. This task, combined with the results of the second study described above regarding FoRs, should be understood as an initial foray into the domain in each language, conducted in such a way as to make possible crosslinguistic comparisons. At the same time, it is hoped that the initial findings of this study will serve as the basis for more thorough investigations beyond the proposed activity.

For the proposed second phase of the project, two additional sets of pictures will be added. These are designed specifically for a test of the “Principle of Canonical Orientation” (Levelt 1984), which states that the use of intrinsic frames presupposes the ground to be in canonical orientation. This predicts, for example, that a ball balanced on top of an inverted chair will not be said to be ‘under’ the chair. The data collected during the first phase of the project suggest that this principle may not hold in languages that rely heavily on meronyms for the expression of spatial relations.

A new, additional instrument for the study of FoR use in discourse is needed to detect effects of inter-speaker variation in terms of variables such as literacy and education – something that requires much larger numbers of participants; if carried out with the picture matching task described above, this would produce an unmanageable amount of data. The new task will be carried out with 40 pairs of participants per population. This task involves a referential communication design similar to that described above, i.e., two participants match

stimuli across a screen that prevents them from sharing their fields of vision. However, the stimuli consist of four distinct spatial configurations formed with toy animals. The researcher builds each configuration for one of the participants, the "director", who then instructs the other participant, the "matcher", to build the same configuration on their side of the screen.

***Spatial frames of reference in recall memory*** – To probe the use of spatial FoRs in non-linguistic cognition, a version of the "Animals-in-a-row" design will be employed. Participants memorize arrays of toy animals and reproduce them on a different table under 90-degree rotation. This task allows the researcher to determine whether participants memorize the order and orientation of the toy animals consistently in the relative or absolute FoR or neither. After several practice trials, five test trials will be conducted with each participant. These are videotaped. The task will be conducted with a minimum of 16 speakers per language. Where it is possible to subdivide a population by second-language competence, 16 participants per subgroup will be aimed for. Animals-in-a-row will provide an initial profile of the use of the FoRs for recall memory in the community as a starting point for future research.

***Demographic data collection*** - To statistically test for the influence of language external factors, demographic information on sex, age, education level, second language use, and literacy will be collected from participants. These data will be recorded and stored in association with an anonymous identifier (a number) in order to protect the anonymity of the participants. This data is instrumental in the statistical analyses that will determine possible correlations between FoR preferences in language and cognition and the language external factors that have been claimed to influence FoR preference. This statistical analysis will, for the first time, empirically test these claims.

**6. Compensation** – The participants in the experiments proper will receive a monetary compensation for their participation, adjusted to the average hourly wages for unskilled labor in the respective areas. An exception is made in the case of Sumu speakers in Nicaragua where according to cultural convention, a gift is the appropriate form of compensation. This is reflected in an alternate version of the consent form to be used in Nicaragua by Dr Elena Benedicto. This alternate version obtained IRB approval in an earlier amendment, and is included below with a minor amendment to include Dr Benedicto as contact person. Withdrawal from any of the studies before its completion will not affect compensation in either case.

UB students participating in the pilot study receive one percent of the credit for the course from which they have been recruited. Their participation will count specifically towards the participation grade for the course. To students who do not wish to participate in the study, alternative routes of boosting their participation grade will be open. The study personnel will be happy to point these out.

**7. Confidentiality** – Participants' initials will be recorded as study-internal identifiers. No full names will be recorded. Although some demographic information will be collected, it will be connected only to study-internal identifiers, for which purpose numbers will be used. The raw data will be handled and analyzed exclusively by the PI and the collaborating field researchers. Verbal descriptions of stimulus items by the participants may be quoted in publications resulting from the study, but no material that might disclose a participant's identity will be included in publications. This will be made clear verbally at the beginning of all sessions and stated in writing in the consent form. Analyzed data will be stored at the PI's office. Physical recording media will be kept, provided the oral consent of the participants involved in the recordings, at AILLA, the Archive of the Indigenous Languages of the Americas at the University of Texas at Austin, and the Max Planck Institute for Psycholinguistics and made available through AILLA and the Max Planck Institute to the scientific and the language community.

**8. Deception** – No deception will be used in the project.

**9. Risk** – The participants will experience no known physical, psychological, legal, or social risks due to their participation.



University at Buffalo  
SBSIRB #: 2838  
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Approved: 3/15/12  
Expires: none -exempt

UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
Spatial language and cognition in Mesoamerica  
INFORMATION SHEET FOR MEXICO (ENGLISH VERSION)

**FOR QUESTIONS ABOUT THE RESEARCH, CONTACT** Dr Gilles Polian, CIESAS-Sureste, Carretera a Chamula Km. 3.5, Barrio la Quinta San Martin, San Cristobal de las Casas, Chiapas, Mexico C.P 29247 Phone: (967) 674 91 00, email: gillespolian@yahoo.com.

This consent form explains the research study. Please read it carefully. Ask questions about anything you do not understand. If you do not have questions now, you may ask later.

**PURPOSE:** You are invited to participate in research on how your native language expresses where objects are located and on whether this has an impact on your memory for the location of objects. This is a study that involves speakers of many different languages tested by different researchers.

**PROCEDURES:** You may be asked to participate in a number of different roles:

- produce speech that will be audio- and/or video-recorded
- assist in the transcription of audio recordings
- judge whether certain phrases in your native language sound good or bad and what they mean
- commit the location of objects to memory and later show the researcher where you remember the objects to be located
- answer a few short questions about your age, education, and habits of reading and writing and of speaking languages other than your native language (this information will be stored in a manner that does not reveal your identity; it is needed to determine how age and education and so on influence language use and memory).

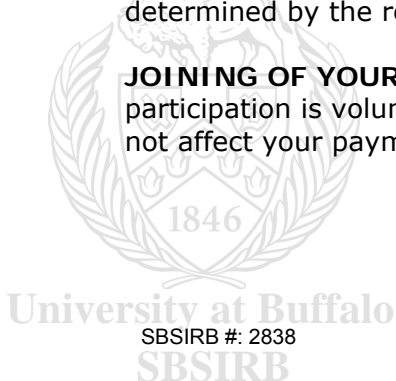
**TIME COMMITMENT:** You will be asked to participate in one or more sessions. Each session will take no more than two hours.

**RISKS AND BENEFITS:** There are no risks associated with this study. By contributing to the scientific knowledge of your native language, you may help improve materials for the teaching of your native language at school.

**CONFIDENTIALITY:** Your individual privacy will be maintained in all published and written data resulting from the study. Your speech may be audio or video recorded and may be quoted later in scientific publications; however, such quotes will be made in such a way as to not reveal your identity. The work that the researcher will do with your responses will be archived at the State University of New York at Buffalo, U.S.A. Also, with your permission, the recordings will be archived at the Archive of the Indigenous Languages of the Americas at the University of Texas at Austin for the purpose of preserving a sample of your language for posterity. These archived records of your responses will be erased at your request at any point in time.

**PAYMENT:** You will receive payment for each session in which you participate based on a rate determined by the researcher for your community.

**JOINING OF YOUR OWN FREE WILL (VOLUNTEERING FOR THE STUDY):** Your participation is voluntary. You have the right to refuse to answer particular questions. This will not affect your payment.



If you have any questions about your rights as a subject in a research project, please contact (anonymously, if you wish) the Social and Behavioral Sciences Institutional Review Board, 515 Capen, University at Buffalo, Buffalo, NY 14260, or by phone (+1-716-645-6474) or Dr Gilles Polian at the address given at the top of this document.



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Expires: none -exempt



UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
Lenguaje y cognición espacial  
FOLLETO DE INFORMACIÓN PARA MEXICO (VERSION EN ESPAÑOL)

**SI TIENE PREGUNTAS RESPECTO DE ESTA INVESTIGACION, CONTACTE** al Dr Gilles Polian, CIESAS-Sureste, Carretera a Chamula Km. 3.5, Barrio la Quinta San Martín, San Cristóbal de las Casas, Chiapas, México C.P 29247 teléfono: (967) 674 91 00, correo electrónico: gillespolian@yahoo.com.

Este folleto de información explica las condiciones de esta investigación. Por favor léalo detenidamente. Puede preguntar sobre lo que no entienda. Si no tiene preguntas ahora, puede preguntar después.

**PROPOSITO:** UD. está invitado a participar en una investigación respecto de cómo su lengua nativa expresa dónde los objetos están localizados y si eso tiene algún impacto en su memorización de dónde están localizados los objetos. Esta investigación involucra hablantes de muchas lenguas examinadas por investigadores diferentes.

**PROCEDIMIENTO:** Es posible que le solicite que participe en las siguientes tareas:

- producir discursos en su lengua nativa que serán grabados en audio y/o video
- ayudar en la transcripción de grabaciones en audio
- juzgar si ciertas frases en su lengua suenan bien o mal, y qué quieren decir
- memorizar dónde están localizados los objetos y después mostrar al investigador
- contestar una preguntas breves sobre su edad, educación y hábitos de lectura y escritura y de su dominio de otros idiomas aparte de su lengua nativa (esta información se almacenará de manera que no revele su identidad; es requerida para determinar cómo la edad, la educación, etc., influyen el uso de la lengua y la memoria.

**DURACION:** Le solicitaré que participe en una o varias sesiones. Cada sesión tomará no más de dos horas.

**RIESGOS Y BENEFICIOS:** No existen riesgos asociados con su participación en este estudio. Con su contribución al conocimiento científico de su lengua nativa puede ayudar al desarrollo de materiales para la educación escolar en su lengua.

**CONFIDENCIALIDAD:** Su privacidad será mantenida en todos los datos escritos y publicados en relación con este estudio. En ciertas ocasiones, sus discursos serán grabados en audio o video y es posible que sean citados en publicaciones científicas, sin embargo me aseguraré de que estas citas aparezcan de tal forma de no revelar su identidad. El estudio que se haga de sus respuestas serán archivadas en la Universidad Estatal de Nueva York en Buffalo, EE.UU. Las grabaciones de sus respuestas serán archivadas en el Archivo de lenguas indígenas de América en la Universidad de Texas en Austin, para preservar una muestra de su idioma para el futuro. Estos archivos serán borrados en cualquier momento en que usted lo solicite.

**PAGO:** Usted recibirá una retribución para cada sesión en que participe según la tarifa determinada por el investigador que trabaja su comunidad.

**COLABORACION CON ESTE ESTUDIO:** Su participación es voluntaria. Usted tiene el derecho a negarse a responder cualquier pregunta en particular. Eso no afectará su pago.

Si tiene alguna pregunta respecto de sus derechos como participante en este proyecto de investigación, puede contactar (anónimamente, si lo desea) a la Comisión Inspector para las

Ciencias Sociales y de la Conducta, 515 Capen Hall, Universidad en Buffalo, La Universidad Estatal de Nueva York, Buffalo, NY 14260, EE. UU. (o por teléfono +1-716-645-6474) o al Dr Gilles Polian utilizando la dirección mencionada al principio de este documento.



University at Buffalo  
SBSIRB #: 2838  
SBSIRB

Approved: 3/15/12  
Expires: none -exempt

UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
Spatial language and cognition in Mesoamerica  
ALTERNATE INFORMATION SHEET (ENGLISH VERSION)

**FOR QUESTIONS ABOUT THE RESEARCH, CONTACT:**

Dr Elena Benedicto, Purdue University  
Heavilon Hall 307b, West Lafayette, IN 47907 (EUA)  
Phone: (765) 494 8118, Fax: (765) 494 3780, email: ebenedi@purdue.edu.

This flier contains information about the research study. You are welcome to ask us about anything you do not understand. If questions occur to you later, feel free to ask then as well.

**PURPOSE:** This study is going to investigate how certain things are expressed in your language. For example, the way objects appear in a certain place. This study will also investigate whether the way of talking about it has an impact on how people remember the location of objects. Speakers and researchers of many different languages are going to participate in this study.

**PROCEDURES:** You may be asked to participate in a number of different roles:

- talk in your native language about pictures and images; what you say will be recorded in audio or video
- help in the transcription of audio recordings
- judge whether certain phrases in your native language sound good or bad and what they mean
- memorize where objects are located and later show it to the researcher
- answer a few short questions about your age, education, and habits of reading and writing and of speaking languages other than your native language (this information will be stored in a manner that does not reveal your identity; it is needed to determine how age and education and so on influence language use and memory).

**TIME COMMITMENT:** You will be asked to participate in one or more sessions. Each session will not take more than two hours.

**RISKS AND BENEFITS:** There are no risks associated with your participation in this study. By participating, you may contribute to the scientific knowledge of your language and thereby help in the development of materials for bilingual education in your language.

**CONFIDENTIALITY:** In the works that we write and publish about the results of this study, we will never mention your name or your community unless you prefer us to do so (we can thank you for your participation). In some cases, what you say will be audio- or video-recorded and it is possible that we cite it in scientific publications; please tell us whether you prefer us to thank you for your participation in name or whether you prefer us to keep you anonymous. Your individual privacy will be maintained in all published and written data resulting from the study. Your speech may be audio or video recorded and may be quoted later in scientific publications; however, such quotes will be made in such a way as to not reveal your identity. The work that the researcher will do with your responses will be archived at the State University of New York at Buffalo, U.S.A. Also, with your permission, the recordings will be archived at the Archive of the Indigenous Languages of the Americas at the University of Texas at Austin for the purpose of preserving a sample of your language for posterity. These archived records of your responses will be erased at your request at any point in time.

**PAYMENT:** Your participation in this study is voluntary, but you will receive a small gift for your collaboration.

**COLLABORATION WITH THIS STUDY:** You may decide freely whether you want to or do not want to participate in this study. You have the right to refuse to answer any question in particular. This will have no affect on whether or not you receive the gift.

If you have any questions about your rights as a subject in a research project, please contact (anonymously, if you wish) the

Social and Behavioral Sciences Institutional Review Board,  
515 Capen Hall,  
University at Buffalo, The State University of New York,  
Buffalo, NY 14260, U.S.A.

(or by phone +1-716-645-6474) or

Dr Elena Benedicto at the address given at the top of this document.



UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
Lenguaje y cognición espacial  
FOLLETO DE INFORMACIÓN (VERSION B EN ESPAÑOL)

**SI TIENE PREGUNTAS RESPECTO DE ESTA INVESTIGACION, CONTACTE a la:**

Dra. Elena Benedicto, Purdue University  
Heavilon Hall 307b, West Lafayette, IN 47907 (EUA)  
Phone: (765) 494 8118, Fax: (765) 494 3780, email: ebenedi@purdue.edu.

Esta hoja contiene información sobre este trabajo de investigación. Puede preguntarnos cualquier cosa que no entienda. Si no se le ocurre ninguna pregunta ahora, también puede preguntar después.

**OBJETIVO:**

Este trabajo va a investigar cómo se dicen en su lengua ciertas cosas. Por ejemplo, la manera en que aparecen los objetos en un lugar. También investiga si esa manera de decirlo tiene impacto en cómo recuerda la ubicación de esos objetos. En este trabajo van a participar hablantes e investigadores de muchas lenguas.

**PROCEDIMIENTO:** Es posible que le solicite que participe en las siguientes tareas:

- hablar en su lengua nativa sobre dibujos e imágenes; lo que hable será grabado en audio y/o video
- ayudar en la transcripción de las grabaciones de audio
- juzgar si ciertas frases en su lengua suenan bien o mal, y qué quieren decir
- memorizar dónde están localizados los objetos y después mostrarlo al investigador
- contestar unas preguntitas cortas sobre usted: edad, años de escuela, el uso que hace de las lenguas que no son la suya propia: cuántas lenguas habla, cuáles son, si escribe o lee alguna cosas en ellas. Toda esta información la guardaremos sin decir quién es usted, de manera anónima, pero nos sirve para averiguar si la edad y la escuela influyen en el uso de la lengua y en la memoria.

**DURACION:** Le solicitaré que participe en una o varias sesiones. Cada sesión no tomará más de dos horas.

**RIESGOS Y BENEFICIOS:** No existen riesgos asociados con su participación en este estudio. Con su participación, puede contribuir al conocimiento científico de su lengua y así puede ayudar al desarrollo de materiales para la educación bilingüe en su lengua.

**CONFIDENCIALIDAD:** En los trabajos que escribamos y que publiquemos sobre los resultados de este trabajo, no mencionaremos nunca su nombre o su comunidad, a menos que usted prefiera que lo hagamos (podemos agradecer su participación). En ciertas ocasiones, lo que usted hable será grabados en audio o video y es posible que lo que usted diga lo citemos en publicaciones científicas; por favor, díganos si prefiere que le agradezcamos su participación mencionando su nombre, o si prefiere que le mantengamos anónimo. El estudio que se haga de sus respuestas serán archivadas en la Universidad Estatal de Nueva York en Buffalo, EE.UU. Las grabaciones de sus respuestas serán archivadas en el Archivo de lenguas indígenas de América en la Universidad de Texas en Austin, para preservar una muestra de su idioma para el futuro. Estos archivos serán borrados en cualquier momento en que UD. lo solicite.

**PAGO:** Su contribución a este trabajo es voluntaria, pero recibirá un pequeño detalle u obsequio por su colaboración en este trabajo.

**COLABORACION CON ESTE ESTUDIO:** Usted puede decidir libremente si quiere o no quiere participar en este trabajo. UD. tiene derecho a negarse a responder cualquier pregunta en particular. Eso no afectará que vaya a recibir el obsequio o no.

Si tiene alguna pregunta respecto de sus derechos como participante en este proyecto de investigación, puede contactar (anónimamente, si lo desea) a la

Comisión Inspector para las Ciencias Sociales y de la Conducta,  
515 Capen Hall,  
Universidad en Buffalo, La Universidad Estatal de Nueva York,  
Buffalo, NY 14260, EE. UU.

(o por teléfono +1-716-645-6474) o

a la Dra. Elena Benedicto utilizando la dirección mencionada al principio de este documento.



UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
Spatial language and cognition in Mesoamerica  
CONSENT FORM FOR UB STUDENTS

**FOR QUESTIONS ABOUT THE RESEARCH, CONTACT** the Principal Investigator: Dr Jürgen Bohnemeyer, University at Buffalo, Department of Linguistics, 609 Baldy Hall, Buffalo, NY 14260. Phone: (716) 645-2177 ext. 727.

This consent form explains the research study. Please read it carefully. Ask questions about anything you do not understand. If you do not have questions now, you may ask later.

**PURPOSE:** You are invited to participate in research on how language expresses where objects are located and on whether this has an impact on your memory for the location of objects. This is a pilot study that has the purpose of testing the materials that will be used by researchers working on languages of Bolivia, Cameroon, Côte d'Ivoire, Japan, Malaysia, Mexico, Nicaragua, Taiwan, and Vietnam.

**PROCEDURES:** You may be asked to participate in a number of different roles:

- produce speech that will be audio- and/or video-recorded
- judge whether certain phrases sound good or bad and what they mean
- commit the location of objects to memory and later show the researcher where you remember the objects to be located

**TIME COMMITMENT:** You will be asked to participate in one session which will take no more than one hour.

**RISKS AND BENEFITS:** There are no risks associated with this study. By contributing to this pilot, you will help improve materials to be used in the study of endangered languages. There may not be direct benefit to you other than the sense of having contributed to the scientific study of language and the human mind.

**CONFIDENTIALITY:** Your name, person number, and course identification information are needed only to ensure that you receive credit for your participation. All recorded data are anonymous. Your speech may be audio or video recorded and may be quoted later in scientific publications; however, such quotes will be made in such a way as to not reveal your identity. Your responses will be archived in the Principle Investigator's office at UB (see above). This archived record of your responses will be erased at your request at any point in time.

**CREDIT:** For participating in this pilot study, you will receive one percent of the credit for the course you were recruited from. Your participation will count specifically towards the participation grade for the course. If you do not wish to participate in the study, the study personnel will be happy to point out alternative means of boosting your participation grade.

**JOINING OF YOUR OWN FREE WILL (VOLUNTEERING FOR THE STUDY):** Your participation is voluntary. You have the right to withdraw from the study at any time. You will still receive the same credit even if you withdraw from the study. You may also withdraw your data at the end of the session.

If you have any questions about your rights as a subject in a research project, please contact (anonymously, if you wish) the Social and Behavioral Sciences Institutional Review Board, 515 Capen, University at Buffalo, Buffalo, NY 14260, or by phone (+1-716-645-6474).

**STUDENT STATEMENT:** I have read the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

I HAVE BEEN GIVEN A COPY OF THIS CONSENT FORM.

**SIGNATURE OF STUDENT and DATE**

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**INVESTIGATOR STATEMENT:** I certify that I obtained the consent of the student who signed above. I understand that I must give a signed copy of the informed consent form to the student and keep the original copy in my files for 3 years after the completion of the research project.

**SIGNATURE OF INVESTIGATOR (or PERSON OBTAINING CONSENT) and DATE**

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**(If applicable) Video / Audio Tape Release Form**

I give consent to be audio-taped during this study:

please initial:  Yes  No

I give consent for tapes resulting from this study to be used for quotation as examples in scientific publications:

please initial:  Yes  No





UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
Spatial language and cognition in Mesoamerica  
DEBRIEFING FLIER FOR UB STUDENTS

You have participated in a pilot study for a research project on the representation of space in 25 languages spoken on five continents (many of which are severely under-documented and endangered). The project focuses on two unusual traits of spatial language in Mesoamerica: its highly productive terminology for object parts defined in geometric terms, and its preference for allocentric, or non-observer-based, frames of reference. The study is an exploration in the new field of Semantic Typology, which seeks to isolate universals of the language-cognition interface to determine what properties of linguistic representations are specific to particular languages and cultures.

From a cognitive perspective, the way people describe an object by using comparison (for instance talking about the "front" and "back" of a car) is metaphorical. Our project addresses the major question of to what extent languages differ in the spatial metaphors they use and how they use them. For example, when English speakers talk about the "front" and "back" of a car or TV set, what they have in mind are parts that are determined, not so much in terms of shape, but in terms of function: the front of the car is the first part in the direction in which the car canonically moves and the front of the TV is that part through which the appliance delivers its "output". Mesoamerican languages have been reported to be different in this respect, in that they use precise geometrical algorithms for labeling the parts of even the most complex or unconventional objects on the basis of body part metaphors (e.g., MacLaury 1989; Levinson 1994). What this means in practice is that even if you create a weirdly shaped novel object, native speakers of Mesoamerican languages will tell you with great confidence which parts are the ears and nose and the butt of the object, and speakers of the same language will converge on pretty much the same solutions. We are trying to work out how they do this, and our most important clue is going to come from comparisons across the different languages of the region to see to what extent they apply the same strategies and to what extent they differ from one another.

We are also interested in what makes Mesoamerican languages so different from English or Dutch or Russian or Japanese in terms of their descriptions of the location of an object in space. Whereas the other languages mentioned describe an object's location relative to the location of the speakers' own bodies in space (e.g., 'The ball is left of the chair'), that is, egocentrically, Mesoamericans locate objects relative to some fixed, if arbitrary, direction in space ('The ball is north of the chair') or relative to the geometry of other objects ('The ball is at the back of the chair') - allocentrically. This linguistic difference is of great interest to cognitive scientists. It has been shown that speakers of different languages prefer to use the same strategies for memorizing a given spatial configuration that their native languages mandate for talking about it (Pederson et al. 1998). The question is now whether this alignment is the result of language influencing cognition (a "Whorfian effect," after linguist Benjamin Lee Whorf) or rather of cultural biases influencing both language and spatial memory (cf. Li & Gleitman 2002; Levinson, Kita, Haun, & Rasch 2002; Majid *et al.* 2004).

To test the hypothesis that shape-based meronymy, used as a resource in spatial descriptions, is in fact a causal influence in the use of reference frames, we will examine four languages of South America, Africa, and Asia for which preliminary reports suggest the presence of Mesoamerican-style geometric meronymy. The alternative hypothesis, according to which frame selection is not directly driven by language, but exclusively by non-linguistic factors, will be tested in eight Asian populations. Among Mesoamerican languages, the MesoSpace team will further investigate an unexpected apparent side effect of the predominance of object-centered geometry: the current project phase has produced preliminary evidence that the so-called principle of canonical orientation (Levelt 1984, 1996) may be language-specific. The principle of canonical orientation states that the use of

intrinsic frames presupposes the ground to be in canonical orientation. This predicts, for example, that a ball balanced on top of an inverted chair will not be said to be 'under' the chair. Our preliminary data suggest that this principle may not hold in languages that rely heavily on meronyms for the expression of spatial relations.

If you have any questions or concerns about this study, you are encouraged to contact the Principal Investigator, Dr Bohnemeyer (contact information on the consent sheet).

#### References:

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UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
Spatial language and cognition in Mesoamerica  
INFORMATION SHEET FOR CÔTE D'IVOIRE (ENGLISH VERSION)

**FOR QUESTIONS, CONCERNS, OR COMPLAINTS ABOUT THE RESEARCH, CONTACT**  
Dr Tatiana Nikitina, 5706 S. Blackstone Ave, Chicago IL 60637 USA Phone: +1-510-552-1840, email: tavnik@gmail.com.

This consent form explains the research study. Please read it carefully. Ask questions about anything you do not understand. If you do not have questions now, you may ask later.

**PURPOSE:** You are invited to participate in research on how your native language expresses where objects are located and on whether this has an impact on your memory for the location of objects. This is a study that involves speakers of many different languages tested by different researchers.

**PROCEDURES:** You may be asked to participate in a number of different roles:

- produce speech that will be audio- and/or video-recorded
- assist in the transcription of audio recordings
- judge whether certain phrases in your native language sound good or bad and what they mean
- commit the location of objects to memory and later show the researcher where you remember the objects to be located
- answer a few short questions about your age, education, and habits of reading and writing and of speaking languages other than your native language (this information will be stored in a manner that does not reveal your identity; it is needed to determine how age and education and so on influence language use and memory).

**TIME COMMITMENT:** You will be asked to participate in one or more sessions. Each session will take no more than two hours.

**RISKS AND BENEFITS:** There are no risks associated with this study. By contributing to the scientific knowledge of your native language, you may help improve materials for the teaching of your native language at school.

**CONFIDENTIALITY:** Your individual privacy will be maintained in all published and written data resulting from the study. Your speech may be audio or video recorded and may be quoted later in scientific publications; however, such quotes will be made in such a way as to not reveal your identity. The work that the researcher will do with your responses will be archived at the State University of New York at Buffalo, U.S.A. Also, with your permission, the recordings will be archived at the Max Planck Institute for Psycholinguistics. These archived records of your responses will be erased at your request at any point in time.

**PAYMENT:** You will receive payment for each session in which you participate based on a rate determined by the researcher for your community.

**JOINING OF YOUR OWN FREE WILL (VOLUNTEERING FOR THE STUDY):** Your participation is voluntary. You have the right to refuse to answer particular questions. This will not affect your payment.

If you have any questions, concerns, or complaints about your rights as a subject in a research project, please contact (anonymously, if you wish) the Social and Behavioral

Sciences Institutional Review Board, 515 Capen, University at Buffalo, Buffalo, NY 14260, or by phone (+1-716-645-6474) or Dr Tatiana Nikitina at the address given at the top of this document.



University at Buffalo  
SBSIRB #: 2838  
SBSIRB

Approved: 3/15/12  
Expires: none -exempt

UNIVERSITE DE BUFFALO, UNIVERSITE D'ÉTAT DE NEW YORK  
La langue et la cognition spatiale  
FICHE D'INFORMATION (VERSION FRANÇAISE)

**Pour questions, préoccupations ou plaintes sur la recherche, contactez** Dr Tatiana Nikitina, 5706 S. Blackstone Ave, Chicago IL 60637 USA Tel: Phone: +1-510-552-1840, email: tavnik@gmail.com.

Ce formulaire de consentement explique l'étude. S'il vous plaît lisez-le attentivement. Posez des questions sur tout ce que vous ne comprenez pas. Si vous n'avez pas de questions maintenant, vous pouvez les poser plus tard.

**OBJECTIF:** Vous êtes invités à participer à la recherche sur la façon dont votre langue exprime où les objets se trouvent et si cela a un effet sur votre mémoire pour l'emplacement des objets. Il s'agit d'une étude concernant des locuteurs de nombreuses langues différentes testé par différents chercheurs.

**PROCÉDURES:** On vous demandera à effectuer certaines actions, comme:

- produire un discours qui sera enregistré et / ou filmé
- aider à la transcription des enregistrements
- juger si certaines phrases dans votre langue sont bonnes ou pas et ce qu'elles signifient
- mémoriser l'emplacement des objets et montrer plus tard au chercheur où les objets étaient situés
- répondre à quelques questions concernant votre âge, éducation et les habitudes de lecture, d'écriture et de communication en langues autres que votre langue maternelle. Cette information sera conservée d'une manière qui ne révèle pas votre identité; elle est nécessaire pour l'analyse de l'influence des facteurs différents, comme l'âge et l'éducation, sur l'utilisation des langues et de la mémoire.

**DURATION:** Vous serez invité à participer à une ou plusieurs sessions. Chaque session ne durera plus que deux heures.

**RISQUES ET AVANTAGES:** Il n'y a pas de risques associés à cette étude. En contribuant à la connaissance scientifique de votre langue, vous pouvez contribuer à l'élaboration des matériaux pour l'enseignement de votre langue à l'école.

**CONFIDENTIALITÉ:** Dans toutes les données publiées et écrites résultant de l'étude, nous ne mentionnerons pas votre nom ou vos données personnelles, sauf si vous préférez que nous le fassions (nous pouvons vous remercier pour la participation). Votre discours peut être enregistré ou filmé et pourra être cité dans les publications scientifiques, mais ces citations seront faites de manière à ne pas révéler votre identité. Les travaux que le chercheur va faire avec vos réponses seront archivés à l'Université d'État de New York à Buffalo, Etats-Unis, aussi que, avec votre permission, à l'Institut Max Planck de Psycholinguistique. Les dossiers archivés de vos réponses seront effacés à tout moment à votre demande.

**PAIEMENT:** Vous recevrez le paiement pour chaque session à laquelle vous participez basé sur le tarif déterminé par le chercheur pour votre communauté.

**COLLABORATION AVEC CETTE ÉTUDE:** Vous pouvez décider librement si vous voulez ou ne voulez pas participer à cette étude. Vous avez le droit de refuser de répondre à des questions particulières. Cela n'affectera pas votre paiement.

Si vous avez des questions, des préoccupations ou des plaintes concernant vos droits comme un participant dans ce projet, contactez (d'une manière anonyme, si vous voulez) la Commission de Révision Institutionnelle pour les Sciences Sociales et Comportementales, 515 Capen, Université de Buffalo, Buffalo, NY 14260, ou par téléphone (+1-716-645-6474) ou Dr Tatiana Nikitina à l'adresse indiquée en haut de ce document.



University at Buffalo  
SBSIRB #: 2838  
SBSIRB

Approved: 3/15/12  
Expires: none -exempt

UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
Spatial language and cognition in Mesoamerica  
INFORMATION SHEET FOR JAPAN (ENGLISH VERSION)

**FOR QUESTIONS, CONCERNS OR COMPLAINTS ABOUT THE RESEARCH, CONTACT:**  
John Olstad, University of Newcastle, Callaghan, NSW 2308, Australia. Phone: +61 04 0148 0756, email: jtolstad@gmail.com.

This consent form explains the research study. Please read it carefully. Ask questions about anything you do not understand. If you do not have questions now, you may ask later.

**PURPOSE:** You are invited to participate in research on how your native language expresses where objects are located and on whether this has an impact on your memory for the location of objects. This is a study that involves speakers of many different languages tested by different researchers.

**PROCEDURES:** You may be asked to participate in a number of different roles:

- produce speech that will be audio- and/or video-recorded
- assist in the transcription of audio recordings
- judge whether certain phrases in your native language sound good or bad and what they mean
- commit the location of objects to memory and later show the researcher where you remember the objects to be located
- answer a few short questions about your age, education, and habits of reading and writing and of speaking languages other than your native language (this information will be stored in a manner that does not reveal your identity; it is needed to determine how age and education and so on influence language use and memory).

**TIME COMMITMENT:** You will be asked to participate in one or more sessions. Each session will take no more than two hours.

**RISKS AND BENEFITS:** There are no risks associated with this study. By contributing to the scientific knowledge of your native language, you may help improve materials for the teaching of your native language at school.

**CONFIDENTIALITY:** Your individual privacy will be maintained in all published and written data resulting from the study. Your speech may be audio or video recorded and may be quoted later in scientific publications; however, such quotes will be made in such a way as to not reveal your identity. The work that the researcher will do with your responses will be archived at the State University of New York at Buffalo, U.S.A. Also, with your permission, the recordings will be archived at the Max Planck Institute for Psycholinguistics in Nijmegen, Netherlands for the purpose of preserving a sample of your language for posterity. These archived records of your responses will be erased at your request at any point in time.

**PAYMENT:** You will receive payment for each session in which you participate based on a rate determined by the researcher for your community.

**JOINING OF YOUR OWN FREE WILL (VOLUNTEERING FOR THE STUDY):** Your participation is voluntary. You have the right to refuse to answer particular questions. This will not affect your payment.

If you have any questions, concerns or complaints or general questions about your rights as a subject in a research project, please contact (anonymously, if you wish) the Social and

Behavioral Sciences Institutional Review Board, 515 Capen, University at Buffalo, Buffalo, NY 14260, or by phone (+1-716-645-6474) or John Olstad at the address given at the top of this document.



University at Buffalo  
SBSIRB #: 2838  
SBSIRB

Approved: 3/15/12  
Expires: none -exempt



UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
中央アメリカにおける空間意識と言語認識  
INFORMATION SHEET (JAPANESE VERSION / 日本語のみ)

ご質問等（問題、文句）がございましたら以下の連絡先までお問い合わせください。

John Olstad  
University of Newcastle, Callaghan, NSW 2308, Australia.  
PHONE: +61 04 0148 0756  
E-MAIL: jtolstad@gmail.com

この書類は私達の実験の基本情報を説明するものですので注意してお読み下さい  
不明瞭な点などがございましたら日本語で結構ですので、上記までお気軽にお問い合わせ下さい

### 実験目的：

「ある特定の土地で生まれ育った人」が「その土地のネイティブの言葉（方言を含む）」を使って物の場所を表現する場合、その独特の言い回しや表現を使うことが、物の置かれている場所を記憶する能力に影響するか、を研究するサンプルを集めること

私達はこれらを空間意識や空間言語など呼びますが、沢山のサンプルを集め、この実験をより公平に遂行する為、そしてより正確な研究結果を抽出する為に、私達は様々な異なった言語を研究の対象とする必要があります。

### 実験方法：

#### ・スピーチの録音

ここではまず音源サンプルを作成する為にオーディオ、又はビデオによるレコーディングセッションに参加していただけます。（尚、材制限の為、音源は必ずしも明瞭に録音されません。録音された音源の聞き難い部分に対する説明をしていただく必要もございます。）

#### ・音源の言葉の意味を説明

——その言葉がの正確に発音されているか（滑舌／抑揚、等）を評すること

#### ・記憶力の実験

——ある物体の位置を記憶していただき、後程その場所を研究者に伝えていただく形を取ることになります。

#### ・アンケート調査

あなたの年齢、学歴や、母国語以外の文章を読み書きする時の癖について、簡単な質問に解答してください。（ここで回答した内容は個人情報として適切に扱われ、回答者の個人情報が公開されることはありません。年齢、学歴等が言語の使い方や記憶にどのように影響するかを検証するためです）

### 所要時間と形式：

二時間以内の対一のインタビュー形式となります。  
（ 場合により後日、また数回セッションを受けていただく必要もございます。）

### リスク：

本実験に参加するにあたり、実験参加者には何のリスクは生じないと予測しております。

### 個人情報の機密性：



本実験にご協力いただく参加者の個人情報の保護には細心の注意を払うことを約束します。実名は研究報告書には一切記載されません。また、年齢・性別・母国語を除く、個人を特定できるような情報も一切記載されません。

□ 録音された音声ファイルはバファロー大学のアーカイブに保管されますが、許可をいただける場合にはアメリカ大陸言語研究記録保管所、並びにマックスプランク Psycholinguistics 研究所（ナイメゲン、オランダ所在）にダビングしたものを保管させていただきます。

これらの記録は実験参加者の要請によりいつでも破棄することができます。

**謝礼：** セッション毎に謝礼をお支払いさせていただきます。

この実験は任意参加です。本研究の参加は、義務ではありません。また、いつでも、いかなる理由でも、罰則なしで協力を取りやめることができます。本研究に参加するにあたり、皆様には費用は一切、発生いたしません。

□ 研究者以外のご質問等（問題、文句、研究の参加者としての権利の基本的な質問）が匿名でもございましたら以下の連絡先までお問い合わせください。

Social and Behavioral Sciences Institutional Review Board, 515 Capen, University at Buffalo, Buffalo, NY 14260, e-mail [SBSIRB@research.buffalo.edu](mailto:SBSIRB@research.buffalo.edu), phone [716 / 645-6474](tel:716-645-6474).



University at Buffalo, New York

Thinking and talking about space

Information (Vietnamese language)

Jesse Lovegren, University at Buffalo

609 Baldy Hall, North Campus, Buffalo, NY 14260, USA

Điện thoại: 001 716 645 3794 Email: lovegren@buffalo.edu

I want to tell you about this project. If you do not understand something or if there is anything you would like to know about the project, please tell me.

The purpose of this project... I want to know how you use Vietnamese language to find things or to show somebody how to find something. I want to know if the language that you speak changes the way that you remember things. This project is studying many different languages.

What will I ask you to do?

-You will look at some pictures and things and you will explain what you have seen. When you are explaining, I will make a recording of you.

-You will help me when I am writing down things in Vietnamese.

-When I speak in Vietnamese, you will tell me whether I am speaking correctly.

-You will remember the place where something is sitting, and then you will show how it was sitting.

- You will answer these questions similar to these:

-How old are you?

-How many years of schooling do you have?

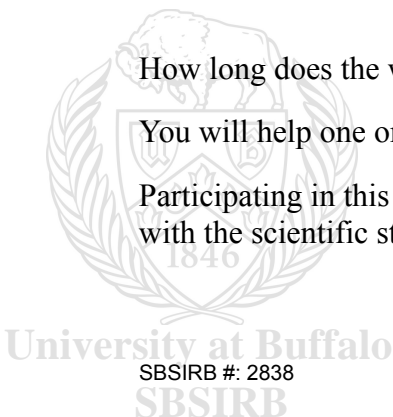
-Do you read and write?

-Do you know and use any languages other than Vietnamese?

How long does the work take?

You will help one or two times. Each time takes one or two hours.

Participating in this work has no risks or dangers. If you help with the project, you will help with the scientific study of the Vietnamese language.



Privacy: After I make the recording of you, I will keep the film at the University at Buffalo. If you decide that you would not like for me to have the recording of you, you can tell me and I will destroy it. When I prepare my report using the recordings, I will not include your name in the report. But if you want, I can also include your name in the report and thank you in the report.

If you have any question about this project, or if you want to complain about it, but you would not like to ask me or would not like to tell your name, you can ask:

Social and Behavioral Sciences Institutional Review Board,  
515 Capen Hall,  
University at Buffalo, The State University of New York,  
Buffalo, NY 14260, U.S.A.  
(or by phone +1-716-645-6474)



University at Buffalo  
SBSIRB #: 2838  
SBSIRB

Approved: 3/15/12  
Expires: none -exempt

## Trường đại học Buffalo, New York

“Nói về chỗ và nghề”

Tin tức (Tiếng Việt)

Jesse Lovegren, University at Buffalo

609 Baldy Hall, North Campus, Buffalo, NY 14260, USA

Điện thoại: 001 716 645 3794 Email: lovegren@buffalo.edu

Tôi mừng cho bạn biết về cái việc làm này. Nếu bạn không hiểu hay là muốn hỏi biết về cái việc làm này xin nói cho tôi biết.

**Cái việc làm này để cho...** Tôi mừng biết bạn sài tiếng Việt để kiếm đồ hay là giúp người ta kiếm đồ sao. Tôi mừng biết nếu cái tiếng nói của bạn giúp chỉ nhớ của bạn. Tôi đang học tìm hiểu về nếu tiếng nói các nhau.

### Tôi sẽ hỏi bạn làm gì?

- Bạn sẽ nhìn mãi tấm hình các nhau và bạn sẽ nói chuyện về tấm hình đó. Khi nào bạn đang nói chuyện Tôi sẽ quay phim.
- Bạn sẽ giúp tôi ghi xuống má cái chuyện đó.
- Khi tôi nói tiếng Việt, bạn sẽ cho tôi biết nếu tôi nói đúng.
- Bạn sẽ nhớ cái đồ ngòi ở đâu rồi bạn sẽ chỉ cho tôi biết.
- Bạn sẽ trả lời những câu hỏi giống này:
  - Tuổi bạn là gì?
  - Bạn có bao nhiêu năm trường học?
  - Bạn có đọc sách không? Bạn có viết thư không?
  - Bạn biết các ngôn ngữ khác tiếng Việt không?



**Việc nay bao lao?** Bạn sẽ giúp tôi một hay lần. Mỗi lần chỉ một hay tiếng.

Cái việc làm này không có qui hiếm. Nếu bạn giúp tôi, thì bạn cũng giúp học biết về tiếng Việt.

**Sự riêng tư:** Khi tôi quay phim xong, tôi sẽ giữ cái phim ở Trường đại học Buffalo. Nếu bạn không muốn tôi giữ cái phim này, xin cho tôi biết, tôi sẽ phá đi. Khi nào tôi làm báo cáo của tôi, tôi sẽ không sai tên của bạn. Nếu bạn muốn, tôi sẽ sai tên của bạn khi nào tôi làm báo cáo của tôi để cảm ơn bạn.

**Tiền làm:** Bạn sẽ giúp tôi tại gì bạn muốn giúp tôi. Để cảm ơn bạn tôi sẽ cho bạn một số tiền nhỏ.

**Thì giờ của bạn:** Bạn sẽ giúp tôi tại gì bạn muốn giúp tôi. Nếu tôi hỏi bạn cái gì, mà bạn không muốn nói, thì bạn không cần nói. Đừng có lo, tôi cũng sẽ cho bạn tiền.

Nếu bạn muốn hỏi về việc làm nay, hay là bạn muốn thưa với ai, mà bạn không muốn hỏi tôi, xin viết hay là gọi:

Social and Behavioral Sciences Institutional Review Board,  
515 Capen Hall,  
University at Buffalo, The State University of New York,  
Buffalo, NY 14260, U.S.A.

(or by phone +1-716-645-6474)



UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK  
SPATIAL LANGUAGE AND COGNITION BEYOND MESOAMERICA  
INFORMATION SHEET (ENGLISH VERSION)

**FOR QUESTIONS, CONCERNS OR COMPLAINTS ABOUT THE RESEARCH,  
CONTACT:**

Dr. Huichen Hsiao, Graduate Institute of Teaching Chinese as a Second Language,  
National Taiwan Normal University(NTNU),  
162, Heping East Road, Sec. 1, Taipei 106, Taiwan  
Phone: (+886)-2-7734-5190, Fax: (+886)-2 -2341-9746, email: [huichen.hsiao@ntnu.edu.tw](mailto:huichen.hsiao@ntnu.edu.tw)

This flier contains information about the research study. You are welcome to ask us about anything you do not understand. If questions occur to you later, feel free to ask them as well.

**PURPOSE:** This study is going to investigate how certain things are expressed in your language. For example, the way objects appear in a certain place. This study will also investigate whether the way of talking about it has an impact on how people remember the location of objects. Speakers and researchers of many different languages are going to participate in this study.

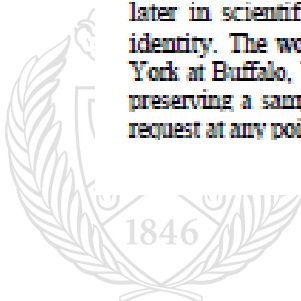
**PROCEDURES:** You may be asked to participate in a number of different roles:

- talk in your native language about pictures and images; what you say will be recorded in audio or video
- help in the transcription of audio recordings
- judge whether certain phrases in your native language sound good or bad and what they mean
- memorize where objects are located and later show it to the researcher
- answer a few short questions about your age, education, and habits of reading and writing and of speaking languages other than your native language (this information will be stored in a manner that does not reveal your identity; it is needed to determine how age and education and so on influence language use and memory).

**TIME COMMITMENT:** You will be asked to participate in one or more sessions. Each session will not take more than two hours.

**RISKS AND BENEFITS:** There are no risks associated with your participation in this study. By participating, you may contribute to the scientific knowledge of your language and thereby help in the development of materials for bilingual education in your language.

**CONFIDENTIALITY:** In the works that we write and publish about the results of this study, we will never mention your name or your community unless you prefer us to do so (we can thank you for your participation). In some cases, what you say will be audio- or video-recorded and it is possible that we cite it in scientific publications; please tell us whether you prefer us to thank you for your participation in name or whether you prefer us to keep you anonymous. Your individual privacy will be maintained in all published and written data resulting from the study. Your speech may be audio or video recorded and may be quoted later in scientific publications; however, such quotes will be made in such a way as to not reveal your identity. The work that the researcher will do with your responses will be archived at the State University of New York at Buffalo, U.S.A. Also, with your permission, the recordings will be archived at Max Planck for the purpose of preserving a sample of your language for posterity. These archived records of your responses will be erased at your request at any point in time.



**PAYMENT:** You will receive payment for each session in which you participate based on a rate determined by the researcher for your community.

**COLLABORATION WITH THIS STUDY:** You may decide freely whether you want to or do not want to participate in this study. You have the right to refuse to answer any question in particular. This will have no affect on whether or not you receive payment.

If you have any questions about your rights as a subject in a research project or questions, concerns, or complaints about the research, please contact (anonymously, if you wish) the

Social and Behavioral Sciences Institutional Review Board,  
515 Capen Hall,  
University at Buffalo, the State University of New York,  
Buffalo, NY 14260, U.S.A.  
e-mail [SBSIRB@research.buffalo.edu](mailto:SBSIRB@research.buffalo.edu)

(or by phone +1-716-645-6474) or Dr. Huichen Hsiao at the address given at the top of this document.





紐約州立大學 -- 水牛城分校  
語言空間及認知問卷:超越中美洲之研究  
基本資料(中文版)

**研究員聯絡方式:**

蕭惠貞博士, 國立臺灣師範大學華語文教學研究所  
106 台北市和平東路一段162號  
電話 (02)7734-5190, 傳真: (02)2341-9746  
電郵: [huichen.hsiao@ntnu.edu.tw](mailto:huichen.hsiao@ntnu.edu.tw)

這份宣傳單包含本研究相關資訊, 如遇任何疑問、顧慮或抱怨, 歡迎隨時提出。

**研究目的:** 本研究目的: 一: 調查您如何以母語表達特定事項, 如: 物體在某個方向的說法, 二: 調查不同說法是否影響人類記憶物體之地點, 許多來自各國語言之人士將參與本研究。

**研究程序:** 您會以下列方式參與本研究

- 描述您所看到的圖片或影像, 過程會以錄音或錄影方式進行
- 協助錄影之翻譯
- 判斷及解釋在你母語中某些用語之差異性
- 記憶並指認物體之地點
- 回答一些有關年齡、教育、和其他語言的閱讀、口說及寫作習慣(這項訊息將不會透露出你的身份; 而是用來決定年齡和教育等其他因素如何影響語言使用和記憶)

**時間:** 您會參與一至二項活動, 每項活動時間以兩小時為上限。

**風險及貢獻:** 參與本研究絕無任何風險, 您的參與將有助於提供該語言之科學實驗並做為未來雙語教材及教育之發展。

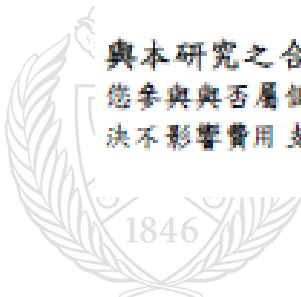
**保密性:**

本研究除當事人之要求, 決不提及參與者姓名。如遇錄音或錄影者, 亦必經當事人同意才得發表於相關科學報導; 如須引用當事人之說法, 亦以匿名處理。您參與之回答研究將歸檔於美國紐約州立大學水牛城分校, 錄音或錄影資料亦將徵得您同意後, 存放歐洲馬克士普朗克地研究中心檔案室, 做為日後相關語言之收藏範本。如遇特殊狀況, 相關檔案亦將依您之要求予以銷毀。

**費用:** 研究者將視當地情形, 針對每項活動, 決定費用支出。

**與本研究之合作:**

您參與與否屬個人自由, 途中如遇特殊問題、對這項研究有所顧慮或抱怨, 您可以拒絕回答, 決不影響費用支付。



受試者個人相關權益問題，請聯絡下址

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515 Capen 大樓,

美國紐約州立大學水牛城分校 (郵遞區號14260) ,

e-mail [SBSIRB@research.buffalo.edu](mailto:SBSIRB@research.buffalo.edu)

或是電話 (+1-716-645-6474) 或 蕭惠貞博士 (聯絡地址請見第一頁上方)。



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Expires: none -exempt

紐約州立大學--水牛城分校  
言語空間參認知問卷：超越中美洲的研究  
基本資料(台語)

研究員聯絡方式：

蕭惠貞博士 國立臺灣師範大學 華語文教學研究所  
106 台北市和平東路一段 162 號  
電話：(02)7734-5190，傳真：(02)2341-9746  
電郵：[huichen.hsiao@ntnu.edu.tw](mailto:huichen.hsiao@ntnu.edu.tw)

這份廣告單啊有多甲研究有關係的資料，那有問題、煩惱抑是萬嘆，歡迎隨時提出。

研究目標：這的研究目標的第一項：調查你按怎用你困仔的時陣學的話來表達一項代誌，親像：物件踎佗一的方向的講法，二：調查無全的講法是不是影響人咧記物件的所在，既會請各國講無全官語的人來參加這的研究。

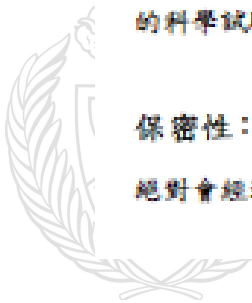
方法：你會使用這幾款方式來參加這的研究

- 講出你所看到的圖抑是影像，既會用錄音抑是錄影的方式進行
- 鬥相共錄影的翻譯
- 解釋抑是看一幕話的佗位無全
- 記起來和指出物件的所在
- 講出一幕話甲你的年歲、讀書的程度、嘎別種話的看書、講話、寫字的慣習(這的消息不會表示你是誰人；這是拿來決定年歲和讀書的程度的別款種種原因按怎影響語言使用和記憶)

時間：你會參加一項到兩項的活動，逐項活動的時間向濟無超過兩小時。

危險性參貢獻：參加本研究絕對無任何的危險性，日的主要是提供這的官語的科學試驗和將來做成兩種官語的課本、教育的發展。

保密性：本研究除非當事人的要求，絕對無講出名字。若是錄音抑是錄影的人，絕對會經過當事人的同意才會踎有關係的科學報導寫出來。若是欲用當事人的講



法，會用別人的名。你參加的回答研究會紀錄聽美國紐約州立大學水牛城分校，錄音抑是錄影的資料會經過你的同意才因聽歐洲馬克士普朗克地研究中心資料室，當作日後有關的言語收藏的副本。若有著特殊的情形，有關的資料會照你的要求來銷毀。

**費用**：研究員會依當時的所在，針對逐項活動，決定費用 愛德濟。

### 與本研究之合作：

參加研究是看個人的意願，過程當中若有著特殊的對這的研究有問題、煩惱抑是萬嘆，你會當面拒絕回答，每支出支之支影響費用的支出。

若是拿個人的權益有關的問題，請連絡紐約州立大學水牛城分校，社會學行為科學研究委員會，515 capen大樓，(郵遞區號14260)，  
e-mail [SBSIRB@research.buffalo.edu](mailto:SBSIRB@research.buffalo.edu)

抑或是電話 (+1-716-645-6474)

抑是蕭惠貞博士(連絡的住址，請參考第一頁的上款)

