

# HOW DOGS LEARN

## Training for Schutzhund and competition obedience

### Classical conditioning: Pavlov's drooling dogs.

Pavlov was studying digestion and the salivary response in dogs. When the dogs were presented meat powder, they started to salivate. But soon the dogs began to salivate as soon as the researchers showed up to feed them. Wanting to take the researcher out of the picture, Pavlov instead sounded a metronome or bell before food was dropped into a hopper. He discovered that when the sound preceded the food, the dogs salivated. But when the sound occurred simultaneously as the hopper opened or while dog was eating, there was no salivary response.

Through consistent pairing, the stimulus (bell) became associated with food and caused salivation on its own. Salivation became a conditioned response to the bell.

In classical conditioning, learned association results in involuntary behaviour. The sound of the can opener causes the dog to drool in anticipation of food. The sound of thunder causes the dog to shake and hide in the shower. The dog has no conscious control over the drooling or the fear.

### Operant conditioning

Operant conditioning deals with voluntary behaviour. Dogs make choices which have consequences. They learn from those consequences, and voluntarily change their response or behaviour. They might cease doing something, do something new, or do something entirely different, based on learning from consequences.

## Consequences

So consequences are the primary teaching tool in dog training. There are consequences to every choice your dog makes, and for that matter, every choice you make. If you speed, you might get a ticket. If your dog brings the ball back, you'll throw it again.

If the dog's behaviour leads to a favourable consequence, that behaviour will likely be repeated. If the dog's behaviour leads to an unfavourable consequence, that behaviour will likely not be repeated.

Examples of pleasant consequences that reinforce behaviour might include praise, food treats, and play and petting. They are consequences that cause a behavior to occur with greater frequency. In training, these pleasant consequences are called "positive reinforcers".

Examples of unpleasant consequences that suppress behaviour might include social isolation, sharp or loud noises, spanking or a collar jerk, or being sprayed by a skunk. They are consequences that causes a behavior to occur with less frequency. In training, these pleasant consequences are called "negative reinforcers".

**Extinction:** It is also possible that a behaviour is inconsequential — that is, it's not followed by any consequence, good or bad. When there is no consequence to behaviour, the response occurs with less and less frequency, and the behaviour becomes extinct.

Extinction is important to dog training because when a previously reinforced behavior is no longer reinforced, the behaviour weakens. This means that you can't train your dog to do something and then stop reinforcing it — if you don't maintain the behaviour and continue reinforcing it, you'll lose it.

NOTE: It's not the dog that's being reinforced, punished, or extinguished; it's the response or behaviour that is. And, it's not always the person who delivers the reinforcement or punishment — there are many rewarding or scary things in the environment that super cede any reinforcement or punishment that the trainer might deliver. And, ignoring your dog when he chases the squirrel up a tree will not result in the extinction of the chase behaviour!

So, operant conditioning simply means that the dog learns from consequences and makes choices based on those consequences.

# The OPERANT CONDITIONING QUADRANT

Reinforcement	Punishment
<b>Positive</b>	
R+ Add something good. Consequence: Behaviour ↗ increases	P+ Add something bad. Consequence: Behaviour ↘ decreases
<b>Negative</b>	
R- Remove something bad. Consequence: Behaviour ↗ increases	P- Remove something good. Consequence: Behaviour ↘ decreases

As used in learning theory, positive and negative do not mean “good” or “bad” in the traditional sense. Instead, think of these in mathematical terms — addition and subtraction:

- » Positive adds something — praise or pain for example;
- » Negative takes something away — praise or pain.

Reinforcement and Punishment are defined by their result on behaviour — does the behaviour continue, or does it go away?

- » Reinforcers strengthen behaviours — the behaviour continues.
- » Punishers weaken behaviours — the behaviour stops.

It’s easy to be confused! Here are some examples that might help.

## **Positive reinforcement: “I want another!”**

A behaviour increases when it is followed by something pleasant.

When you say SIT, your dog sits and you give him a treat. The treat reinforces the correct choice, and the dog is likely to sit the next time you ask.

When you let your kid have a friend sleep over because he cleaned his room, he’s more likely to clean it without fuss the next time.

When you put in long hours finishing a project and get a nice bonus, you’re more likely to work hard on the next project.

## **Negative reinforcement: “Make it stop!”**

A behaviour increases when it is followed by the removal of something unpleasant.

You put on your seat belt to get rid of the annoying ding-ding-ding. You increase the behaviour of wearing your seat belt to make the ding stop.

The traditional ear pinch method of teaching a retrieve works because when the handler pinches the dog's ear, the dog reaches for dumbbell, and the handler releases the ear. The dog is rewarded by escaping discomfort.

**Positive punishment: "Knock it off!"**

A behaviour decreases when it is followed by something unpleasant.

The child gets spanked for stealing. The dog gets kicked when he chases horses. The behaviour of stealing or chasing decreases.

**Negative Punishment: "Time out."**

A behaviour decreases when it is followed by the removal of something pleasant.

The child gets punished by having privileges taken away. The dog is not paying attention in training, so is picked up and put in a crate for a "time-out".

## REINFORCEMENT

How does this apply to dog training? We can use positive and negative reinforcement to help shape behaviours and encourage the dog to make "right" choices.

- » Positive reinforcement: anything that your dog is hard-wired to need or like and will respond to.
- » Negative reinforcement: anything your dog will actively work to avoid.

**Primary (unconditioned) reinforcers** are those things the dog naturally wants and not something he has to be taught to like. Primary reinforcers include food, water and social interaction. Actions based on the dog's natural instincts such as chasing a ball or playing tug-o-war also function as primary reinforcers. Hounds enjoy chasing a piece of fur while hunting dogs might like a pigeon wing to carry. Most commonly in training, primary reinforcers are food treats, tug toys and fetch toys.

Ultimately, you should be your dog's primary reinforcer. Play should be more important than the toy; praise should be more important than a treat. Your dog should be tuned into being with you, and the toys and treats are just extensions of you; perks to make the play more fun.

**Secondary (conditioned) reinforcers** are things that the dog has to be taught or *conditioned* to like — something which becomes associated with good things. Praise is an important secondary reinforcer. While praise has no natural, instinctive meaning to the puppy, social interaction does. Dogs are social animals and thrive on interaction with other dogs and people. Thus the words "good dog" gain meaning when being paired with play, treats, and touch. The words become positively associated with well-being and affection, and thus are conditioned reinforcers.

Conditioned reinforcers gain their power from being *paired* or associated with a primary reinforcer.

### Conditioned Reinforcers: Food as a training tool

Food allows you to influence the dog's behaviour without using force. Most dogs like and will work for food, and it makes learning relevant to the dog. It's easy to use when introducing new skills. Food does not substitute for love and respect, but is merely a simple and effective tool to show the dog what you want, and to reward him for making the correct choice.

Why use food?

- » Almost every dog has at least some food drive. (If food isn't very exciting, then all meals come as rewards during training. Working for every bite makes food relevant.)

- » Precise behaviours are easier to teach with food than with a toy. Also, it is more difficult to lure behaviours with a toy.
- » Food allows the trainer to drill repetitively without altering the flow of the exercise.

## **FOOD USED CORRECTLY IS NOT A BRIBE!** It's a reward for a job done well. It's a pay cheque.

Food can certainly be a bribe if you have to hold it out to show the dog:

"See? I have a treat! Can you sit for the treat?"

When food is a bribe, it is part of the overall "learning picture". The cookie is part of the cue — it is visible and the dog can decide whether or not he wants the food enough to comply.

When food is a reward, it is not part of the picture, although there is expectation and anticipation of a reward. The dog complies because he's hopeful that something he wants is coming, and he knows the way to get it is through compliance.

*A bribe is:*

*"here's some food, please sit."*

*A reward is:*

*"Sit, please. Nice job! Here's some food."*

How and when the food is presented changes as the dog learns.

Food treats are used to introduce and teach each new exercise, but as the dog becomes more proficient, we will move the food — first out of sight and into a pocket or bait pouch, then off our body so it's not part of the training picture. More praise and play will be substituted for the reward. Later, food will be used only for the fastest, best responses or it will be presented very randomly and occasionally. Giving food randomly keeps the dog's interest and expectations high.

## **Variety of rewards**

"Oh boy! Dog food again!" Dogs may be excited to get the same bowl of kibble every day, but in training, vary the treats. Would you work hard for saltine crackers? Don't use dry dog biscuits or large kibbles because the dog has to stop and chew, sprinkling crumbs on the ground and breaking the training flow. Small kibbles can be used when working on repetitions — especially if they make up part of the dog's daily meal.

For higher value rewards cook liver, try canned food (use a spoon if you're finicky) or cut up summer sausage or rolled dog treats. Be creative. Also vary the delivery of the reward. Don't always just hand him a piece of food like a pez dispenser — toss it in the air. Step backwards and make him chase the food. Have him chase it between your legs. Race to the treat container and let the dog grab a few mouthfuls directly from the bowl. For really good work, "jackpot" — feed small pieces one after another. Keep him guessing and he'll keep coming back for more.

*Treats should be small; about the size of your little finger nail.*

Don't be boring. You can't pretend to be engaged if you want your dog to be engaged.

## **Praise**

Praise should be meaningful! When you praise your dog, you should, in effect, be saying "Look at you! What a smart puppy! You're so clever!" Praise should make the dog feel good — good enough to want to try again.

Praise doesn't need to be loud and exciting to be meaningful. When you're working on a lesson, quiet words work wonders. Moderate your praise as the training progresses. If you're too loud and exuberant, you'll interfere with his learning. Too much cheerleading will also make him dependent on it; when you go into the obedience ring or onto the Schutzhund field, your sudden silence will make him think he's done something wrong. Constant praise becomes grey noise. Don't chatter incessantly, rather let him learn to work while you're quiet.

Praise sparingly but meaningfully. Praise should motivate your dog to maintain his focus and work harder.

Can you compete with the squirrels in the trees and the smells in the grass? Be fun. Be invested in what your dog is doing. Be sincere. Be unexpected.

### **“Good dog training is play with a purpose”**

Play is not only a great tool to use in training, it enhances our relationship with our dogs. Play helps teach the dog to cope with stress and conflict situations, something food can't do. It builds confidence and curiosity and is a source of continuous enjoyment and reward. It teaches a positive, joyful attitude towards learning. Play nurtures trust and builds bonds and is incompatible with mistrust.

When good dog training is happening, the dog should be as interested and engaged in what's going on as when you're simply playing together. Training shouldn't be a chore — it should be indistinguishable from play.

### **Premack's “Peas and Ice Cream” Principle**

#### **“You have to DO something to GET something”**

If there is a secret to dog training, this is it. Premack's principle states that “When high probability behaviours are made contingent upon lower probability behaviours, then the lower probability behaviours are more likely to occur.” Simply said, more desirable behaviours can be used to reinforce less desirable behaviours.

What does this mean in real life? You have to eat your peas before you can have ice cream.

Dogs will be excited to heel (a low probability behaviour) if they know that heeling leads to something fun (a high probability behaviour) like playing tug or chasing a ball. Chasing the ball is **made contingent** upon correct heel position and focused attention. When the dog understands the contingency, he works with motivation. The opportunity to play tug or ball becomes both the motivation and the source of reward.

Behaviours that occur naturally in play such as chasing and tugging are easy to teach, and can then be used as a reward for more difficult or unnatural behaviours. Basic training involves requiring the dog to perform actions that are often unnatural, unpleasant or annoying to the dog. By making play the reward for performing those behaviours, the dog will be more eager to comply. Thus, activities are reinforcers just as treats are.

For “drivey” dogs, activities are much greater motivators than treats, which is one reason it's hard to use play to *teach* a new exercise.

- » Drivey dogs find it hard to think and absorb a new lesson when a toy is available.
- » It's hard to lure a dog into a new position with a toy.

Play is best used as a reward for some of the more demanding exercises of obedience and to reward active exercises. The initial teaching phase is better suited to food treats, which allow for more repetition without breaking the flow of the exercise. When you reward with tugging or chasing, you have to break away from the exercise, let the dog play, get the toy back, and then start again.

### **Self-rewarding behaviours**

We can't control everything in a dog's life, and many of the things that are very rewarding to the dog are things we don't control. Chasing cats, sleeping on furniture, raiding the garbage can and leaping on the back of the couch to bark out the window can be extremely reinforcing to dogs.

We can't rely on extinction (ignoring the behaviour) to end these actions. Since they are intermittently reinforced (a powerful training tool) with highly desirable (to the dog) rewards, they are very difficult to suppress. Punishment can be effective if consistently and clearly applied. Management insures that you control the environment and are the source for the best, most fun rewards.

# COMMUNICATION

Dogs are primarily visual animals. We humans are very verbal. We talk about everything and find it hard to stop talking, even for short periods of time. Because we are so verbal, it is difficult for us to believe that our dogs aren't born understanding English. Every dog should know what COME and SIT and NO means, right? If they don't, they'd better learn it pretty quickly! And when they don't naturally respond to our commands, we often get angry or believe that the dog is blowing us off.

Dogs, because of their unique relationship with us, try very hard to understand what we ask. But they have to be taught. And if we fail to communicate effectively by giving unclear signals, by having unrealistic expectations, or are inconsistent in what we ask and how we reward or punish, then dogs become confused and often quit trying. It's important, then, to think about more than just what words we're saying, but consider what the dog is understanding.

✓ First rule of dog training: make everything black and white. No shades of grey. Black and white means clear understanding; grey means guesswork.

## Marker words

We can make dog training become very clear, almost surgically precise, by teaching the dog what specific words mean. These words help communicate to the dog that he's doing (or not doing) exactly what we want.

**Marker words** are a word or sound that precedes every reward. You can effectively communicate "yes, that's it!" or "you're on the right track, keep trying" or "no, that's not what I'm asking, try something else" or even "no, never do that again!" as the dog is learning.

Remember the childhood game of "Hotter and Colder"? Marker words improve our ability to communicate to our dog the exact behaviour that brings them closer to, or farther from, the reward.

We discussed earlier that conditioned or secondary reinforcers are things that the dog has to be taught or conditioned to like. "Good dog" doesn't mean anything to the dog until it's paired with petting or a treat — then the dog learns that "good dog" signals he did something good. "Good dog" becomes a word that helps us mark a behaviour as correct. It forms a **bridge** between an action and a consequence.

However "good dog" has limited use as a marker word. It doesn't convey much information because it is used a lot. We croon "good dog" to our dog while petting him and ask "are you a good dog?" when we tell him that we love him. If you tell him he's a "good dog" throughout the day without a reward, then "good dog" loses its meaning as a marker.

To be effective, a marker word must be a single, unique word that has specific meaning.

- » A **reward marker** predicts or promises a reward to the dog and informs him that the action he was performing the moment he heard the marker is the action being rewarded. The sound is **always** followed by a reward.
- » A **non-reward marker** tells the dog that whatever he was doing when he heard the marker isn't going to be rewarded. Continuing down that path won't gain him anything and he should try something else.

Every time you use your reward marker word, a reward always follows! The dog learns to listen for the marker word, and actively tries to determine what it was he did to make the word happen. He thus becomes an interactive and motivated partner in the training.

Some sample marker words and their meanings follow. These are just suggestions: you can be creative and come up with your own words.

## YES / OKAY / BINGO — hot!

- » MARKS the behaviour being rewarded.
- » BRIDGES the time between the behaviour and the delivery of the reward.
- » RELEASES the dog to get the reward (ends the behaviour).

## GOOD / NICE / AWESOME / YAY! — you're getting warmer

GOOD is a secondary or intermediate bridge word. It means "keep working, you're on the right track". It doesn't promise a reward, but tells the dog that if he keeps trying, a reward is bound to follow. GOOD is used to extend duration or link multiple behaviours. GOOD:

- » Tells the dog he is on the right track and getting closer to the secondary reinforcer,
- » and if he continues performing that behaviour, a reward will follow.

## OOPS / WRONG / NOPE / UH-UH — you're getting colder

Are also marker words, but this time instead of promising a reward, OOPS or WRONG are non-reward markers meaning "No chance. You're on the wrong track. What you're doing isn't right and won't earn you a reward." It doesn't mean the dog was bad, only that his behaviour was incorrect.

- » Marks an incorrect behaviour;
- » Tells the dog he is losing the opportunity for reward.

## NO! — FREEZING!

NO means no. It means that what the dog was doing was unacceptable and to stop doing it now.

- » Marks an incorrect behaviour;
- » Warns the dog that he is coming closer to positive punishment.

## OKAY! / FREE DOG! / BREAK!

OKAY is a release word that tells him he's free to do what he wishes, the exercise is over, his attention is no longer required.

## Timing

The timing of reinforcement (reward) is critical to learning. Reinforcement must occur **as** an action is occurring, not afterwards. A delay of even a few seconds can be too long: the dog has already gone on to think or do something else when the reward finally arrives. The dog must clearly understand what he is being rewarded for.

Likewise, for punishment to be effective, it has to come **AS** the behaviour is occurring, not 5 seconds, 15 seconds, 15 minutes or 8 hours (when you get home and garbage is scattered all over the kitchen) later!

Depending on what you're teaching, it may be difficult to get the reward to the dog at the critical moment. For instance, if you're teaching your dog to jump something without touching it with his feet, you need to reward while the dog is still in mid-air, at the moment he clears the jump. Obviously it would be difficult to give the dog a food treat precisely at this moment. Fortunately, the marker word **bridges the time between the action and reward**. A well-timed "yes!", given at the precise moment, tells the dog that he was

correct in the way that he jumped and he is now free to come in for a reward.

Marking a behaviour is like taking a picture of it — capturing a discrete moment in time on film. What is in the picture is what the dog is learning. If you're late with your marker word, (and most of us are initially) it's not clear to the dog what behaviour is being rewarded. Think of it as a blurry picture. It may take the dog quite a bit more time to determine what it is he's being asked to do and rewarded for.

### Timing of the marker & reward

Make sure you're not giving unintentional physical cues to the dog when you reward. The marker should come first, then a slight pause, and then the reward — food or treat — is presented. Don't reach for your pocket or bait bag at the same time you mark YES, or your dog will start watching your hand as the signal for the reward. Likewise, don't say YES and bring the toy up simultaneously or you dog will start watching your toy hand for the release.

## Clickers as Reward Markers

A popular secondary reinforcer that many trainers use is the clicker. The clicker is a small box-like device that makes a sharp clicking sound and is used in much the same way as saying "yes". The sound of the clicker marks an action that occurred at a distinct moment, making it easier to isolate that action and reward it.

Many dog trainers feel that using a clicker allows them to be more precise in marking a moment than using words. Some people find their timing is better when using a clicker.

The clicker makes a neutral, unique sound that doesn't get affected by emotion, or overpowered by the constant chatter we are always showering our dogs with. "Yes" can be said happily, in exasperation (finally!), softly, loudly, etc., perhaps confusing the dog more than reinforcing behaviour. However, I like that I can say "yes" neutrally, as when performing many repetitions of the same exercise, or happily, to further communicate how delighted I am that the dog is learning.

The clicker is just a tool, the same as a collar and a leash. It does not have any magical powers and dogs don't instinctively respond to it or know what it means. The clicker is a secondary reinforcer and like any secondary reinforcer it initially has absolutely no meaning to the dog. The dog learns that the sound conveys a meaning through pairing the sound with a reward. In the beginning, you will mark (say "yes" or click) and treat over and over again until the dog is conditioned: when he hears the sound he knows a reward is coming. This is often referred to as "charging the clicker".

Like the reward marker, the clicker predicts or promises a reward. Thus, every time the dog hears the clicker sound, a reward **must** follow.

A clicker is the same as a release word in that it ends an action. When you click something the dog has done, you have promised a reward, so anything the dog does between hearing the click and getting his reward is immaterial. Don't click an action, then make him sit to get his reward.

The biggest drawback in my mind to using clickers is that they are just one more thing to hold in your hand! You've already got the leash, a toy and food — where are you going to hold the clicker?

## Reward marker basics

Once the dog learns the meaning of the clicker or the marker word, he understands that:

- » The action he was performing at the precise moment he heard the word/click is the action being rewarded. Thus, the timing of the marker is critical!
- » The marker predicts the reward. The reward always comes — the dog will never be cheated.
- » The marker is inherently a release. The sound ends the exercise. Anything the dog does after hearing the click doesn't affect the availability of the reward.

Once the dog understands reward markers, he will try very hard to find out what it was he did that resulted in the mark, and will try to repeat, and keep repeating, that behaviour.

Dogs that understand reward markers will “offer behaviours” as they try to figure out the key to a reward. The dog is recognizing that he can make things happen by performing certain learned behaviours. A dog that is engaged in learning will be looking for your buttons — “what can I do to make her give me a reward?” Once the dog learns that it is performing the action, not demanding the treat, that gets rewarded, he’s on his way to becoming actively engaged in the learning process.

## Getting the behaviour

### Luring

Luring helps the dog find and perform the “target” behaviour so you can reward it. Hold a piece of food next to the dog’s nose and have him follow it. Pretend the food is a magnet and the dog’s nose is steel — if you get the food too far away, it loses its magnetic force and you lose the dog. Hold the food close to his nose and you can lure him into heel position or raise his nose up high to bring his rear into a sit.

### The pitfalls of luring

Luring helps the trainer get new behaviours quickly, but the dog really isn’t learning anything. The lure overrides any thinking on the dog’s part, and as soon as the lure goes away, the dog doesn’t understand what’s being asked. He’s been following the lure without thinking about where his feet are going. This leads to a common complaint about clicker training: “My dog only comes if I show him the treat!”

It is important to understand the role body language has in dog training. Dogs respond far more naturally to physical signals than verbal commands; that is, **physical overrides verbal**. When you give a command and a hand signal together, the command is completely overpowered, and the physical cue becomes the signal for the dog to perform the behaviour.

- » Right: Give the SIT command → lure upwards → reward
- » Wrong: Lure upwards → say SIT → reward
- » Wrong: Lure upwards and say SIT simultaneously → reward

In training for Schutzhund or obedience, the dog has to learn commands without any handler (physical) help. In the initial training stages, it is extremely important to give the command first, pause briefly, then give any necessary physical help. Gradually fade the physical movement. Dogs are very sensitive — the physical action doesn’t have to be large or expressive for the dog to learn to associate it with the cue.

Also be aware of any other “signals” you are giving the dog. Turning your head as you tell your dog to finish in heel position, raising your shoulders as you call the dog, or bobbing your head down while giving the DOWN command in the moving exercises are all common mistakes handlers make. The dog learns to depend on those cues as part of the exercise, and when they go away, as for a trial, the dog no longer understands how to perform the exercise.

*Tip: Always mark **before** you reach for the reward. Timing is everything, and if you show the toy or reach for the treat at the same time you mark, the dog will drop his focus to watch your arm for movement. Remember: the marker **bridges** the time between the behavior and the delivery of the reward so once you say YES, there is no rush to deliver the treat/toy.*

### Capturing

Capturing is waiting for the “target” behaviour to occur on its own and then rewarding it. Capture SNEEZE by waiting for your dog to sneeze and marking and rewarding it. After this happens a few times, your dog will start looking at you and sneezing and from there you can “name it” and turn it into a trick.

## Shaping — “You’re getting warmer”

Shaping is the process of gradually learning a new behaviour through successive approximations where each step more closely resembles the finished performance than the last. Responses that meet the trainer’s criteria are rewarded; undesirable responses are ignored.

Shaping is like a pyramid. The base is broad, and any behaviour that even suggests the target behaviour, or any movement that might help take the dog along in the right direction, is rewarded. As the dog progresses and moves towards the top of the pyramid, the actions that will be reward are more and more like the finished product, and responses that earlier would have earned a reward no longer do. The tip of the pyramid is, of course, the final trained behaviour.

Shaping requires that you define the goal or training objective, and have a mental picture of the desired behaviour. What will you reward and what will you ignore?

- » Design a plan. Break the training down into small steps. Organize and teach the steps in the most easily learned order.
- » Reinforce success and ignore failure.
- » Reinforce any behavior that is closer to objective than the behavior you last reinforced.
- » Raise the criterion for success. Don’t get stuck at a low performance level.
- » Each step should be a solid foundation for the next step.
- » Be flexible. If it’s not working, try something different or go back to an easier step.

**HINTS:** Let your dog figure it out. Be patient and don’t help so much. It’s hard to not help — “it would be so easy if I just **showed** him what I want!” But if you insist on helping or luring, then your dog becomes dependent on your body language as the prompt. Wait for your dog to offer some response without prompts or lures from you, and reward that response.

Withhold the reward when you’re getting more of the same and wait for the dog to offer something new and different — as long as it’s something you want. If the dog barks, jumps on you, paws your hands, or offers other undesirable responses, ignore the dog. Look up at the sky, turn your back on the dog, or freeze in position. Wait for the dog to do **anything** desirable, and mark and reward that response.

**Up the ante:** you must move forward. Don’t get stuck in the intermediate stage in learning. Keep the progression in mind: when the dog is starting to get it, add the next piece.

**EXAMPLE:** If you want to train your dog to go out and touch a target, begin by rewarding when the dog simply turns his head towards the target. Then wait until he turns his head and takes a step towards the target. Then wait for two steps, etc. As training progresses and the dog gets closer and closer to the finished performance, you no longer reward the earlier responses, but continually ask for more, refining as you go along.

### **Placement of reward**

*During shaping, where you give the dog the reward is also important to the learning process. To help reinforce a response such as putting feet on a target, give the reward over the target in such a way that it helps the dog keep or resume that position.*

## Chaining

Complex actions can be broken down into a series of discrete components which are taught individually. Chaining links those actions together in a series, where the completion of one action produces the cue for the next action.

A recall exercise has multiple components, for instance:

- » The dog hold its position in a stay while the handler walks some distance away .

- » The dog continues to stay while the handler turns and faces the dog.
- » The handler takes a deep breath to call the dog, and the dog still holds position without anticipating the command.
- » Upon hearing the command, the dog runs at top speed to the handler.
- » When the dog reaches the handler, it slides into position in front without touching or bumping.
- » The dog sits bringing its rear up underneath in a tuck sit rather than rocking back.
- » The dog sits close and straight in front.
- » It watches the handler with focused attention.
- » When given the command to finish, the dog goes to heel position quickly.
- » It sits at the handler's left side close, straight, and with focused attention.
- » It maintains position until given another command or released.

Each of the recall components are taught individually, then linked together into the complex set of behaviours shown above. This allows you to focus on one piece at a time and reward the best responses without getting tangled up with multiple behaviours. For instance, if you want the dog to come fast, but also insist on a sit in front, but the dog sits crooked, do you reward the speed or correct the position?

### Rules for chaining:

- » Define the target behavior: what are the components that make up the links of the chain?
- » Reinforce the elements of the chain in the right order.

### Back chaining and forward chaining

In chaining, each step is both the reinforcement for the previous step, and the stimulus for the next step. Therefore, the chain must be linked together in sequence. There are several ways to do this:

- » Forward chaining starts with teaching the first behavior in the chain and moves sequentially through the chain;
- » Back chaining starts with teaching the last step, then the second to last step and the last step, the last three steps, etc., until the entire exercise can be executed in sequential order.

### "Naming" the action (putting the behaviour on cue)

#### "The quality goes in before the name goes on."

"Naming" is the word you use for a command: SIT, DOWN, TOUCH, etc. Whether luring or shaping, there's no need to "name" the behaviour until you can get the dog to perform it reliably. If, for example, you're luring a puppy into a SIT, don't keep repeating sit-sit-sit when he doesn't have any idea what SIT means. Use your hand signal and once he's in a sit, say "yes" and give the reward. If you feel like you really need to say something, you can reinforce the action by saying "good sit" as you give him the treat.

Once you can get him to sit with a hand signal, you can then start pairing the behaviour with the cue (command). Give the command, **pause briefly** and give the physical cue. This brief pause is extremely important! Remember, **physical overrides verbal**. If you give the verbal command SIT simultaneously to the physical cue, the dog will only focus on the physical. Later, when you complain "my dog doesn't sit when I tell him" you're right. Your dog has become dependent on the physical cue and doesn't know the verbal command.

Quickly start to use less movement and take the treat out of your hand. Put it in a bait pouch or in a bowl on a nearby table. Give the command SIT, pause briefly, give a (slight) physical cue, mark YES when the dog's

butt hits the ground, and run together for the treat container.

Once the behaviour is put on cue, only reward if you've asked for it. Don't reward the dog when he volunteers something. When the dog freely offers behaviours without prompting\*\*\*\*\*

## **Variable reinforcement: Make the reward more rewarding!**

When the dog is first learning a new skill, we reward every correct response in order to create a strong association between the behavior and the consequence. But if we were to continue rewarding at this same frequency, the reward would lose its power and the response would become ho-hum.

Once the dog becomes more proficient — say for example, 80% of the time he SITS when prompted — it is time to move to some less frequent reward system.

How frequently we reward a dog's responses is known as the "schedule of reinforcement" and ranges from:

- » Fixed reinforcement — where the dog is rewarded every fixed number of times he performs a behaviour. In continuous reinforcement, the dog is rewarded after every correct response. In FR3, the dog is rewarded every third times he responds correctly.
- » Differential reinforcement — reinforcing some responses and not others. In differential reinforcement, you could decide to only reinforce responses that meet certain criteria: is the response fast enough? Straight enough? Correct enough? Differential reinforcement is part of shaping, where only certain responses are rewarded and everything else is ignored and extinguished.
- » Variable reinforcement. There are many types of variable reinforcement schedules, and may be based on the number of responses required before a reward is given (fixed ratio or variable ratio), or the amount of time that has elapsed before a reward is given (fixed interval or variable interval) or some combination of ratio and interval.
- » Extinction — no response is reinforced.

**The power of variable-ratio reinforcement.** The "one-armed-bandit" slot machine is a good example of variable-ratio reinforcement. If you won a nickel every time you pulled the handle, and you knew you were going to win the nickel (continuous reinforcement), it would soon get pretty boring. But if you sometimes get a nickel back, most of the time you get nothing, but every once in a while you get \$100, the game suddenly gets exciting. And the more times in a row you get nothing, the greater your expectation that this time you might hit the jackpot! Hope keeps you pulling the handle.

Dogs are the same. If your reward is always the same piece of hot dog every time, and you never vary the food or it's presentation, your dog will eventually work only when he feels like eating. Most likely he will wander off to find something more interesting to do. But when reinforcement is presented randomly, the dog responds at a high, steady rate, with little chance of extinction.

Being random is more difficult than it seems. We are creatures of habit, and dogs are very quick to pick up patterns. Your dog will tell you through his actions if you always reward with your right hand, if you always pause three seconds before rewarding, or if you always reward every third time.

Much of what makes a reward system work is hope, expectation and surprise. Use a variety of rewards: different sizes and types of food, and vary the way in which it is presented. Variable reinforcement means not only that rewards are given randomly, but that there is variety in the reward. Be random in when you present the reward. Expectation enhances incentive. Each time the dog responds to the cue he has a chance of being rewarded. The more he responds, the better the chance of a reward. Training is more exciting —

the possibility that “this might be the time” causes the dog to work harder. And occasionally, if that reward is better than expected, the incentive to keep working increases.

A reinforcement schedule implies the trainer have a plan or system for presenting the reinforcer. For dog training purposes, it is most effective to begin training with:

- » continuous reinforcement, where every correct response is reinforced.

As the dog becomes more proficient, move to a variable rate of reinforcement.

- » Payment occurs randomly. A reward might occur three times in a row, then nothing for ten times, then once, skip once, and reward again. Thus a reward is not given every time the dog performs the behaviour. The reward is unpredictable — there is no set pattern. This results in a high and steady rate of response.

### **Build faster responses — only reward the best tries**

As the dog becomes fluent in a behaviour, reward only the best and fastest responses. Pick a criteria, for instance “if he sits before I count to three” and reward only those responses. If he does sit, but is slow or distracted, break him out with an “okay” but no treat.

If you have two dogs, you can use this as well: call the dogs to you and ask them to SIT: the one to sit first gets the treat.

### **Jackpots & delayed rewards**

Reward really spectacular tries with a handful of food. This large, unexpected reward helps motivate the dog to try even harder. Let the dog stick his nose in the treat bag and help himself, or give 10 pieces of food in rapid succession. Or, save some liver for jackpots and use string cheese for normal rewards.

Begin to **delay the rewards**. Asking SIT, mentally count “one-two-three” and then click and treat. Sometimes wait 10 seconds before clicking and treating; sometimes click and treat immediately. Delayed rewards is the beginning of self control for STAYS. You can use your secondary bridge word “good” as the dog waits for the treat.

Gradually fade out the verbal marker, particularly on those exercises the dog knows very well. You don’t need to mark and treat every time you say SIT. Use praise, play and physical touch more frequently. But if you do mark, then you promised a reward. Don’t cheat!

### **Generalizing & Proofing — “But he does it at home!”**

Generalization is a human ability, a function of logic and reasoning. It is the ability to make mental leaps and connect divergent ideas, and to understand global concepts.

Dogs aren’t good at generalizing. They don’t think about ideas, but rather about situations — in that what they learn is very situational and context-oriented. I keep mentioning the “training picture” — what the dog sees when he’s learning. Dogs are so tuned in to context when they learn, that if anything is changed or out of context — our body language or position, place/location, loudness or softness of our voice, distractions, static vs dynamic attention, etc. — it becomes a completely different picture and they truly don’t understand. A SIT learned in the kitchen is not the same as a SIT in the backyard, and is really not the same as a SIT at the pond where others are throwing sticks for their dogs. While you’re telling your dog SIT (and thinking “stupid dog, he knows what sit means!”) your dog is picturing the kitchen with its counters and treat bowl, thinking “this isn’t a sit, I’m not in the kitchen!”

Take your training on the road! Train in many different places: at the park, at the ball field during Little League games, in the grocery store parking lot. Each time you go to a new place, begin with the easiest exercises — those things he knows inside and out. Reward frequently and vary your rewards to help keep your

dog engaged. Be different and unpredictable in your training. The more your dog practices generalizing, the better he will become at it.

## Aversives

“Aversives” are actions that eliminate a behaviour. Aversives are not necessarily physical punishment. A well-timed “ott!” which startles the dog, allowing you to redirect him to something acceptable, is an aversive. Smacking the dog with a rolled up newspaper for getting into the garbage at every chance is not an aversive, because the behaviour continues to occur.

An effective aversive stops a behaviour immediately without causing fear or anxiety. Ideally, the behaviour never recurs. The goal of punishment is to avoid it's necessity in the future.

## Corrections vs Punishment

A punisher stops a behaviour, just as a reinforcer builds a behaviour.

A correction, as used in dog training, is a punisher that helps the dog to understand what is correct behaviour and how to achieve it. A correction makes a behaviour correct.

Corrections should only be used after the dog has learned the behaviour and has a solid understanding of what is required.

Avoid corrections in the learning phase. Before the dog has thorough understanding of what's required of him, corrections, can cause the dog to start to worry. He really wants to be right. If you're working on a new behaviour and the dog is confused, ignore, don't correct. Corrections will cause the dog to lose motivation or begin avoidance behaviour.

Even non-reinforcement becomes aversive to the dog. In the learning phase, the only thing you should correct for is lack of attention or concentration. Then reward when the dog gets it right. Don't correct mistakes; only correct lack of effort.

Once the dog becomes fluent in a behaviour, it is fair to introduce corrections. Corrections help make it clear to the dog what we want. It's just as important to the dog to know what not to do as it is to know what to do. It's like balancing on a tight rope. Stepping to one side gets rewarded; stepping to the other gets corrected... but the correction merely helps to lead the dog back to the centre. Black and white, reward and correction help lead the dog down a clear, understandable path.

Corrections don't have to be severe, only consistent. If your dog breaks a sit-stay, mark the moment he gets up with a “nope” or “oops”, take him by the collar and gently but firmly lead him back to the exact place he was left. Give a pop up on the collar and say SIT.

If you're working on focus and attention, give a collar pop when the dog looks away, followed by praise when he looks back. Make it clear: this is wrong, this is right.

Proofing, combined with corrections, tests the dog's understanding of the behaviour. By adding distractions or practising in different places, the dog learns that “sit means sit” regardless of where he is and what's going on.

## Summary

When you as a trainer learn to communicate effectively with your dog, you will have an active, engaged dog who is a part of the learning process. An active dog knows that his actions make things happen. This dog comes out on the training field engaged and ready to work. He pushes the handler to produce the reward.

In contrast, the reactive dog waits for something to happen. He comes out on the field gawking at the other people. He sniffs around at the end of his leash. The handler gets the toy out and shows it hopefully: “here, come on, we're out here to work” and the dog engages the toy, but with frequent attention lapses.

In an active dog, the behaviour produces the reward; in a reactive dog, the reward produces the behaviour. Everytime we come out onto the training field, the dog should be engaged. He should be focused and actively pushing to make things happen. Design your training to produce an active dog.

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