Principles of Shaping

Economics

Would you do 60 push-ups for a dime? How about for $10? $100? How about $10,000? Because you are a properly functioning living organism, you have dedicated software that estimates the "expense" of a behavior against its payoff. Your price point will be different from that of other people depending on how "expensive" push-ups are for you, what other reinforcers are operative ("I enjoy working out" or "People will be impressed with how well I can push-ups") and what your financial situation is like ("I need a hundred bucks to get me out of a jam, and quick!"). Dogs are also properly functioning living organisms and so will have price points for behavior. In animal training, we talk about rate of reinforcement (payment) and criteria (what he has to do).

Rate and Criteria

Rate of reinforcement is usually expressed in number of reinforcements per minute. If a dog is being taught to heel and the trainer is timed while training, if the dog is paid 7 times in a minute, the "rate of reinforcement" would be 7 (which comes out to a reinforcer every 8.5 seconds on average).

If the degree of difficulty of any exercise is high (high criteria), the dog will not get as many right, so the rate of reinforcement will be lower. If the degree of difficulty of an exercise is easy (low criteria), the dog will get it right more often, and so the rate of reinforcement will be higher.

Setting criteria too high results in frustration at best and "losing" the dog at worst (dog quits trying). It forces you to get the dog back to the game with ultra-easy repetitions and then re-build to where you blew it with the overly ambitious criteria. On the other hand, setting criteria too low retards progress. You spend more time on some step than you need to. Consequently, the optimal criteria is one that (a) is not so tough that the trainer "loses" the dog *and* (b) maximizes incremental progress toward the final goal behavior. It's all about efficiency.

The optimal rate of reinforcement for novice animals learning new behaviors is about 10 reinforcers per minute. This averages out one reinforcer every six seconds. For behaviors that do not take long to perform (in trainer-speak, behaviors that the dog can "recycle quickly"), a rate of 15 is not too high! More advanced animals can tolerate much, much lower rates of reinforcement. But be generous with beginners.

A good trainer will determine criteria based on optimal rate of reinforcement, not based on what the dog can do *at all*. The question therefore is not "what behavior is the dog already offering" but "what behavior is the dog already offering at the rate of reinforcement I want." Thinking about parameters helps trainers set criteria to achieve optimal rates of reinforcement.

Parameter Juggling

Parameters are the different pieces that make up criteria. For example, down-stay has the parameters of distraction, distance and duration: around what distractions, how far from the trainer and for how long does the dog need to stay? A three-minute down-stay ten feet away during a busy dinner party is a clear criteria statement (i.e. has all parameters accounted for),

whereas just saying "down-stay" is vague. To stay organized and train well, increase difficulty on only one parameter at a time. For example, start by adding distractions to the stay close up and for short durations. Then play with distance, keeping distraction and duration low. Then, gradually work up duration. (Duration is inherently tough on rate, so it is best worked last.) When all these pieces are in place, do parameter combos. Failing to train in an organized fashion with identified and carefully controlled parameters can result in a "criteria pile-up:" the trainer inadvertently raises difficulty on more than one parameter at the same time. The usual result of criteria pile-up is that the dog quits, the trainer blames the dog's stubbornness or other character defect and nobody ends up trained.

Timing

Consequences for dogs must be immediate. If a dog sits and you'd like to reward it but before you can, he stands and sneezes and *then* you reward, you have rewarded sneezing. Experiments have shown that rewards that are too late slow down learning. A clicker is a device that can sharpen up timing. The instant the dog makes criteria, the trainer clicks - and then delivers the actual reward afterwards. With a clicker you are less likely to be late and can mark behavior for reward at a distance. The clicker buys you time. The dog has to learn the relationship between the clicks and rewards. Some trainers "charge up" their clickers before using them to train by doing click-treat pairings.   Other trainers start using the clicker right away so the dog is not only learning the task he's being trained to do, but the meaning of the clicker at the same time.

Clicker Rules

- ✓ Click only ***once*** and ***always*** follow it up with a treat
- ✓ Deliver the treat ***after*** the click, not before or during
- ✓ Use a set position to avoid telegraphing that the click is coming (don't be
- ✓ reaching for your pocket or pouch before or during your click)
- ✓ Use treats that are valuable, small, and go down fast
- ✓ Do ***not*** use the click to signal "almost" - click *means* "here comes a treat"

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