

ORACLE

Best practices on designing utterances

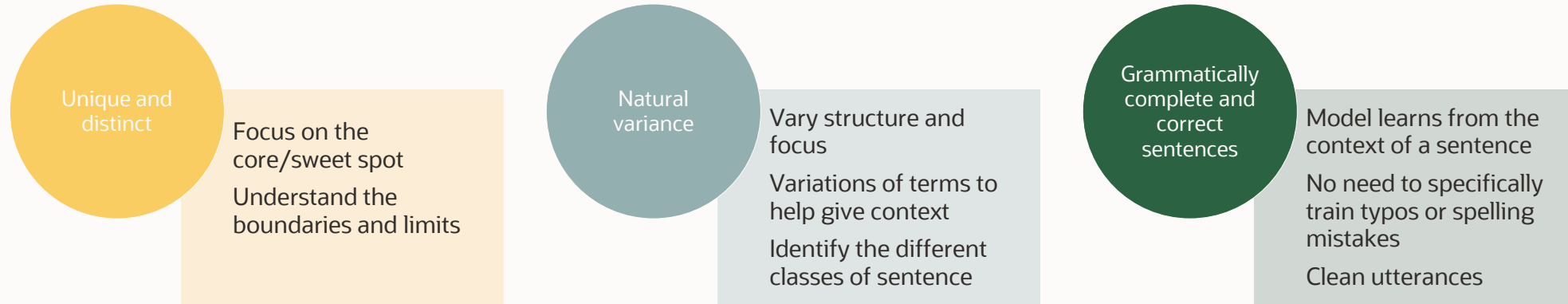
Program agenda

- 1 Best practices for designing utterances
- 2 What makes bad utterances
- 3 Approaches for creating utterances
- 4 Bootstrapping utterances

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Best practices for designing utterances



Use real world data as your source for building utterances

- Augment, clean and refine your utterances
- Always be willing to refactor as you include more and more intents and utterances

Golden rules for utterances

- Quality over quantity
 - Generally speaking 30-40 to start off with, a minimum of 80 for production
- 80/20 split train/test your model
- Test early and prove your design is viable

Best practices for designing utterances

Ensure you don't unintentionally skew results

- If one intent consistently uses “please” that can skew results if the user says “please”
- Use a representative set of entity values, but not all
 - “John Smith”, “\$20”, “1st January” as example entity values

Keep the number of utterances balanced between intents

- e.g. avoid 300 for one intent and 15 for another

Test, test and test

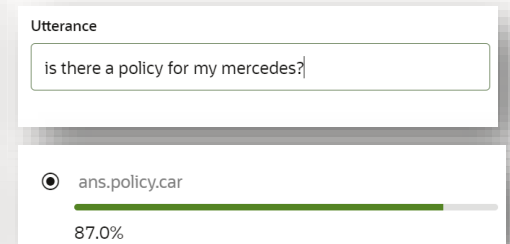
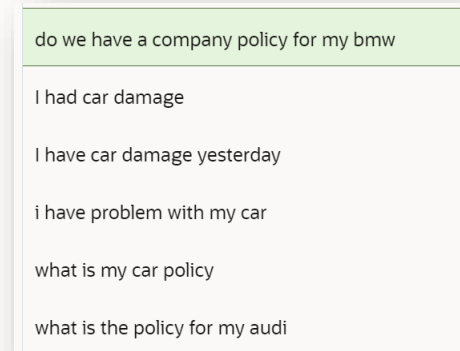
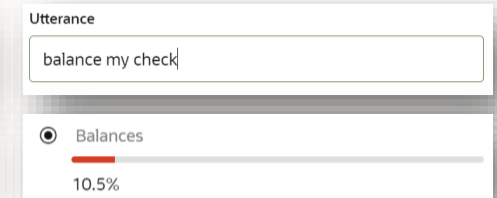
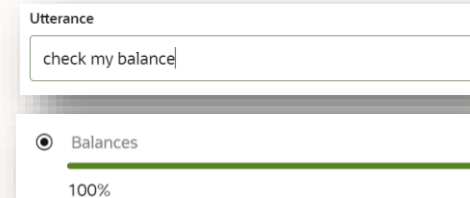
- Ensure you are running batch tests to prove new utterances don't introduce failure

Best practices for designing utterances

The model is smarter than you think

Beyond the utterances themselves, the model has additional “intelligence”

- It “understands” the sentence and not just the individual words
 - “Balance my check” != “check my balance”
- The model generates variations of utterances behind the scenes and is pre-trained with a general knowledge of English
 - Give it “Audi”, “BMW”, “VW”, it may then resolve “Mercedes”
 - Give it “Taxi”, “Uber”, “Lyft”, it may then resolve “Cab”
- But you need to give it enough hints about the context of words
 - Bank can have several meanings.
 - If the meaning is the financial institution, make sure to use variations in the utterances to clearly represent it, and not a park bank or river bank.



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”

The following are real examples although the data has been changed to hide the original use case

What makes bad utterances formulaic

This is an intent for ordering pizza

- **Whilst there might be 100 utterances like this**
 - Very little linguistic variance
 - Too formulaic
- **Overfitting the model**
 - Will struggle to handle the variance in user input
 - Puts a strong signal on the sentence structure
 - “I want” becomes the strong signal

I want a large pepperoni pizza

I want a small pepperoni pizza

I want a large veggie pizza

I want a small veggie pizza

I want a large BBQ pizza

I want a small BBQ pizza

What makes bad utterances

“big bucket”

This is an intent for a travel agent

- “Big bucket intent”
 - Utterances are related in use case but have little linguistic relationship
 - Uses entities to try and “understand” the different types of request
 - Model has to generalize over terms which are linguistically unrelated
- Signal for this intent is mixed and difficult to generalize

I'd like to book a holiday for the Autumn please

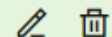
Looking to book a trip away maybe June or July

Want to book a winter break where I can ski

Can you exchange \$400 into UK pounds please

What is the exchange rate from USD into Euros

Do I need a COVID test to travel to Iceland from UK?



What makes bad utterances

“polluted” utterances

This is an intent for checking stock

- Lifted directly from existing customer communication logs
 - So customer/developer thought they were following a good practice
- **Do you really think this is representative of the intent?**
 - Maybe this is what a customer might say but that isn't helping the model
 - Model is going to try and generalize a stock request based on phrase about
 - Being a member of the loyalty scheme
 - Moving into a new house
 - Views of the national park

Hello. I am a new member of your loyalty scheme. I was hoping to order a new fridge for my new house. We are moving in this Friday, its a lovely place just outside downtown with views of the national park. However my card took a while to arrive and when it did I missed it in the mail at first so I've only just received it. But when I look on your website it looks like the product is out of stock. You got any idea when this is going to be back in stock?

What makes bad utterances

wrong “signal” in utterances

This is an intent to check the stock levels of kitchen goods

- Utterances heavily focused on the product, not the action/verb of the intent
 - The focus on this intent should be
 - “Do you have in stock..”
 - “What is the availability of..”
 - “I want to check if you’ve got...”
- The intent is now resolved with only the mention of a type of washing machine
 - “How much is the Samsung Series 5 ecobubble”
 - “The Hoover H-Wash fell on my head”
- As a “generalization” this intent is anything about kitchen goods
 - It should be about checking stock level

BEKO WTK82011W 8 kg 1200 Spin

Do you have the Hotpoint Ecobubble in stock

HOOVER H-Wash 500

LOGIK L712WM20 7 kg 1200

SAMSUNG Series 5 ecobubble

What is the current availability of the LG TurboWash

What makes bad utterances

non complete/grammar

This is an intent for ordering items

- There is no concept of placeholder/parameters in ODA utterances
 - While the entity values might not be known, you have to have something which is broadly representative
- The model is now skewed to understand the string
 - <placeholder>
 - **

Can you send me a <placeholder>

I want to order a <placeholder>

I would like a <placeholder>

Please ship ** as soon as possible

We'd like to order ** to be delivered on Monday

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Approaches for creating utterances

Manual Creation

Quick to get started

Easier to apply best practices

Can be biased by a single developer

Data Manufacturing

Crowdsource utterances

Depends on quality of job and crowd

Requires more effort and time

Automated Generation

Not recommended for intents

ODA already does this behind the scenes

Too formulaic and over fitted

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Bootstrapping utterances - start with a couple of key phrases

PasswordRequestIntent

I want to reset my
password

I can't log into email

Create variations around the key words

I want to reset my password

I want to reset my
password

I want to reset my
password

I'd like to reset my
password

I need to be able to
reset my password

Can you reset my
password

Duplicate those and change some of the keywords

I want to reset my password

I want to reset my
password

I want to reset my
password

I'd like to reset my
password

I need to be able to
reset my password

Can you reset my
password

I want to change my
password

I'd like to change my
password

I need to be able to
change my password

Can you change my
password

And again, this time changing the object of the sentence

I want to reset my password

I want to reset my
password

I want to reset my
password

I'd like to reset my
password

I need to be able to
reset my password

Can you reset my
password

I want to change my
password

I'd like to change my
password

I need to be able to
change my password

Can you change my
password

I want to change my
credentials

I'd like to change my
credentials

I need to be able to
change my credentials

Can you change my
credentials

Sort your phrases

I want to reset my password

Can you change my credentials

Can you change my password

Can you reset my password

I need to be able to change my credentials

I need to be able to change my password

I need to be able to reset my password

I want to change my credentials

I want to change my password

I want to reset my password

I'd like to change my credentials

I'd like to change my password

I'd like to reset my password

Change some words to bring in natural variance

I want to reset my password

Can you change my credentials

Can you change my password

Can you reset my password

I need to be able to change my credentials

I need to be able to change my password

I need to be able to reset my password

I want to change my credentials

I want to change my password

I want to reset my password

I'd like to change my credentials

I'd like to change my password

I'd like to reset my password

Can you change my logon credentials

Change my password

Please reset my password

I need to be able to change my credentials

I wanna to change my password

I need to be able to reset my password

We want to change the credentials

How do I change my password

I want to reset my password

How would you change my credentials

I'd like to change my password

We'd like to reset a password

Duplicate some phrases and add new key terms

I want to reset my password

Can you change my credentials

Can you change my password

Can you reset my password

I need to be able to change my credentials

I need to be able to change my password

I need to be able to reset my password

I want to change my credentials

I want to change my password

I want to reset my password

I'd like to change my credentials

I'd like to change my password

I'd like to reset my password

Can you change my logon credentials

Change my password

Please reset my password

I need to be able to change my credentials

I wanna to change my password

I need to be able to reset my password

We want to change the credentials

How do I change my password

I want to reset my password

How would you change my credentials

I'd like to change my password

We'd like to reset a password

Can you change my logon credentials

Change my password

Please reset my password

I need to be able to change my credentials

I wanna to change my password

I need to be able to reset my password

We want to change the credentials

How do I change my password

I want to reset my password

How would you change my credentials

I'd like to change my password

We'd like to reset a password

How do I **update** my password

I want to **update** my password

How would you **update** my credentials

I'd like to **alter** my password

We'd like to **modify** a password

Duplicate some phrases and add new key terms

Sort and look for any patterns or repetition

Can you change my credentials
Can you change my password
Can you reset my password
I need to be able to change my credentials
I need to be able to change my password
I need to be able to reset my password
I want to change my credentials
I want to change my password
I want to reset my password
I'd like to change my credentials
I'd like to change my password
I'd like to reset my password

Can you change my logon credentials
Change my password
Please reset my password
I need to be able to change my credentials
I wanna to change my password
I need to be able to reset my password
We want to change the credentials
How do I change my password
I want to reset my password
How would you change my credentials
I'd like to change my password
We'd like to reset a password

Can you change my logon credentials
Change my password
Please reset my password
I need to be able to change my credentials
I wanna to change my password
I need to be able to reset my password
We want to change the credentials
How do I change my password
I want to reset my password
How would you change my credentials
I'd like to change my password
We'd like to reset a password
How do I **update** my password
I want to **update** my password
How would you **update** my credentials
I'd like to **alter** my password
We'd like to **modify** a password

Can you change my logon credentials
Change my password
How do I change my password
How do I update my password
How would you change my credentials
How would you update my credentials
I need to be able to change my credentials
I need to be able to reset my password
I wanna to change my password
I want to reset my password
I want to update my password
I'd like to alter my password
I'd like to change my password
Please reset my password
We want to change the credentials
We'd like to modify a password
We'd like to reset a password

Now repeat for your other seed phrases

Or do you?

I want to reset my
password

I can't log into email

Password on my
account needs to be
changed

I forgot my password

Someone has access to
my email

My email password was
exposed on the internet

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