Older and Miscellaneous Grants

Older grants from 2000 - 2018

Tackling Selection Bias in Sentence Data Analysis through Bayesian Statistics and Elicitation of Experts' Opinions

Awarding body: National Centre for Research Methods
Total value: £106,800 (LSE: £14,524)
Grant holder (LSE): Dr Sara Geneletti
Start/end date: 01/10/2017 - 31/12/2018

Summary: Statistical models are widely used to investigate how criminal offenders are sentenced in Courts of Law. Through these types of models much has been learnt regarding the functioning and fairness of the processes taking place within courts. However, the validity and reliability of the findings obtained have been limited as a result of the important compromises that researchers dealing with sentencing data have had to make. There are a vast array of sentence outcomes available to judges with which to punish offenders. Importantly, these punishments vary in nature and cannot be measured in a straightforward manner. As a result, most model-based studies have focused on the analysis of simpler sentence outcomes such as the probability of prison and/or the duration of custodial sentences. Focussing on these two specific outcomes involves a tremendous loss of information that reduces the model's capacity to grasp many of the nuances of the sentencing process while vastly limiting the generalisability of findings. For longer than four decades some of the best statisticians working on the field of Criminal Justice have sought to apply more sophisticated statistical models with which to expand the generalisability of findings based on custodial sentence lengths to the whole realm of sentencing. However, their efforts have been unsatisfactory. Although they manage to incorporate non-custodial outcomes into the model and with it improve the scope of their findings, they do so based on unrealistic assumptions – detailed in the case for support – that undermines the robustness of their approaches. We propose to use a new and more flexible statistical paradigm (based upon Bayesian inference) to develop a model where custodial and non-custodial outcomes could be integrated in a meaningful way. To do so we will rank sentence outcomes in terms of their relative severity, so custody being more severe than a suspended sentence, which in turns is more severe than a community order,

and that more severe than a fine. To refine this scale of sentence outcomes' severity, and given the deeply subjective nature of severity of punishments, the model will be further informed by personal views of Crown Court judges on the topic. The result of this work will be the elaboration of a new framework capable of obtaining more insightful and robust analyses of sentencing data. We will overcome a methodological conundrum that has affected the literature on the topic for far too long. Perhaps more importantly, the application of this new modelling strategy will allow academics and government researchers to provide higher quality information to policy-makers in the field of sentencing. A sector that is currently being reformed by government policy and through the application of sentencing guidelines both in England and Wales, and in Scotland.

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Combined efficient large scale integrated urban systems (CELSIUS)

Awarding body: European Commission FP7 (Smart Cities & Communities 2011 call)
Total value (LSE): €411,829
Grant holder (LSE): Professor Henry Wynn
Start/end date: 01/04/2013 - 31/03/2018

Summary: This multi-partner EU project, led by the City of Gothenburg, involves a number of leading utilities organizations as well as academic partners. It aims to maximise carbon savings in cities by maximizing the unused energy saving potential through tackling ways to effectively and efficiently recover energy losses.

http://www.lse.ac.uk/CATS/Research%20Grants/researchGrants.aspx
http://eu-smartcities.eu/content/celsius-smart-district-heating-and-cooling-solutions

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Legal norms and crime control: a comparative cross-national analysis

Awarding body: ESRC (Economic and Social Research Council)
Grant holder (LSE Statistics): Dr Jouni Kuha
Principal Investigator: Professor Jonathan Jackson (LSE, Department of Methodology)

Total value: £279,574 (Department of Statistics: £15,139)
Start/end date: 01/07/2014 - 30/06/2016

Summary: This is a comparative, cross-national study into attitudes towards legal authorities, compliance with the law, co-operation with legal authorities and the policing of minority and majority groups. The proposal is to address questions of deterrence, legitimacy, co-operation and compliance using a powerful new dataset that we have generated from national probability sample surveys of 30 different countries. The goal is to mount an ambitious cross-national empirical test of deterrence theory and procedural justice theory.

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Methods of analysis and inference for social survey data within the framework of latent variable modelling and pairwise likelihood

Awarding body: ESRC (Economic and Social Research Council)
Total value: £236,809
Grant holder: Dr Myrsini Katsikatsou (ESRC future research leaders fellowship)
Start/end date: 01/10/2014 - 30/09/2017

Summary: This project aims to contribute to methodological research and provide tools for latent variable modelling of social survey data. The methods will be applied to the analysis of data from the OECD Programme for the International Assessment of Adult Competencies (PIAAC) and from the European Social Survey (ESS). The goals of the methodological research are to evaluate, further develop and disseminate innovative statistical methods and practical tools for latent variable modelling of social data regardless of the model complexity and size, the data type and size, or the presence of item non-response (missingness in some survey questions). The research will develop pairwise likelihood (PL) methods of estimation and testing for latent variable modelling (LVM), also known as structural equation modelling (SEM). SEM and LVM are standard well-established tools for modelling social survey data. PL is an emerging method for estimation and inference that has recently become popular in many disciplines because of its computational simplicity and statistical merits.

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Using multi-level multi-source auxiliary data to investigate nonresponse bias in UK general social surveys

Awarding body: ESRC (Economics and Social Research Council)
Total value: £322,797 (LSE: £17,124)
Grant holder (LSE): Professor Chris Skinner
Start/end date: 31/08/2014 - 31/05/2016 (extended end date)
Project website

Summary: This project will explore the extent to which the predictive power of various forms of "Big Data" can be harnessed to overcome the impact of poor response to surveys - one of the major challenges facing social research today. Social surveys are a key tool used by the media, policy makers, and academics to understand more about public attitudes and behaviour. However, the value of surveys is put at risk by the fact that a large and growing number of those selected to take part in surveys do not respond. As non-respondents may be very different from respondents, nonresponse can introduce significant bias into the conclusions drawn from survey data. There is a pressing need therefore to understand more about the extent and sources of nonresponse bias. This requires having information about both respondents and nonrespondents. In the absence of interview data being available for non-respondents, this information must be obtained from other, external, sources.

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Modelling vast time series

Awarding body: EPSRC (Engineering and Physical Sciences Research Council)
Total value: £486,564
Grant holder: Professor Qiwei Yao
Start/end date: 30/03/2014 - 29/03/2017

Summary: The challenges of our project are two-fold: First we need to develop the statistical inference methods and the associated theory for identifying the sparse structure and for fitting sparse VAR models with large dimensions. Let p denote the dimension of the time series. We aim to reduce the number of model parameters

from the order of the square of p to the order of p, and to develop the valid inference methods when log(p)= o(n). Secondly, we need to identify the linear transformation to identify the latent segmentation structure, i.e. the block-diagonal autocovariance structure when such a structure exists.

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The regression discontinuity design: a novel approach to evaluating the effects of drugs and treatments in primary care

Awarding body: MRC (Medical Research Council)
Total value (LSE): £24,078
Grant holder (LSE): Dr Sara Geneletti
Start/end date: 02/09/2013 - 01/02/2016

Summary: A fundamental task in clinical practice is to determine whether a particular drug is being prescribed in the most effective way. While Randomised Clinical Trials (RCTs) are considered to be the best scientific method for evaluation of drug efficacy, these studies often have poor external validity. Prescription guidelines are not always evidence based and it typically falls to clinical experts to set them. The regression discontinuity design (RDD) is an econometric quasi-experimental design aimed at estimating the causal effects of a treatment by exploiting naturally occurring treatment rules. It was first introduced in the educational economics literature in the 1960s but it has not been widely used outside of this field until recently. This project has both substantive and methodological aims: the assessment of statin effectiveness in primary care and application and development of the RDD in epidemiology.

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Topics on probability and convexity in finance (PROCONFIN)

Awarding body: European Commission FP7: Marie Curie International Career Integration Grant (CIG)
Total value: €100,000
Grant holder (LSE): Dr Kostas Kardaras

Stat/end date: 01/08/2013 - 31/07/2017

Summary: While the field of Financial Mathematics has witnessed a plethora of major achievements, there is ever-present need for more in-depth resolution of important problems. This project aims at addressing a representative collection of three areas: (1) Financial equilibria with heterogeneous agents in incomplete markets; (2) Viability of financial models with investment constraints and infinite number of traded assets; and (3) Hedging under model uncertainty. All three directions are related to recent or current scrutinised study, stemming from a desire to improve the quality of financial modelling, to allow for imperfections appearing in real markets and seek to comprehend them, as well as to manipulate the risk involved with complicated financial positions by exploiting the structure of simpler traded assets. Especially the last point is of direct practical importance, since the field of Financial Mathematics has been criticised exactly for having failed to correctly appreciate the risks associated with the introduction of financial instruments of vast complexity, the incorrect valuation of which is a major factor that resulted in the recent economic crisis.

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Item nonresponse and measurement error in cross-national surveys: methods of data collection and analysis

Awarding body: NCRM (National Centre for Research Methods); ESRC (Economic and Social Research Council)
NCRM/ESRC grant # DU/512589106
Total value: £192,247
Grant holder (LSE): Dr Jouni Kuha
Start/end date: 01/04/2013 - 30/09/2014

Summary: Cross-national surveys are one of the key resources of social sciences. The complexity of the surveys raises methodological challenges, which need to be met in order to make the best use of the data. Two of these are problems of data quality: measurement error where the answers by survey respondents are in some way erroneous, and nonresponse where some questions are not answered at all. The goal of this project is to develop and evaluate research methods for these problems.

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Bayesian inference on implied volatility

Awarding body: EPSRC (Engineering and Physical Sciences Research Council)
EPSRC grant # EP/K001264/1
Total value: £129,460
Grant holder (LSE): Dr Kostas Kalogeropoulos
Start/end date: 01/02/2013 - 31/01/2015

Summary: A substantial amount of publicly available datasets represent educated predictions on the evaluation of stochastic processes. These include financial derivative instruments, such as option prices, that can be formulated as expectations of the underlying price process. This project consider models with latent diffusion processes that can be linked to direct observations, but also to such conditional expectations. The goal is to utilise advanced computational methods to estimate that data generating mechanism from both datasets; moreover, to develop a general inferential framework to handle parameter and model uncertainty.

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Advances in algebraic statistics

Awarding body: The Leverhulme Trust
Leverhulme Trust Emeritus Fellowship # EM-2011-046
Total value: £11,800
Grant holder (LSE): Professor Henry Wynn
Start/end date: 01/08/2011 - 30/09/2013

Summary: Algebraic statistics is a fast-moving area on the interface between statistics and computational algebraic geometry. The project will consolidate research in a number of sub-areas in which the grant holder is heavilty engaged in collaboration with research colleagues in Italy, Spain and Japan; for example, the application of the theory of monomial ideals in reliability, experimental design and hierarchical model structures.

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Evaluation of interventions and diagnostics of neglected tropical diseases in sub-Saharan Africa

Awarding body: MRC (Medical Research Council)
MRC grant # G0902130
Total value: £348,381 (LSE: £13,387)
Grant holder: Dr Artemis Koukounai (Imperial College)
Start/end date: 10/01/2011 - 31/08/2013

Summary: To use advanced biostatistical analysis to further understanding of the effect upon the prevalence and intensity of schistosomiasis and of the ocular bacteria causing trachoma, and the likelihood of their elimination, of interventions based on Mass Drug Administration (MDA), as well as to evaluate the performance of the diagnostic tools currently used for the Monitoring & Evaluation (M&E) of these two infections.

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High-Dimensional Time Series, Common Factors, and Nonstationarity

Awarding body: EPSRC (Engineering and Physical Sciences Research Council)
EPSRC grant # EP/H010408/1
Total value: £331,455
Grant holder (LSE): Professor Qiwei Yao
Start/end date: 01/06/2010 - 31/05/2013
Summary: http://stats.lse.ac.uk/q.yao/qyao.links/project/epsrc09.html

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Enhancing the use of information on survey data quality

Awarding body: ESRC (Economic and Social Research Council)
ESRC grant # ES/H004343/1
Total value: £256,091

Grant holder (LSE): Professor Chris Skinner
Start/end date: 01/10/2011 - 31/01/2013

Summary: The quality of data collected in surveys is subject to a wide range of threats in the modern world, including the public's declining willingness to take part at all. Yet sources of information about this quality are increasing, in particular as a by-product of the evolving technologies used in survey data collection. This fellowship investigates new ways of using this information to address a range of data quality issues which face social science researchers when analysing survey data. The research addresses methodological questions such as: is it possible to improve analysis by giving greater emphasis to parts of the data which are of higher relative quality and if so how?

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Latent variable modelling of categorical data: Tools of analysis for cross-national surveys

Awarding body: ESRC (Economic and Social Research Council)
ESRC grant # ES/H030796/1
Total value: £215,000
Grant holder (LSE): Dr Jouni Kuha
Start/end date: 01/04/2010 - 30/09/2012

Summary: To develop and encourage the use of particular statistical tools that will lead to better utilization of data collection of cross-national social surveys, more valid conclusions, and more relevant input into social science and public policy making.
Research project website.

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End-to-End Quantification of Uncertainty for Impacts Prediction (EQUIP)
Awarding body: NERC (Natural Environment Research Council)
NERC grant # NE/H003479/1
Total value: £185,630
Grant holder (LSE): Professor Leonard Smith

Start/end date: 01/10/2009 - 30/09/2012
Summary: EQUIP brings together the UK climate modelling, statistical modelling and impacts communities to work closely together for the first time on developing rik-based prediction for decision making in the face of climate variability and change.

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RAPID-RAPIT
Awarding body: NERC (Natural Environment Research Council)
NERC grant # NE/G015392/1
Total value: £67,116
Grant holder (LSE): Dr David Stainforth
Start/end date: 01/10/2009 - 30/09/2013
Summary: A NERC funded collaborative project led by the National Oceanography Centre, Southampton, that will attempt to quantify the likelihood of a shut down in the Meridional Overturning Circulation (MOC) in the North Atlantic.

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Dimension reduction with factor models: with application to finance
Awarding body: STICERD (Suntory and Toyota International Centres for Economic and Related Disciplines)
Total value: £20,000
Grant holder (LSE): Dr Clifford Lam
Start/end date: 01 April 2009 - 31 July 2010
Summary: Applying the factor model, and possible relaxation and further regularisations, to reduce the dimension of multivariate time series, with applications in finance.

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Climate Change and the Insurance Industry
Awarding body: EC FP-7
EC grant # FP7-PEOPLE-3-1-IAPP
EC FP7 People 'Industry and Academia Partnerships and Pathways' scheme
Total value: 927,974 Euros LSE budget: 294,883 Euros
Grant holder (LSE): Professor Henry Wynn
Start/end date: August 2008- July 2012

Summary: To develop methods to assess uncertainty in large scale mathematical models in a variety of scientific areas, particularly those models in computer simulators.

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Managing Uncertainty in Complex Models (MUCM)
(Consortium project with Universities of Sheffield, Durham, Aston, Southampton and LSE).
Awarding body: EPSRC
EPSRC grant # EP/D048893/1
Total value: £2,167,671 LSE budget: £295,210
Grant holder (LSE): Professor Henry Wynn
Start/end date: 01/06/2006 - 31/05/2010
Summary: a multidisciplinary project concerned with quantifying and reducing uncertainty in the predictions of complex models across a wide range of application areas, including basic science, environmental science, engineering, technology, biosciences, and economics.

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Ensemble-based Predictions of Climate Changes and their Impacts (ENSEMBLES)
Awarding body: EU 6th framework programme / Integrated project
Grant #: GOCE-CT-2003-505539-ENSEMBLES
Total value: LSE CATS budget is £108,306
Grant holder: Professor Leonard Smith
Start/end date: 01/09/2004 - 31/12/2009
Summary: To develop an ensemble prediction system of climate changes and their impacts.

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Valuation and Hedging of Life Insurance Derivatives
Awarding body: EPSRC
EPSRC first grant scheme # EP/E013120/1
Total value: £161,635
Grant holder (LSE): Dr Thorsten Rheinlander

Start/end date: 29/06/2007 - 28/09/2009
Summary: Valuation and hedging of general insurance contracts and their embedded financial options. Exploring the transfer of systematic mortality risk to the financial market via the design of mortality derivatives and the study of their risk management.

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Dimension Reduction Modelling
Awarding body: EPSRC
EPSRC grant #: EP/C549058/1
Total value: £167,573
Grant holder: Professor Howell Tong, Professor Qiwei Yao, Dr Jeremy Penzer
Start/end date: 01/10/2005 - 30/09/2008
Summary: Dimension reduction for multivariate time series: modelling and first and second conditional moments.

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Nonlinear Analysis & Prediction Statistics from Timeseries & Ensemble-forecast Realizations (NAPSTER)
Awarding body: NERC
NERC grant #: NE/D00120X/1
Total value: £152,481
Grant holder: Professor Leonard Smith
Start/end date: 01/11/2005 - 31/10/2007
Summary: To set a basis for an innovative knowledge transfer mechanism between science base and users of the environmental predictions.

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Micro-scale Robust Engineering Design (m-RED)
Awarding body: EPSRC
EPSRC grant #: GR/S63502/01
Total value: £144,633
Grant holder: Professor Henry Wynn, Dr Ron Bates

Start/end date: 01/04/2004 - 31/03/2007
Summary: To study micro-scale systems and components.

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Holistic Integrated Process Control (HIPCON)
Awarding body: European Commission
Grant #: NMP2-CT-20030505467
Total value: £346,667
Grant holder: Professor Henry Wynn
Start/end date: 01/01/2004 - 31/12/2006

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Volatility of Time Series
Awarding body: EPSRC
EPSRC grant #: GR/R97436/01
Total value: £154,142
Grant holder: Professor Qiwei Yao
Start/end date: 28/06/2003 - 31/08/2006
Summary: The study of statistical inference for volatility of time series.

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Climate Variability
Awarding body: University of California, San Diego
Grant #: 10255373
Total value: £16,026
Grant holder: Professor Leonard Smith
Start/end date: 01/11/2005 - 30/06/2006
Summary: Ensemble simulations of observed climate variability.

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Weather Risk Management
Awarding body: University Corporation for Atmospheric Research (UCAR)
UCAR grant #: S05-54803
Total value: £10,526

Grant holder: Professor Leonard Smith
Start/end date: 16/05/2005 - 15/04/2006
Summary: Improving operational weather risk management, demand forecasts and the use of joint distributions.

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Spatial and Spatio-temporal modelling
Awarding body: The Leverhulme Trust
Grant #: F/07004/O
Total value: £127,823
Grant holder: Professor Qiwei Yao
Start/end date: 01/10/2002 - 31/01/2006

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Overseas Travel grant: To measure the risk and uncertainty at the interface of insurance and finance
Awarding body: EPSRC
EPSRC grant #: GR/T23879/01
Total value: £8,590
Grant holder: Dr Pauline Barrieu
Start/end date: 01/07/2004 - 30/09/2005

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Direct & Inverse Modelling in End-to-End Environmental Estimation (DIME)
Smith Institute Faraday Partnership
Awarding body: EPSRC
EPSRC grant #: GR/R92363/01
Total value: £94,360
Grant holder: Professor Leonard Smith
Start/end date: 01/03/2003 - 31/08/2005
Summary: To track uncertainty, both from model inadequacy and from the unknown initial state of the atmosphere, all the way through the modelling process, to yield estimates of the uncertainty in quantities of industrial interest.

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Real-time Modelling of Nonlinear Datastreams (REMIND)
Awarding body: EPSRC
EPSRC grant #: GR/R92271/01
Total value: £85,827
Grant holder: Professor Leonard Smith
Start/end date: 01/03/2003 - 28/02/2005

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Credit Risk Modelling (Levy processes for credit risk modelling and pricing)
Awarding body: Credit Suisse First Boston Europe Ltd.
Total value: £18,000
Grant holder: Professor Henry Wynn, Dr Rafael Schmidt
Start/end date: 13/12/2004 - 28/02/2005

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Towards identifying and increasing the Socio-Economic Value of High-Impact Weather Forecasts
Awarding body: National Oceanic & Atmospheric Administration (NOAA)
(See also UCAR grant above)
NOAA grant #: Lenny Smith - NOAA
Total value: £94,538
Grant holder: Professor Leonard Smith
Start/end date: 01/10/2003 - 30/09/2004
Summary: To support a Pembroke research fellowship in applied probabilistic meteorology.

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Improved Risk Management via Probabilistic Weather Forecasts
Awarding body: Royal Dutch Shell
Total value: £21,873
Grant holder: Professor Leonard Smith
Start/end date: 01/06/2002 - 01/01/2004

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Nonlinear time series modelling of periodically fluctuating vertebrate population: a spatio-temporal approach
Awarding body: BBSRC/EPSRC
Total value: £113,772
Grant holder: Professor Howell Tong, NC Stenseth & Professor Qiwei Yao
Start/end date: 01/01/2000 - 31/01/2002

Miscellaneous Grants

Professor Pauline Barrieu
Awarded £6,000 for a six-month visit by Dr Giacomo Sandolo from the University of Verona. STICERD visitors' programme. (2013)

Dr Angelos Dassios
Awarded £11,000 from the Leverhulme Trust for 7-month period visiting universities in the US (2003/4).

Professor Ragnar Norberg
Mathematical Finance Network, Grant No. 9800335 from the Danish Social Science Research Council.

Dr Jeremy Penzer
ESRC 1+3 recognition for MSc and PhD programmes in the Department of Statistics, LSE. Recognition awarded 2001.

Professor Leonard Smith
2002 EC Marie Curie Postdoctoral Fellowship, held by Dr. Antjie Weisheimer, to work within the Centre for the Analysis of Time Series at LSE on the predictability in large climate models with LAS.