

[MUSIC PLAYING]

MOLLY BLOOM: You're listening to *Brains On!* From MPR News and Southern California Public Radio. We're serious about being curious. I'm Molly Bloom.

[BARKING]

What's that, Fido?

[MEOWING]

Whiskers, you too?

[BARKING AND MEOWING]

One at a time. One at a time. I have literally no idea what you're trying to tell me.

[BARKING AND MEOWING]

Just chill, OK? Thank you. Do you ever wonder what your cat or dog is saying to you?

Well today, we have a slew of mystery sounds that will help us learn more about the communication of our feline and canine friends. We spoke to two scientists who study this. Sara Ellis is a feline behavior specialist and visiting fellow at the University of Lincoln.

SARA ELLIS: Hello.

MOLLY BLOOM: Tamás Faragó studies canine vocalizations at the Family Dog Project in Budapest.

TAMAS Hello.

FARAGO:

MOLLY BLOOM: We're going to hear from them right now. And if you listen carefully to what they're going to say, you'll hear some hints for the upcoming mystery sounds. We'll start with our cat expert, Sara.

SARA ELLIS: They make quite a lot of different vocalizations, actually. And people tend to categorize those into three different areas. There's the vocalizations that cats make when they keep their mouth closed.

And examples of those would be the purr and the chirp. And they make a group of sounds that happen with the mouth held open. And that would be the spit and the hiss.

And the other things they do is when the mouth is opening or closing. And that's the meow. What they communicate to us might be quite different from what they communicate to each other.

The meow, for example-- kittens will meow to their mothers. And that's likely to be a contact call, but we don't tend to hear cats meow to one another. And our domesticated pet cats-- they tend to meow to us, but not to other feline housemates.

They'll meow in a whole variety of different contexts, including when they want food, when they're stuck behind a door and they want in, or when they want out, and even just when they want attention from us. It's something that they have the ability to do naturally. They don't have to learn to meow. It's there right from the beginning, but it's very likely that it's shaped by us and that they may be responding to our behaviors, and to also learning about, through our reinforcement, what certain meow works with that particular owner to get what they want.

MOLLY BLOOM: But spitting, hissing, and screeching are defensive sounds.

SARA ELLIS: Cats have evolved from a solitary ancestor. Although cats nowadays can live in groups under the right kind of circumstances, they still rely solely on themselves for their survival. To get involved in a fight with aggression where you could be wounded is really quite dangerous because you've got nobody to help you recover from that.

You rely solely on yourself. So cats will use a lot of that noisy vocalization to make themselves appear bigger, stronger, to scare off the other cats. They'll use everything they can before actual tooth and claw.

MOLLY BLOOM: And there are a few different types of purrs.

SARA ELLIS: Purring is very much a big vocalization that they'll also use to communicate their contentment with us. They've discovered another kind of purr, which they call the solicitation purr. And that's a purr that occurs when the cat wants something. Primarily, it's usually food.

Third context in which the cat purr occurs-- and that's the context that is negative. There's been lots of anecdotal reports that cats actually will purr when they're in intense pain. And this is really interesting because we've always thought of purring as a positive indicator. And now, we potentially have this third area where cats purr that might be negative.

MOLLY BLOOM: Now, some hints from Tamás, our expert on dog vocalizations.

TAMAS FARAGO: Some types of vocalizations can be linked with different situations or emotional states. Growls are mostly used in aggression, so in competition with others, or territorial, or dominance interactions with other dogs. They use a special type of growl in play.

So when they play tug of war with the owner or playing with other dogs, they also use the growl. So they are higher pitched and shorter, they are more pulsing than the aggressive growls. Barking is really special vocalization in dogs because wolves rarely bark. And we know dogs bark all the time.

This is the most typical vocalization of dogs. They bark differently in different emotional states. So when they are left alone, they bark high pitched and tonal. So these barks are more clean-sounding.

But when there is an intruder at the fence or at the door, they bark deeper. And they bark harsher. There are different types of barks. Also, for example, playful barks are also higher pitched, but the rhythm is different from the alone barks.

In general, people can tell. So we played back barks recorded from different contexts. And they had to try to figure out from which context the bark was recorded. They were surprisingly successful-- even those that were not experienced with dogs at all.

MOLLY BLOOM: Will you be successful in decoding these mystery sounds?

[BARKING]

Well, of course you'll do well, Fido. But we'll see how the rest of us do in a minute.

[MUSIC PLAYING]

But first, do you have any mystery sounds you want to share with us? How about questions you want to hear answered on the show? Or maybe you want to send us a drawing, or a digital high five.

Email us. We're at brainson@m as in Minnesota pr.org. If you'd like to send us an actual letter in the actual mail, you can find our mailing address at our website, brainson.org. We'd love if you tell us about your pet and the stuff you think it says to you.

Maybe draw a comic. While you're on our website, you can also sign up for our newsletter. We'll let you know about new episodes, events, and other fun stuff.

Now, it's time to announce the latest group of kids to be added to the Brains Honor Roll. These are the awesome kids who keep the show going with their inquisitive ideas, creative questions, and marvelous mystery sounds. Here they are.

[MUSIC PLAYING]

Ben from Los Angeles, Tyler from Singapore, Hannah from Takoma Park, Maryland, Maura from Easley, South Carolina, Nolan and Logan from Fremont, California, Zachary from Hudson, Wisconsin, Neva and Lucy from Fullerton, California, Evan and April from Redondo Beach, California, Eli and Miles from Seattle, Jack from Corsicana, Texas, Henry from Vancouver, Julia May from Walkerton, Indiana, Eddie from Concord, North Carolina, Elan from Portland, Oregon, Edie from Cambridge, Massachusetts, Matthew from Pietermaritzburg, South Africa, Lucy from Calgary, Kai and Lacey from Grand Desert, Nova Scotia, Gabrielle from Concord, Massachusetts, Lee from Chico, California, Audrey from Brooklyn, Auden and Maggie from Albuquerque, New Mexico, Vivian from Boston, Macy and Jamie from Lake Orion, Michigan, Stella from Richmond, Virginia, Ivan from Silver Spring, Maryland, Imogen and Matthew from Auckland, New Zealand, Morgan from Santa Rosa, California, Petra and Julian from Orem, Utah, Kelly from Verona, New Jersey, Enid from Lake Oswego, Oregon, and Kaiya from Mountain View, California.

[THEME SONG]

Are you all ready for the mystery sounds?

SPEAKER: (WHISPERING) Shh. Mystery sound.

MOLLY BLOOM: This round of "Mystery Sound" was recorded live at the Fitzgerald Theater in Saint Paul as part of our *Cats Versus Dogs* show. Mark, Sandon, and I are presenting the mystery sounds. And you'll hear some guesses from the audience. We hope you'll guess along.

SPEAKERS: *Brains On!*

MOLLY BLOOM: So we're going to play a little game. And we need your help.

SANDON: If you're a fan of *Brains On!*, you know we like to do a segment called the "Mystery Sound." That's when we play a sound, and we have people guess what it is. It's one of our most popular segments.

MARK: And today, we're going to try something like that live.

MOLLY BLOOM: So since we're doing a show on cats and dogs, we're going to play cat and dog noises. And your job is to tell us what you think the cat or dog is saying.

MARK: Are they mad or happy?

SANDON: Are they asking for playtime or asking for food?

MOLLY BLOOM: And after your guesses, we'll tell you the answer. So are you all ready? We're going to start with two different barks.

One is friendly. And one is not. So listen for the difference. We want you to tell us if bark 1 or bark 2 is the friendly bark. So here is bark 1.

[BARKING]

OK. Here is bark 2.

[BARKING]

Which is friendlier-- bark 1 or bark 2? Who has a guess?

AUDIENCE: Bark 1.

MOLLY BLOOM: Bark 1. Another guess over here? San?

AUDIENCE: Bark 1.

MOLLY BLOOM: Bark 1. We both think bark 1. OK, let's hear the answers, San. And which one was it?

SANDON: OK, so the first bark was a dog barking at a stranger. Not that friendly. It was the second dog--

MOLLY BLOOM: Ooh, let's hear.

SANDON: --barking, asking for a ball.

MOLLY BLOOM: Let's hear that again.

SANDON: Here's the second one again.

[BARKING]

So can you picture-- I'm holding the ball. He's like, come on. Come on.

[LAUGHTER]

So barks are pretty cool because they're really unique to domestic dogs. Wolves do bark sometimes, but usually, it's a back off type of thing. But they're known more for their howls. Dogs, on the other hand-- they have all kinds of ways to bark.

And they bark to both communicate with each other and communicate with us. And researchers have found that humans are actually pretty good at guessing what different barks mean even though we may have not gotten it right today. Usually, you can tell if your dog is barking to say, hey, I want to play, or hey, get away from me, which is good because it allows them to communicate with us through these barks.

MOLLY BLOOM: OK. And let's must move on to the next sound. We have two cat sounds. One is a cat who wants food, and one is a cat who is stuck behind the door.

[LAUGHTER]

So which one is the cat who is stuck behind the door? Here is cat number 1.

[MEOWING]

OK? Food or door? I don't know. Here's cat number 2.

[MEOWING]

OK. Which one was stuck behind the door, cat number 1 or cat number 2? We have a guess over here with San.

SPEAKER: 1 or 2?

AUDIENCE: 2.

MOLLY BLOOM: Cat number 2. Good guess. Over here with Tiffany?

AUDIENCE: 1.

MOLLY BLOOM: Cat number 1. Over here with San? 1 or 2?

AUDIENCE: 1.

MOLLY BLOOM: Cat 1. OK. One more guess over here with Tiffany.

AUDIENCE: Cat number 2.

MOLLY BLOOM: Cat number 2. And you have cat ears on. Very nice.

OK. So the answer-- the cat behind the door was cat number 2. Let's hear that again.

[CHUCKLING]

[MEOWING]

So unlike dogs, we can tell what kind of sounds dogs are making. Research shows that we are terrible at telling what sounds cats are making. Even owners, when played their own cats' noises, can't really tell if they're happy or sad.

So cat owners really tell a lot what's going on through context, like what the body language is, what's happening. And cats actually only use meows to communicate with humans. They don't use it with other cats.

When they're kittens, they use it to talk to their moms. But then when they're grown up, it's only for us. So ready for the next sound? This is a dog sound. We're going to ask if it's an angry dog or a happy dog.

[GROWLING AND BARKING]

Angry dog or happy dog? Who has a guess?

AUDIENCE: Angry dog!

MOLLY BLOOM: I heard angry dog out there. Over here with San.

AUDIENCE: Angry dog.

MOLLY BLOOM: Angry? Who else has a guess? Over here with San.

AUDIENCE: I thought it was happy.

MOLLY BLOOM: You thought it was happy? Excellent. Any other-- oh, back here with Tiffany.

AUDIENCE: Angry.

MOLLY BLOOM: Angry. Over here with San?

AUDIENCE: Happy.

MOLLY BLOOM: Happy. OK. So one more with Tiffany.

AUDIENCE: Angry.

MOLLY BLOOM: Angry dog. All right. So that dog was actually the sound of a dog playing. Let's hear it one more time.

[GROWLING AND BARKING]

SPEAKER: Good boy.

SANDON: So it sounds like the dog is growling, and it is, but you can tell that the dog is actually happy and playing because there are a couple of things. One is that the growls are a little bit higher pitched than a low, deep, angry growl. And the other one-- it's punctuated with the sharp little other happy noises, little barks.

If a dog were mad, it would be a lot lower. It'd be a low growl, deep growl. That was a happy growl.

MOLLY BLOOM: All right. We have one more sound for you. This is a cat sound.

And we don't have a choice for you this time. We want you to tell us what the cat is saying. So we want you to be its translator. OK?

[PURRING]

OK. Who wants to tell us what that cat is saying? Over here with San.

SPEAKER: So many hands.

AUDIENCE: It's purring, and it's happy.

MOLLY BLOOM: It's happy. It's saying I'm happy. OK, over here with Tiffany.

SPEAKER: --for what it's saying?

AUDIENCE: Me?

MOLLY BLOOM: Yeah. What is the cat saying?

AUDIENCE: Get away.

MOLLY BLOOM: Get away. Yeah. Over here with San.

AUDIENCE: Be quiet. I'm trying to sleep.

MOLLY BLOOM: [LAUGHS] Excellent.

SANDON: Most likely.

MOLLY BLOOM: Over here with Tiffany.

AUDIENCE: Get away.

MOLLY BLOOM: Get away. We think this is not a happy sound. Back there with San.

AUDIENCE: I think it was get away from me.

MOLLY BLOOM: OK. We think this cat is not happy.

AUDIENCE: I think it wants food.

MOLLY BLOOM: Oh. Hmm. Well, our last guesser is correct. That cat wants food.

[APPLAUSE]

Let's hear it one more time.

[PURRING]

SANDON: Yeah. So this is what's known as a solicitation purr. Now, we know cats purr for lots of reasons. And scientists are just starting to figure out what some of them mean, as we talked about before, but this one means hey, pay attention to me right now.

Give me something. Notice me. I'm a cat. I'm great. All that stuff.

You can tell it's urgent. It has a high pitched sound to it that's almost a little bit like maybe a baby crying or something. And scientists think cats have figured out that we respond really well to this high pitched sound. And they've basically used it to train us to do stuff to notice them, and give them foods, and stuff.

So other cat purrs we know are things they do when they're happy. And as we mentioned before, sometimes, cats even purr when they're wounded or in distress. So there's a lot of research to be done about the cat purrs. Hopefully, you all become cat scientists and can tell us about those purrs one day.

MOLLY BLOOM: Thank you, guys. Thanks for guessing.

SANDON: Good guesses.

[APPLAUSE]

MOLLY BLOOM: That's it for this episode of *Brains On!*

[BARK]

[MEOW]

Sorry, guys, but you'll get more soon when we post our next episode. For now, thanks to all the people who made us sound good on stage-- Johnny Vince Evans, Tom Campbell, Alan Frechtman, Tiffany Hanson, and Sam [? Chiu. ?] We'll be back with more answers to your questions soon. Thanks for listening.

SPEAKERS: Ba-ba-ba-ba-ba-ba-ba-ba-ba *Brains On!*