

A6.1 – Project Summary

Humanities and Social Sciences/RCLT

Aikhenvald:

A fundamental question in understanding language dynamics is which grammatical categories are most and which are least likely to be borrowed in varying situations of contact. A shared feature may be based on common linguistic origin, or result from geographic proximity and borrowing. From in-depth analysis of diffusion of several grammatical categories, we investigate how these factors interact. We focus on Amazonian, Australian and other languages little studied from this perspective. The project has far reaching implications for understanding mechanisms of human interaction, cross-cultural communication and cognition, and offers innovative methodology for developing and maintaining databases of genetic and areal relationships.

De Vaux

Lone person households are increasing at a faster rate than any other household type in Australia and most western countries. Despite this, little is known about who lives alone, why this growth is happening, its meaning, its relation to life stage, and its consequences for individual well being and social cohesion. This three stage project will address these gaps by analysing existing quantitative data (stage 1), conducting qualitative case studies (stage 2) and collecting new survey data (stage 3). The results will shed light on the extent to which the rise in living alone reflects increasing social isolation or whether it represents changing ways of forming social ties that are independent of family life and living with others.

Wright

This project will be the first systematic study of the role of women in an iconic event in Australian history – the Eureka Stockade. The research will challenge the prevailing representation of Eureka as a hyper-masculine episode – male passions inflamed, male blood shed, manhood suffrage won – by providing a unique gender perspective to a familiar narrative. My hypothesis is that women were intimately and inextricably involved in the events at Eureka, as they were more generally in the political and cultural life of the Victorian goldfields. The research findings will contribute to ongoing debate about the meaning of the Eureka story for Australian identity, citizenship and democracy.

Science, Technology and Engineering

Hoogenraad

Mitochondrial biogenesis is tightly regulated in response to many factors such as dietary intake, hormones, alterations in temperature and ageing. We aim to investigate mechanisms which control mitochondrial biogenesis using a combination of molecular biological approaches to study gene regulation and global approaches utilizing a large data set of genes encoding mitochondrial proteins to identify patterns of DNA regulatory elements in promoters of genes encoding mitochondrial proteins. This approach is designed to discover patterns of gene regulation that may help us to understand important questions relating to the normal and defective functioning of mitochondria.

Seviour

Removal of phosphorus (P) from wastewater is essential to prevent formation of toxic ‘algal’ blooms in rivers and lakes, which severely limit their recreational and reuse value. All current biological wastewater treatment plants rely on cycling the biomass through anaerobic and aerobic zones to favor and select the microbial communities removing P. This project will evaluate and develop a P removal process which is aerobic, with potential to be installed as an add-on unit to

conventional plants to produce more cheaply an effluent, containing <0.1mg/l P. The treated water will be environmentally safer.

Health Sciences

Wertheim

Pregnancy is a time of rapid body change during which women must re-evaluate their body size continually. This research project has three aims: (1) to examine body image changes in women as they progress through pregnancy and the postpartum; (2) to develop and evaluate a theoretical model of factors predicting and resulting from body image concerns; and (3) to improve upon existing risk models for the prediction of postnatal depression. Our findings will inform theory in the field of body image and will have implications for the clinical practice relating to the negative sequelae associated with pregnancy. This study will also refine previous research on risk factors for post-natal depression.

A6.2 Summary of National and Community Benefit (for publicity purposes)

Humanities & Social Sciences

De Vaux

This study investigates one aspect of the changing nature of Australia's social fabric. It asks whether the sharp rise in living alone reflects a breakdown in Australia's social fabric or simply marks a change in the way the fabric is woven. Living alone has important implications for social policy, service provision, and housing. But before these implications are identified we need a much better understanding of who lives alone and what living alone means for people in terms of their social ties. By understanding the causes and consequences of the increasing popularity of living alone the study will help identify those who are 'at risk' and thus assist with effective targeting of supports and interventions.

Lee

As Australia considers its role in the Pacific it is imperative to understand the changing transnational ties of Pacific Islanders. A decline in ties such as remittances will have far-reaching implications for vulnerable Island economies and societies, and this study of 'second generation' Tongans will assess the extent to which transnational ties are likely to persist. Australia is Tonga's primary provider of development cooperation, and a decline in these ties will impact on this relationship. The project will contribute to planning for Australia's future relationship with Tonga and the Pacific region in areas such as aid, migration and security.

Health Science

Flood

Young people face a disproportionate burden of Australia's sexual and reproductive health problems. Young heterosexual men's sexual behaviour places both themselves and women at risk, as a wealth of quantitative data has documented. Yet we know little about how young heterosexual men themselves understand their sexual and social relations with women, nor about the social factors shaping such involvements. In providing such data, this project will enrich the effective promotion of sexual and reproductive health, particularly among Australia's youth. This research will make a significant contribution to the booming international scholarship on men's sexual and reproductive health, and will complement similar studies in the US and UK.

Science, Technology and Engineering

Hoogenraad

This project brings together two disciplines, biochemistry and computer science, that have a great potential synergy in the nascent field of bioinformatics. It will provide an excellent training ground for research students who will develop a set of unique and valuable skills. It will also provide information on the process of ageing as this process is associated with a loss in bioenergetic function, and other conditions such as diabetes, obesity, and cardiovascular disease in which mitochondrial oxidative metabolism is implicated.

Seviour

Australia is a water limited continent, and its rivers and lakes are priceless assets, but because of climatic conditions, these are especially sensitive to blooms of 'blue green algae'. Some are highly toxic, and water containing them is unsuitable for most purposes. Current technology for P removal requires constructing complex plant configurations, and most of these operate unpredictably and unreliably. This project will develop and fully evaluate a revolutionarily different alternative with a fully aerobic system, capable of being added onto the end of a conventional treatment plant, making protection of rivers and streams simpler and more feasible.