



New Zealand Association for Behaviour Analysis

9th annual Conference

1st-2nd September, 2012
At Victoria University of
Wellington

<http://nzaba.org/>



Welcome

Welcome to Victoria University of Wellington for the 9th Annual Conference of the New Zealand Association for Behaviour Analysis (<http://nzaba.org/>). We hope you enjoy the conference and your time in Wellington

Venue

The conference will be held in Hugh Mackenzie 002 on Saturday and EA206 on Sunday. See next page for a campus map. We apologise for the building work that will be underway on campus during the conference and for the change in rooms across days. The room change is to ensure the quietest, most convenient venue possible. Lunches will always be in Easterfield room 526.

You can park in the staff car park (also indicated on the map) on Saturday and Sunday. If you park on the street, take note of the parking restriction signs; time limits are enforced on the weekend in Wellington and you may get a parking ticket if you overstay the posted limits.

Registration

The registration desk will be open at 8:00am on Saturday and Sunday outside the room in which the conference is being held. The cost of registration is \$130 for the waged and free for students.

Instructions to Presenters

Paper Presentations: Each talk slot is 20 minutes so aim to present for 15 minutes and leave 5 minutes for questions. All presenters are asked to upload their talk to the computer prior to their session.

Poster Presentations: The posters need to be mounted on the walls in the lunch room (EA 526) before lunch on Saturday. Poster presenters should be available during lunch on Saturday to answer questions about their posters.

Lunches

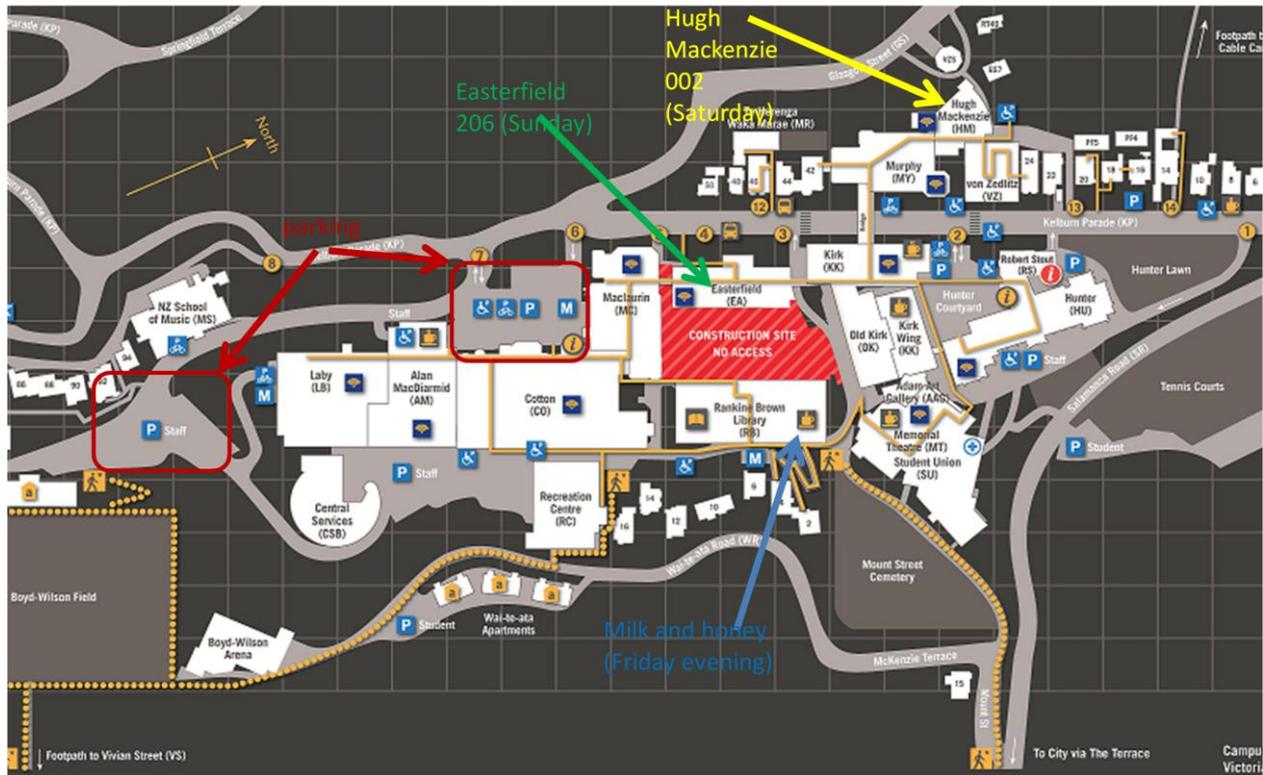
Lunches will be served in Easterfield room 526 each day. To get to room EA526, take the Easterfield building lifts up to the 5th floor and turn right into the hallway. Vegetarian and gluten-free options will be available.

Friday Night Social Drinks and Nibbles

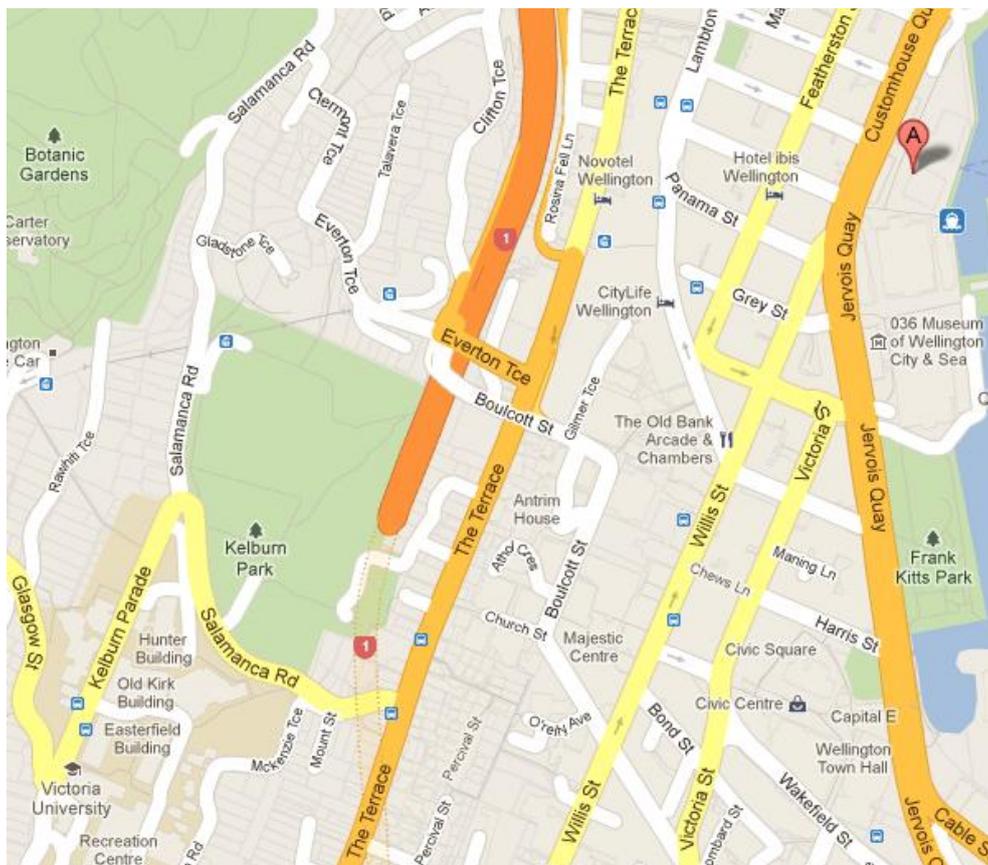
If you arrive in Wellington on Friday night, please come and meet other conference attendees at Milk and Honey on the Victoria campus (see map next page).

Conference Dinner

The conference dinner will be held on Saturday night (September 1st) at One Red Dog Restaurant (<http://www.onereddog.co.nz>) on Queens Wharf on the Wellington waterfront. See the map later in this programme. The reservation is for 7:00 pm so please try to make your way there before 7:00. The cost is \$30 per head for a fixed menu dinner. If you wish to pay cash, you can do so either at the conference registration desk or at the restaurant. If you wish to use another form of payment you can do so at the restaurant. Please note that the cost of drinks is the responsibility of individual diners.



<http://www.victoria.ac.nz/home/about/maps/publications/kelburn-campus-map.pdf>



A indicates the restaurant location.
 Victoria University is at the bottom left of the map.

Programme Overview: Friday and Saturday

FRIDAY	Friday night social drinks and nibbles: From 6pm at <i>Milk and Honey</i> cafe, on the Victoria University campus	
SATURDAY	VENUE: Hugh Mackenzie 002	
8:00	Registration and Coffee	
Saturday Session 1. Chair: Dave Harper		
9:00	T. Mary Foster	Some effects of signalled delays to reinforcement of performance under FR schedules.
9:20	Amy Odum	Delay discounting and impulsivity
9:40	Lewis Bizo	Response resurgence in the peak procedure
10:00	Joana Arantes	The effect of interpersonal attraction on time perception
Morning Tea and posters		
Saturday Session 2: Chair: Randy Grace		
10:50	Rebecca Sharp	How representativeness is affected by temporal dimensions of responding
11:10	Amanda Calder	Consolidation in short-term remembering
11:30	Jessica Millar	The differential outcomes effect enhances remembering but may not be resistant to interference.
11:50	Geoff White	A delay-specific differential outcomes effect in remembering
Lunch (in Easterfield 526)		
Saturday Session 3. Chair James McEwan		
1:10	James Fleet	Context blocking, response rates, and resistance to change
1:30	John Bai	Does training reinforcement rate affect resistance to extinction in combined stimulus contexts?
1:50	Jonas Chan	Resistance to change in combined versus separate stimulus contexts
2:10	Paulinha Magalhaes	The effect of prior investment on choice
2:30	Clare Browne	The impact of delayed reinforcement on learning in dogs
Afternoon tea and posters		
Saturday Session 4. Chair: Anne Macaskill		
3:20	Ludmila Miranda	Reinforcers as signalling events: Brief unsignaled changes in food ratios
3:40	Sarah Cowie	Simplifying the contingency: reminder stimuli enhance control by local food ratios
4:00	Randy Grace	Reinforcer probability and choice
4:20	Maree Cotton	Catania's concept of the operant
AGM		
Conference Dinner: 7pm at One Red Dog, Queens Wharf (\$30)		

Programme Overview: Sunday

SUNDAY	VENUE: Easterfield 206	
8:00	Registration and Coffee	
Sunday Session 1. Chair: Chris Podlesnik		
9:00	Denys Brand	Markov chain analyses of teaching children with autism.
9:20	Stephen Provost	The relationship between bilingualism, English fluency and competence, and stimulus equivalence
9:40	Dianna Yip	Respect. Listen. Learn. A Culturally Sensitive Approach to Support Families using ABA
10:00	Doug Elliffe	New Caledonian crows and the Aesop's Fable task: Control by functional but not by arbitrary environmental relations
Morning Tea		
Sunday Session 2. Chair: Celia Lie		
10:50	Kathleen Doolan	Reinforced variability and sequence learning in hens, possums and humans.
11:10	Xiuyan Kong	Examining the effect of reinforcement on behaviour variability over multiple dimensions in humans
11:30	Leanne Neshausen	Effects of schedules of reinforcement on the variability of location
11:50	David Harper	Dose matters: The effects of different doses of MDMA on drug discrimination performance.
Lunch (in Easterfield 526)		
Sunday Session3. Chair: Danna Challies		
1:10	Dianna Yip	The use of PBS for diminishing problematic behaviour and increasing positive behaviour
1:30	Surrey Jackson	Motivating operations and animal welfare
1:50	Cara Selway	An evaluation of the effects of response interruption redirection and matched Stimulation on vocal stereotypy
2:10	Gordon Tan	The effect of relational training on slot machine play: Walking the walk as opposed to just talking the talk
2:30	Anne Macaskill	The effect of unit price on accumulation of video clip reinforcers in humans
Afternoon tea		
Sunday Session 4. Chair: Maree Hunt		
3:10	Celia Lie	Decision making in a three choice game
3:30	Joshua Bensemann	Four alternative choice and the constant-ratio rule.
Farewell and Awards		

Complete Programme

Paper presentations

Saturday Session 1. Chair: Dave Harper			
9:00	T. Mary Foster, Aimee Harris & Joshua Levine	Waikato	Some effects of signalled delays to reinforcement on performance under FR schedules.
<p>Multiple fixed-ratio fixed-ratio schedules with equal fixed ratios were used with hens. One component provided immediate reinforcement and the other provided reinforcement after a delay, signaled by the offset of the key light. The components were presented quasi-randomly so that all four possible transitions occurred in each session. Both the delay and the fixed-ratio were varied. Both delay duration and fixed ratio value affected between-ratio pauses. Pauses were longer when the multiple-schedule stimulus correlated with a delayed-reinforcer component was presented, with the longest pauses occurring at the transition from a component with an immediate reinforcer to one with a delayed reinforcer. Pause durations were shortest during immediate components. Overall, both the presence or absence of a delay in the upcoming component and the presence or absence of a delay in the preceding component affected pause length but the upcoming delay had the larger effect. Changes in delay had similar effects on between-ratio pauses to changes in response force, response requirement, and reinforcer magnitude in these schedules. Running-response rates decreased with increasing fixed ratio value, but were but not affected consistently by delay duration or the component type. Under fixed ratio schedules with one schedule is in effect for the whole session and both the fixed-ratio value and the signaled delay to reinforcer duration varied over conditions, between-ratio pauses did not change as consistently as they did in the multiple schedules. Pauses tended to increase with fixed-ratio value and, to some extent, with delay duration. Running-response rates tended to decrease with increasing fixed-ratio value but did not change consistently with delay, and thus the changes were similar to those seen in the multiple schedules,</p>			
9:20	Amy Odum	Utah State	Delay discounting and impulsivity
<p>Impulsivity manifests itself in a variety of ways. In the ubiquitous process known as delay discounting, rewards that are remote in time hold less value than relatively immediate ones. Thus, we may behave impulsively, and come to regret our choices, when we forgo larger later rewards for smaller sooner rewards. Several related quantitative models of choice describe this process. The nature of the reward as well as the person considering the choices has a profound influence on the degree of discounting observed. I will provide empirical examples of these aspects of delay discounting as well as give an idea of some current puzzles in literature.</p>			
9:40	Lewis Bizo, Rachael Lockhart, Mark McHugh, T. Mary Foster & James McEwan	Waikato	Response resurgence in the peak procedure
<p>In separate experiments the timing abilities of brushtail possums and domestic hens on the peak procedure was investigated. This procedure involved animals responding on two trial types within an experimental session. On some trials responding was reinforced according to a Fixed Interval (FI) schedule, and on other trials, Peak Interval (PI) trials responding was not reinforced with food. Possums lever pressed and hens key pecked for food reinforcers on different FI schedules, and the duration of the PI was varied across a range. For 20% of trials, responding was not reinforced longer than the FI schedule that was in effect on the other 80% of trials when responding was reinforced. Response rates typically increased to a maximum at about the time the responses were normally reinforced and then decreased after the time that food would normally be reinforced, before increasing again towards the end of the PI regardless of the duration of the PI trial. When relative response rates were plotted as a function of relative time the function typically superposed for the ascending, but not descending portions of the function. The results are discussed in terms of Weber's law, and various quantitative models timing.</p>			
10:00	Joana Arantes, Mark Berg, Pedro Albuquerque & John Wearden	Canterbury & Keele	The effect of interpersonal attraction on time perception
<p>What happens when we unexpectedly see an attractive, opposite-sex person? Does our perception of time change? In our experiment, female participants viewed sequences of five stimuli of identical duration in which the first four were neutral and the fifth was either the same neutral stimulus (control trials), or a photo of an attractive or unattractive male or female (test trials). After each sequence, participants had to reproduce the duration of the</p>			

fifth stimulus by pressing down the mouse button. Results confirmed our prediction that duration estimates of attractive male photos were significantly longer than corresponding estimates for unattractive male photos, while there was no significant difference in estimated duration for attractive and unattractive female photos. Our data show for the first time that unexpectedly viewing an attractive male can affect time perception in females.

Morning Tea and posters

Saturday Session 2: Chair: Randy Grace

10:50	Rebecca Sharp, Oliver Mudford & Doug Elliffe	Auckland	How representativeness is affected by temporal dimensions of responding
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Temporal dimensions of responding, such as duration, have been demonstrated to affect the representativeness of observation samples. For example, Mudford, Beale and Singh (1990) found that although there was an increase in error with decreased sample length for all behaviours, samples of low-duration behaviours were less representative than samples of high-duration behaviours. In the current study, direct observations of behaviours of different duration were conducted across a full week in a school for children with special needs. Formulae from work sampling methods (a time and motion approach to determining how people spend their time) were used to determine the number of observations required for a representative sample. The effect of different durations on the number of observations required and the effect of different schedules of observations will be presented. The utility of work sampling methods in behaviour analysis will also be discussed.

11:10	Amanda Calder & Geoff White	Otago	Consolidation in short-term remembering
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It has been argued that forgetting is caused by consolidation failure (Wixted, 2004). Consolidation failure is due to interference occurring before enough time has passed for the memories to become resistant, i.e. consolidate. Previous studies with humans and non-human animals have reported evidence for consolidation only with intermediate or long-term memory. The present study examines whether consolidation can be demonstrated in short-term memory. In a short-term memory task human participants were more accurate when interference occurred at the end of the retention interval than when interference occurred early in the retention interval. That is, consolidation was evident in human short-term memory. In an analogous task for pigeons, delayed matching to sample accuracy was reduced when interference (house-light illuminated) was interpolated in the retention interval. Unlike the human task however, accuracy was not greater when the house-light was illuminated at the end of the retention interval compared to when it was illuminated at the beginning. That is, we have not found evidence for consolidation in short-term memory for pigeons

11:30	Jessica Millar & Geoff White	Otago	The differential outcomes effect enhances remembering but may not be resistant to interference.
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Remembering is more accurate when correct responses have different outcomes. The effect is most obvious at longer retention intervals. We report a differential outcomes effect for pigeons in a delayed matching-to-sample task where correct responses were followed by different outcomes (4-s versus 1-s reinforcer durations following correct red versus green choices) compared to a condition where reinforcer durations following correct choices were the same (both 3 s). We asked whether the differential outcomes effect is influenced by an interfering task during the retention interval. The task in our study involved variable-interval reinforcement of pecks to the center key, during the retention intervals which varied from .2 sec to 12 sec within sessions. The interfering task reduced memory accuracy at long delays in same-outcomes conditions. The question of interest was whether it reduced accuracy in the different-outcomes conditions with the effect of reducing or eliminating the differential outcomes effect.

11:50	Geoff White	Otago	A delay-specific differential outcomes effect in remembering
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Remembering over short times is best studied in the delayed matching-to-sample procedure because the two-alternative choice requirement is amenable to a detection analysis. The procedure is a conditional discrimination in which a successive discrimination between the stimuli to be remembered is combined with the simultaneous discrimination between the choice stimuli. A third element, however, has been somewhat neglected although it is the hallmark of a memory procedure – the retention or delay interval. In the present paper, several experiments are described which confirm the importance of the retention interval as a conditional cue. That is, remembering can be delay-specific. These include some new data which suggest that the differential outcomes effect can also be

delay-specific. The differential-outcomes effect is manifest as enhanced discriminability at long delays when choice responses are followed by different outcomes such as small versus large rewards. A delay-specific differential-outcomes effect challenges current theories based on the notion of expectancy.

Lunch (in Easterfield 526)

Saturday Session 3. Chair James McEwan

1:10	James Fleet & Christopher Podlesnik	Auckland	Context blocking, response rates, and resistance to change
Introducing response-independent reinforcement to a stimulus context decreases response rates but increases resistance to disruption. A stimulus change preceding response-independent reinforcement reduces this effect on response rates, however, the effect on resistance to disruption is unknown. We presented pigeons with a multiple schedule, where response-dependent and –independent reinforcement was presented in two components. In one component, a stimulus preceded response-independent reinforcers. Response rates in the component with the stimulus change increased with longer stimuli, but resistance to intercomponent food and extinction decreased. These findings are consistent with the stimuli blocking the added reinforcers from the discriminative context.			
1:30	John Bai, Doug Elliffe & Christopher Podlesnik	Auckland	Does training reinforcement rate affect resistance to extinction in combined stimulus contexts?
Reinforcing an alternative response in the same stimulus context as target responding increases the persistence of target responding in extinction. Conversely, combining a separately trained alternative response with the target stimulus during extinction decreases the persistence of target responding. We examined these effects further by combining a stimulus associated with alternative responses to target responding maintained in a richer (120 reinforcers/hr) and leaner (24 reinforcers/hr) stimulus context. Target responding in the richer context was less disrupted than target responding in the leaner context. These results suggest that the disruptive effect of combining stimulus contexts during extinction depends on the training reinforcement rate			
1:50	Jonas Chan, Doug Elliffe & Christopher Podlesnik	Auckland	Resistance to change in combined versus separate stimulus contexts
Behavioral momentum theory asserts that relative reinforcement rate between stimulus contexts determines response persistence. Accordingly, the present study revealed greater resistance to extinction of a target response trained together with an alternative response compared to training those alternatives separately. We found no difference in resistance to extinction, however, between richer and leaner alternatives trained together in the same context. Furthermore, we still revealed no difference in persistence between those richer and leaner alternatives when trained together but separated during extinction. These findings suggest that changeover patterns established in training cannot account for relative persistence of responding within a stimulus context.			
2:10	Paulinha Magalhaes & Geoff White	Otago	The effect of prior investment on choice
We investigated the effect of prior investment on choice in a concurrent-chains procedure with pigeons. Initial links were VI15 – VI15 and terminal links were FR15 – FR15. Two types of trials in each session, signalled by red and green, were identical except for one aspect. In red trials, the initial link was preceded by an initial investment of 20 pecks on the left key, whereas in the green trials the initial link was preceded by an initial investment of 20 pecks on the right key. If there is an effect of prior investment on choice in the direction predicted by the Sunk Cost error, left should be preferred on red trials and right on green trials. Conversely, equal preference would result if there is no effect of prior investment on choice. The results of several experiments in which we manipulated size of the initial investment and the relative size of the terminal-link FR have a bearing on the Sunk Cost error.			
2:30	Clare Browne, N Starkey T. Mary Foster & James McEwan,	Waikato	The impact of delayed reinforcement on learning in dogs
Research on other species (e.g. rats and pigeons) has shown that although delays in reinforcement can still result in trained behaviour, delays can compromise both speed of task acquisition and rate of responding (Dickinson, et al., 1992; Lattal & Gleeson, 1990; Schlinger & Blakely 1994). Field observations of dog owners have found delays to reinforcement during training range from 0-6.2 s; 96% of delays are within 0-2 s. The effects of delaying reinforcement does not appear to have been studied with dogs. The aim of this study was to examine the effects of			

delaying reinforcement when training pet dogs to perform a novel behaviour under laboratory conditions. Each dog worked on one delay only: 0 s or 1 s. However, if dogs didn't learn the behaviour at the 1 s delay they were switched onto the 0 s delay. Seven dogs worked at 0 s delay: six learned the target behaviour and one dog did not. Five dogs were tested at a 1 s delay: two dogs learned the behaviour and three did not; when these three dogs were switched onto 0 s delay, all learned the behaviour. The results are preliminary, however, delays of 1 s prevented some (60%) dogs learning the task. This research reveals that timing of reinforcement is an important variable in successful dog training.

Afternoon tea and posters

Saturday Session 4. Chair: Anne Macaskill

3:20	Ludmila Miranda Dukoski, Michael Davison, & Doug Elliffe	Auckland	Reinforcers as signaling events: Brief unsignaled changes in food ratios
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Pigeons pecked two concurrently available keys for food that was arranged according to an overall arithmetic VI 30-s schedule. At some time since food delivery, the probability of obtaining food on a key changed for a short period of time. For example, in Condition 3, 15 s after the last food delivery, the probability of food being arranged on the left key, should it be arranged by the VI schedule, became .0001 (and .9999 on the right key) for 5 s. These changes were unsignaled. Food probabilities at other times were constant and selected so that there was an overall equal food frequency on the two keys. We investigated the effects on local choice of the extremity and direction of the food peak, and the effects of periods of unsignaled extinction prior to the commencement of the food-peak. Choice was affected more when the food peak occurred sooner after prior food, and was generally unaffected by unsignaled extinction.

3:40	Sarah Cowie, Michael Davison & Doug Elliffe	Auckland	Simplifying the contingency: reminder stimuli enhance control by local food ratios
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In a modified concurrent VI VI schedule, contingencies were arranged such that the not-just-productive key was most likely to produce a food delivery sooner than the just-productive key. The last-food location, and the time since the last food delivery, were both necessary to track changes in the local food ratio across time since food. Control by the local food ratio was weak and transient, and preference stabilized at the extended food ratio at approximately 10 s after a food delivery. When the contingency was simplified by lighting the just-productive key red, so that the animal had only to track time since the last food delivery, choice at times before and during the stimulus was enhanced, particularly when the stimulus occurred later in the inter-food interval. When the time since the last food delivery was signaled, so that the animal had only to remember the last-food location, choice before and during the signal was substantially less extreme, particularly when the signal occurred later in the inter-food interval. Thus, the original contingency was complex not because it required discrimination of a compound stimulus, but because the pigeons were unable to remember the last-food location for longer than about 10 s.

4:00	Randy Grace & Andrew Hucks	Canterbury	Probability Discounting: Evidence for a Magnitude Effect in Pigeons
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Previous studies with nonhumans have failed to find evidence of a magnitude effect in delay discounting, contrary to results with humans. However, recently Grace, Sargisson and White (2012) reported that choices of pigeons in a self-control procedure showed that the value of a large reinforcer decreased relatively more slowly than the value of a small reinforcer as delay increased, consistent with the magnitude effect. We report results of an experiment with pigeons which tested for a corresponding magnitude effect in probability discounting. Eight pigeons responded in a two-component concurrent-chains procedure in which the terminal links were fixed-time (FT) 10-s schedules that delivered either a relatively large (4 s) or small (2 s) reinforcer. In one component, the reinforcement probability for both terminal links was 100%, while in the other component the probability was 50%. For different groups of pigeons, the outcomes for the 50% terminal link were signalled or unsignalled. For both groups, preference for the relatively large reinforcer was greater when the reinforcement probability was 100% than when it was 50%. This result suggests that the value of the large reinforcer decreased relatively more than the small reinforcer as probability was decreased, consistent with the magnitude effect in probability discounting that has been reported for humans.

4:20	Maree. Cotton, James McEwan & T. Mary Foster	Waikato	Catania's concept of the operant
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Catania (1973) hypothesised that response distributions would be continuous, even when reinforcement was

provided for only those responses that occurred between two limits. Six domestic hens pecked at a flat screen with an infra-red response detector. Pecks in defined regions of the screen resulted in 3-s access to wheat. The screen was divided into ten 30-mm wide regions of which one was active in each condition while the whole screen remained white. The active region was moved in steps from the left to the right and back. In general, in each condition the proportion of correct responses increased to around 0.4. In each condition the distribution of response location shifted to being centred over the active region, in most cases, response rates on the active region were higher than for the inactive regions, hens usually responded on several regions at a moderate rate.

AGM

Conference Dinner: 7pm at One Red Dog, Queens Wharf (\$30)

SUNDAY

8:00

Registration and Coffee

Sunday Session 1. Chair: Chris Podlesnik

9:00

Denys Brand , Oliver
Mudford & Doug Elliffe

Auckland

Markov chain analyses of teaching children with autism.

Discrete-trial teaching (DTT) is an ABA procedure often used to teach academic and other skills. The aim of the study was to evaluate the procedural integrity of DTT programmes of children with ASD and intellectual disabilities using Markov probability chains. Traditionally, discrete-trial data have been analysed and graphed on a between-session basis using methods such as percentage correct and trials-to-criterion. More local techniques such as Markov probability chains allows for the investigation of DTT procedures on a within-trial basis. Therapy sessions were recorded in the natural environment (at home or school). Results from 2 learner-therapist dyads will be presented. Correct DTT protocol was observed for less than 30% of all trials with the first dyad indicating low procedural integrity. Several problematic sequences were identified, especially incorrect use of a response prompt. The results from Dyad 2 showed more than 80% procedural integrity, although learner self-correction was problematic. The data showed that Markov probability chains may be a useful tool in evaluating procedural integrity in DTT and can have clinical utility.

9:20

Stephen Provost &
Marta Maspero

Southern Cross
University.

The relationship between bilingualism, English fluency and competence, and stimulus equivalence

Stimulus equivalence (SE) occurs when humans relate stimuli without prior explicit training, and is believed to be strongly related to language acquisition. According to at least one theoretical position, associated with Steven Hayes and his colleagues, equivalence is an operant. Individuals who are competent in more than one language might thus be expected to have greater fluency in stimulus equivalence. Verbal fluency, English proficiency and stimulus equivalence performance was assessed in 12 English monolingual, 12 European-English bilingual, and 8 Asian-English bilingual individuals. Although there was no difference between groups in equivalence performance, performance on the matching-to-sample task appeared to be related to second-language presence, most particularly in the Asian-English bilingual group. English fluency was not related to equivalence performance, but educational attainment was, and within the Asian-English group there were strong correlations between equivalence performance and standard tests used to assess English competence for university study in Australia. The implications of these results for theories of stimulus equivalence are mixed, but encourage further examination of bilingualism within an equivalence framework if some of the methodological problems inherent to such a design can be more effectively managed.

9:40

Dianna Yip

P.L.A.I. Behaviour
Consulting, Hong
Kong

Respect. Listen. Learn. A Culturally Sensitive Approach to Support Families using ABA

In today's globalized world, many cities are becoming more culturally diverse. What does this mean for those who support children and families using Applied Behaviour Analysis (ABA)? The topic of cultural sensitivity has gained more attention over the past years. More research has been conducted in this area. In this presentation, the implications of the findings from these research will be discussed. The application of culturally sensitive approach in supporting families and children using ABA will be demonstrated.

10:00

Doug Elliffe, Russell
Gray, Gavin Hunt, Nicola
Clayton, Nathan Emery
& Alex Taylor

Auckland,
University of
Cambridge, Queen
Mary University,

New Caledonian crows and the Aesop's Fable task: Control by functional but not by arbitrary environmental relations

		London	
<p>Four New Caledonian crows (<i>corvus moneduloides</i>) rapidly solved the Aesop's Fable task, in which food floating in water is brought within reach by dropping stones into the water. The crows consistently chose (a) large stones over small stones; (b) stones over floating objects; and (c) to drop stones into water rather than into air or sand. However, they did not transfer these preferences to discrimination tasks in which large stones, or water-filled tubes, served as discriminative stimuli for the location of food, nor did they learn these discriminations quickly. They also did not prefer either heavy or large tools in a subsequent cavity-probing problem. The results are difficult to explain in terms of either simple associative or operant conditioning – the functional objects in the Aesop's Fable task did not acquire generalized positive hedonic value, nor conditioned reinforcing power, and they were not effective discriminative stimuli in arbitrary tasks. Rather, those behaviours and relationships between objects that were functional, or 'made sense' in the mechanics of the various problems, were privileged in the crows' learning over those that were arbitrary or experimenter-defined. For the purposes of this audience, this makes a behavioural analysis more complicated, but less mechanistic and perhaps more exciting.</p>			
Morning Tea			
Sunday Session 2. Chair: Celia Lie			
10:50	Kathleen Doolan, Lewis Bizo, & James McEwan	Waikato	Reinforced variability and sequence learning in hens, possums and humans.
<p>Previous research shows that reinforcement of variable responding will facilitate sequence learning in rats (Neuringer, Deiss & Olson, 2000) but may interfere with sequence learning in humans (Maes & van der Goot, 2006). The present study aimed to replicate and extend previous research by assessing the role of behavioural variability in the learning of difficult target sequences across 3 species: humans (n = 60), hens (n = 18) and possums (n = 6). Participants were randomly allocated to one of three experimental conditions (Control, Variable, Any). In the Control conditions sequences were only reinforced if they were the target sequence, in the Variability conditions sequences were concurrently reinforced on a Variable Interval 60-s schedule if the just entered sequence met a variability criterion, and in the Any condition sequences were concurrently reinforced on a Variable Interval 60-s schedule for any sequence entered. The results support previous findings with animals and humans; hens and possums were more likely to learn the target sequence in the Variability condition, and human participants were more likely to learn the target sequence in the Control condition. Possible explanations for differences between the performance of humans and animals on this task will be discussed.</p>			
11:10	Xiuyan Kong, James McEwan, Lewis Bizo, & Mary Foster.	Waikato	Examining the effect of reinforcement on behaviour variability over multiple dimensions in humans
<p>The independence of dimensions of operant responses by humans was investigated in two experiments using a computerized rectangle drawing task from Ross and Neuringer (2002). Variability on the dimensions of area, shape and location was required for reinforcement for one group (VAR); and variability was not required for the other (YOKE). For all three dimensions, U-values, a measure of variability, were higher for the VAR group than for YOKE group; and the number of trials that met the criteria for reinforcement was higher for the VAR group than for the YOKE group. In Experiment 2, reinforcement was contingent on variability on two dimensions regardless of variability on the third. Participants were divided into three groups; each group had one dimension that was not required to vary. U-values were higher for dimensions when reinforcement was contingent on varying shape and location, or area and location. However, U-values did not differ significantly across dimensions when reinforcement was contingent on varying just area and shape. The results of Experiment 1 and 2 are broadly consistent with those of Ross and Neuringer (2002). The importance of orthogonality of dimensions on this task will be discussed.</p>			
11:30	Leanne Neshausen, James McEwan & Lewis Bizo	Waikato	Effects of schedules of reinforcement on the variability of location
<p>A handful of studies have examined the relationship between schedules of reinforcement and behavioural variability, with mixed results. The present study compares a greater range of schedules, examining the effects on location variability. Hens worked in an operant chamber containing five, horizontally arranged and active response keys. Experiment 1 compared eight schedules: FR 40, FR 10, FI (yoked FR 40), FI (yoked FR 10), VR 40, VR 10, VI (yoked VR 40) and VI (yoked VI 10). Experiment 2 compared a series of DRL schedules: 0.5 s to DRL 19.2 s, incrementing in step sizes of 20%. Location variability was measured as the percentage of switching across keys from within trials, between trials (switching from the reinforced response location to the first response location of</p>			

the following trial), and the number of keys used. Results from Experiment 1 suggested no relation between schedules and location variability. However a relation between response rate and location variability was found; faster response rates resulted in less variability. Experiment 2, in attempt to control for response rate, found no relation between response rate and location variability. Switches within trials occurred more frequently in Experiment 2 than in Experiment 1, an aspect that needs further examination.

11:50	David Harper ,Susan Schenk, Anna-Lena Langen & Hannah Squire	Victoria	Dose matters: The effects of different doses of MDMA on drug discrimination performance.
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A question we have been addressing in several ways has been, 'how similar is MDMA ('Ecstasy') to other drugs of abuse'? This talk will cover some of our findings using the Drug Discrimination paradigm to examine whether the baseline training dose of MDMA is an important variable in determining the subsequent subjective experience (i.e., stimulus properties) of MDMA. This question also relates to the observation that at relatively low doses MDMA produces relatively greater enhancement of serotonin activity compared to dopamine activity across a range of brain regions; whereas at higher doses MDMA produces a high degree of dopamine activity. Using a 2-way Drug Discrimination paradigm rats were either initially trained to discriminate a dose of 1.5mg/kg i.p. MDMA vs. saline or 3.0mg/kg i.p. MDMA vs. saline. Both groups were able to reliably discriminate between MDMA and saline during initial training with maximal responding peaking at around the respective training dose. Furthermore, the 1.5mg/kg dose group showed better generalisation to a novel serotonin agonist (DOI) vs. dopamine agonist (d-amphetamine); whereas the opposite was the case for the 3.0mg/kg group. This all means that there is a relatively convoluted answer to our basic question which goes along the lines of, 'it depends ...'.

Lunch

Sunday Session3. Chair: Danna Challies

1:10	Dianna Yip, M.Ed, BCBA (P.L.A.I. Behaviour Consulting, Hong Kong) & Elyssa McKee, M.Ed, BCBA (Private Consulting, Australia)		The use of PBS for diminishing problematic behaviour and increasing positive behaviour
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While research demonstrates that knowing the function of a behavior is crucial to developing an effective behavior support plan, it is not necessarily sufficient in developing a sustainable plan. Positive Behavior Support (PBS) reaches beyond using antecedent and consequent strategies to decrease problematic behaviors. It incorporates the family system as a whole and takes family values and resources into account ultimately developing a plan that is 'user friendly', thus promoting plan implementation, sustainable behavior change, and increased quality of life. The different components of PBS and how they relate to sustainable behavior change for the individual and an increased quality of life for the entire family unit will be discussed. Two case examples will be reviewed which illustrate the effectiveness of PBS to decrease mal-adaptive behaviors and increase socially significant behaviors, and will demonstrate how the different components of PBS contribute to sustainable behavior change.

1:30	Surrey Jackson, Lewis Bizo, Mary Foster & James McEwan	Waikato	Motivating operations and animal welfare
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Manipulation of unconditioned Motivating Operations (MOs) such as pain, food and water deprivation and the lowering of body weight can be potentially harmful and distressing to animals. Past research that has manipulated such MOs in order to motivate animals to respond for reinforcers is reviewed and directions for future research are discussed. The focus is on the extent that potentially distressing MO's need to be altered in order to change motivation for reinforcers in animals. In addition research directions for investigating alternative MOs that can motivate animals to respond for reinforcers are discussed

1:50	Cara Selway & Angela Saritepe	Auckland	An evaluation of the effects of response interruption redirection and matched Stimulation on vocal stereotypy
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Stereotypy is a behaviour that occurs frequently within populations of individuals with developmental disabilities and has been found to interfere with skill acquisition and social development. The reduction of motor stereotypic behaviour has been a recurring focus in the literature; however the evidence base for effective interventions for vocal stereotypy still remains in want. This study will compare the effects of two current interventions for the reduction of vocal stereotypy; Response Interruption Redirection (Ahearn, Clark, McDonald & Chung, 2007) and non-contingent matched stimulation (Piazza, Adelinis, Hanley, Goh & Delia, 2000) with 5 children with Autism in a

<p>classroom environment. All participants have vocal stereotypy at rates which seriously interfere with their learning and socialisation. Response Interruption Redirection (RIRD) has been popular in the recent literature and has been found to be effective in significantly lowering rates of both motor and vocal stereotypy. Non-contingent matched stimulation is a form of sensory reinforcement and is based on the findings that the function of most stereotypic behaviour is automatic. These interventions will be compared in an alternating treatments design to see which intervention most effectively lowers rates of stereotypic vocalisations whilst increasing appropriate vocal behaviour</p>			
2:10	Gordon Tan, Maree Hunt, Anne Macaskill & David Harper.	Victoria	The effect of relational training on slot machine play: Walking the walk as opposed to just talking the talk
<p>A systematic replication of Dixon, Nastally, Jackson and Habib (2009) was carried out to further examine the role of relational framing in attaching meaning to near win stimuli in a slot machine simulation. The original study found that the verbally reported meaning of near win stimuli could be altered through a stimulus equivalence training procedure. Our systematic replication confirmed this finding. Additionally we had participants play on a simulated slot machine to assess whether such verbal changes also resulted in a functional change when they were presented with near win outcomes during play. We found that nonverbal responses to near win stimuli were not influenced by the relational training.</p>			
2:30	Anne Macaskill (Victoria) and Jennifer Rusak (Florida)		The effect of unit price on accumulation of video clip reinforcers in humans
<p>Video clips are potentially useful human analogues of the consumable reinforcers used with animals. The current study systematically replicated a procedure previously studied with pigeons and investigated the number of seconds of video that humans accumulated when unit price was varied in a token reinforcement schedule. Unit price was varied in two different ways: by altering the fixed ratio requirement, and by altering the number of seconds of video that each token was exchangeable for. Participants showed some of the same accumulation patterns as pigeons and also accumulated more video when segments were longer even when unit price was held constant.</p>			
Afternoon tea			
Sunday Session 4. Chair: Maree Hunt			
3:10	Celia Lie, Brent Alsop, Joe Roker, & Jennifer Baxter	Otago	Decision making in a three choice game
<p>Kangas and colleagues (2009) looked at human three-alternative choice behaviour using a simulated game of Paper/Scissors/Rock, where the computer's responses were determined probabilistically and these probabilities varied across blocks of trials. Participants received points for game wins but received no points for game losses or ties. Kangas et al. found that their participants' responses across the three alternatives were well-described by the generalised matching law. In the experiments presented here, we used a similar game of Paper/Scissors/Rock, but also looked at: a) the effects of losing points for game losses, b) the effects of independent vs. dependent scheduling, c) the differences in behaviour when participants thought they were playing the computer vs. another participant, and d) whether choice behaviour followed the constant-ratio rule.</p>			
3:30	Joshua Bensemann, Doug Elliffe, Brenda Lobb, & Christopher Podlesnik	Auckland	Four alternative choice and the constant-ratio rule.
<p>Data from a partial replication of Elliffe and Davison's (2010) four-alternative procedure will be presented. Elliffe and Davison (2010) arranged four concurrently available VI schedules that formed a 27:9:3:1 reinforcer ratio and produced data that violated the constant-ratio rule. This result is important because the rule is an underlying assumption of the generalised matching law, and violations of any assumption means that a model is invalid. However Elliffe and Davison (2010) arranged a rapidly-changing procedure by varying the location of the available VI schedules after every ten reinforcers. This is atypical for a choice procedure and may have been the source of the violation. To determine if this is so we have replicated their four VI schedules, but kept the locations constant for 50 experimental sessions.</p>			
Farewell and Awards			

Poster Presentations

Chloe Wicksteed & Maree Hunt	Victoria	The effect of slot machine payout distribution on preference
<p>This study investigated whether differences in the pay schedule of a simulated slot machine task would affect participants' gambling behaviour. The participants all gambled on two slot machine reels. On one reel the likelihood of winning hypothetical money followed a linear pattern where winning smaller amounts of money was more likely than winning larger amounts of money. On a second reel the probability of winning did not follow a linear pattern, here the likelihood of winning moderate amounts of hypothetical money was more likely than winning lower amounts of money. All participants' experienced playing on both slot machine reels when the pay rate was kept constant and when the mean win amount was kept constant. For twenty participants the pay rate was kept constant first and for ten participants the mean win amount was kept constant first. The main finding was that overall participants produced a larger mean number of spins on the linear reel compared to the non-linear reel, in all conditions apart from when the pay rate was kept constant first. This finding has implications in the understanding of gambling behaviour on slot machines as it suggests that people tend to be more sensitive to a pay out schedule that follows a linear pattern. The implications of this finding and areas for future research are discussed.</p>		
Chris Stanley, Lewis Bizo & James McEwan	Waikato	Timing in Possums: Accounting for resurgence in the Peak Procedure.
<p>The peak procedure is a method developed by Roberts (1981) to measure an animal's ability to time. It is made up of short reinforced fixed interval (FI) trials randomly mixed with longer non-reinforced FI trials (peak interval (PI) trials). The present experiment is designed to examine resurging in responding, following the initial peak, near the end of PI trials on the peak procedure. Church et al. (1991) theorised that animals were able to predict the end of PI trials and consequently when reinforcement was likely to occur on the next FI trial. In their study, Church et al. (1991) varied the length of PI trials in order to eliminate rat's ability to predict the end of PI trials. Their results show responding after the initial peak drops and plateaus just above zero. The present experiment is using 6 common brushtail possums (<i>Trichosurus vulpecula</i>) as subjects. The aim is to replicate Church et al.'s 1991 study using 20 second FI trials and PI trials made up of a FI 40 sec plus a variable interval (VI) with a mean of 60 seconds. The hypothesis being that a variable PI should eliminate, or at least minimise response resurgence on the peak procedure.</p>		
Ella Creet & Maree Hunt	Victoria	The effect of sequential and simultaneous presentations on the near-win latency in slot machine play
<p>The event of nearly winning, which produces a unique response latency, is thought to be a contributing factor in the addictiveness of slot machine play. The current study investigated how the mode of presentation, in a slot machine stimulation, affects near-win response latencies. For one group of participants, all outcomes were simultaneous, while for another group all outcomes were sequential. The results indicated response latencies were longer in both sequential and simultaneous trials after a near-win compared to a loss. This suggests that the event of nearly winning operates as a conditioned reinforcer, through the pairing and association of near win and win trials. Additionally stimulus generalization could contribute to the near win latency in both trial conditions as a near win is physically similar to a win. Additional planning time as an explanation for longer near-win response latencies has not been supported in this study.</p>		
Elyssa McKee	Plain Consulting	The use of video modelling combined and shaping to promote independent play with play phrases
Katherine Skinner & Christopher Podlesnik	Auckland	Resistance to extinction in combined stimulus contexts: Does contingency matter?
<p>When trained together, alternative responses enhance the persistence of target responses. When trained in different contexts and combined in extinction, alternative responses decrease the persistence of target responding. We examined whether the contingency for alternative reinforcement influenced the persistence of target responding when combined in extinction. Combining stimulus contexts arranging response-dependent or -independent reinforcement with a target context both decreased target responding more than when alternative</p>		

<p>and target responses were trained together. Moreover, combining with the response-dependent context decreased target persistence more than when combining with the response-independent context. These findings suggest that response competition influences the effectiveness of combining stimulus contexts.</p>		
Katie Fowler & Maree Hunt	Victoria	Gambling on the near win effect
<p>The misrepresentation of the odds of winning by orchestrating a high number of near wins is a key component of the addictive features of slot machines. This study attempted to replicate the finding of an increased pause latency following near wins and evaluate the hypothesis that this effect was a form of operant conditioning rather than the result of visual similarity or decreased planning time. The near win effect was present in the sequential trials but was not found in the simultaneous trials. The results supported operant conditioning but were not conclusive. It was suggested that the interspersing the trials had a dampening effect on the results.</p>		
Micaela Goldsmith, T Mary Foster & James McEwan	Waikato	Choosing to choose
<p>The purpose of this research is to replicate Catania (1975) research on 'Choosing to choose'. Catania's research demonstrated that, when all aspects of reinforcement are held constant, an organism will prefer a free choice option over a forced choice option. I will be presenting my data to date on this poster.</p>		
Simone Seddon, Anne Macaskill & Maree Hunt	Victoria	The sunk cost effect in gambling
<p>The sunk cost effect is non-optimal persistence in a course of action following past investment (Fantino, Navarro & O'Daly, 2005). Gambling on slot machines is an example of non-optimal persistence however no study has been conducted to investigate whether past investment contributes to persistence in slot machine gambling (Fantino, et al., 2005). De la Piedad, Field and Rachlin (2006) found that pigeons commit the sunk cost effect. The current study is a systematic replication of de la Piedad et al.'s (2006) study to investigate whether this effect is committed by humans in a gambling context. Participants chose between two concurrent slot machine reels, one that operated on a RI schedule of reinforcement and the other on a FR1-FI schedule of reinforcement. There were two concurrent schedules in order to analyse participants' probability of persisting on the RI schedule after something was invested and after nothing was invested. The results showed that participants were more likely to persist in gambling if they had invested something. Therefore past investment contributes to persistence in slot machine gambling.</p>		
Stacey Stuart, Lewis Bizo, T Mary Foster	Waikato	Effects of a delay to reinforcement and inter-trial interval on a fixed-ratio schedule performance
<p>The aim of this study is to investigate the effects of specified delays to reinforcement and intertrial interval on the performance of domestic hens (<i>Gallus Gallus Domesticus</i>) during fixed-ratio schedules. Research has found that by adding a delay between the response which earns the reinforcer and the reinforcer reduced the effectiveness of the reinforcer with the average running response rate decreasing (e.g., Felton & Lyon, 1966; Foster, Blackman & Temple, 1997). This reduced effect could be due to either the increase of time between the effective response and the delivery of reinforcement or due to the increase in interval between reinforcers. The current study aims to clarify which of the two explanations is most likely to contribute to the reduced effectiveness of the reinforcer.</p>		