EXHIBIT E



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Transcript of Jeffrey Bilmes, Ph.D.

Date: March 6, 2026
Case: Concord Music Group -v- Anthropic

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IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

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CONCORD MUSIC GROUP, INC., ET AL., : Civil Action No.
Plaintiffs, : 5:24-cv-03811-EKL
v. : SVK
ANTHROPIC PBC, :
Defendant. :

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Videotaped Deposition of JEFFREY BILMES, Ph.D.
* * * HIGHLY CONFIDENTIAL * * *
* * * ATTORNEYS' EYES ONLY - SOURCE CODE * * *
Seattle, Washington
Friday, March 6, 2026
9:00 a.m.

Job No.: 620607
Pages: 1 - 255
Reported By: Connie Recob, CCR 2631, RMR, CRR

Deposition of JEFFREY BILMES, Ph.D., held at the offices of:

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Pursuant to notice, before Connie Recob, CCR 2631, RMR, CRR, Notary Public in and for the State of Washington.

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you could think of as distortions. And there could be various different amounts of each one of these various different types of distortions.

So the first part of your question is a hypothetical, which would not be something necessarily -- that would not be something possibly to define or even do because of all of those things.

Secondly -- so the second part of your question was what would be the consequence of doing something that is effectively impossible to do. So the consequence -- let's say that we are in a universe where the impossible is possible. And then the model, Anthropic's Claude, because the training data has changed, would behave differently.

Now, the reason is because this goes back to what we were saying a little bit earlier that, especially when you have models as powerful as state-of-the-art large language models deployed by commercial entities such as OpenAI, Google, Anthropic and other entities that have the abilities to produce these large models, one never really knows the effect that one piece of data has on everything else that the model does. One knows

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that the model behaves differently. One knows that every training data can change the billions of floating point numbers -- floating point numbers that comprise the underlying model's parameters. And the resulting model is different. It will behave differently.

And it's very counterintuitive at first, because one might think, as an example, that a recipe for, say, lasagna would have no effect on one's ability to get instructions on how to fix a carburetor in a car, but if you removed that recipe for lasagna, it's the case that the precise mechanism that goes into producing the instructions for fixing a carburetor on a car would be different even though these two concepts to us humans, to us people, who would not think of those two things as being related to each other, would not find a lasagna recipe useful for fixing a car.

These models work in very complicated ways, and the community is collectively working really, really hard and really hard to try to understand precisely mathematically how are they doing what they are doing.

There are some theories. Most of the

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theories that I've seen are based on tiny little chunks of the model. So as good as the existent mathematical theories are, they're theories about a very small chunk. They're theories about the small -- and they themselves would be first to admit that, despite their underlying mathematics being correct, they don't know if their theories and their results would themselves still apply once you scale up those results to the sized models that -- you know, Claude or ChatGPT or any of the models that, you know, comprise the state-of-the-art large language models are.

So therefore, getting back to your question, if all of the copies of the works in suit were removed from the training data, how would it affect the resulting model or would it effect the resulting model? I can't remember which of those two variants it was. But both sides of those questions, to really accurately answer it would need to be teased apart.

First is really the infeasibility and impossibility of doing the first part. And secondly, the fact that any piece of data can have an effect on any other ability that the model might possess. And it's -- it's quite remarkable.

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I mean, it really is.

Q Do you disagree that the effect of Plaintiffs' lyrics on Claude's performance is extremely likely to be near zero?

ATTORNEY GOOCH: Objection. Asked and answered.

THE WITNESS: I'm sorry. Might you -- would you mind rephrasing the question?

BY ATTORNEY MILLER:

Q Do you agree that the effect of Plaintiffs' lyrics on Claude's performance is extremely likely to be near zero, if present at all?

ATTORNEY GOOCH: Objection. Asked and answered.

THE WITNESS: My understanding is that not just lyrics, but every piece of data, every iota of data has some effect. It might be extremely small, but every piece of data has some effect on the model's behavior.

The models can do so many things in so many different ways that changing the data in any way changes the model.

BY ATTORNEY MILLER:

Q If you turn to Paragraph 328 of your

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opening report, please, I want to direct your attention to the last sentence of this paragraph where you write, "At this magnitude, the effect of Plaintiffs' lyrics on Claude's learned parameters or outputs is extremely likely to be near zero, if present at all."

Do you see that?

A I do see that.

Q Do you agree with that statement?

A I agree with that statement.

Q How is that consistent with what you just testified, that every piece of data has some effect on the model's behavior?

A Because near zero is not zero. Sometimes in mathematics one can say that you could be near zero, but that's completely different than being actually zero. You can divide by a number that's near zero, and you don't get an infinity, but if you divide by zero, you get infinity.

So it's just not -- they're very different near zero and zero. Despite near zero sounding like it's zero, it's not. Near zero is not zero. So while it may be the case -- and I can explain how it's consistent. While it may be the case that the effect is near zero, that doesn't mean

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it's zero. And what I was saying earlier was that every piece of data has some effect on the behavior. It may be very small. It may be near zero. It may be immeasurably small using our current mechanisms of measurability in a given fixed amount of time, but that doesn't mean it's zero necessarily. It does not. So near zero is different than zero.

Q Would excluding the works in suit from Anthropic's training data, assuming that's possible, which we'll address separately in a moment, have any effect that would be large enough to be noticeable in a practical sense?

ATTORNEY GOOCH: Form. Asked and answered.

THE WITNESS: So it depends what one's -- what -- what one would mean by "in a practical sense." So what I'm saying is it changes the model. It's near zero. It's not zero. It may be immeasurably small. These things are so large. You might run a number of tests over a period of time to see the difference, but because these things are so large, the tests wouldn't -- may not be enough time to -- to observe the difference. It may be that to -- for the test to show

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difference.

This is what we mean by near zero. We would need to run the test for longer than the amount of time, maybe many hundreds of years before we might see a particular difference. But the point is that we know that every piece of training data does have an effect on the resulting model.

There's a notion of diminishing returns and there's a notion of scaling laws in the machine learning community. And the scaling laws use mathematical models to express the notion of diminishing runs. And the functions, the mathematical functional form that they use is such that the effect of any piece of training data -- this is something that has been tested many, many times in machine learning community. The functional form is such that the effect of any piece of data, no matter how small, on these mathematical models on top of existing data is never zero. It's near zero, but it's never zero.

And I could -- if you're interested, I would be happy to talk a little bit more about the specific mathematical forms of these functions of scaling laws, or I could, if you want, give you

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another example of a slightly simpler mathematical form of a function that would also have that particular behavior.

BY ATTORNEY MILLER:

Q You -- you said that the effect of any piece of data, no matter how small, is near zero but it's never zero. Is saying that the effect is near zero saying that a piece of data, no matter how small, impacts the LLM's performance?

A I'm sorry.

ATTORNEY GOOCH: Objection. Form. Go ahead.

THE WITNESS: Sorry. Might you be willing to point me to a particular sentence or paragraph so that I could clarify it? I believe you were not referring to a particular paragraph. When you were saying -- you were suggesting that I was saying something, and I was wondering if you wouldn't mind pointing to a paragraph.

BY ATTORNEY MILLER:

Q I was looking at your previous testimony. And you said -- you testified that the effect of any piece of data, no matter how small, is never zero.

Is that the same as saying that any piece