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The Effect of Hunger and Effort on Response Variability in Rats

by

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Submitted to the Graduate Faculty as partial fulfillment of the requirements for the
Doctor of Philosophy Degree in Psychology

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Response variability may be influenced by multiple factors in the environment as well as an individual's previous experiences. This study was designed to investigate the effect of hunger drive and effortfulness of response on rats' response variability in a two-choice lever press situation. Rats were tested for a total of four weeks, Week 1 was considered to be between-groups and Weeks 1 – 4 were combined to test within-subjects data. Variability was measured in three different ways: the number of times the response location changed in a single session, the length of the first group of responses before changing response and the mean length of responses before changing response location. Between-groups data suggest neither hunger nor effort influence response variability in rats. Within-subjects data suggest hunger did not play a role in response variability, however, effort was significant. Variability of response increased when responding required less effort, as illustrated by all three measures of variability: $F_{\text{changes}}(1, 14) = 10.41, p < .05, d = 2.27$, $F_{\text{first run}}(1, 14) = 11.54, p < .005, d = 1.82$, $F_{\text{mean run length}}(1, 14) = 10.95, p < .005, d = 1.77$.

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Table of Contents

Abstract	iii
Acknowledgments	iv
Table of Contents	v
List of Tables	vii
List of Figures	ix
1 Introduction	1
Variability and Hunger Drive	4
Variability and Effort	7
2 Method	13
Subjects	13
Apparatus	13
Procedure	14
Design	14
Training	16
Testing	16
3 Results	18
Between-Groups	18
Repeated Measures	19
Hunger.	19
Effort.	22
Overall Comparison	25
4 Discussion	26

References	31
Appendix	34
A Raw Data: Lever Position	35

List of Tables

3.1	Means of measures of response variability for High hunger/Low effort and Low hunger/High effort rats.	25
A.1	Rat 1 — Raw lever press data for 28 days of testing.	36
A.2	Rat 2 — Raw lever press data for 28 days of testing.	38
A.3	Rat 3 — Raw lever press data for 28 days of testing.	40
A.4	Rat 4 — Raw lever press data for 28 days of testing.	42
A.5	Rat 5 — Raw lever press data for 28 days of testing.	44
A.6	Rat 6 — Raw lever press data for 28 days of testing.	46
A.7	Rat 7 — Raw lever press data for 28 days of testing.	48
A.8	Rat 8 — Raw lever press data for 28 days of testing.	50
A.9	Rat 9 — Raw lever press data for 28 days of testing.	52
A.10	Rat 10 — Raw lever press data for 28 days of testing.	54
A.11	Rat 11 — Raw lever press data for 28 days of testing.	56
A.12	Rat 12 — Raw lever press data for 28 days of testing.	58
A.13	Rat 13 — Raw lever press data for 28 days of testing.	60
A.14	Rat 14 — Raw lever press data for 28 days of testing.	62
A.15	Rat 15 — Raw lever press data for 28 days of testing.	64
A.16	Rat 16 — Raw lever press data for 28 days of testing.	66
A.17	Rat 17 — Raw lever press data for 28 days of testing.	68
A.18	Rat 18 — Raw lever press data for 28 days of testing.	70
A.19	Rat 19 — Raw lever press data for 28 days of testing.	72
A.20	Rat 20 — Raw lever press data for 28 days of testing.	74
A.21	Rat 21 — Raw lever press data for 28 days of testing.	76
A.22	Rat 22 — Raw lever press data for 28 days of testing.	78
A.23	Rat 23 — Raw lever press data for 28 days of testing.	80

A.24	Rat 24 — Raw lever press data for 28 days of testing.	82
A.25	Rat 25 — Raw lever press data for 28 days of testing.	84
A.26	Rat 26 — Raw lever press data for 28 days of testing.	86
A.27	Rat 27 — Raw lever press data for 28 days of testing.	88
A.28	Rat 28 — Raw lever press data for 28 days of testing.	90
A.29	Rat 29 — Raw lever press data for 28 days of testing.	92
A.30	Rat 30 — Raw lever press data for 28 days of testing.	94

List of Figures

2-1	Flow chart depicting the design for an example of one group of subjects. Other groups started at a) Low hunger and maintained their initial effort assignments, b) High effort and maintained their initial hunger assign- ments or, c) Low effort and maintained their initial hunger assignments.	15
3-1	Number of changes for rats experiencing two levels of hunger.	21
3-2	Length of first run for rats experiencing two levels of hunger.	21
3-3	Mean run length for rats experiencing two levels of hunger.	22
3-4	Number of changes for rats experiencing two levels of effort.	23
3-5	Length of first run for rats experiencing two levels of effort.	24
3-6	Mean run length for rats experiencing two levels of effort.	24

Chapter 1

Introduction

Response variability or behavior inconsistency is the variation in response of a single individual when presented with the same task numerous times. As pointed out by Neuringer and Jensen (2012) variability is extremely useful or essential to animals in a variety of situations such as problem solving and learning new behavior. By offering varying responses to stimuli, animals are capable of finding the 'correct' or desired response, which allows for the success in such learning. In an extensive review, Fiske and Rice (1955) labeled three types of variability: spontaneous variability, variability which shows a pattern, such as alternating responses or is otherwise reactive to previous responses, and variability due to the presentation of different stimuli, as in adaptation. Spontaneous variability was explained as a difference between two responses that is not systematic, that is, the difference is not due to learning or fatigue but is a natural and random occurrence. Jensen, Miller, and Neuringer (2006) defined variability as “random-like outputs or a high degree of uncertainty” as well as “a dimension or continuum, ranging from repetition (and therefore high predictability) to random (and therefore maximal uncertainty).” They also outlined three main ideas about response variability: that response variability can be reinforced, that reinforcers exert control over the variability in terms how responses vary, and that at least some responses are random or unpredictable in nature. This paper is most concerned with “spontaneous” variability and variability based on previous responding without the presentation of different stimuli.

Variability can be studied in a number of ways, for example the frequency, speed, method and location of response can all vary depending on the experimental design. Early work examined variability in a variety of situations such as:

unreinforced lever pressing (Schoenfeld, Antonitis and Bersh, 1950), nose thrust location (Antonitis, 1951), radial arm maze choice (Elliott, 1934) and key pressing (Carlton, 1962). Although multiple studies were completed, no clear conclusions as to the cause of variability or influences on variability were reached. More recent work on response variability has focused on the influence of reinforcement schedules (see Lee, Sturme y & Fields, 2007 for a review) and reinforcement contingencies (Gharib, Gade & Roberts, 2004; Grunow & Neuringer, 2002; Neuringer, 1993; Stokes, 1995). Although recent work has focused on temporal response variability, this paper focuses on spatial (location) response variability. Spatial response variability may relate to natural feeding and foraging strategies and behaviors and could give insight into the basic origins of cost/benefit analyses. The Optimal Foraging Theory suggests that animals should seek to gain the most reward while expending the least amount of energy. Although animals should seek to maximize their caloric gains, they may have to modify foraging strategy based on their actual needs. There may be two main variables that influence response variability: hunger drive and effort. Hunger drive might influence response variability because the more hungry an animal is the less it should risk deviating from a rewarding solution. Thus hungrier animals should not vary their responses as much as less hungry animals do. Effortfulness of the response may also affect response variability because extremely challenging responses are not often rewarded and should die out, or extinguish, more quickly than less challenging responses. Based on an animal's current drive levels and caloric needs they will potentially vary foraging strategy so that they are spending their energy in an efficient and effective manner.

It is possible that these adjustments to foraging strategies are developed by animals based on their previous experiences in various situations. If this is true, results of between-groups and within-subjects designed research should differ. Between-groups designs expose the subject to only one level of a condition while

within-subject designs allow the subject to experience all levels of the condition. This exposure to multiple levels of a single condition may alter a subject's behavior on subsequent tests. Previous work by Armus and Garlich (1961) and Armus, Guinan, Crowell, Schroeder, Rudge, and Comtois (1965) as well as Gottlieb (2008) and Gottlieb and Rescorla (2010) support the idea that between or within research designs can play a role in the behavior of subjects. Armus and Garlich carried out a between-subjects design study and found a significantly higher preference for secondary (conditioned) reinforcement in subjects that experienced a fixed-ratio, rather than continuous, reinforcement. Armus et al. (1965) completed a similar study using a within-subjects design and found the preference for secondary reinforcement was now shifted to continuous, rather than the fixed-ratio, schedule of reinforcement. Gottlieb (2008) carried out a series of between-subject studies to investigate the role of number of trials on conditioned responses. In 2010, Gottlieb and Rescorla published a follow-up study using within-subject designs and found different results. They suggested that within-subjects designs are better controlled and therefore are more accurate or that they are simply more sensitive because of the lack of between-groups variability. They also note that within-subjects designs have drawbacks, such as the subjects' ability to generalize their responses to similar, but different, stimuli used in different parts of a single study. This study incorporated both between-groups and within-subjects designs in an effort to identify what variables, if any, play a role in rats responding patterns. By investigating biological influences on response patterns it may be possible to discover some of the roots of cost/benefit analyses in various situations. The next two sections examine the effects of two possible influences on response variability: hunger drive and effort.

Variability and Hunger Drive

In 1943, Hull proposed what is commonly referred to as the Drive Reduction Theory. The main idea of the theory is that behaviors which reduce a physiological drive are reinforcing and are repeated. Based on this theory, it can be assumed that behaviors that reduce stronger drives are more likely to be repeated than behaviors that reduce weaker drives. If this assumption is accurate, there should be less variability in behavior when higher drive levels are present. The sparse data relating to this statement are not clear, as described below.

Antonitis (1951) investigated nose thrusts behavior in rats and found a variation in performance over the course of multiple sessions. In this study, rats were placed in an apparatus with a response panel into which the rat thrust its nose in order to earn food reward. The response panel was 50 cm long, and the horizontal location of the nose thrust was recorded for each trial. Rats were placed in a starting box which opened into a chamber with the response panel; after entering the chamber and making a nose thrust response, rats returned to the starting box, where they obtained food. After 225 reinforced trials the first phase of extinction occurred, after which reconditioning, re-extinction and a second reconditioning phase took place. Control subjects did not undergo extinction; instead they spent the extinction phases in their home cages with access to food for one hour each day. Session time was not controlled; rats were required to make 50 reinforced responses on each of five days, but they could do this at any rate. Location of each nose thrust was recorded for each rat, and the distance of responses from the mean response location was analyzed as the measure of variability. Location variability decreased over the course of each individual training session, as well as over the sessions together. Variability was noticeably higher during the first of the five conditioning sessions, and it seemed to level off at the third session. There was no significant difference between control and experimental subjects during the initial conditioning

phase. Variability was also high during extinction sessions, nearly equal to the levels of the first conditioning session. This increase in variability during extinction could be due to the subjects offering more novel behaviors in an effort to earn reward. During both reconditioning phases, the control subjects showed more variability in response location than the experimental subjects did. The level of variability shown by the experimental group during reconditioning was significantly lower than the variability of these subjects during extinction trials. The control subjects' variability was not significantly different during reconditioning than it was during the initial conditioning phase. This suggests that a 'rest' period, such as the one that the control subjects were exposed to, does not affect response variability, but that an extinction period does. Variability decreased as the session continued, and, since the rats were fed after each response, their hunger drive should have been reduced towards the end of the session. It is also possible that this decrease in response variability was a function of the total number of responses made. Although the rats were not fed to the point of satiation, these findings suggest that variability decreased with decreased hunger, unlike Elliott's 1934 findings, described below.

Elliott (1934) earlier attempted to investigate the effect of hunger on variability using a repeated measures design and better control over hunger than Antonitis. He presented rats with a five-alley maze with arms containing the same food reward, so none was more reinforcing than any other. The rats were able to go to any arm on a given trial; once their choice was made the goal box door was closed and their selection was recorded. Four levels of hunger were present in the study, with some groups increasing in hunger and others decreasing in hunger as the experiment continued. Group A spent 25 days receiving 10 g of food before they were reduced to 6 g for 10 days and 4 g for the following 10 days, ultimately returning to 10 g of food for the final 10 days. Group B received 6 grams of food for 25 days before they were reduced to 4 g for 10 days and then increased to 10 g for

the final 10 days. Group C received 4 g of food for the first 10 days, 10 g for the next 10 days and had unrestricted access to food for the final 10 days. Group A decreased their variability of arm choice as their diet was restricted and hunger increased. Variability in this group was lower during the final 10 days in which their hunger was reduced than during their highest hunger levels. Group B showed a similar trend: variability decreased as hunger increase. However, in group B variability did increase slightly on the final 10 days, but not to the pre-hunger rate. Group C decreased variability when diet was increased from 4 to 10 g of food but then increased to levels higher than initial variability when unlimited food was accessible. It was found that, in general, variability in alley choice was higher when rats were less hungry; however reducing the hunger drive in previously hungry rats did not increase the variability of response. Once variability was low due to increased hunger drive it tended to remain low regardless of current hunger drive. In a somewhat similar study, Carlton (1962) also found an inverse relationship between hunger drive and response variability, however, he found that reversal of response variability with a change in hunger level was possible.

Carlton (1962) examined the effect of hunger drive on rats' lever pressing. Rats were placed in a Skinner box with an orienting lever, the pressing of which lead to the display of five keys, any of which could be pressed to activate a milk dipper. All four subjects were first kept at 75% of their free feeding weight for 27 sessions; they were then shifted to 90% of their free feeding weight for 9 sessions before returning to a free feeding schedule for 7 – 9 sessions and ultimately being totally food deprived in their home cages and receiving food only during experimental sessions. When kept at 75 and 90% of free feeding weight the rats varied which of the five keys they used to obtain reward at approximately the same rate. Rats increased their variability when they were shifted to the free feeding schedule; in fact the rats tended to emit extra key presses during these sessions.

This increase in variability of responding was reversed once they were deprived of food during the last phase of the experiment. The reversal in variability with the shift to total deprivation was not expected, as Elliot (1934) found changes in variability to be irreversible with a reduction in hunger level.

These studies suggest that, while response variability is affected by hunger drive the direction of the effect is not clearly understood. Antonitis (1951) found that nose thrust location variability was directly related to hunger drive, that is, variability and hunger decreased together. Although it was assumed that hunger level in his study changed on each trial as the rats completed more sessions and received food reward, hunger drive was not explicitly controlled for or assigned. It is possible that the reduction of response variability was a function of the session length and practice rather than hunger drive. Elliott (1934) found an inverse relationship between response variability and hunger drive (more variability with less hunger). However, when hunger drive was reduced in previously hungry animals variability remained low. Carlton (1962) also found an inverse relationship between response variability and hunger drive. Unlike Elliott, Carlton found that rats increased response variability when their hunger drive was reduced and that the increase could be reversed with food deprivation.

Variability and Effort

Solomon (1948) summarized the relationship between response effortfulness and performance on a task. He commented that the amount of effort required to make a response influences the likelihood that the response will reoccur. Every study cited in his summary dealt with multiple available responses, each requiring different effort levels; thus, the animal was able to choose an easier or more difficult response on each trial. In these studies, it was often found that the least effortful response was more persistent, lending support to the “law of least effort.” Alling

and Poling (1995) pointed out that, while response force was often investigated as a dependent variable, there have been a few studies that have manipulated and studied it as an independent variable. There are two main findings from studies that focused on effort as a independent variable that are important for the current study; response rate is inversely related to effort (Chung, 1965; Mowrer & Jones, 1943) and extinction occurs more rapidly as effort requirements increase (Mowrer & Jones, 1943). These findings lead to the prediction that, given a choice of multiple responses with equal probability of reinforcement, persistence of any one response would be lessened by greater effort required to make that response. In other words, as the effortfulness of a given task increases, variability of response should also increase, as the subject is likely to cease responding on one task and switch to another sooner than if less effort were required. Although this prediction seems reasonable, the data, as with hunger, are sparse, as shown below.

Mowrer and Jones (1943) placed rats in a Skinner box with two levers available. Although effort on the two levers was the same on a given day, they manipulated the effortfulness of the task over the course of multiple days. The force required to push either lever varied from 5 g to 80 g during training: days 1 – 9 required 5 g; day 10, 30 g; day 11, 5 g; day 12, 55 g; day 13, 5 g; and days 14 – 18 alternated between 80 and 5 g. Lever pressing was extinguished for three days with one of three randomly assigned force requirements: 5 g, 42.5 g, or 80 g. Rats in extinction groups that required less effort to activate the lever made more responses than rats in harder effort groups, as would be expected. The researchers kept track of which lever was pushed during each 20 min session in order to examine response variability (percentage of trials in which the subject switched response levers) as a function of effort. There did not appear to be a relationship between effort required and variability of lever-pressing, aside from a decline in variability over 10 days of training (days 9 – 18). The rats developed preference for one of the response levers,

which was strengthened from around 80 to 95% during the training period. The variability of lever selection was also recorded during extinction. The extinction group that required the least amount of force showed highest variability, intermediate force showed intermediate variability, and the highest force group showed the least variability. This suggested that increased effort decreased variability; however, this trend was noted only during extinction, during which rats were assigned to between-groups conditions and experienced only one level of force. It is important to note that the effort level required to earn reward during training varied on a daily basis after day 9, so trends based on effort may not have been noticeable. Alternating effort levels made it hard to draw conclusions on the true influence of effort on behavior in the lever pressing task. In a later study, Riley and Shapiro (1952) were able to monitor the effects of effort on rats' behavior more closely, as described below.

Riley and Shapiro (1952) used a T-maze to examine how effortfulness of task as well as the distribution of practice influenced response variability. Effort was manipulated by requiring more or less force to push open the goal box doors; force was either 10 or 120 g. Trials were either massed, with about 25 s between trials, or distributed, with about 5 min between trials. There were four possible conditions: 10 g massed, 10 g distributed, 120 g massed and 120 g distributed. After 30 trials under one of these conditions, each group was divided into 4 subgroups and exposed to one of the previously described four conditions for a total of 16 subgroups. Because of the second assignment rats could have been exposed to either the same condition for all 60 trials or to two different conditions; for example one subject might have been assigned to 10 g massed for 30 trials before being assigned to 120 g distributed for the second 30 trials, while another was exposed to 120 g massed trials for both the first and second sets of 30 trials. Under massed trials variability was increased when compared to distributed trials, however variability in massed

trials did decline over total trials. Effort had a negligible effect on variability. It is possible that massed trials required more effort than distributed trials. If the spacing of trials does influence overall effort, then it can be said that increased effort resulting from massed trials increased variability up to a point but as the effort required continued to increase variability declined.

The two previously described studies show opposing results. Mowrer and Jones found that lower effort requirements increased variability of responding, but this result was only found during extinction trials when no reward was earned. Riley and Shapiro found that force required to open a goal box door had a negligible effect on response variability. However, they also found that trial spacing, which can be viewed as an effort variable, influenced response variability. Subjects exposed to massed trials, which may be assumed to be more effortful, showed increased variability up to a point but then decreased variability as effort continued to rise. There is no clear explanation on how effortfulness of response influences a subject's pattern of responding.

The current study was designed to examine how two variables influence the variability of lever pressing in rats. Based on previous research (Carlton, 1963; Elliott, 1934) it was predicted that increased hunger drive will decrease variability. High hunger drive should decrease variability because the cost of switching to an unknown lever should be higher for hungry animals than for less hungry animals, so hungry rats will continue to use the lever that they "know" rewards them. It was also predicted that, as suggested by Riley and Shapiro (1952), increased effort requirements on a given task will result in increased variability. This was expected because the rats should attempt to find a less strenuous method of obtaining food. In this study, no easier alternative was provided, but the subjects might still vary their responses in an attempt to find one. Rats that experience high hunger drive and low effort should show the least amount of variability in response, while rats

with low hunger drive and high effort should show the highest variability. These hypotheses are consistent with an ecological theory known as Optimal Foraging Theory.

Optimal Foraging Theory suggests organisms seek the most amount of energy gain in the least amount of time (Kamil & Roitblat, 1985; Pyke, Pulliam, & Charnov, 1977). Another way of saying this is that organisms try to forage in an energy-efficient and time-efficient manner so that they optimize their caloric gains. A common example of optimal foraging is whelk shell dropping by crows described by Zach (1978). Northwestern crows in Canada were observed selecting whelks, a shelled organism, flying with them, and dropping them in order to get the shells to crack so they could gain access to the whelk. Crows often pick up and drop the same whelk repeatedly until it breaks open. Zach found that crows generally selected the larger and heavier whelks to drop and ignored smaller or lighter whelks. Through experimental manipulation in which unshelled whelks of various sizes were offered to crows, it was determined that the smaller whelks were consumed when they were easily obtained suggesting the larger whelks were preferred for reasons other than taste. The larger whelks were more profitable for the crows to invest in because they not only broke more easily than smaller whelks but also provided more food. The crows had to balance the energy required to obtain the food with the energy the food would provide. The same should be true of the rats in this study; they should seek a way to optimize their food intake while expending the least amount of energy. Rats should alter their foraging strategies in an effort to increase food reward while decreasing effort required to gain food. Thus, when the required effort is high the rats should seek other solutions that require less effort for reward; when little effort is required to earn reward, rats should continue to use the current solution. It was expected that this would be more noticeable in hungrier subjects than in the more satiated rats since caloric need would be exaggerated to hungry rats.

Because real-world foraging strategies might be based on an individual's previous experience this study was designed to have both a between-groups and a within-subjects aspect. The between-groups animals will only experience one level of each variable and they will have no real knowledge of the other possibilities. Animals in the within-subjects design will have experience with both levels of a variable (either hunger or effort, the other variable being held constant) which will give them more experience and potentially influence their performance on the task. By having both designs in a single study, it will be possible to investigate if and how experimental design and previous experiences influence future behavior.

Chapter 2

Method

Subjects

Thirty-six male Longs-Evan hooded rats were originally trained for the experiment. Five subjects were excluded as a result of failure to learn the task after 10 training days and one subject was excluded due to missing data on two test sessions. Thirty male rats, ranging in age from 126 – 330 days, with a mean of 246 days, at the start of training were ultimately used. The original population of rats was obtained from Harlan Sprague-Dawley in Indianapolis, Indiana, 46205. The rat population was maintained by breeding in the laboratory. Throughout the experiment, rats were kept in housing conditions approved by the Institutional Animal Care and Use Committee (IACUC).

Apparatus

All training and testing sessions occurred in an operant chamber (interior measurements: 30cm L x 31 cm W x 27.5 cm H) that had been placed in a sound dampening chamber. The front and back walls of the chamber were made of aluminum; the side walls and top were clear plastic. The floor of the chamber was made of brass rods spaced 1.5 cm apart. The front wall of the chamber contained two retractable levers 11 cm apart. The levers were small rectangles, 4 cm x 1.5 cm, which extended into the chamber and were 7.5 cm from the floor. The food cup was centered at the base of the opposite wall. A Med associates ENV-203 45 mg food dispenser provided 45 mg TestDiet 5TUM rat chow reward pellets. A 6 W light bulb illuminated the chamber. Effort was manipulated by requiring more or less force to activate a lever. Weights were added to the backs of the levers to adjust force requirements; low effort required approximately 3 g of force, while high effort required 90 g. Rats were required to press either lever in order to gain food reward,

and both levers were reinforced equally. Subjects' responses were recorded by a computer. The chamber temperature ranged from 64 – 82° F with a mean of 75.5° F over the course of all of the testing sessions.

Procedure

Prior to training, rats were weighed daily for 5 – 7 days. The mean of these weights was taken as the free feeding weight for the animal. Free feeding weights ranged from 418 – 642 g with a mean of 585 g. Once free feeding weight had been established, food was restricted based on the subject's assigned hunger level (either 80 or 90% of free-feeding weight); water was available at all times. Rats in the high hunger condition had their weight reduced to 80% of their free feeding weight; rats in the low hunger condition were reduced to 90% of their free feeding weight. Overall health of the rats was monitored to ensure the reduction in weight was not detrimental to their wellbeing. Subjects were weighed daily before testing and fed an appropriate amount of Harlan 8604 rat chow pellets after testing to obtain the correct weight. To foster docility, subjects were handled for a minimum of one minute a day, three days a week after weaning. All subjects maintained a 12h: 12h light/dark cycle.

Design

Two mixed design studies were completed using the same variables. The 30 rats were run in smaller subgroups ranging from four to eight animals each. The first mixed design had hunger level as a within-subjects variable and effort as a between-groups variable. The second mixed design reversed these so effort was within-subjects and hunger level was between-groups. For these designs, the within-subjects variable shifted three times for each subject. Subjects were initially assigned to either the high or low level of the variable; they completed seven sessions

at this level before being shifted to the opposite level for seven sessions. Following this, the subjects were returned to their original level for seven sessions and once again shifted to the opposing level for a final seven sessions. Subjects maintained the between-groups variable for the duration of testing. Thus, a subject would switch the within-subjects variable (either their hunger or effort level) from 1) high to low to high to low or 2) from low to high to low to high while maintaining the between groups variable at either high or low. This is illustrated in Figure 2-1. Each shift period lasted 7 days, thus, rats were on a 7 day on, 7 day off schedule until 28 days of testing were completed. For each starting level of the within-subjects variable, half of the subjects maintained each level of the between-groups variable. As explained by Greenwald (1976), there are positive and negative aspects to both within and between subject designs. By incorporating both designs into a single study, it is possible to check for carry-over and practice effects often found in within-subject studies while still exposing the subjects to all conditions so that they have ‘knowledge’ of the other conditions which may influence their behavior. For this reason, Week 1 of testing was considered to be a between-groups design.

Figure 2-1: Flow chart depicting the design for an example of one group of subjects. Other groups started at a) Low hunger and maintained their initial effort assignments, b) High effort and maintained their initial hunger assignments or, c) Low effort and maintained their initial hunger assignments.

Training

After a rat successfully approached and ate from the food cup, it was trained to associate the lever retraction with food delivery. The association of lever retraction and the presence of food was especially important since the food cup could not be seen while the subject was facing the levers. After a subject reliably approached the food cup upon hearing the lever retraction, it was trained to lever press. Both levers were baited with wet mash rat food and were presented to the rat for shaping of the lever press behavior. During shaping, rats were rewarded for approaching the levers, eating off of them, touching them and ultimately, responding by pressing a lever. Rats were shaped for 2 – 3 days before being left in the chamber with a computer program operating the levers. The computer program recorded which lever had been used (right or left), retracted the levers, and delivered 2 45 mg rat chow pellets after lever activation. After 4 s had elapsed the levers were re-inserted into the chamber. During training rats were left in the chamber for 1 h or until 25 responses had been made. Once the subject reliably made all 25 required responses, the effort required to activate the lever was gradually raised using 30 and 60 g weights in subsequent sessions. Length of training varied based on individual performance; as previously mentioned, rats that were not successfully trained in 10 days were eliminated for the study. It was planned to eliminate any subjects that were not able to successfully press the high effort lever, however all subjects met the high effort requirement.

Testing

Rats were randomly assigned to a single level of both variables so that groups contained a nearly equal number of subjects. When effort was the within-subject variable, seven rats were tested at high effort (90 g) and eight tested at low effort (3 g); half of the rats in each effort group were maintained at high

hunger and half low hunger. When hunger was the within-subject variable, seven rats were assigned to high hunger and eight to low hunger; half of each group was tested at high effort and half at low effort.

The training procedure was followed during testing sessions. The levers were inserted into the chamber prior to the subject entering the chamber. The computer operated the levers and recorded lever choice (right or left) during testing until all 25 responses were made, and there was no time limit for responding. Response time ranged from 3 – 95 min with a mean of 9 min. Subjects made 25 responses for 28 days resulting in 700 total responses each.

Chapter 3

Results

Although there are a variety of potential measures of response variability, including both temporal and spatial variables, this study is focused on spatial variability. Response variability was determined by multiple measures in this study. The first measure was the number of changes from lever to lever during a single test session. Anytime the subject switched levers, a change was made. Thus, a rat that responded R, L, R, L would have made three changes, and a rat that responded R, L, L, R would have made only two changes. The second and third measures of response variability were closely related: the length of the first run of responses and the mean number of responses during each response run, where a ‘run’ is the consecutive number of responses on a single lever. By using these three measures it was possible to determine how frequently the subjects changed the location of their response as well as how many responses in each location were made, which were taken to be reasonable representations of overall response variability. For all statistical analyses $\alpha = .05$.

Between-Groups

The between-groups data, represented by the first week of testing, was analyzed using six repeated measures ANOVAs, one for each of the three measures of response variability and each variable (hunger or effort). None of the analyses showed a significant effect, suggesting that neither a difference in hunger level nor effort level influenced response variability during the first week of testing. Although no significant effect was found for either hunger or effort, effect sizes were calculated. For hunger, $d_{\text{changes}} = 0.57$, $d_{\text{first run}} = 0.43$, and $d_{\text{mean run length}} = 0.40$; these effect sizes suggest a moderate relationship between hunger and response variability. For effort, $d_{\text{changes}} = 0.87$, $d_{\text{first run}} = 0.78$, and $d_{\text{mean run length}} = 0.79$; these effect sizes

suggest a strong relationship between effort and response variability. Based on the data collected during Week 1 of testing, one would conclude that the changes in hunger and effort, although substantial, as indicated by the effect sizes, did not result in reliable (significant) impacts on response variability. Additionally, the effect sizes for effort data were nearly twice as large as the effect sizes for hunger data, suggesting effort plays a larger role than hunger in influencing response variability.

Repeated Measures

Week 1 data were then combined with Weeks 2 – 4 to create full datasets for mixed design repeated measures ANOVAs. Six ANOVAs were once again run; one for each measure of response variability with hunger as the within variable and one for each measure with effort as the within variable. To complete these tests the data was reordered to create 14 days of data at the high level and 14 days of data at the low level of the variable. Data were kept in chronological order within these new groupings so that the first seven days of each grouping were from the first time the subject experienced the given level of the variable and the second seven days of the grouping were the second time the subject experienced the given level of the variable.

Hunger. When hunger level was manipulated, there was no main effect found for the influence of hunger level on number of changes of response, $F(1, 14) = 0.48$, $p = .50$, $d = 0.37$, however, there was an interaction of hunger and days over the 14 days of testing, $F(13, 182) = 1.83$, $p < .05$, $d = 0.20$. Visual inspection of this data, shown in Figure 3-1, shows the second experience of the high hunger level produced more changes in lever choice. A Tukey LSD test was completed to investigate the simple effects of the interaction. The only comparisons that were found to be significant at $\alpha = .05$ were between days 4 & 13, 5 & 7, and 5 & 13; none of the other comparisons was significant. This interaction was further

investigated with two paired t-tests, one to compare the number of changes rats made based on hunger level during Weeks 1 & 3 together and one to compare the number of changes at the opposite hunger level during Weeks 2 & 4 together; neither of these tests was significant: $t_{15} = -.47, p = .64, d = 0.24$ and $t_{15} = 1.96, p = .07, d = 1.01$, respectively. A second analysis to investigate the possibility of the hunger and days interaction was completed using a repeated measures ANOVA. The ANOVA compared the subject's second experience of each hunger level, experienced during Weeks 3 & 4. Once again, no main effect was found for hunger level, $F(1, 14) = 3.45, p = .08, d = 0.15$, or days, $F(6, 84) = 1.11, p = .37, d = 0.23$, but the interaction of days and hunger was significant, $F(6, 84) = 2.43, p < .05, d = 0.34$. For the two other response measures, length of first run length and mean run length, no significant effects based on hunger level were found, $F(1, 14) = 0.67, p = .43, d = 0.44$ and $F(1, 14) = 0.81, p = .38, d = 0.54$, respectively. Because neither the main effects nor the interactions of these measures were significant, no further analyses were completed. The means for these measures of response variability over the 14 days of testing at each level can be seen in Figures 3-1, 3-2, and 3-3 (pp. 21–22). Data collected based on manipulation of hunger suggest that hunger levels of 80 and 90% do not influence response variability in rats. Although the analyses were not significant, moderate effect sizes were found for each of the three measures of response variability.

Figure 3-1: Number of changes for rats experiencing two levels of hunger.

Figure 3-2: Length of first run for rats experiencing two levels of hunger.

Figure 3-3: Mean run length for rats experiencing two levels of hunger.

Effort. When effort level was manipulated, multiple measures of response variability showed significant differences between high and low effort. Low effort produced a higher number of changes in response lever compared to high effort, $F(1, 14) = 10.41, p < .05, d = 2.27$. The length of first run was significantly longer in high effort times than low effort times, $F(1, 14) = 11.54, p < .005, d = 1.82$. Similarly, the mean run length was significantly longer during high effort times than low effort times, $F(1, 14) = 10.95, p < .005, d = 1.77$. Neither the main effect of days, nor the interaction of effort level and days, was significant for any of the three measures of response variability. These data suggest that effort plays a role in response variability in rats; namely, higher effort response requirements result in fewer changes in response and longer commitment to a chosen response strategy. In addition to the significant ANOVA results, effect size for each of the three measures were extremely large. These large effect sizes are driven by the means of each effort

level being more than one standard deviation apart. The means of these measures over the 14 testing days for both levels of effort can be seen in Figures 3-4, 3-5, and 3-6 (pp. 23–24).

Figure 3-4: Number of changes for rats experiencing two levels of effort.

Figure 3-5: Length of first run for rats experiencing two levels of effort.

Figure 3-6: Mean run length for rats experiencing two levels of effort.

Overall Comparison

In addition to analyses focusing on hunger and effort as individual variables, three Independent-Samples T-tests were completed, one for each measure of response variability, to compare high hunger/low effort subjects to low hunger/high effort subjects, as a specific hypothesis had been made about these two groups. It was predicted that the high hunger/low effort group would show the least response variability and the low hunger/high effort group would show the most response variability. Because each of the 30 rats experienced one, but not both, of these conditions, each rat was used once in the analyses. The mean of the 14 days at the appropriate combination of levels was taken. In some rats, this was Weeks 1 & 3, and in others it was Weeks 2 & 4, however, the time of assignment was not considered during analysis. In all three cases, the high hunger/low effort group showed more variability than the low hunger/high effort group, however, none of these differences was significant: $t_{\text{changes}(29)} = .25$, $p = .81$, $d = 0.09$, $t_{\text{first run}(29)} = .29$, $p = .77$, $d = 0.11$, and $t_{\text{mean run length}(29)} = .37$, $p = .72$, $d = 0.14$. The means for these analyses can be seen in Table 3.1 below.

Table 3.1: Means of measures of response variability for High hunger/Low effort and Low hunger/High effort rats.

	High hunger/Low effort	Low hunger/High effort
Number of Changes	3.05	2.73
Length of First Run	17.44	16.64
Average Run Length	16.86	15.79

Chapter 4

Discussion

It was expected that response variability would be influenced by changes to both hunger and effort required to respond. Specifically, it was predicted that variability would be higher in low hunger groups compared to high hunger groups because of previous research and natural feeding/foraging tendencies. Although previous work is limited, Carlton (1963) and Elliott (1934) both found an inverse relationship between hunger drive and response variability. Each of these studies varied the body weight of their subjects and presented them with the same task multiple times, neither study incorporated effort. Although the designs of both of these studies presented more options than the current study, similar results were expected. In addition to the previous research, the Optimal Foraging Theory predicts that animals will attempt to expend the least energy possible while making the largest gains. Animals that are less hungry are risking less by taking chances with their foraging strategies because they will not starve if their risk does not pay off. Thus animals that are hungrier should stick to a strategy that has been proven to work while animals that are less hungry may try new methods of seeking reward.

It was found that the changes in hunger level used in this study did not influence response variability. Although the ANOVAs were not statistically significant, Cohen's d was calculated to give an idea of how strong the effect really was. In each of the measures of response variability, a moderate effect size was found. This suggests that there is a strong relationship between hunger and response variability, even though the different hunger levels used did not result in a difference in response variability. Based on the effect sizes, it is possible that a substantially increased sample size might have shown an effect for hunger. It is possible that the two hunger levels used, 80 and 90%, were not different enough to

produce different foraging strategies in this situation. It is also possible that when paired with an effortful task, hunger does not play a role in response variability in rats, regardless of the hunger levels used.

It was also predicted that response variability would be higher in high effort groups than in low effort groups for reasons similar to those presented for hunger changes. When reward is extremely hard to gain, the energy cost may be too high and the effortful response will diminish due to extinction, which will lead to more variability in response. When reward is easy to obtain, energy expenditure is low and it is logical to continue using the easy, yet rewarding method. This prediction was supported by the findings of Riley and Shapiro (1952). Riley and Shapiro altered the effort required to open a start door leading to a t-maze and found no effect, however, they also spaced trials as either massed or distributed. When trials were massed, which was assumed to be more effortful, subjects varied their choice more often than when trials were more spaced out.

In opposition to the prediction, higher variability was found in low effort conditions and lower variability was found in high effort conditions. The low effort groups varied their responses more, regardless of how response variability was measured. The effect sizes for these analyses were extremely large, in all measures Cohen's d was greater than 1. Based on the effect sizes, the relationship between effort required on the task and response variability was very strong; in fact, the means of the two effort levels were more than a standard deviation apart. The fact that the findings are in the opposite direction of the original hypothesis suggests that the high effort condition may not have been so difficult that it resulted in rapid extinction. It is possible that if an extremely difficult task had been presented rapid extinction would have occurred and the results would have aligned with the original hypothesis.

The low variability during high effort periods that was found in this study

was predicted by the Sunk-Cost Theory. This theory suggests that, once a certain level of energy or resources has been invested in a response, the subject is likely to keep with their choice rather than changing because the subject feels they have too much invested to try a different method (Navarro & Fantino, 2005; Pattison, Zentall, & Watanabe, 2011). The Sunk-Cost Theory is in opposition to the Optimal Foraging Theory, which suggests animals will alter their foraging strategy so that they are making the biggest caloric gains possible. The Optimal Foraging Theory predicts that an animal will change hunting strategy or focus on easier prey when they have invested 'too much' energy in catching an elusive or otherwise hard to catch prey so that they do not spend all of the calories hunting that they stand to gain by being successful. In this same situation, the Sunk-Cost Theory suggests that the animal will continue to hunt the hard to catch prey item because they have resources invested in the outcome.

Combining individual hypotheses about hunger and effort lead to the specific hypothesis that animals maintaining a high hunger drive and performing an easy task should show the least amount of response variability, while animals maintaining a low hunger drive and requiring high effort should show the most variability. No support for this idea was found; in fact, the high hunger/low effort animals showed higher levels of response variability on all measures, although these differences were not significant. The effect sizes for these analyses were relatively small, suggesting there is not a strong relationship between the combined effort and hunger assignments and response variability.

In addition to discovering the effect of effort and hunger drive on response, this study intended to investigate if between-groups and within-subjects designs produced different results. Both designs were used because foraging strategies may be influenced by past experiences of varying conditions. If the only design used was a between-groups one, we would conclude that neither hunger nor effort had an

effect on response variability on this task. The within-subjects data suggest that this conclusion would be inappropriate, and that effort plays a significant role on variability. The between-groups data were collected over a shorter length of time; however, there was no interaction of time and effort in the within-subjects data, supporting the conclusion that time was not the critical factor to the change in design. In a simple descriptive analysis of the effect sizes for the between-groups and within-subjects analyses a similar trend can be seen. Although only one of the ANOVAs investigating hunger was statistically significant, effect sizes ranged from 0.37–0.57 suggesting a moderate to strong relationship between hunger and response variability. Effect sizes for between-group analyses were extremely similar to those of within-subjects analyses. Between-groups analyses suggested effort did not play a role in response variability, however, within-subjects analyses show effort playing a significant role in the same measures. During the first week of testing (between-groups) the effect sizes for effort and response variability were strong (0.78–0.87); the within-subjects analyses show an even stronger effect (1.77–2.27). This suggests that the effort required to respond plays a large role in how responses vary.

The results of this study suggest that researchers wishing to decrease unwanted variability of responding should increase the difficulty of the task. It is not necessary for the difficulty to be cognitively driven – simply increasing the force requirement on the response lever or key is sufficient to decrease variability. Additionally, subjects do not need to be overly hungry to focus on the task at hand. In this study, there was no performance difference in the rats that were more or less hungry. As long as hunger was reduced to a level to encourage learning, 90% of their free feeding weights, the rats rapidly and consistently completed the task. Based on the data collected, it may also be beneficial to use within-subjects, rather than between-groups, designs. Although these designs typically take more time and

may have practice effects in some tasks, they also allow subjects to learn from previous experiences and apply this knowledge in future sessions. Additionally, within-subjects designs can be considered more ethical as they require fewer subjects. By counter balancing initial assignments, it is possible to compare 'between-groups' at times when subjects do not have experience with other levels of a given condition even in a within-subjects design.

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Appendix A

Raw Data: Lever Position

Pages 36 through 95 report the raw lever press data for each of the 30 subjects over the 28 days of testing. Data are organized by trial number (1 – 25) in rows and date (28 days of testing) in columns. An “L” indicates the rat pressed the left lever on a given presentation; a “R” means the right lever was used. Data for each rat is split onto two consecutive pages; 14 days of testing are presented on each page.

Table A.1: Rat 1 — Raw lever press data for 28 days of testing. This table is continued on p. 37.

Date:	11-18-11	11-19-11	11-20-11	11-21-11	11-22-11	11-23-11	11-24-11	12-2-11	12-3-11	12-4-11	12-5-11	12-6-11	12-7-11	12-8-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start Time:	9:35	9:29	9:49	11:49	9:38	10:27	8:44	10:20	9:55	9:22	9:59	9:50	9:46	9:39
End Time:	9:41	9:35	9:55	11:55	9:45	10:31	8:49	10:30	10:05	9:30	10:08	9:57	9:53	9:46
Start Temp:	74	75	75	76	74	76	74	74	75	75	75	74	74	74
End Temp:	74	76	76	76	75	76	74	74	76	75	77	75	74	74
Trial 1	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 2	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	R	R	L	L	L	L	R	L	L	L	L	L	L
Trial 4	R	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 6	L	R	R	L	L	L	L	L	L	L	L	R	L	L
Trial 7	R	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 8	L	L	L	R	L	L	R	L	L	L	L	L	L	L
Trial 9	R	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 13	R	L	R	L	R	R	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	R	L	R	L	L	L	L	R	L	L	L	L	L	L
Trial 16	L	L	R	L	R	L	L	L	L	L	L	L	L	L
Trial 17	R	L	L	L	R	R	L	L	L	L	L	L	L	L
Trial 18	R	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 19	L	L	L	L	R	R	L	L	L	L	L	L	L	L
Trial 20	R	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 22	R	L	L	L	R	R	L	L	L	L	L	L	L	L
Trial 23	R	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	R	R	L	L	L	R	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	R	L	L	L	L	L	L	L	L	L

Table A.1: Continued from p. 36.

Date:	12-16-11	12-17-11	12-18-11	12-19-11	12-20-11	12-21-11	12-22-11	12-30-11	12-31-11	1-1-12	1-2-12	1-3-12	1-4-12	1-5-12
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start Time:	9:45	9:54	9:17	9:50	9:41	9:47	8:50	8:35	10:14	9:42	9:46	9:51	9:53	9:50
End Time:	9:53	9:59	9:21	9:54	9:45	9:52	8:55	8:41	10:19	9:49	9:51	9:57	9:57	9:55
Start Temp:	74	75	73	71	69	72	69	68	69	68	67	65	74	74
End Temp:	75	76	72	72	69	72	70	68	70	69	68	68	75	74
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	R	L	L	L	L	L	L	L	L	L	L	L

Table A.2: Rat 2 — Raw lever press data for 28 days of testing. This table is continued on p. 39.

Date:	11-18-11	11-19-11	11-20-11	11-21-11	11-22-11	11-23-11	11-24-11	12-2-11	12-3-11	12-4-11	12-5-11	12-6-11	12-7-11	12-8-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start Time:	9:44	9:15	9:56	11:20	10:00	10:10	8:50	10:40	9:37	9:37	9:45	10:00	9:36	9:50
End Time:	10:15	9:25	10:06	11:35	10:16	10:25	9:03	10:52	9:47	9:48	9:56	10:07	9:45	9:58
Start Temp:	74	74	76	74	76	74	75	75	74	75	74	75	74	74
End Temp:	77	75	77	75	76	76	76	76	74	76	75	75	74	76
Trial 1	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	R	L	R	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.2: Continued from p. 38.

Date:	12-16-11	12-17-11	12-18-11	12-19-11	12-20-11	12-21-11	12-22-11	12-30-11	12-31-11	1-1-12	1-2-12	1-3-12	1-4-12	1-5-12
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start Time:	9:55	9:41	9:24	9:38	9:47	9:31	8:58	8:44	10:02	9:50	9:35	10:00	9:40	9:59
End Time:	10:04	9:51	9:31	9:48	10:00	9:45	9:09	8:51	10:10	9:56	9:45	10:06	9:50	10:05
Start Temp:	75	74	72	70	70	70	70	69	68	69	66	69	73	75
End Temp:	76	75	73	71	71	71	71	69	69	70	67	71	74	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.3: Rat 3 — Raw lever press data for 28 days of testing. This table is continued on p. 41.

Date:	4-26-11	4-27-11	4-28-11	4-29-11	4-30-11	5-2-11	5-3-11	5-9-11	5-10-11	5-11-11	5-12-11	5-13-11	5-14-11	5-15-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start Time:	10:52	10:14	10:49	9:57	10:45	11:22	11:44	10:57	11:13	11:17	10:55	10:17	11:13	10:15
End Time:	11:19	10:41	11:02	10:13	10:54	11:35	12:05	11:08	11:27	11:29	11:04	10:26	11:19	10:25
Start Temp:	77	78	74	66	71	76	74	75	77	77	77	76	78	75
End Temp:	79	80	74	67	71	76	73	77	77	77	78	77	78	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	R	L	L	R	L	L	R	L	R	L	L	L	L
Trial 3	L	L	L	R	R	L	L	L	L	L	L	R	L	L
Trial 4	L	L	L	L	L	L	R	L	R	L	L	L	L	L
Trial 5	L	L	L	L	L	L	R	R	L	L	R	R	L	R
Trial 6	L	R	L	R	L	L	L	L	R	L	L	L	L	L
Trial 7	L	R	L	L	L	R	L	L	R	L	R	R	L	L
Trial 8	R	R	L	R	L	L	L	R	L	R	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	R	R	R	L	L	L
Trial 10	L	L	R	L	L	R	L	L	R	R	L	L	L	L
Trial 11	L	L	L	L	L	L	R	R	R	L	R	L	L	R
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	R	L	R	L	L	L	L	R	L	R	L
Trial 14	L	L	L	L	L	L	L	R	R	L	L	L	L	L
Trial 15	R	L	R	R	L	L	L	L	R	L	L	L	L	L
Trial 16	L	R	L	L	L	L	R	R	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 18	L	L	L	L	L	R	R	L	R	R	L	L	L	L
Trial 19	L	L	L	R	R	L	L	L	R	L	L	L	L	L
Trial 20	L	R	L	L	L	L	L	L	R	L	L	L	L	L
Trial 21	L	L	L	L	L	R	R	L	R	R	L	L	L	L
Trial 22	L	R	L	R	L	L	R	L	L	L	R	L	L	L
Trial 23	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	R	L	R	L	L	R	R	L	L	L	L
Trial 25	L	L	L	L	L	R	L	L	R	R	L	L	L	R

Table A.3: Continued from p. 40.

Date:	5-23-11	5-24-11	5-25-11	5-26-11	5-27-11	5-28-11	5-29-11	6-7-11	6-8-11	6-9-11	6-10-11	6-11-11	6-12-11	6-13-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start Time:	10:38	10:16	10:45	10:00	10:16	10:25	10:33	10:06	9:44	10:31	11:11	10:35	11:25	9:55
End Time:	10:51	10:30	11:00	10:15	10:25	10:37	10:40	10:15	9:50	10:40	11:19	10:41	11:30	10:01
Start Temp:	77	76	75	74	77	75	78	78	75	76	77	77	77	75
End Temp:	77	77	76	74	77	76	78	79	76	77	77	77	77	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 2	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	R	L	R	R	L
Trial 5	L	L	R	L	L	R	L	L	L	L	R	L	L	R
Trial 6	L	L	L	R	L	L	L	L	L	R	L	R	R	L
Trial 7	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 8	L	L	L	L	L	R	L	L	R	L	L	R	L	L
Trial 9	L	L	L	L	L	L	R	R	L	L	L	L	L	L
Trial 10	L	R	R	L	L	L	L	L	L	L	L	R	R	R
Trial 11	L	L	L	R	L	L	L	L	L	L	R	L	R	R
Trial 12	L	L	L	L	L	L	L	L	L	R	R	R	L	L
Trial 13	L	L	L	R	R	L	L	L	L	L	L	L	R	L
Trial 14	R	L	L	L	R	L	L	R	L	R	R	R	L	L
Trial 15	L	L	R	L	L	L	L	L	R	R	L	L	R	R
Trial 16	L	L	L	L	L	R	L	R	L	L	L	L	R	R
Trial 17	L	L	L	L	L	L	L	L	R	L	L	R	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	R	R	L
Trial 19	R	L	L	L	L	R	L	L	L	L	L	L	R	R
Trial 20	L	L	R	L	R	L	L	R	R	L	R	L	L	R
Trial 21	L	L	L	L	L	R	L	R	L	L	L	R	R	L
Trial 22	L	L	R	L	L	L	L	L	R	L	R	L	R	L
Trial 23	L	L	L	L	L	L	L	R	R	R	L	R	L	R
Trial 24	R	L	L	R	L	R	R	L	L	L	L	L	L	L
Trial 25	L	R	L	L	R	L	L	L	R	L	R	R	R	R

Table A.4: Rat 4 — Raw lever press data for 28 days of testing. This table is continued on p. 43.

Date:	4-26-11	4-27-11	4-28-11	4-29-11	4-30-11	5-2-11	5-3-11	5-9-11	5-10-11	5-11-11	5-12-11	5-13-11	5-14-11	5-15-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start Time:	10:16	11:06	10:34	11:03	10:04	10:30	12:29	11:27	10:29	12:02	10:22	10:36	9:54	10:55
End Time:	10:26	11:16	10:45	11:09	10:10	10:45	12:45	11:35	10:37	12:07	10:29	10:44	10:00	11:00
Start Temp:	72	82	73	71	67	73	73	77	75	78	76	77	75	77
End Temp:	74	82	74	71	68	74	74	77	75	78	76	77	75	77
Trial 1	L	L	R	L	L	R	L	L	L	L	L	L	L	L
Trial 2	R	L	L	L	R	L	L	R	R	L	R	R	R	L
Trial 3	L	L	L	R	R	R	L	R	L	L	L	L	L	R
Trial 4	L	R	R	L	R	L	R	L	L	R	L	L	L	L
Trial 5	R	L	L	L	L	L	L	R	R	L	R	L	R	L
Trial 6	L	L	R	R	L	R	L	L	L	R	L	R	L	R
Trial 7	R	R	L	R	R	L	L	R	L	L	L	L	L	L
Trial 8	L	L	R	L	L	R	L	L	R	L	L	L	L	L
Trial 9	L	L	R	L	R	L	L	L	L	L	L	R	L	L
Trial 10	R	R	L	R	R	R	L	R	R	L	L	L	L	L
Trial 11	R	L	L	L	R	L	L	R	L	L	L	L	L	L
Trial 12	L	L	L	R	L	L	R	L	R	R	L	L	L	L
Trial 13	L	R	L	L	L	R	L	L	R	L	L	L	L	R
Trial 14	R	L	R	L	R	L	L	R	L	R	L	L	L	L
Trial 15	R	L	L	R	L	L	R	L	L	L	L	L	L	L
Trial 16	R	R	R	L	R	L	L	L	L	L	L	L	R	L
Trial 17	L	R	L	L	L	L	R	R	L	L	L	L	L	L
Trial 18	L	R	L	R	L	R	L	L	L	R	L	L	L	L
Trial 19	R	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	R	R	L	L	L	L	L	L	L
Trial 22	L	R	R	L	L	L	L	R	L	L	L	L	L	L
Trial 23	L	R	L	R	R	R	L	R	L	L	L	L	L	L
Trial 24	R	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 25	R	R	L	L	R	L	L	L	L	R	L	L	L	L

Table A.4: Continued from p. 42.

Date:	5-23-11	5-24-11	5-25-11	5-26-11	5-27-11	5-28-11	5-29-11	6-7-11	6-8-11	6-9-11	6-10-11	6-11-11	6-12-11	6-13-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start Time:	10:09	10:46	10:29	11:03	10:07	10:45	10:02	9:21	10:28	9:38	10:11	10:44	10:29	10:26
End Time:	10:16	10:54	10:39	11:10	10:15	10:54	10:10	9:29	10:33	9:45	10:16	10:49	10:35	10:41
Start Temp:	74	77	75	76	76	76	75	75	78	73	76	77	74	77
End Temp:	75	78	75	76	76	76	76	76	78	74	76	77	75	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	R	R	L	L	L
Trial 4	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	R	L	L	L	R	R	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	R	L	R	L	L
Trial 14	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 22	L	L	L	L	L	L	L	R	L	L	L	L	L	R
Trial 23	L	L	L	L	L	L	L	L	R	L	L	L	L	R
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 25	L	L	L	L	L	L	R	L	L	L	L	L	L	L

Table A.5: Rat 5 — Raw lever press data for 28 days of testing. This table is continued on p. 45.

Date:	4-26-11	4-27-11	4-28-11	4-29-11	4-30-11	5-2-11	5-3-11	5-9-11	5-10-11	5-11-11	5-12-11	5-13-11	5-14-11	5-15-11
Hunger Level:	High	High	High	High	High	High	High	High	High	Low	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start Time:	11:20	10:44	11:04	10:16	10:23	11:36	12:06	11:36	10:40	11:41	10:30	10:45	10:01	11:01
End Time:	11:41	10:52	11:12	10:21	10:29	11:50	12:15	11:44	10:47	11:49	10:35	10:50	10:10	11:09
Start Temp:	79	80	75	67	69	76	73	77	75	77	76	78	76	77
End Temp:	79	81	75	67	70	77	73	77	76	77	77	78	76	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.5: Continued from p. 44.

Date:	5-23-11	5-24-11	5-25-11	5-26-11	5-27-11	5-28-11	5-29-11	6-7-11	6-8-11	6-9-11	6-10-11	6-11-11	6-12-11	6-13-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start Time:	10:54	10:30	11:00	10:16	10:26	10:00	10:41	9:30	10:34	9:46	10:17	10:50	10:36	10:44
End Time:	11:01	10:37	11:09	10:22	10:35	10:06	10:46	9:37	10:41	9:51	10:26	10:55	10:41	10:50
Start Temp:	77	77	76	74	77	74	78	76	78	74	77	77	75	77
End Temp:	78	77	76	75	77	74	78	77	78	75	77	77	75	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.6: Rat 6 — Raw lever press data for 28 days of testing. This table is continued on p. 47.

Date:	4-26-11	4-27-11	4-28-11	4-29-11	4-30-11	5-2-11	5-3-11	5-9-11	5-10-11	5-11-11	5-12-11	5-13-11	5-14-11	5-15-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start Time:	11:43	10:55	11:14	10:24	10:30	11:51	12:16	12:01	10:55	11:56	10:15	10:30	9:46	11:18
End Time:	11:53	11:02	11:20	10:30	10:36	12:10	12:26	12:09	10:59	12:01	10:20	10:35	9:51	11:24
Start Temp:	80	81	75	68	70	77	73	77	76	78	75	77	74	77
End Temp:	80	82	75	69	70	77	73	77	77	78	75	77	75	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	R	L	L	L	R
Trial 3	L	L	L	L	L	L	L	L	R	L	L	L	R	L
Trial 4	L	L	L	L	L	L	L	L	L	R	L	L	L	R
Trial 5	R	L	L	L	L	L	L	L	L	L	R	R	L	L
Trial 6	L	L	L	L	L	L	L	R	L	R	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	R	L	R	L	L	L
Trial 8	L	R	L	L	L	L	L	R	L	R	L	L	L	R
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	R	L	L	L	L	L	L	L	L	L	R	L	R	R
Trial 11	L	L	L	L	L	L	L	R	L	R	L	R	L	L
Trial 12	L	L	L	L	L	L	L	L	R	L	R	L	L	L
Trial 13	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	R	L	R	L	L	L	L	R
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 16	L	R	L	L	L	L	L	L	L	L	L	L	L	R
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 18	L	L	L	L	L	L	L	L	R	R	R	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 20	L	L	L	L	L	L	L	L	L	R	L	L	R	L
Trial 21	L	L	L	L	L	L	L	L	L	L	R	R	L	L
Trial 22	L	L	L	L	L	L	L	R	R	R	L	L	L	R
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	R	L	L	L	L	R	R
Trial 25	L	L	L	L	L	R	L	L	L	L	L	L	L	L

Table A.6: Continued from p. 46.

Date:	5-23-11	5-24-11	5-25-11	5-26-11	5-27-11	5-28-11	5-29-11	6-7-11	6-8-11	6-9-11	6-10-11	6-11-11	6-12-11	6-13-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start Time:	11:04	10:38	11:10	10:23	10:36	10:08	10:17	9:45	11:04	10:00	9:48	11:05	10:50	11:24
End Time:	11:10	10:45	11:15	10:35	10:50	10:14	10:24	9:51	11:09	10:06	9:53	11:09	10:55	11:28
Start Temp:	78	77	76	75	77	74	77	78	77	75	75	77	76	76
End Temp:	78	77	76	75	77	75	77	78	77	76	75	77	77	76
Trial 1	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	R	L	L	R	R	L	R	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	R	R	L
Trial 5	L	L	L	L	L	R	R	L	R	L	R	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	R	L	R	R	R
Trial 7	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 8	L	L	L	R	R	R	R	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	R	R	L	R
Trial 10	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	R	R	L	R
Trial 12	L	L	L	L	R	L	R	L	R	L	L	L	L	L
Trial 13	L	L	L	L	L	R	L	L	L	L	L	L	L	R
Trial 14	L	L	L	L	L	L	L	L	R	L	L	L	R	L
Trial 15	L	L	L	L	L	L	L	L	L	R	L	R	L	L
Trial 16	L	L	L	L	L	L	L	L	R	L	L	L	L	R
Trial 17	L	L	L	L	L	L	L	L	L	L	R	R	L	L
Trial 18	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 19	L	L	L	L	L	R	R	R	L	R	R	L	L	R
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 21	L	L	L	L	L	L	L	R	L	R	R	L	L	L
Trial 22	R	L	L	L	L	L	L	R	L	L	L	R	L	R
Trial 23	L	L	L	L	L	L	L	L	R	L	R	L	L	L
Trial 24	L	L	L	L	L	L	R	L	L	L	L	L	R	L
Trial 25	L	L	L	L	L	R	L	R	L	L	R	L	L	L

Table A.7: Rat 7 — Raw lever press data for 28 days of testing. This table is continued on p. 49.

Date:	4-26-11	4-27-11	4-28-11	4-29-11	4-30-11	5-2-11	5-3-11	5-9-11	5-10-11	5-11-11	5-12-11	5-13-11	5-14-11	5-15-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	10:34	11:24	10:27	10:53	10:00	10:52	12:54	11:18	11:29	11:30	10:38	9:55	11:20	10:26
End Time:	10:39	11:29	10:31	11:01	10:03	10:55	12:59	11:25	11:38	11:40	10:44	10:01	11:24	10:30
Start Temp:	75	82	72	71	66	74	74	78	77	77	77	75	78	75
End Temp:	76	82	73	71	67	74	74	78	78	77	77	75	78	76
Trial 1	R	R	L	R	R	R	R	L	L	L	L	R	L	L
Trial 2	R	L	R	R	R	L	L	L	R	R	L	L	L	L
Trial 3	L	R	R	L	L	R	L	L	L	L	R	L	R	R
Trial 4	L	R	L	L	R	R	R	R	L	L	L	R	L	L
Trial 5	L	R	L	L	L	L	R	L	R	R	L	L	L	L
Trial 6	L	L	L	L	L	R	R	L	L	L	R	L	L	L
Trial 7	R	R	L	R	R	R	L	L	L	L	R	R	R	L
Trial 8	R	L	L	R	L	L	R	R	R	L	L	L	R	R
Trial 9	L	R	R	L	L	L	L	L	L	L	L	L	L	L
Trial 10	R	R	R	L	L	L	L	L	L	R	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 12	R	L	R	L	L	L	L	R	R	L	L	L	L	R
Trial 13	R	L	R	L	L	L	L	R	L	L	L	L	L	L
Trial 14	R	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 15	R	R	R	L	L	L	R	L	L	L	L	R	R	R
Trial 16	R	L	R	L	L	L	L	R	R	L	R	L	L	L
Trial 17	L	R	L	L	L	L	L	R	R	L	R	R	R	L
Trial 18	L	R	L	L	L	L	L	R	L	L	L	L	L	R
Trial 19	L	R	R	R	R	L	R	L	R	L	R	L	L	L
Trial 20	R	R	L	L	R	L	L	R	L	L	L	R	L	L
Trial 21	R	L	L	L	L	R	L	L	L	L	L	L	L	R
Trial 22	R	L	R	L	L	L	L	L	R	R	L	L	L	L
Trial 23	R	L	L	R	L	L	L	L	L	R	L	L	R	L
Trial 24	L	R	L	L	L	L	R	L	L	R	R	L	L	L
Trial 25	R	R	L	L	L	L	R	L	L	L	L	L	L	L

Table A.7: Continued from p. 48.

Date:	5-23-11	5-24-11	5-25-11	5-26-11	5-27-11	5-28-11	5-29-11	6-7-11	6-8-11	6-9-11	6-10-11	6-11-11	6-12-11	6-13-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	10:25	11:01	10:22	10:57	9:50	10:40	9:57	10:15	9:51	10:51	11:20	9:55	11:31	10:03
End Time:	10:29	11:08	10:28	11:02	10:06	10:44	10:01	10:23	9:59	11:00	11:25	9:59	11:38	10:08
Start Temp:	76	78	74	76	75	76	75	79	76	76	77	74	77	76
End Temp:	76	78	75	76	76	76	75	79	77	77	77	75	77	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	R	L	R	R	L	R	L	L	L	L	R	L	L
Trial 3	R	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	R	L	L	L	L	L	R	L
Trial 5	R	L	L	L	L	L	R	L	L	L	L	R	L	L
Trial 6	L	L	L	R	L	L	L	L	R	L	R	L	L	L
Trial 7	R	L	L	L	L	L	L	L	L	R	L	L	R	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	R	L	L	L	L	L	L	L	L	R	L	L	L
Trial 10	R	L	L	R	L	L	L	L	L	R	L	L	L	L
Trial 11	R	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	R	R	L
Trial 13	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 14	L	R	L	L	L	L	L	L	L	R	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 16	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 19	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 21	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 22	L	L	R	R	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	R	L	L	L	L	L	R
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	R	L

Table A.8: Rat 8 — Raw lever press data for 28 days of testing. This table is continued on p. 51.

Date:	6-7-11	6-8-11	6-9-11	6-10-11	6-11-11	6-12-11	6-13-11	6-22-11	6-23-11	6-24-11	6-25-11	6-26-11	6-27-11	6-28-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	10:25	10:01	10:02	10:45	10:00	11:40	10:09	12:28	9:35	10:38	10:03	10:15	9:57	11:51
End Time:	11:19	10:10	11:09	10:53	10:09	11:46	10:16	12:36	9:41	10:45	10:24	10:20	10:04	11:55
Start temp:	79	77	77	77	75	77	76	74	73	76	73	76	75	77
End Temp:	79	77	77	77	76	77	77	74	75	76	75	76	75	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 12	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 15	L	L	L	L	L	L	R	L	L	L	R	R	L	R
Trial 16	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	R	L	R	R
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	R	L	L	R
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	R

Table A.8: Continued from p. 50.

Date:	7-7-11	7-8-11	7-9-11	7-10-11	7-11-11	7-12-11	7-13-11	7-20-11	7-21-11	7-22-11	7-23-11	7-24-11	7-25-11	7-26-11
Hunger Level:	High	High	High	High	High	High	High	High	High	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	9:44	11:05	9:18	10:20	10:24	10:20	10:06	10:08	9:26	10:16	8:51	9:55	9:41	10:43
End Time:	9:51	11:10	9:25	10:25	10:31	10:25	10:13	10:14	9:31	10:25	8:58	10:00	9:50	10:54
Start temp:	74	77	74	76	74	76	74	77	74	77	74	77	74	76
End Temp:	75	77	75	76	74	76	74	77	74	77	74	77	75	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	R	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	R	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.9: Rat 9 — Raw lever press data for 28 days of testing. This table is continued on p. 53.

Date:	6-7-11	6-8-11	6-9-11	6-10-11	6-11-11	6-12-11	6-13-11	6-22-11	6-23-11	6-24-11	6-25-11	6-26-11	6-27-11	6-28-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	11:31	11:10	10:08	9:55	11:10	10:56	11:29	12:10	10:40	9:53	11:38	9:40	10:45	9:42
End Time:	11:40	11:15	10:15	10:00	11:15	11:04	11:36	12:17	10:46	10:00	11:45	9:47	10:52	9:49
Start Temp:	79	77	76	75	77	77	76		76	73	76	73	76	75
End Temp:	79	77	76	75	77	77	76		76	74	76	74	76	76
Trial 1	L	L	L	L	L	L	L	R	R	L	L	L	R	L
Trial 2	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.9: Continued from p. 52.

Date:	7-7-11	7-8-11	7-9-11	7-10-11	7-11-11	7-12-11	7-13-11	7-20-11	7-21-11	7-22-11	7-23-11	7-24-11	7-25-11	7-26-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	11:15	9:51	10:01	9:50	10:57	9:47	10:43	9:35	9:59	9:25	10:39	8:58	11:08	9:20
End Time:	11:26	9:56	10:09	9:55	11:04	9:53	10:48	9:40	10:04	9:33	10:45	9:05	11:14	9:26
Start Temp:	77	74	76	74	76	74	76	74	76	74	77	74	77	74
End Temp:	77	75	76	74	76	74	77	75	77	75	77	74	77	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.10: Rat 10 — Raw lever press data for 28 days of testing. This table is continued on p. 55.

Date:	6-7-11	6-8-11	6-9-11	6-10-11	6-11-11	6-12-11	6-13-11	6-22-11	6-23-11	6-24-11	6-25-11	6-26-11	6-27-11	6-28-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	11:20	10:12	11:10	10:55	10:10	11:47	10:17	12:37	9:44	10:45	10:25	10:21	10:06	11:57
End Time:	11:30	10:25	11:19	11:03	10:25	11:57	10:25	12:41	9:48	10:55	10:31	10:26	10:11	12:07
Start Temp:	79	77	77	77	76	77	77		75	76	75	76	75	77
End Temp:	79	78	77	77	77	77	77		75	76	75	76	76	77
Trial 1	L	L	L	L	L	L	L	R	L	L	L	L	L	R
Trial 2	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 4	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 6	L	L	L	L	L	L	L	L	L	R	L	R	L	R
Trial 7	L	L	L	L	L	L	L	R	L	L	L	L	R	L
Trial 8	L	L	L	L	L	L	L	L	L	R	L	L	L	R
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	R	L	R
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	R	R
Trial 17	L	L	L	L	L	L	L	L	L	L	L	R	R	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	R	R
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	R	R
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	R	R
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	R	R

Table A.10: Continued from p. 54.

Date:	7-7-11	7-8-11	7-9-11	7-10-11	7-11-11	7-12-11	7-13-11	7-20-11	7-21-11	7-22-11	7-23-11	7-24-11	7-25-11	7-26-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	9:54	11:14	9:26	10:26	10:32	10:26	10:14	10:16	9:32	10:26	8:59	10:01	9:52	10:55
End Time:	10:01	11:26	9:35	10:34	10:39	10:34	10:24	10:21	9:37	10:34	9:05	10:07	9:56	11:00
Start Temp:	75	77	75	76	74	76	74	77	75	77	74	77	75	77
End Temp:	76	76	75	77	75	77	75	77	75	77	75	77	75	77
Trial 1	L	L	L	L	L	L	L	R	R	R	R	R	L	L
Trial 2	L	L	R	R	L	R	L	L	L	L	L	L	L	R
Trial 3	L	L	L	L	R	L	R	R	R	R	R	L	R	L
Trial 4	R	L	R	L	L	R	L	L	L	R	L	R	L	R
Trial 5	L	R	R	R	R	L	L	R	R	L	R	L	R	R
Trial 6	R	L	L	R	R	L	R	L	L	R	L	R	R	L
Trial 7	L	R	R	R	R	R	L	R	R	L	R	L	L	R
Trial 8	L	L	R	R	R	L	L	L	L	R	R	R	R	L
Trial 9	L	R	R	R	R	R	R	R	R	L	R	L	L	R
Trial 10	R	R	R	R	L	R	L	L	R	R	L	R	R	L
Trial 11	L	R	R	R	R	L	R	R	L	L	R	L	L	R
Trial 12	R	R	R	L	L	L	L	L	R	R	L	R	R	L
Trial 13	L	R	R	R	R	R	R	R	L	L	R	L	R	R
Trial 14	L	L	R	L	L	L	L	L	R	R	L	R	R	L
Trial 15	R	R	R	R	R	L	R	R	L	L	R	L	R	R
Trial 16	L	L	R	L	R	L	L	R	R	R	R	R	R	L
Trial 17	L	R	R	R	L	R	R	L	L	L	L	R	R	R
Trial 18	R	R	L	L	L	L	L	R	R	R	R	L	L	L
Trial 19	L	R	R	L	R	L	R	L	L	R	R	R	R	R
Trial 20	R	L	L	L	L	R	L	R	R	L	L	L	L	L
Trial 21	L	R	R	R	R	L	L	L	L	R	R	R	L	R
Trial 22	L	R	R	L	L	L	L	R	R	R	R	R	R	L
Trial 23	R	R	R	R	R	R	R	L	L	L	L	L	L	R
Trial 24	L	L	L	L	L	L	L	R	R	R	R	R	R	L
Trial 25	R	R	R	R	R	L	R	L	L	L	L	L	L	R

Table A.11: Rat 11 — Raw lever press data for 28 days of testing. This table is continued on p. 57.

Date:	6-7-11	6-8-11	6-9-11	6-10-11	6-11-11	6-12-11	6-13-11	6-22-11	6-23-11	6-24-11	6-25-11	6-26-11	6-27-11	6-28-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
start time:	11:41	11:16	10:16	10:01	11:16	11:06	11:37	12:19	10:47	10:01	11:46	9:49	10:53	9:50
end time:	11:47	11:25	10:23	10:10	11:21	11:15	11:41	12:25	10:55	10:09	11:54	9:56	10:59	9:58
start temp:	79	77	76	75	77	77	76		76	74	76	74	76	76
End temp:	79	77	76	76	77	77	76		76	74	76	74	76	76
Trial 1	R	R	R	R	L	R	R	R	R	R	R	R	L	L
Trial 2	L	R	R	R	R	R	R	R	R	L	R	R	R	R
Trial 3	R	L	R	R	R	R	R	R	R	R	R	R	R	R
Trial 4	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 5	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 6	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 7	L	R	R	R	R	R	R	R	R	L	R	R	R	R
Trial 8	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 9	L	R	R	L	R	R	R	R	R	R	R	R	R	R
Trial 10	R	R	R	R	R	R	R	R	R	R	R	R	L	R
Trial 11	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 12	R	R	R	R	R	R	R	R	R	R	L	R	R	R
Trial 13	R	R	R	R	R	R	L	R	R	R	R	R	L	R
Trial 14	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 15	R	R	L	R	R	L	R	R	R	R	R	R	R	R
Trial 16	R	R	L	R	R	R	R	R	R	R	R	R	R	R
Trial 17	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 18	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 19	R	L	R	R	R	R	R	R	R	R	R	R	R	R
Trial 20	R	R	R	R	R	R	R	R	R	R	R	L	R	L
Trial 21	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 22	L	R	R	R	R	R	R	R	R	R	R	R	R	L
Trial 23	R	R	R	L	R	R	R	L	R	R	R	R	R	R
Trial 24	L	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 25	L	R	R	R	R	R	R	R	L	R	R	L	R	R

Table A.11: Continued from p. 56.

Date:	7-7-11	7-8-11	7-9-11	7-10-11	7-11-11	7-12-11	7-13-11	7-20-11	7-21-11	7-22-11	7-23-11	7-24-11	7-25-11	7-26-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
start time:	11:29	9:59	10:10	9:56	11:05	9:55	10:50	9:41	10:05	9:34	10:46	9:06	11:14	9:28
end time:	11:35	10:07	10:20	10:03	11:10	10:04	10:55	9:49	10:14	9:40	10:55	9:14	11:20	9:35
start temp:	77	75	76	74	76	74	77	75	77	75	77	75	78	75
End temp:	77	75	77	75	77	75	77	75	77	75	77	75	78	75
Trial 1	R	L	R	L	L	L	R	R	R	R	R	R	R	L
Trial 2	L	R	R	R	R	R	R	L	R	R	R	R	R	R
Trial 3	R	R	R	R	R	R	L	R	R	R	R	L	R	R
Trial 4	R	R	R	R	R	R	R	L	R	R	R	R	R	R
Trial 5	R	L	R	R	R	R	L	R	L	R	R	R	R	R
Trial 6	R	L	R	L	R	R	L	R	R	R	R	R	R	R
Trial 7	R	R	L	R	R	L	R	R	R	R	L	R	R	R
Trial 8	R	R	R	R	L	L	R	R	R	L	R	R	R	L
Trial 9	R	R	R	R	R	R	R	R	R	R	R	R	R	L
Trial 10	R	R	R	R	R	R	R	R	L	L	R	R	R	L
Trial 11	R	L	R	R	R	R	R	R	L	R	R	R	R	R
Trial 12	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Trial 13	R	R	R	R	R	L	R	R	L	R	R	R	R	L
Trial 14	R	R	R	L	R	R	L	R	R	R	R	L	L	R
Trial 15	R	L	R	R	R	R	L	L	R	R	R	R	L	R
Trial 16	R	R	L	R	R	R	R	L	L	R	R	R	R	R
Trial 17	R	R	R	R	L	L	R	R	R	R	R	R	L	R
Trial 18	L	R	L	L	R	L	L	R	R	L	R	R	L	R
Trial 19	R	L	L	L	R	R	R	L	R	R	R	L	R	R
Trial 20	L	L	R	L	L	L	R	R	R	R	R	L	L	R
Trial 21	R	L	L	R	R	L	L	L	R	R	L	R	L	R
Trial 22	R	L	L	R	R	L	R	R	R	L	R	R	R	R
Trial 23	R	R	L	R	L	R	R	R	R	L	R	L	R	R
Trial 24	R	L	R	R	L	L	R	R	R	R	R	L	R	R
Trial 25	R	R	L	R	L	L	L	R	R	R	R	R	L	L

Table A.12: Rat 12 — Raw lever press data for 28 days of testing. This table is continued on p. 59.

Date:	6-24-11	6-25-11	6-26-11	6-27-11	6-28-11	6-29-11	6-30-11	7-7-11	7-8-11	7-9-11	7-10-11	7-11-11	7-12-11	7-13-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start time:	12:55	11:05	10:59	9:35	9:59	10:26	9:21	11:37	10:09	10:20	10:04	11:11	10:05	10:58
End Time:	13:11	11:36	11:08	9:46	10:10	10:34	9:30	11:45	10:15	10:29	10:11	11:20	10:11	11:04
Start temp:		76	76	73	76	76	75	77	75	77	75	77	75	77
End temp:		76	76	75	76	76	75	77	76	77	75	77	76	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 5	L	L	L	L	L	L	L	L	R	L	R	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 8	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 13	L	L	L	L	L	L	L	L	L	R	L	R	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	R	L	R	L	R	L
Trial 19	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	R	R	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	R	L	L	L	R	L
Trial 23	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	R	R	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	R	L	L

Table A.12: Continued from p. 58.

Date:	7-20-11	7-21-11	7-22-11	7-23-11	7-24-11	7-25-11	7-26-11	7-30-11	7-31-11	8-1-11	8-2-11	8-3-11	8-4-11	8-5-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start time:	10:24	9:39	10:35	9:06	10:08	10:08	11:02	9:30	9:25	10:16	10:11	12:08	12:00	9:54
End Time:	10:34	9:46	10:45	9:15	10:16	10:15	11:10	9:37	9:30	10:21	10:16	12:16	12:06	10:00
Start temp:	77	75	77	75	77	77	77	74	76	76	76	77	77	75
End temp:	77	76	77	75	77	77	77	75	76	76	76	78	77	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	R	R	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	R	R	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 14	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	R	R	R	L	L	L
Trial 16	L	L	L	L	L	L	L	R	L	L	L	R	L	L
Trial 17	L	L	L	L	L	L	L	R	L	L	L	R	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 19	L	L	L	L	L	L	L	L	L	L	R	L	L	R
Trial 20	L	L	L	L	L	L	L	R	L	R	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	R	L	R	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	R	L	R	L	L	L

Table A.13: Rat 13 — Raw lever press data for 28 days of testing. This table is continued on p. 61.

Date:	6-24-11	6-25-11	6-26-11	6-27-11	6-28-11	6-29-11	6-30-11	7-7-11	7-8-11	7-9-11	7-10-11	7-11-11	7-12-11	7-13-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High
Start time:	10:10	11:55	9:57	10:14	9:23	10:35	9:00	10:04	11:28	9:36	10:35	10:40	10:35	10:25
End time:	10:20	12:04	10:04	10:37	9:30	10:46	9:09	10:45	11:45	9:46	10:42	10:46	10:41	10:30
Start temp:	74	76	75	76	74	76	73	76	76	75	77	75	77	75
End Temp:	75	76	75	76	74	76	74	77	76	76	77	75	77	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	R	R	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	R	R	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	R	L	R	L	L	L	L
Trial 9	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	R	L	L	L	L	L	L

Table A.13: Continued from p. 60.

Date:	7-20-11	7-21-11	7-22-11	7-23-11	7-24-11	7-25-11	7-26-11	7-30-11	7-31-11	8-1-11	8-2-11	8-3-11	8-4-11	8-5-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	9:50	10:15	9:41	10:56	9:15	11:20	9:36	10:09	9:09	10:29	9:54	12:26	12:16	9:35
End time:	9:59	10:20	9:50	11:01	9:20	11:25	9:41	10:15	9:15	10:34	10:00	12:33	12:25	9:41
Start temp:	75	77	75	77	75	78	75	77	74	77	74	78	77	74
End Temp:	76	77	76	77	76	78	76	77	75	77	75	78	77	74
Trial 1	L	L	L	L	L	R	R	L	L	L	L	L	L	L
Trial 2	R	L	L	L	L	L	R	L	L	L	L	R	L	L
Trial 3	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	R	L	R	R	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	R	L	L	L	L	R	L	L	R	L	L	L	L	L
Trial 8	L	L	L	L	R	R	L	L	L	L	L	L	L	L
Trial 9	R	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 10	L	L	L	L	R	R	L	L	L	L	L	R	L	L
Trial 11	R	R	L	R	R	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	R	L	R	L	L	L	L	R	L	L
Trial 13	R	L	L	L	R	R	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 15	L	L	L	R	L	R	R	L	L	L	L	L	L	L
Trial 16	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 20	L	L	R	L	R	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	R	R	L	L	L	L	L	L
Trial 22	L	L	L	R	R	R	L	L	L	L	L	L	L	L
Trial 23	L	L	R	L	R	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	R	R	L	L	L	L	L	L	L	L	L
Trial 25	R	L	L	L	L	R	L	L	L	L	L	L	L	L

Table A.14: Rat 14 — Raw lever press data for 28 days of testing. This table is continued on p. 63.

Date:	6-24-11	6-25-11	6-26-11	6-27-11	6-28-11	6-29-11	6-30-11	7-7-11	7-8-11	7-9-11	7-10-11	7-11-11	7-12-11	7-13-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start time:	12:20	10:33	10:28	9:49	11:40	10:00	9:31	11:45	10:58	10:30	10:13	11:21	10:13	11:05
End time:	12:54	11:04	10:55	9:55	11:50	10:25	9:45	11:54	11:02	10:37	10:19	11:30	10:19	11:11
Start temp:		75	76	75	77	73	76	77	78	77	76	77	76	77
End Temp:		75	76	75	77	75	76	77	77	77	76	77	76	77
Trial 1	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	R	L	L	L	L	L	R	L	L
Trial 3	L	L	L	L	L	R	L	L	L	L	L	L	L	R
Trial 4	L	L	L	L	L	R	L	L	L	R	L	L	L	L
Trial 5	L	L	L	L	L	R	L	L	L	R	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	R	L	L	L	R	L	R	L
Trial 8	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 9	L	L	L	L	L	R	L	R	L	L	L	L	L	L
Trial 10	L	L	L	L	L	R	L	L	L	R	L	R	L	L
Trial 11	L	L	L	L	L	R	L	L	R	L	L	R	R	L
Trial 12	L	L	L	L	L	L	R	R	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 15	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	R	L	L	L	L	L	L	L	R	L	R	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 19	L	L	L	L	L	L	L	R	L	L	L	L	R	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	R	L	R	L	L	L	R	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 23	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 24	L	L	L	L	R	L	L	L	R	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	R	L	L	L	L	L	L

Table A.14: Continued from p. 62.

Date:	7-20-11	7-21-11	7-22-11	7-23-11	7-24-11	7-25-11	7-26-11	7-30-11	7-31-11	8-1-11	8-2-11	8-3-11	8-4-11	8-5-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start time:	10:36	9:48	10:46	9:16	10:17	10:16	11:11	9:39	9:31	10:23	10:19	12:19	10:08	10:01
End time:	10:41	9:55	10:54	9:25	10:25	10:24	11:18	9:44	9:37	10:26	10:25	12:25	12:14	10:07
Start temp:	77	76	77	75	77	77	77	75	76	76	76	78	77	76
End Temp:	77	76	77	76	78	77	77	75	76	77	77	78	77	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 12	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 15	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 20	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	R	L	L

Table A.15: Rat 15 — Raw lever press data for 28 days of testing. This table is continued on p. 65.

Date:	6-24-11	6-25-11	6-26-11	6-27-11	6-28-11	6-29-11	6-30-11	7-7-11	7-8-11	7-9-11	7-10-11	7-11-11	7-12-11	7-13-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	10:21	12:05	10:05	10:38	9:30	10:47	9:10	10:46	11:46	9:46	10:44	10:49	10:42	10:31
End time:	10:35	12:16	10:14	10:44	9:41	11:00	9:20	11:14	11:55	10:00	10:54	10:55	10:49	10:40
Start temp:	75	76	75	76	74	76	74	77	76	76	77	75	77	76
End temp:	75	76	75	76	75	76	75	77	76	76	77	76	77	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.15: Continued from p. 64.

Date:	7-20-11	7-21-11	7-22-11	7-23-11	7-24-11	7-25-11	7-26-11	7-30-11	7-31-11	8-1-11	8-2-11	8-3-11	8-4-11	8-5-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	10:00	10:21	9:51	11:02	9:21	11:26	9:43	10:15	9:16	10:35	10:01	12:34	12:26	9:42
End time:	10:05	10:30	10:00	11:08	9:28	11:30	9:50	10:25	9:23	10:40	10:10	12:40	12:33	9:50
Start temp:	76	77	76	77	76	78	76	77	75	77	75	78	77	74
End temp:	77	77	76	77	76	78		77	76	77	75	78	77	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 10	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 11	L	R	L	L	L	L	R	L	L	L	L	R	L	L
Trial 12	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 14	L	R	L	L	L	R	L	L	L	L	L	R	L	L
Trial 15	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 16	R	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 19	R	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	R	R	L	R	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.16: Rat 16 — Raw lever press data for 28 days of testing. This table is continued on p. 67.

Date:	7-24-11	7-25-11	7-26-11	7-27-11	7-28-11	7-29-11	7-30-11	8-8-11	8-9-11	8-10-11	8-11-11	8-12-11	8-13-11	8-14-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	high	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	10:25	10:28	11:20	9:10	10:28	8:34	10:25	11:25	10:11	11:08	9:45	10:29	9:41	10:16
End time:	10:40	10:40	11:29	9:16	10:34	9:40	10:31	11:31	10:17	11:14	9:51	10:35	9:50	10:25
Start temp:	78	77	77	74	76	74	77	77	74	77	74	76	74	76
End Temp:	77	77	77	74	76	75	77	77	74	77	74	76	74	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.16: Continued from p. 66.

Date:	8-21-11	8-22-11	8-23-11	8-24-11	8-25-11	8-26-11	8-27-11	9-4-11	9-5-11	9-6-11	9-7-11	9-8-11	9-9-11	9-10-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	9:47	9:50	12:10	9:35	12:59	8:18	8:27	8:40	10:11	10:09	9:35	10:05	9:39	10:02
End time:	10:13	9:55	12:20	9:41	13:08	8:22	8:32	9:46	10:16	10:15	9:40	10:11	9:49	10:07
Start temp:	74	73	77	74	77	74	76	76	75	75	74	75	74	76
End Temp:	76	73	77	75	77	74	76	76	74	75	75	76	75	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.17: Rat 17 — Raw lever press data for 28 days of testing. This table is continued on p. 69.

Date:	7-24-11	7-25-11	7-26-11	7-27-11	7-28-11	7-29-11	7-30-11	8-8-11	8-9-11	8-10-11	8-11-11	8-12-11	8-13-11	8-14-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	9:29	11:31	9:55	9:45	10:05	10:07	9:45	11:05	11:16	10:41	10:54	9:51	10:19	9:45
End time:	9:39	11:37	10:05	9:55	10:15	10:19	9:55	11:15	11:25	10:55	11:04	9:59	10:26	9:51
Start temp:	76	78	76	76	74	76	75	77	76	77	77	74	76	74
End Temp:	77	78	77	77	75	77	76	77	76	77	77	74	77	74
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 12	R	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 13	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 19	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 21	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.17: Continued from p. 68.

Date:	8-21-11	8-22-11	8-23-11	8-24-11	8-25-11	8-26-11	8-27-11	9-4-11	9-5-11	9-6-11	9-7-11	9-8-11	9-9-11	9-10-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	9:30	10:07	11:54	10:35	12:13	9:05	7:50	8:59	11:12	9:29	10:34	9:31	10:15	9:31
End time:	9:36	10:14	11:59	10:40	12:19	9:14	7:59	9:06	11:19	9:36	10:43	9:40	10:23	9:39
Start temp:	74	74	77	77	77	76	74	74	76	74	76	74	75	74
End Temp:	74	75	77	77	77	76	74	74	76	75	76	75	76	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	R	L	L	R
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	R	L	L	L	L	L

Table A.18: Rat 18 — Raw lever press data for 28 days of testing. This table is continued on p. 71.

Date:	7-24-11	7-25-11	7-26-11	7-27-11	7-28-11	7-29-11	7-30-11	8-8-11	8-9-11	8-10-11	8-11-11	8-12-11	8-13-11	8-14-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	10:41	10:41	10:30	9:19	10:35	9:41	10:34	11:34	11:07	11:15	9:54	10:36	9:52	10:26
End time:	11:24	11:06	12:05	9:42	10:51	10:05	10:55	11:40	11:15	11:24	10:01	10:43	9:59	10:32
Start temp:	77	77	77	74	77	75	77	77	76	77	74	76	74	76
End temp:	78	77	78	76	77	76	77	77	76	77	75	77	75	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.18: Continued from p. 70.

Date:	8-21-11	8-22-11	8-23-11	8-24-11	8-25-11	8-26-11	8-27-11	9-4-11	9-5-11	9-6-11	9-7-11	9-8-11	9-9-11	9-10-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	10:14	9:56	12:21	9:44	1:10	8:25	8:34	9:48	10:19	10:15	9:42	10:14	9:50	10:08
End time:	10:30	10:04	12:35	9:55	1:22	8:34	8:44	9:55	10:25	10:26	9:50	10:20	9:55	10:14
Start temp:	76	74	77	75	77	75	76	76	74	75	75	76	75	76
End temp:	76	74	77	75	77	76	76	76	74		75	76	75	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.19: Rat 19 — Raw lever press data for 28 days of testing. This table is continued on p. 73.

Date:	7-24-11	7-25-11	7-26-11	7-27-11	7-28-11	7-29-11	7-30-11	8-8-11	8-9-11	8-10-11	8-11-11	8-12-11	8-13-11	8-14-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	9:40	11:38	10:06	9:59	10:16	10:20	9:56	11:16	11:26	10:56	11:05	10:00	10:27	9:54
End time:	9:53	11:46	10:18	10:07	10:25	10:30	10:07	11:22	11:32	11:06	11:12	10:10	10:34	10:00
Start temp:	77	78	77	77	75	77	76	77	76	77	77	74	77	74
End temp:	77	78	77	77	76	77	77	77	76	77	77	75	77	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.19: Continued from p. 72.

Date:	8-21-11	8-22-11	8-23-11	8-24-11	8-25-11	8-26-11	8-27-11	9-4-11	9-5-11	9-6-11	9-7-11	9-8-11	9-9-11	9-10-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	9:38	10:15	12:00	10:41	12:20	9:15	8:00	9:08	11:24	9:37	10:44	9:41	10:25	9:40
End time:	9:45	10:25	12:09	10:50	12:25	9:25	8:07	9:15	11:30	9:49	10:49	9:48	10:31	9:46
Start temp:	74	75	77	77	77	76	74	74	76	75	76	75	76	75
End temp:	74	75	77	77	77	77	76	75	76	75	76	75	76	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.20: Rat 20 — Raw lever press data for 28 days of testing. This table is continued on p. 75.

Date:	8-11-11	8-12-11	8-13-11	8-14-11	8-15-11	8-16-11	8-17-11	8-24-11	8-25-11	8-26-11	8-27-11	8-28-11	8-29-11	8-30-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start time:	10:04	10:45	10:00	10:34	10:28	11:17	9:41	10:53	12:26	9:27	8:09	9:19	10:51	10:34
End time:	10:15	10:55	10:06	10:40	10:34	11:24	9:50	11:06	12:33	9:31	8:14	9:23	10:55	10:37
Start temp:	75	77	75	76	74	77	74	77	77	77	76	74	76	74
End temp:	75	77	75	76	75	77	75	77	77	77	76	74	76	75
Trial 1	R	L	L	L	L	R	L	R	L	L	L	R	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 5	L	L	L	L	L	R	L	R	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 14	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	R	R	L	L	R	L	L	L	L
Trial 17	L	L	L	L	L	R	R	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 19	L	L	L	R	L	R	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	R	L	L	R	L	L	L	L	L	L	L
Trial 24	L	L	L	R	L	L	R	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	R	L	L	L	L	L	L	L	L

Table A.20: Continued from p. 74.

Date:	9-7-11	9-8-11	9-9-11	9-10-11	9-11-11	9-12-11	9-13-11	9-21-11	9-22-11	9-23-11	9-24-11	9-25-11	9-26-11	9-27-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start time:	9:51	10:22	9:58	10:15	9:24	11:14	9:26	9:50	10:05	9:50	9:40	9:43	10:20	9:37
End time:	9:56	10:29	10:05	10:22	9:29	11:20	9:32	10:00	10:09	9:55	9:45	9:47	10:29	9:44
Start temp:	75	76	75	76	74	74	73	75	66	74	75	74	75	74
End temp:	75	76	75	76	74	75	75	75	66	75	75	75	75	74
Trial 1	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 5	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 10	R	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 11	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	R	L	L	R	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	R	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	R	L	L	L	L	L	L	L	L	L

Table A.21: Rat 21 — Raw lever press data for 28 days of testing. This table is continued on p. 77.

Date:	8-11-11	8-12-11	8-13-11	8-14-11	8-15-11	8-16-11	8-17-11	8-24-11	8-25-11	8-26-11	8-27-11	8-28-11	8-29-11	8-30-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	11:14	10:11	10:35	10:02	10:45	10:03	10:05	9:56	1:24	8:35	8:45	10:25	9:25	11:44
End time:	11:20	10:17	10:42	10:08	10:50	10:10	10:11	10:08	1:35	8:41	8:51	10:30	9:31	11:50
Start temp:	77	75	77	76	75	73	75	76	77	76	76	76	74	76
End Temp:	77	76	77	76	75	74	76	76	77	76	76	76	74	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	R	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.21: Continued from p. 76.

Date:	9-7-11	9-8-11	9-9-11	9-10-11	9-11-11	9-12-11	9-13-11	9-21-11	9-22-11	9-23-11	9-24-11	9-25-11	9-26-11	9-27-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High
Start time:	11:18	9:50	10:32	9:47	9:38	10:59	9:44	10:34	9:45	10:51	9:25	10:17	10:05	11:00
End time:	11:29	9:55	10:40	9:53	9:45	11:04	9:50	10:45	9:55	10:59	9:31	10:23	10:11	11:07
Start temp:	75	75	76	76	76	74	76	76	64	76	75	76	74	76
End Temp:	75	75	76	76	76	74	76	76	65	76	75	76	74	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.22: Rat 22 — Raw lever press data for 28 days of testing. This table is continued on p. 79.

Date:	8-11-11	8-12-11	8-13-11	8-14-11	8-15-11	8-16-11	8-17-11	8-24-11	8-25-11	8-26-11	8-27-11	8-28-11	8-29-11	8-30-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start time:	10:16	10:56	10:08	10:40	10:35	11:25	9:51	11:08	12:34	9:32	8:15	9:24	10:57	10:38
End time:	10:51	11:08	10:16	10:49	10:41	11:31	10:02	11:15	12:39	9:38	8:25	9:30	11:02	10:44
Start temp:	76	77	76	76	75	77	75	77	77	77	76	74	76	75
End temp:	77	77	76	76	75	77	75	77	77	77	76	74	76	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 4	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 6	L	L	L	L	L	L	L	R	L	L	L	R	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	R	L	R	L	R
Trial 9	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	R	R	L	L
Trial 11	L	L	L	L	L	L	L	R	L	L	R	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	R	L	R	L
Trial 13	L	L	L	L	L	L	L	L	L	L	R	R	L	L
Trial 14	L	L	L	L	L	L	L	R	L	L	L	L	R	L
Trial 15	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 16	L	L	L	L	L	L	L	R	L	L	R	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	R	R	L	L
Trial 18	L	L	L	L	L	L	L	R	L	L	R	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	R	R	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.22: Continued from p. 78.

Date:	9-7-11	9-8-11	9-9-11	9-10-11	9-11-11	9-12-11	9-13-11	9-21-11	9-22-11	9-23-11	9-24-11	9-25-11	9-26-11	9-27-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Start time:	9:58	10:30	10:06	10:23	9:30	11:22	9:34	10:00	10:10	10:06	9:57	9:47	10:30	10:00
End time:	10:09	10:40	10:13	10:30	9:36	11:29	9:41	10:10	10:17	10:15	10:03	9:54	10:36	10:05
Start temp:	75	76	75	76	74	75	75	75	66	76	75	75	75	75
End temp:	76	76	75	76	76	75	76	75	67	76	75	75	76	75
Trial 1	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 2	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	R	L	L	L	R	L	R
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 5	L	L	R	L	L	L	L	R	L	R	L	L	R	R
Trial 6	R	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 7	L	L	L	L	R	L	L	R	L	R	L	R	L	R
Trial 8	L	L	L	L	L	L	L	L	L	L	R	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	R	L
Trial 10	L	L	L	L	L	L	R	L	L	L	L	L	L	R
Trial 11	L	L	L	L	L	L	L	L	L	L	L	R	R	R
Trial 12	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 13	L	L	R	L	L	L	L	L	L	L	L	R	L	L
Trial 14	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	R	R
Trial 16	L	L	L	L	L	L	L	L	R	L	R	R	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 18	L	L	L	L	L	L	L	L	L	L	R	R	R	R
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	R	L	L	R	R	L
Trial 21	L	L	L	L	L	L	L	L	R	L	L	R	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 23	L	L	L	L	L	L	L	R	L	L	R	R	R	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	R	R	R
Trial 25	L	L	L	L	L	L	L	L	L	L	R	L	L	R

Table A.23: Rat 23 — Raw lever press data for 28 days of testing. This table is continued on p. 81.

Date:	8-11-11	8-12-11	8-13-11	8-14-11	8-15-11	8-16-11	8-17-11	8-24-11	8-25-11	8-26-11	8-27-11	8-28-11	8-29-11	8-30-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	11:21	10:19	10:44	10:09	10:51	10:12	10:13	10:10	1:36	8:43	8:53	10:31	9:32	11:51
End time:	11:29	10:26	10:51	10:15	10:59	10:20	10:20	10:34	2:30	9:03	9:03	10:39	9:40	11:59
Start temp:	77	76	77	76	75	74	76	76	77	76	76	76	74	77
End temp:	77	76	77	76	76	75	76	77	77	76	76	76	74	77
Trial 1	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 5	R	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 6	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 7	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	R	L	L	L	R	R	L	L	L	L	L	L
Trial 10	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 11	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 13	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 16	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	R	L	L	L	L	L	L	R	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	R	L	L	R	L	R	R	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	R	L	L	L	R	L	L	L	L	L	L	L
Trial 25	L	R	L	L	L	L	L	L	L	L	L	L	L	L

Table A.23: Continued from p. 80.

Date:	9-7-11	9-8-11	9-9-11	9-10-11	9-11-11	9-12-11	9-13-11	9-21-11	9-22-11	9-23-11	9-24-11	9-25-11	9-26-11	9-27-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	11:30	9:57	10:41	9:54	9:45	11:05	9:51	10:45	9:56	11:00	9:33	10:25	10:13	11:14
End time:	11:36	10:03	10:45	10:00	9:50	11:11	10:00	10:55	10:02	11:07	9:38	10:30	10:19	11:20
Start temp:	75	75	76	76	76	74	76	76	65	76	75	76	74	76
End temp:	76	75	76	76	76	74	76	76	66	76	75	76	75	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 12	L	L	L	R	R	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	R	L	R	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	R	L	L	L	L	L	L	L	L

Table A.24: Rat 24 — Raw lever press data for 28 days of testing. This table is continued on p. 83.

Date:	9-1-11	9-2-11	9-3-11	9-4-11	9-5-11	9-6-11	9-7-11	9-14-11	9-15-11	9-16-11	9-17-11	9-18-11	9-19-11	9-20-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	9:42	9:46	9:13	9:55	10:26	10:29	10:10	9:45	9:48	9:34	9:46	8:50	10:14	9:39
End time:	10:15	10:06	9:24	10:03	10:40	10:38	10:19	10:18	9:59	9:45	9:58	9:25	10:25	9:51
Start temp:	74	76	75	76	74	75	76	74	74	74	75	74	75	74
End temp:	76	77	75	77	75	76	76	76	75	74	75	75	75	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.24: Continued from p. 82.

Date:	9-28-11	9-29-11	9-30-11	10-1-11	10-2-11	10-3-11	10-4-11	10-12-11	10-13-11	10-14-11	10-15-11	10-16-11	10-17-11	10-18-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	9:40	10:18	9:56	9:39	12:12	10:34	9:30	10:00	9:38	9:51	9:16	9:59	9:39	10:05
End time:	9:48	10:24	10:03	9:45	12:18	10:41	9:41	10:10	9:50	9:59	9:31	10:07	10:33	10:22
Start temp:	74	76	74	75	74	75	75	76	74	75	74	75	74	76
End temp:	75	76	75	75	74	75	76	75	73	77	76	75	73	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.25: Rat 25 — Raw lever press data for 28 days of testing. This table is continued on p. 85.

Date:	9-1-11	9-2-11	9-3-11	9-4-11	9-5-11	9-6-11	9-7-11	9-14-11	9-15-11	9-16-11	9-17-11	9-18-11	9-19-11	9-20-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	11:31	9:17	10:21	9:17	11:30	9:50	11:38	10:31	9:31	10:01	9:04	9:40	9:59	10:08
End time:	11:39	9:25	10:28	9:23	11:37	9:55	11:46	10:40	9:39	10:09	9:11	9:45	10:04	10:15
Start temp:	78	74	77	75	76	75	76	76	74	76	74	77	74	75
End temp:	78	74	77	75	76	75	76	76	74	76	73	76	74	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	R	L	R	L	L	L	R
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	R	L	L	L	L	L	R	L	L
Trial 5	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 6	L	L	R	L	L	L	L	L	L	L	R	L	L	R
Trial 7	L	L	L	L	R	L	L	R	L	R	L	L	R	L
Trial 8	L	L	L	L	R	L	L	L	L	L	L	L	R	L
Trial 9	L	L	L	L	L	L	L	R	L	L	L	L	R	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 13	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	R	L	L	L	R	L	L	L	R	R	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	R	R	R	L	L	L
Trial 17	L	R	L	L	L	L	R	L	R	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	R	L	L	L	L	R
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 21	L	L	L	L	L	L	R	L	L	L	L	L	R	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 24	L	L	L	L	L	L	L	R	L	R	L	L	L	L
Trial 25	L	L	L	L	L	R	L	L	L	L	L	R	L	L

Table A.25: Continued from p. 84.

Date:	9-28-11	9-29-11	9-30-11	10-1-11	10-2-11	10-3-11	10-4-11	10-12-11	10-13-11	10-14-11	10-15-11	10-16-11	10-17-11	10-18-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	10:10	9:40	10:22	9:24	12:33	10:16	10:15	9:34	10:23	9:25	9:47	9:46	11:04	9:37
End time:	10:15	9:45	10:27	9:29	12:37	10:21	10:21	9:40	10:29	9:30	9:53	9:51	11:13	9:43
Start temp:	76	74	76	74	75	74	77	73	76	74	76	74	76	74
End temp:	76	74	76	75	76	74	77	73	76	73	76	75	76	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	R	R	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	R	L	R	L	R	L	R	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 10	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	R	L	L	L	L	L	L
Trial 17	L	R	L	L	L	L	L	L	L	L	R	R	L	L
Trial 18	L	R	L	L	L	L	L	L	L	L	L	R	L	L
Trial 19	L	L	L	L	R	L	L	L	R	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 21	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 22	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	R	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	R	L	L	L	L	L	L	L	L	L	L	L	L

Table A.26: Rat 26 — Raw lever press data for 28 days of testing. This table is continued on p. 87.

Date:	9-1-11	9-2-11	9-3-11	9-4-11	9-5-11	9-6-11	9-7-11	9-14-11	9-15-11	9-16-11	9-17-11	9-18-11	9-19-11	9-20-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	10:16	10:08	9:25	10:04	10:41	10:40	10:20	10:20	10:00	9:46	10:00	9:26	10:26	9:53
End time:	11:30	10:30	10:20	10:21	11:10	10:51	10:31	10:30	10:14	9:59	10:14	9:38	10:37	10:05
Start temp:	76	77	76	77	75	76	76	76	75	74	75	75	75	76
End temp:	78	77	77	77	76	76	76	76	75	76	75	77	76	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	R	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	R	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.26: Continued from p. 86.

Date:	9-28-11	9-29-11	9-30-11	10-1-11	10-2-11	10-3-11	10-4-11	10-12-11	10-13-11	10-14-11	10-15-11	10-16-11	10-17-11	10-18-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Start time:	9:50	10:25	10:05	9:45	12:19	10:43	9:50	10:12	9:50	10:00	9:32	10:08	10:43	10:30
End time:	10:08	10:40	10:20	9:56	12:31	10:55	10:06	10:24	10:03	10:13	9:45	10:20	10:58	10:45
Start temp:	75	76	75	75	74	75	76	75	73	76	76	75	76	77
End temp:	76	77	76	75	75	76	76	75	74	75	76	75	76	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.27: Rat 27 — Raw lever press data for 28 days of testing. This table is continued on p. 89.

Date:	9-1-11	9-2-11	9-3-11	9-4-11	9-5-11	9-6-11	9-7-11	9-14-11	9-15-11	9-16-11	9-17-11	9-18-11	9-19-11	9-20-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	11:40	9:26	10:29	9:25	11:39	9:56	11:47	10:41	9:40	10:10	9:13	9:46	10:05	10:17
End time:	11:50	9:44	10:43	9:37	11:50	10:06	12:00	10:48	9:46	10:15	9:19	9:52	10:11	10:24
Start temp:	78	74	77	75	76	75	76	76	74	76	73	76	74	75
End temp:	78	76	77	76	76	75	76	76	74	76	74	76	75	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.27: Continued from p. 88.

Date:	9-28-11	9-29-11	9-30-11	10-1-11	10-2-11	10-3-11	10-4-11	10-12-11	10-13-11	10-14-11	10-15-11	10-16-11	10-17-11	10-18-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	10:16	9:47	10:29	9:30	12:37	10:23	10:32	9:41	10:30	9:31	9:54	9:53	11:20	9:50
End time:	10:27	9:52	10:34	9:37	12:45	10:31	11:10	9:46	10:34	9:37	9:59	9:57	11:26	9:56
Start temp:	76	74	76	75	76	74	77	74	76	73	76	75	76	75
End temp:	76	75	76	75	76	75	77	76	76	73	76	75	76	76
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	R	L	R	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.28: Rat 28 — Raw lever press data for 28 days of testing. This table is continued on p. 91.

Date:	9-24-11	9-25-11	9-26-11	9-27-11	9-28-11	9-29-11	9-30-11	10-8-11	10-9-11	10-10-11	10-11-11	10-12-11	10-13-11	10-14-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	10:04	9:55	10:38	10:16	10:29	9:54	10:35	9:35	9:05	9:54	9:55	10:25	10:04	10:15
End time:	10:11	10:00	10:47	10:22	10:36	9:59	10:40	9:50	9:15	10:05	10:04	10:31	10:10	10:20
Start temp:	75	75	76	75	76	75	76	75	74	76	74	75	74	75
End temp:	76	75	76	75	76	75	77	75	75	76	73	75	74	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	R	L	L	L	R	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.28: Continued from p. 90.

Date:	10-22-11	10-23-11	10-24-11	10-25-11	10-26-11	10-27-11	10-28-11	11-7-11	11-8-11	11-9-11	11-10-11	11-11-11	11-12-11	11-13-11
Hunger Level:	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	9:54	10:13	9:44	8:45	10:05	8:29	9:28	9:50	10:47	9:24	9:35	10:36	8:48	9:29
End time:	10:00	10:18	9:49	8:50	10:09	9:35	9:32	10:04	10:55	9:29	9:43	10:44	9:00	9:34
Start temp:	74	74	75	75	75	75	74	75	80	75	74	77	74	77
End temp:	76	75	75	75	76	76	74	77	80	76	75	77	75	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.29: Rat 29 — Raw lever press data for 28 days of testing. This table is continued on p. 93.

Date:	9-24-11	9-25-11	9-26-11	9-27-11	9-28-11	9-29-11	9-30-11	10-8-11	10-9-11	10-10-11	10-11-11	10-12-11	10-13-11	10-14-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	10:13	10:01	10:49	10:34	10:38	10:00	10:41	9:52	9:16	10:06	10:06	10:33	10:12	10:21
End time:	10:21	10:09	10:55	10:41	10:45	10:06	10:46	10:14	9:34	10:18	10:15	10:47	10:20	10:29
Start temp:	76	75	76	75	76	75	77	75	75	76	73	75	75	75
End temp:	76	75	76	75	76	76	77	77	74	76	74	75	77	75
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	R	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	R	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.29: Continued from p. 92.

Date:	10-22-11	10-23-11	10-24-11	10-25-11	10-26-11	10-27-11	10-28-11	11-7-11	11-8-11	11-9-11	11-10-11	11-11-11	11-12-11	11-13-11
Hunger Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	High	High	High
Start time:	10:01	10:19	9:50	8:51	10:10	9:35	9:34	10:05	10:57	9:30	9:45	10:45	9:01	9:35
End time:	10:08	10:24	9:55	8:57	10:15	9:43	9:39	10:14	11:04	9:38	9:53	10:54	9:09	9:41
Start temp:	76	76	75	75	76	76	74	77	80	76	75	77	75	77
End temp:	76	76	76	75	76	77	75	78	80	76	75	77	75	78
Trial 1	L	L	L	L	L	L	L	L	L	L	L	R	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	R	R	R	L	L	L	L	L	L	L	L	L
Trial 4	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	R	L	L	R	L	L	L	R	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	R	L	L	L	L	L	L	L	R	L
Trial 10	L	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	R	R	R	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	R	L	R	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	R	L	R	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	R	L	L	R	R	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	R	L	L	L	L	L	L	L	L	L	L	L	L	L

Table A.30: Rat 30 — Raw lever press data for 28 days of testing. This table is continued on p. 95.

Date:	9-24-11	9-25-11	9-26-11	9-27-11	9-28-11	9-29-11	9-30-11	10-8-11	10-9-11	10-10-11	10-11-11	10-12-11	10-13-11	10-14-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	10:23	10:10	10:57	10:47	10:47	10:08	10:47	9:23	9:35	9:43	10:17	9:48	10:35	9:39
End time:	10:28	10:15	11:02	10:54	10:58	10:16	10:53	9:33	9:41	9:53	10:30	9:58	10:42	9:49
Start temp:	76	75	76	75	75	76	77	74	74	74	74	76	76	73
End temp:	76	76	76	76	76	76	77	75	74	76	76	76	76	75
Trial 1	L	R	R	L	L	L	L	L	L	L	L	L	L	L
Trial 2	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	R	L	L	L	L	L	L	L	L	L	L	L
Trial 5	R	R	R	L	R	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	R	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	R	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	R	R	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	R	L	L	L	R	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	R	L	L	L	L	L	L	L	L	L	L	L	L

Table A.30: Continued from p. 94.

Date:	10-22-11	10-23-11	10-24-11	10-25-11	10-26-11	10-27-11	10-28-11	11-7-11	11-8-11	11-9-11	11-10-11	11-11-11	11-12-11	11-13-11
Hunger Level:	High	High	High	High	High	High	High	Low	Low	Low	Low	Low	Low	Low
Effort Level:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Start time:	10:09	10:25	9:57	8:59	10:17	9:45	9:40	10:15	10:12	9:40	9:55	9:30	9:10	9:09
End time:	10:14	10:30	10:02	9:04	10:24	9:50	9:46	10:25	10:45	10:11	10:10	10:32	9:21	9:26
Start temp:	76	76	76	75	77	77	75	78	78	77	75	74	75	75
End temp:	76	76	76	75	77	77	75	78	80	79	76	77	76	77
Trial 1	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 2	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 3	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 4	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 5	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 6	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 7	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 8	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 9	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 10	L	L	L	L	L	L	L	L	L	L	L	L	L	R
Trial 11	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 12	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 13	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 15	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 16	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 17	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 18	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 19	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 20	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 21	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 22	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 23	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 24	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Trial 25	L	L	L	L	L	L	L	L	L	L	L	L	L	L