

ORACLE®

Oracle Digital Assistant

The Complete Training

Q&A

Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

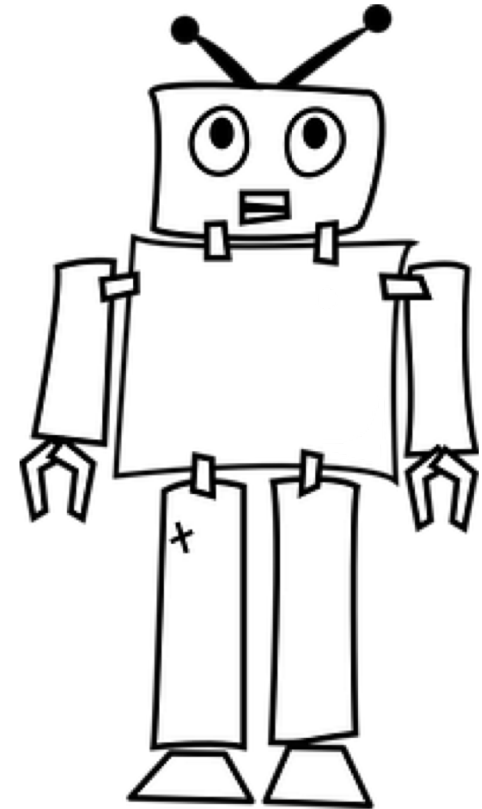
Topic agenda

- 1 ➤ Introducing Q&A
- 2 ➤ QnA and Digital Assistant
- 3 ➤ Reusable QnA skill

Topic agenda

- 1 ➤ Introducing Q&A
- 2 ➤ QnA and Digital Assistant
- 3 ➤ Reusable QnA skill

Sometimes a question is what it is;
a question



Q & A builder

- Intent resolution – sentence level resolution
 - Trying to establish meaning from a sentence
 - Meaning and structure are important
 - Maps to a single transaction/usecase
- QnA – word level resolution
 - Uses an intelligent search across questions and answers
 - Can be tuned to define Q&A terms and stop words
- “Lost my bank details, need to reset password”
- “Can I return these shoes”

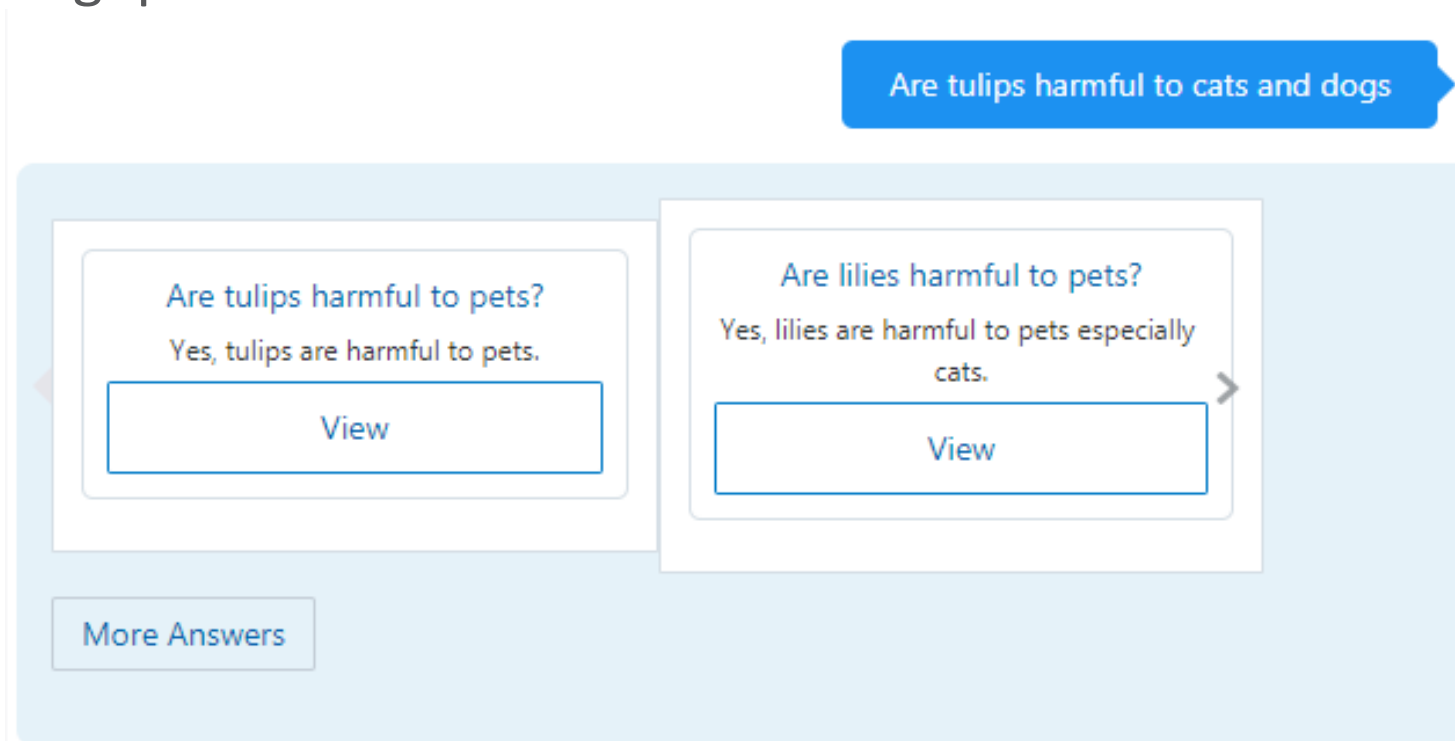
Q & A builder

- Q & A loaded from a CSV
 - Category, question, answer

	A	B	C
1	category_path	questions	content
2	After you order	How do I track my order?	You can return to the 24hrsflowers chatbot at anytime a
3	Care instructions	Are sunflowers harmful to pets?	No, sunflowers are not harmful to pets
4	Care instructions	What is the estimated lifespan of roses	Normally 7 - 12 days
5	Care instructions	Are peonies harmful to pets?	No, peonies are not harmful to pets.
6	Care instructions	What is the estimated lifespan of frees	Normally 7 days
7	Care instructions	Are Alstromeria harmful to pets?	Yes, Alstromeria are harmful to pets.
8	Care instructions	Are lilies harmful to pets?	Yes, lilies are harmful to pets especially cats.
9	Care instructions	What is the estimated lifespan of lilies	Normally 7 - 11 days
10	Product and packaging	How are the bouquets packaged?	24hrsflowers flowers are sent in branded cardboard bo
11	Care instructions	What is the estimated lifespan of Alstr	Normally 7 - 12 days
12	Care instructions	What is the estimated lifespan of sunfl	Normally 7 days

Q & A builder

- Q & A loaded from a CSV
 - Category, question, answer
 - Allows matching questions to be browsed



Q & A at runtime

- Intent resolved
- Q & A resolved
- Could be intent or Q &A

Testing Skill

Reset

What is my balance?

For which account do you want your balance?

savings
checking
credit card

What is my balance?

Q & A at runtime

- Intent resolved
- Q & A resolved
- Could be intent or Q &A

Testing Skill

Reset

Can my points expire?

Can my points expire?

Any points you earn will not expire.

View

More Answers

Categories

Can my points expire?

Q & A at runtime

- Intent resolved
- Q & A resolved
- Could be intent or Q &A

Testing Skill

Reset

when are realtime balances available

Hey, I wasn't sure, do you want to...

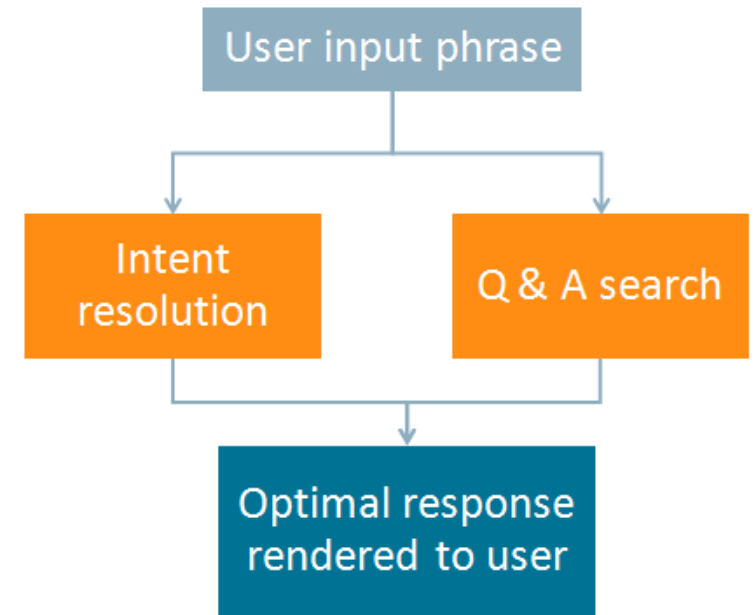
Balances

Check our FAQ on this topic

when are realtime balances available

Q & A routing is based on

- The results of intent and QnA matching
 - Intent resolution
 - Minimum match of QnA
- Use of imperative verbs assumes intent
 - “do”, “give” “cancel”
 - Platform understands the concept of imperative verbs
 - You can explicitly define your own
- More later...



Q & A routing is based on

- qnaMinimumMatch in System.Intent
- Defines % of tokens that must match
 - E.g. 50%, 25% means we first of all look for 50% of matches, if not, we look for 25% - thus trying to ensure we only drop to 25% if we can't resolve to a higher quality
- Token is not necessarily a word
 - Stop words are ignored
 - Tokens are generated for word pairs
 - "Balance in my checking account" and "Checking balance in my account", then search for "checking account" will return "Balance in my checking account"

Q & A builder - how it works

- Smart” logic to search/index
 - Automatically stems words when indexing
 - “festival”, “festive”, “festivity” all represented as the same stem
 - Ignores stop words (“a”, “of”, “are” etc)
 - Fuzzy matching (tolerant of one or two char differences)
 - Define synonyms and abbreviations

The screenshot displays the Oracle Q & A builder interface. On the left, the 'Language Config' tab is active, showing a table of configurations. A red box highlights the 'wife, spouse' synonym entry. On the right, the 'Test' tab is active, showing a test scenario. A red box highlights the question 'how do I add my wife for insurance' and the answer 'I have already taken a PA policy and renewing the same. Can I add my spouse in the current policy?'. A red line connects the 'wife, spouse' entry in the configuration table to the 'spouse' word in the test scenario.

Enabled	Type	Definition
✓	Ignored words	a, about, all, also, am, an, and, any, are, as, ask, at, b, be, being, but, by, can, could, d, did, do, does, e, else, etc, f, for, from, g, go, h, had, has, have, have, he, help, here, his, how, i, ie, if, in, into, is, it, k, know, l, let, m, me, mine, mr, mrs, my, n, need, no, now, o, of, oh, ok, on, or, p, please, q, r, s, say, see, seem, shall, she, should, show, so, still, such, t, tell, that, the, their, them, then, there, these, they, this, to, too, try, u, until, us, v, via, viz, vs, w, want, was, way, we, what, when, where, whether, which, while, who, will, with, would, x, you, your, z Last updated: 36 minutes ago
✓	Synonym	wife, spouse Last updated: a few seconds ago

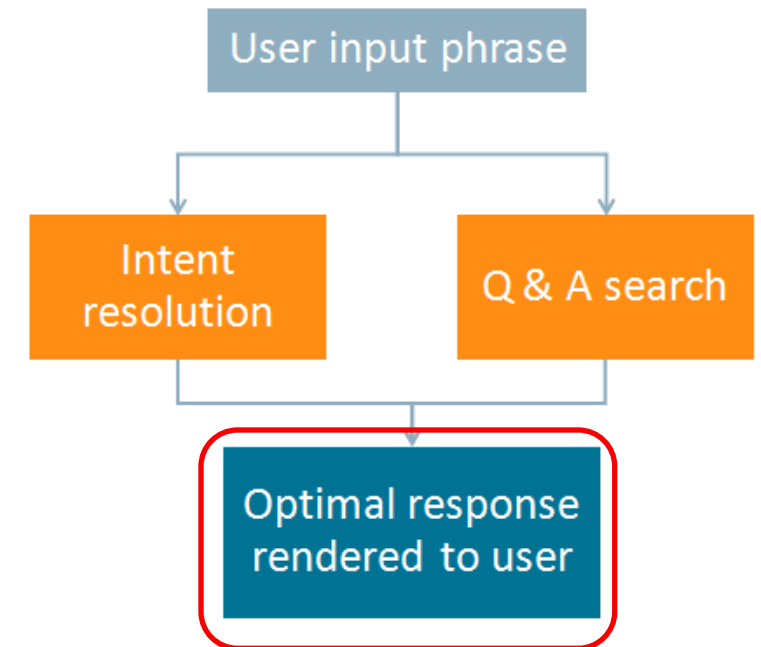
Test scenario: how do I add my wife for insurance

Answer: I have already taken a PA policy and renewing the same. Can I add my spouse in the current policy?

More Answers Categories

Q & A builder - how it works

```
intent:  
  component: "System.Intent"  
  properties:  
    variable: "iResult"  
    optionsQnaLabel: "Check our FAQ on this topic"  
    optionsPrompt: "Hey, I wasn't sure, do you want to..."  
    qnaSkipIfIntentFound: true  
    qnaEnable: true  
  transitions:  
    actions:  
      Balances: "startBalances"  
      Transactions: "startTxns"  
      Send Money: "startPayments"  
      Track Spending: "startTrackSpending"  
      Dispute: "setDate"  
      Reset Password: "resetPassword"  
      unresolvedIntent: "unresolved"  
      qna: "qna"
```



Q & A builder - how it works

how do I reset password

```
intent:
  component: "System.Intent"
  properties:
    variable: "iResult"
    optionsQnaLabel: "Check our FAQ on this topic"
    optionsPrompt: "Hey, I wasn't sure, do you want to..."
    qnaSkipIfIntentFound: true
    qnaEnable: true
  transitions:
    actions:
      Balances: "startBalances"
      Transactions: "startTxns"
      Send Money: "startPayments"
      Track Spending: "startTrackSpending"
      Dispute: "setDate"
      Reset Password: "resetPassword"
      unresolvedIntent: "unresolved"
      qna: "qna"
```

We are resetting your password

Q & A builder - how it works

```
intent:  
  component: "System.Intent"  
  properties:  
    variable: "iResult"  
    optionsQnaLabel: "Check our FAQ on this topic"  
    optionsPrompt: "Hey, I wasn't sure, do you want to..."  
    qnaSkipIfIntentFound: false  
    qnaEnable: true  
  transitions:  
    actions:  
      Balances: "startBalances"  
      Transactions: "startTxns"  
      Send Money: "startPayments"  
      Track Spending: "startTrackSpending"  
      Dispute: "setDate"  
      Reset Password: "resetPassword"  
      unresolvedIntent: "unresolved"  
      qna: "qna"
```

how do I reset password

We are resetting your password

how do I reset password

Hey, I wasn't sure, do you want to...

Check our our FAQ on this topic

Reset password

Q & A builder - how it works

```
intent:  
  component: "System.Intent"  
  properties:  
    variable: "iResult"  
    optionsQnaLabel: "Check our FAQ on this topic"  
    optionsPrompt: "Hey, I wasn't sure, do you want to..."  
    qnaSkipIfIntentFound: false  
    qnaEnable: true  
  transitions:  
    actions:  
      Balances: "startBalances"  
      Transactions: "startTxns"  
      Send Money: "startPayments"  
      Track Spending: "startTrackSpending"  
      Dispute: "setDate"  
      Reset Password: "resetPassword"  
    unresolvedIntent: "unresolved"  
    qna: "qna"
```

how do I reset password

We are resetting your password

how do I reset password

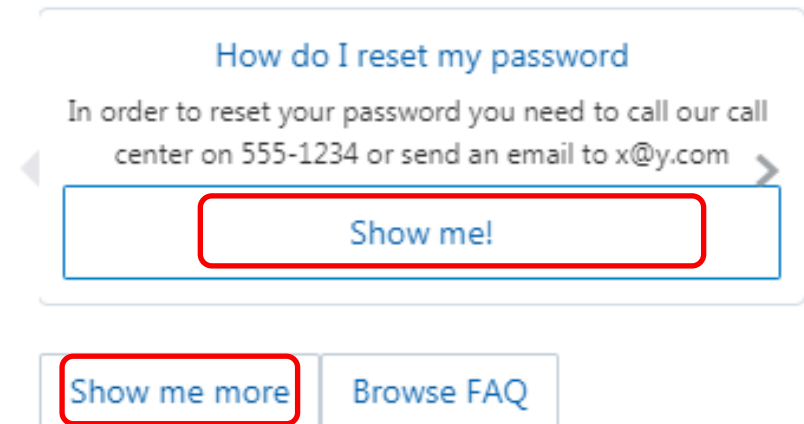
Hey, I wasn't sure, do you want to...

Check our our FAQ on this topic

Reset password

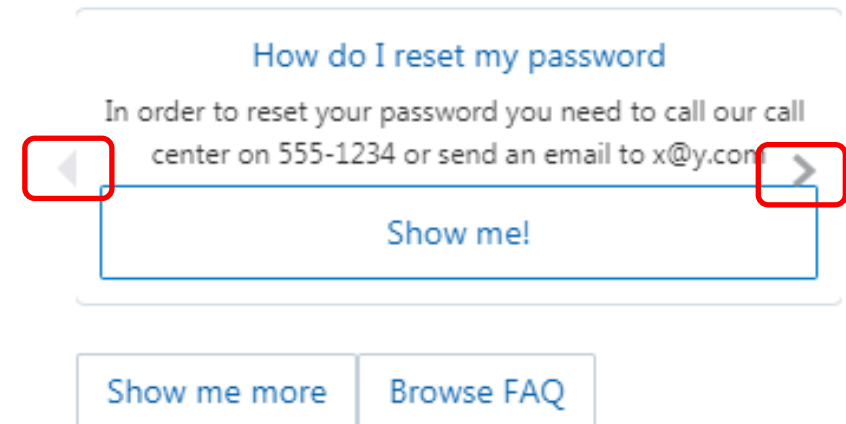
Q & A builder - how it works

```
qna:  
  component: "System.QnA"  
  properties:  
    transitionOnTextReceived: true  
    categoryListLimit: 4  
    matchListLimit: 3  
    viewAnswerLabel: "Show me!"  
    moreAnswersLabel: "Show me more"  
    answersLabel: "Drill in here!"  
    categoriesLabel: "Browse FAQ"  
    exitLabel: "Exit Label"  
    keepTurn: true  
  transitions:  
    actions:  
      none: "unresolved"  
      next: "output"
```



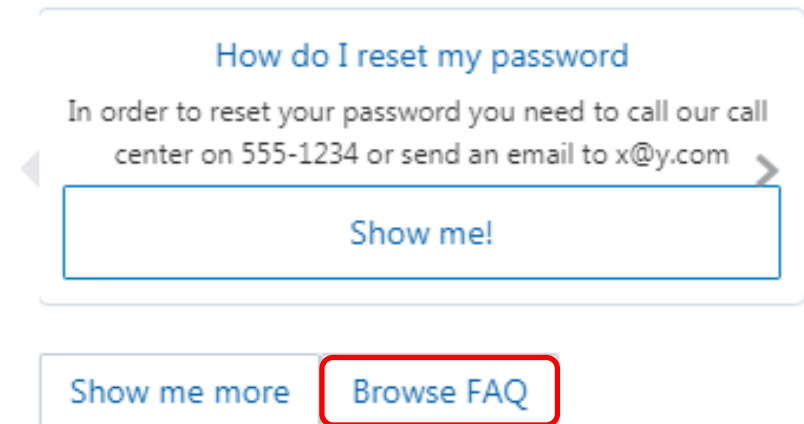
Q & A builder - how it works

```
qna:  
  component: "System.QnA"  
  properties:  
    transitionOnTextReceived: true  
    categoryListLimit: 4  
    matchListLimit: 3  
    viewAnswerLabel: "Show me!"  
    moreAnswersLabel: "Show me more"  
    answersLabel: "Drill in here!"  
    categoriesLabel: "Browse FAQ"  
    exitLabel: "Exit Label"  
    keepTurn: true  
  transitions:  
    actions:  
      none: "unresolved"  
      next: "output"
```



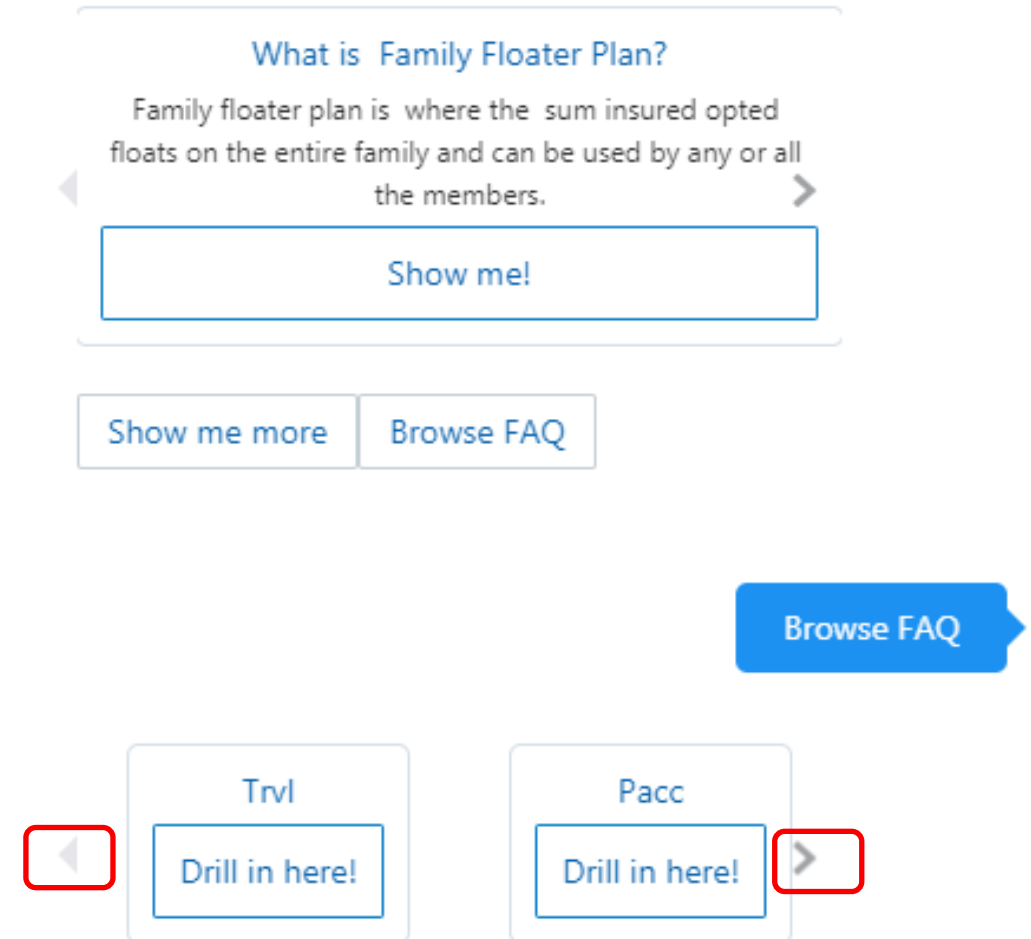
Q & A builder - how it works

```
qna:  
  component: "System.QnA"  
  properties:  
    transitionOnTextReceived: true  
    categoryListLimit: 4  
    matchListLimit: 3  
    viewAnswerLabel: "Show me!"  
    moreAnswersLabel: "Show me more"  
    answersLabel: "Drill in here!"  
    categoriesLabel: "Browse FAQ"  
    exitLabel: "Exit Label"  
    keepTurn: true  
  transitions:  
    actions:  
      none: "unresolved"  
      next: "output"
```



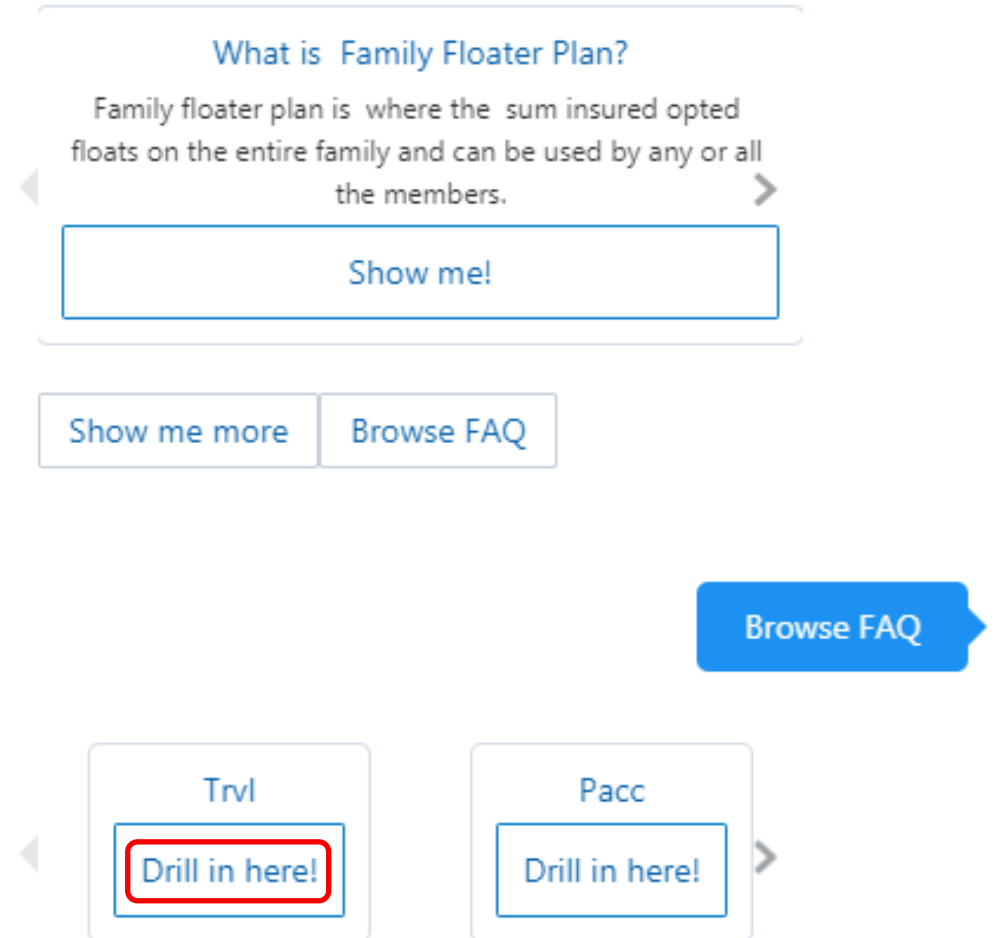
Q & A builder - how it works

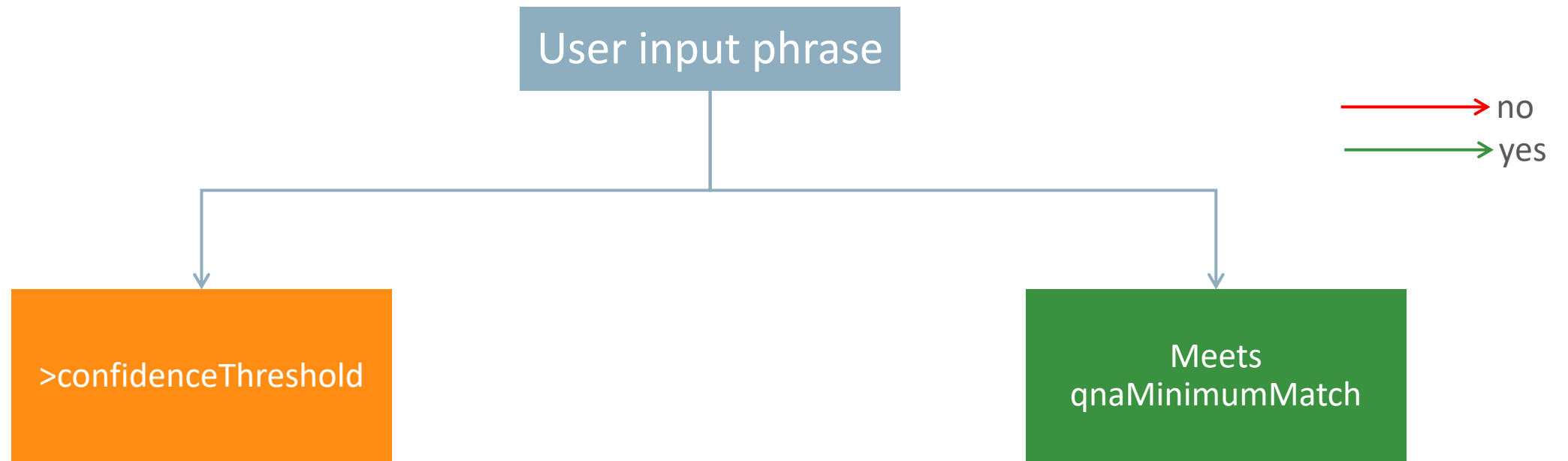
```
qna:  
  component: "System.QnA"  
  properties:  
    transitionOnTextReceived: true  
    categoryListLimit: 4  
    matchListLimit: 3  
    viewAnswerLabel: "Show me!"  
    moreAnswersLabel: "Show me more"  
    answersLabel: "Drill in here!"  
    categoriesLabel: "Browse FAQ"  
    exitLabel: "Exit Label"  
    keepTurn: true  
  transitions:  
    actions:  
      none: "unresolved"  
      next: "output"
```



Q & A builder - how it works

```
qna:  
  component: "System.QnA"  
  properties:  
    transitionOnTextReceived: true  
    categoryListLimit: 4  
    matchListLimit: 3  
    viewAnswerLabel: "Show me!"  
    moreAnswersLabel: "Show me more"  
    answersLabel: "Drill in here!"  
    categoriesLabel: "Browse FAQ"  
    exitLabel: "Exit Label"  
    keepTurn: true  
  transitions:  
    actions:  
      none: "unresolved"  
      next: "output"
```



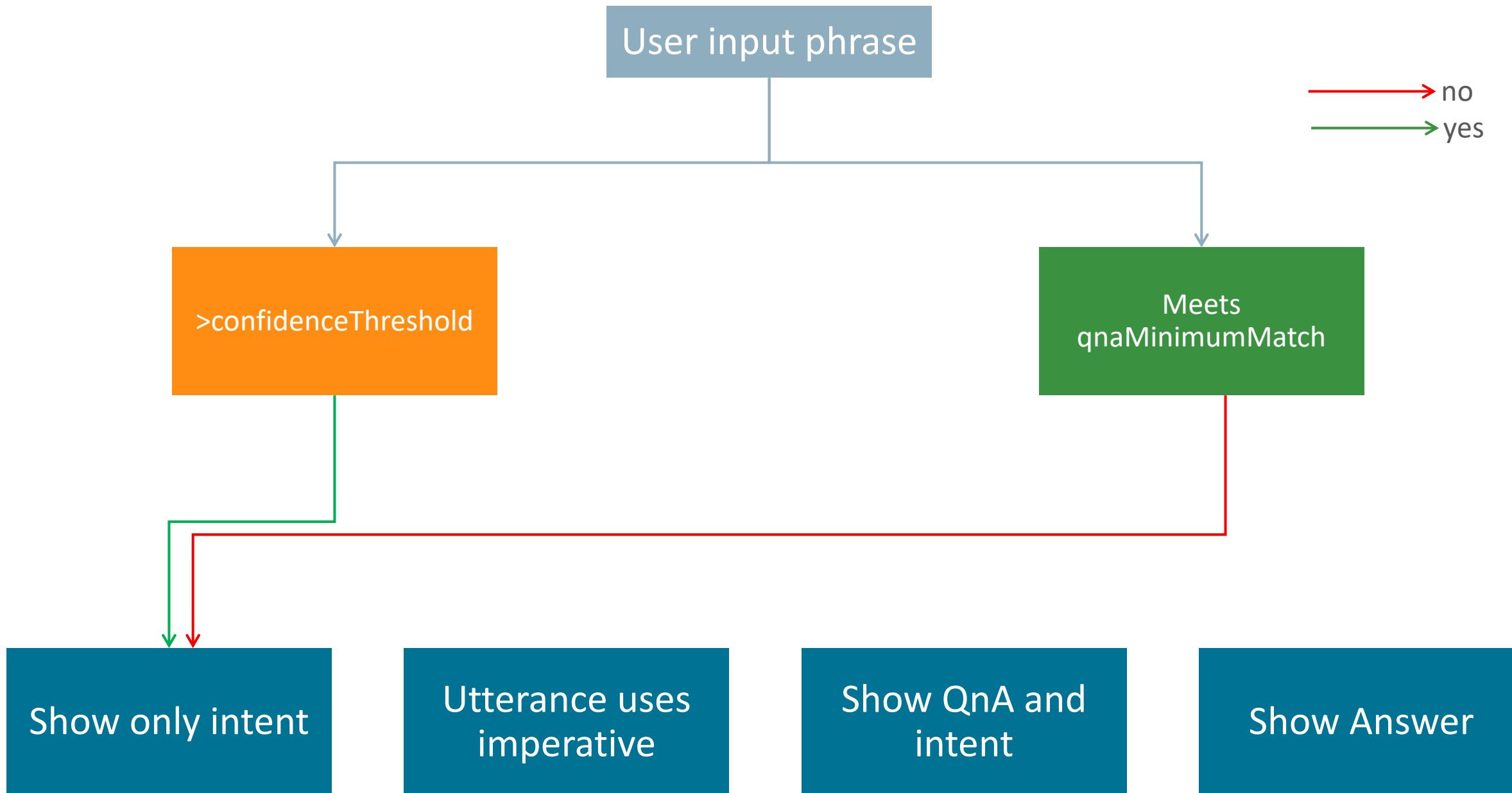


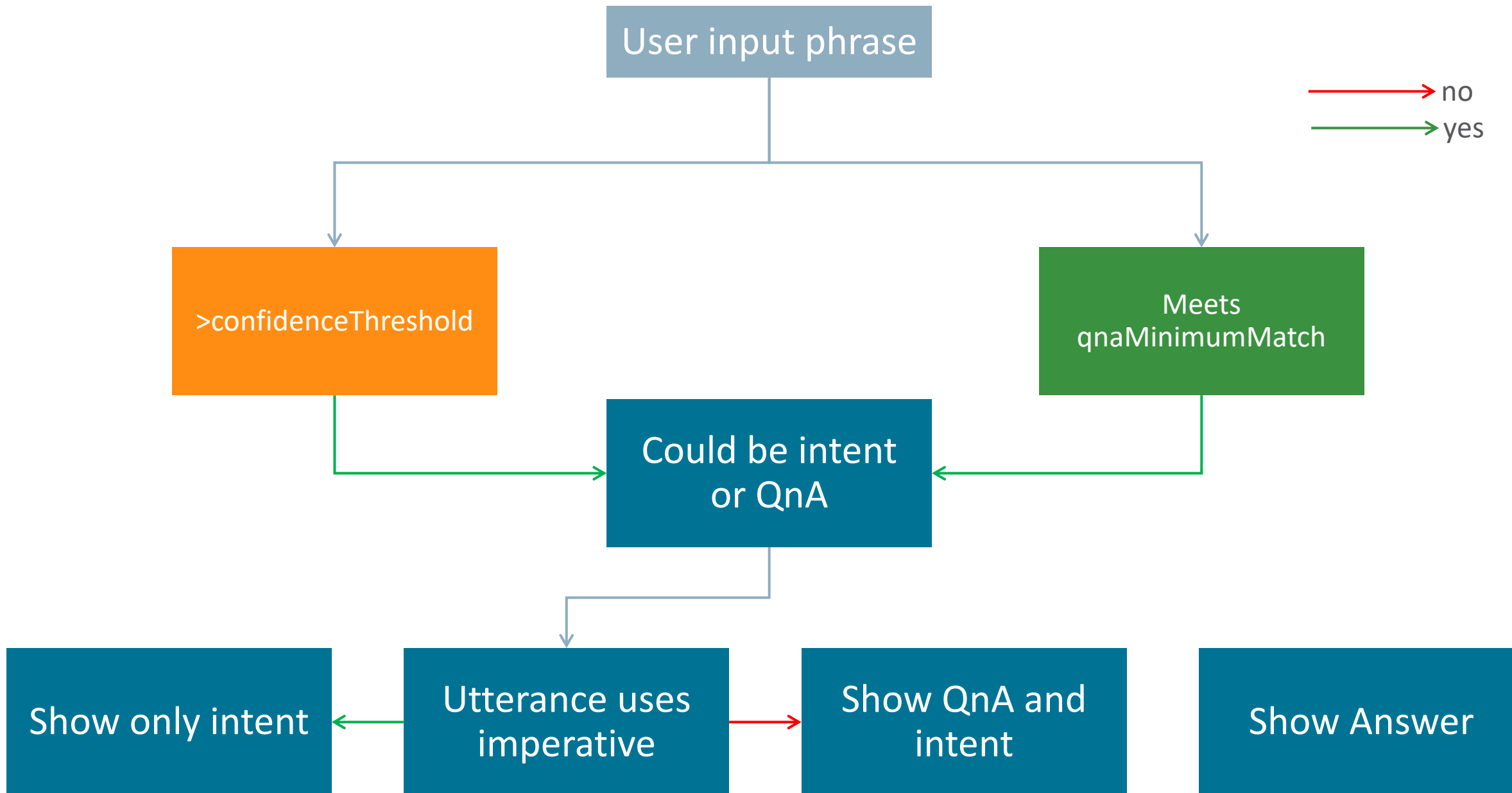
Show only intent

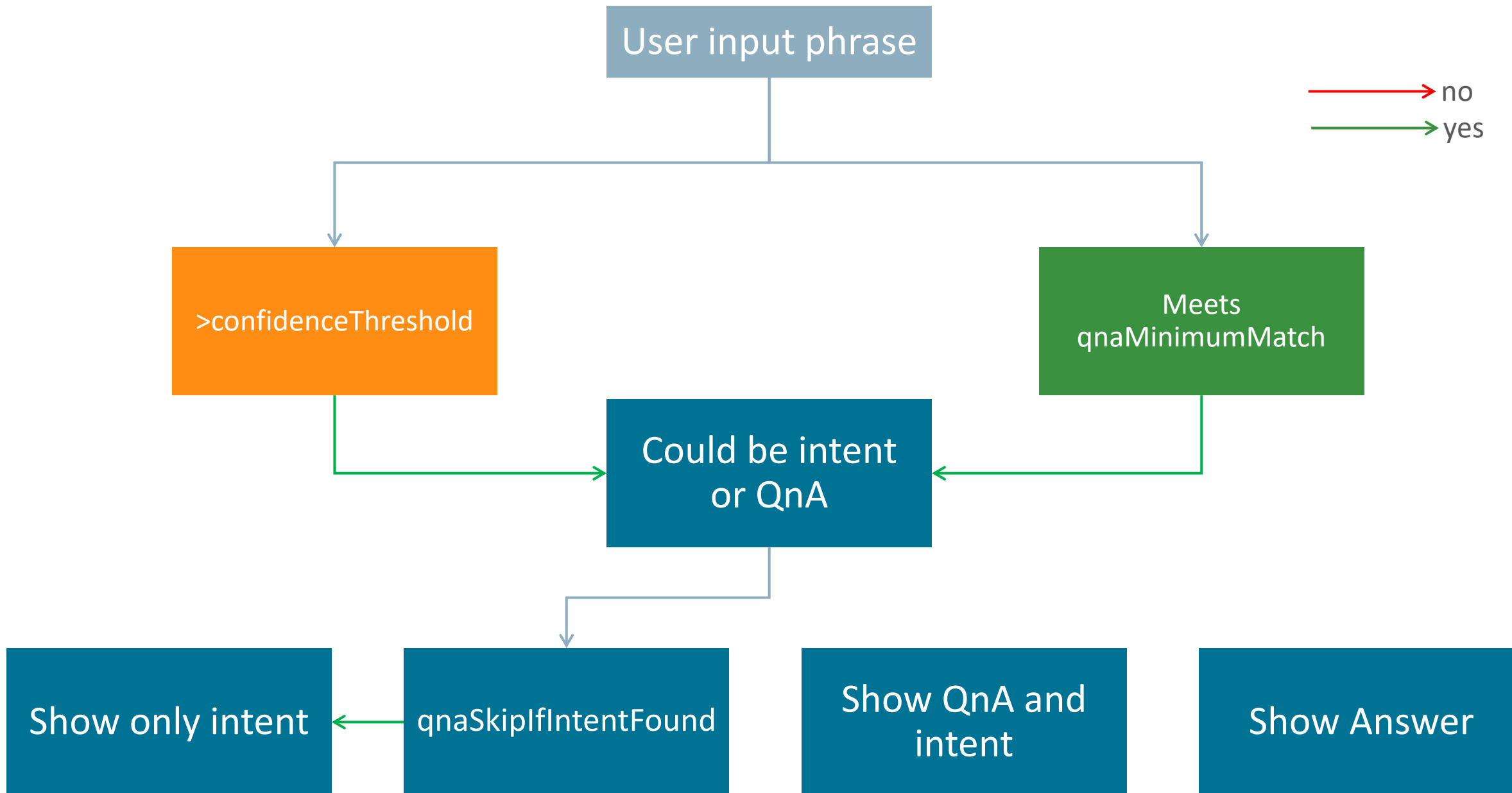
Utterance uses
imperative

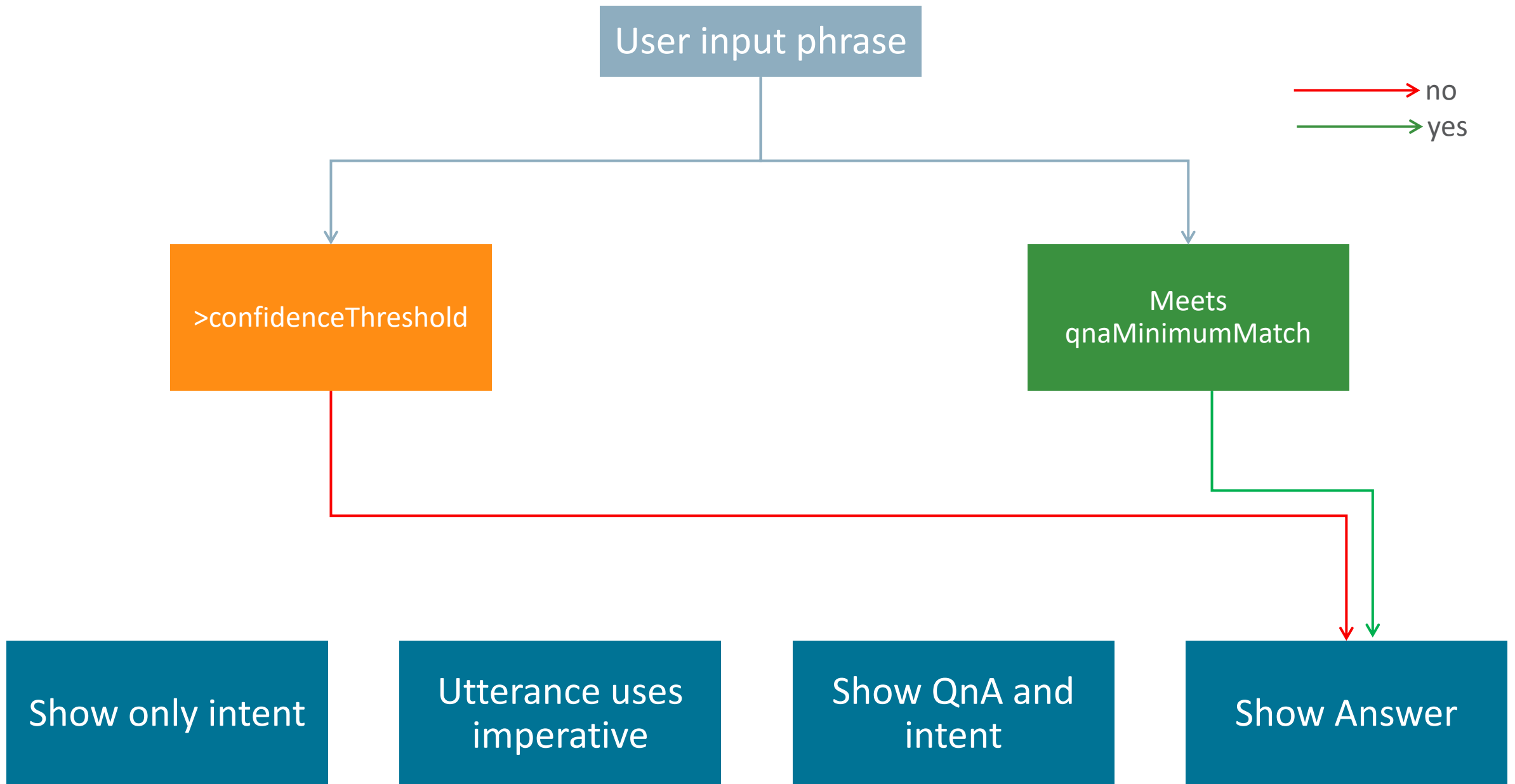
Show QnA and
intent

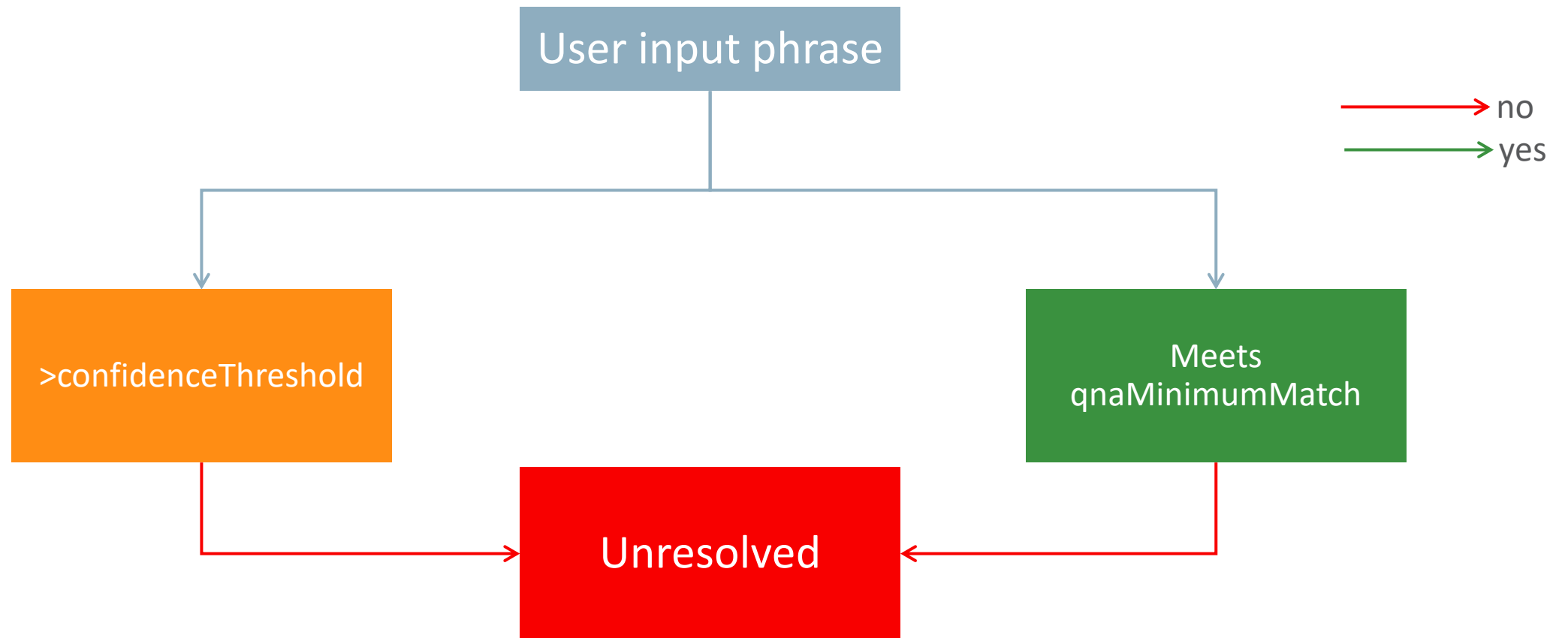
Show Answer











Show only intent

Utterance uses
imperative

Show QnA and
intent

Show Answer

Q & A routing

- Transaction Config
 - Input is then treated as intent
- Question Config
 - Ensures QnA shown first in choice dialog

The screenshot shows the 'Q&A Routing Config' page in a web-based configuration tool. The page has a sidebar with various icons and a main content area with tabs for 'General', 'Configuration', 'Digital Assistant', 'Events', and 'Q&A Routing Config'. The 'Q&A Routing Config' tab is active. The page includes a language dropdown set to 'en'. The 'Transaction Config' section has an 'Additional Request Verbs' field with 'absolutely' and a 'Request Verbs Expansion' field with 're', 're-', 'un', and 'dis'. The 'Request Sentence Prefix' field contains a list of prefixes like 'do not', 'please do not', 'don't', etc. The 'Question Config' section has a 'Question Verbs Prefix' field with a list of prefixes like 'why', 'how to', 'how do i', etc. There are 'Reset to Defaults' links for the expansion and prefix fields.

General Configuration Digital Assistant Events **Q&A Routing Config**

Provides hints for the intent system to route to Question and Answers. Language **en**

Transaction Config

Additional Request Verbs [?](#)

absolutely ×

Request Verbs Expansion [?](#) [Reset to Defaults](#)

re × re- × un × dis ×

Request Sentence Prefix [?](#) [Reset to Defaults](#)

do not × please do not × don't × please don't × i don't want to × i want you to × i don't want you to × i want u to × i don't want u to ×
what is my × where is my × when is my × what are my × where are my × when are my × what's my × where's my × when's my ×

Question Config

Question Verbs Prefix [?](#) [Reset to Defaults](#)

why × how to × how do i × do i × how can × what's the cause × what is the cause × what's the reason × what is the reason × show how ×
show me how × where can ×

Hey, I wasn't sure, do you want to...

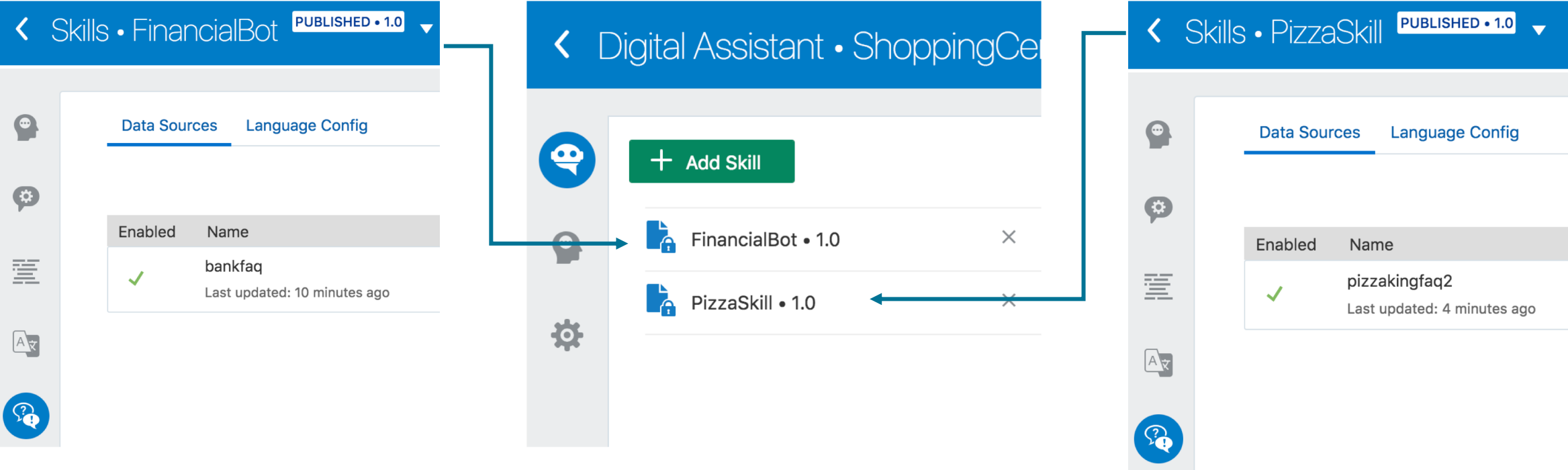
[Check our our FAQ on this topic](#)

[Reset password](#)

Topic agenda

- 1 Introducing Q&A
- 2 QnA and Digital Assistant**
- 3 Reusable QnA skill

Evaluate routing behavior



Implicit invocation

Hi

Welcome! Here are some things you can do:

Digital Bank

Financial Virtual Assistant

go to digital bank

ask digital bank to check my balance

send money using digital bank

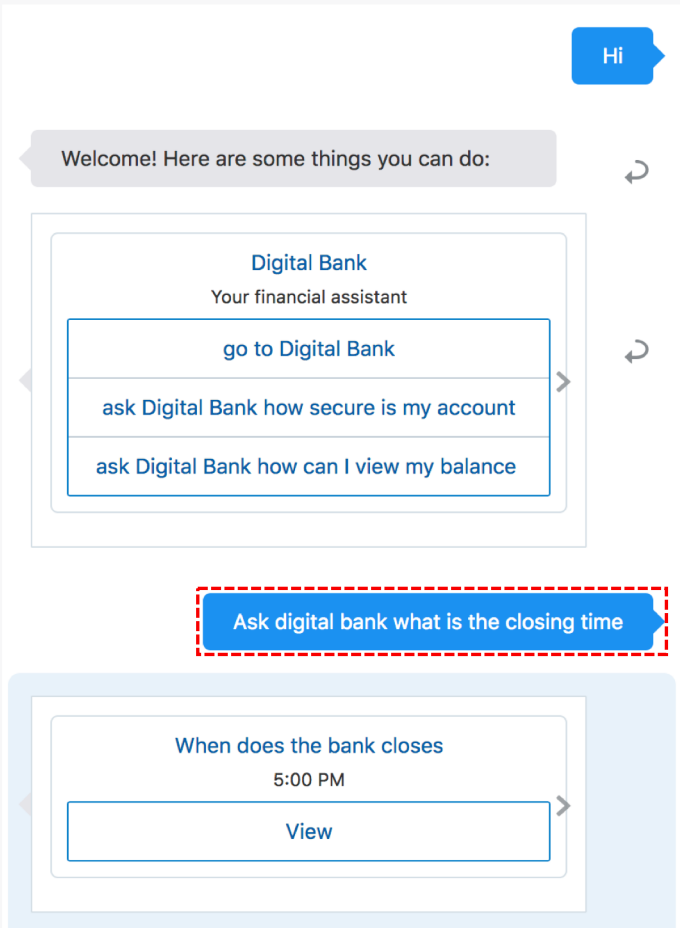
Do you prepare gluten-free pizza?

Do you have gluten-friendly options?

Vegans and vegetarians both have great options at MOD. Our pizza dough and vegan cheese are both dairy-free. Then top off your pizza or salad with whatever sounds good 💎 just be sure to let your MOD Squader know any restrictions.

Routing		
Action	Details	
Router response	Skill: PizzaSkill Intent: Ask Question	Score: 84.23%
Start routing user message	Sentence: Do you prepare gluten-free pizza? Reformed Sentence: Do you prepare gluten-free pizza?	
Starting context-aware routing.	Conversation State: START_FIRST_FLOW	

Explicit invocation



Routing

Action	Details	Payload
Router response	Skill: Digital Bank Intent: Ask Question Score: 0%	View JSON
Start routing user message	Sentence: Ask digital bank what is the closing time Reformed Sentence: Ask digital bank what is the closing time	View JSON
Starting context-aware routing.	Conversation State: START_FIRST_FLOW	View JSON

Rules

Details	Payload
Explicit invocation takes precedence over other flows in digital assistant context.	View JSON

Ambiguous utterance

Testing Digital Assistant Reset

what are your timings

Do you want to go to:

Ask Question in PizzaSkill

Ask Question in Digital Bank

None of the above

Ask Question in Digital Bank

What are your timings?

The bank opens at 10:00 AM sharp and closes at 5:00 PM

View

More Answers Categories

Testing Digital Assistant Reset

what are your timings

Do you want to go to:

Ask Question in PizzaSkill

Ask Question in Digital Bank

None of the above

Ask Question in PizzaSkill

What are your timings?

The pizza store opens at 10:00 AM sharp and closes at 10:00 PM

View

Categories

Non sequitur

Testing Digital Assistant

Reset

I want to send money to my mother

Do you want to go to:

Send Money in Digital Bank

Ask Question in Digital Bank

None of the above

Send Money in Digital Bank

From which account do you want to make a payment?

savings

checking

credit card

what are your timings?

Do you want to go to:

Ask Question in PizzaSkill

Ask Question in Digital Bank

None of the above

Ask Question in PizzaSkill

What are your timings?

The pizza store opens at 10:00 AM sharp and closes at 10:00 PM

View

Categories

View

What are your timings?

The pizza store opens at 10:00 AM sharp and closes at 10:00 PM

Do you want to resume Send Money in Digital Bank now?

Yes

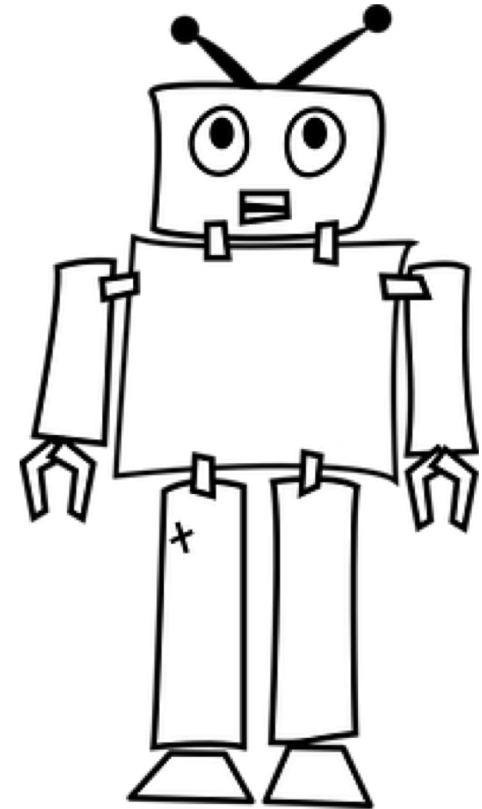
No

Yes

Topic Agenda

- 1 Introducing Q&A
- 2 QnA and Digital Assistant
- 3 Reusable QnA skill

How might you **reuse** and use **multiple QnA** within a digital assistant?



Options for how you might use QnA

- Each skill has its on QnA as required
 - Modular and simplest option
- Calling QnA in a different skill
 - Route to a specific QnA based on conversation context
 - Using the botName and QnaBotName properties that belong to **System.Intent** and **System.Qna** component
- Separate QnA only skill used by the DA
 - FAQ (QnA skill) may be shown upfront in welcome message
 - QnA maintained in single place without impacting other skills

Approach 1: Calling QnA in a different skill

FinancialBot

```
qna:
  component: "System.QnA"
  properties:
    botName: "CorpFinancialBot"
    botVersion: "1.0"
  transitions:
    actions:
      none: "unresolved"
    next: "qna"
  unresolved:

  component: "System.Output"
  properties:
    text: "Sorry I don't understand that question!"
  transitions:
    return: "unresolved"
```

CorpFinancialBot

```
1 metadata:
2   platformVersion: "1.0"
3 main: true
4 name: "CorpFinancialBot"
5 context:
6   variables:
7     greeting: "string"
8     name: "string"
9     terminateChoice: "string"
10 states:
11   qna:
12     component: "System.QnA"
13     transitions:
14       actions:
15         none: "unresolved"
16         next: "qna"
17     unresolved:
18       component: "System.Output"
19       properties:
20         text: "Sorry, I did not find any match. Can you rephrase the question?"
21       transitions:
22         return: "done"
23
```

Demo – Calling QnA in a different skill

Skills • FinancialBot DRAFT • 1.0-DA

You haven't defined Q&A for this skill bot.
Q&A enables your skill bot to return sets of questions and answers.

[Tell me more](#)

+ Q&A

Skills • CorpFinancialBot DRAFT • 1.0

Data Sources Language Config

+ Q&A Source

Enabled	Name	Type
✓	corpfinance Last updated: 2 minutes ago	CSV

The screenshot displays the 'FinancialBot Tester' application. At the top, there is a blue header bar with the text 'FinancialBot Tester' in white. Below the header, the main area is divided into two sections. The left section, titled 'Testing Skill', contains a blue speech bubble with the text 'Can I offer any banking facilities to my Channel Partners?'. The right section, titled 'Reset', contains a light blue speech bubble with the text 'Can I offer any banking facilities to my Channel Partners?'. Below the 'Reset' section, there is a light blue speech bubble with the text 'Yes. Your Channel Partners can transfer funds to your company's account from their Corporate Internet Banking login'.

Approach 2: Creating a separate QnA skill in DA

< Digital Assistant • ShoppingCentreDA ▾

+ Add Skill

FinancialBot • 1.0

×

Pizza Skill

ShoppingCentreQnA • 1.0

×

No detailed description defined for this skill.

PizzaSkill • 1.0

×

Interaction Model

Shopping Centre Digital Assistant

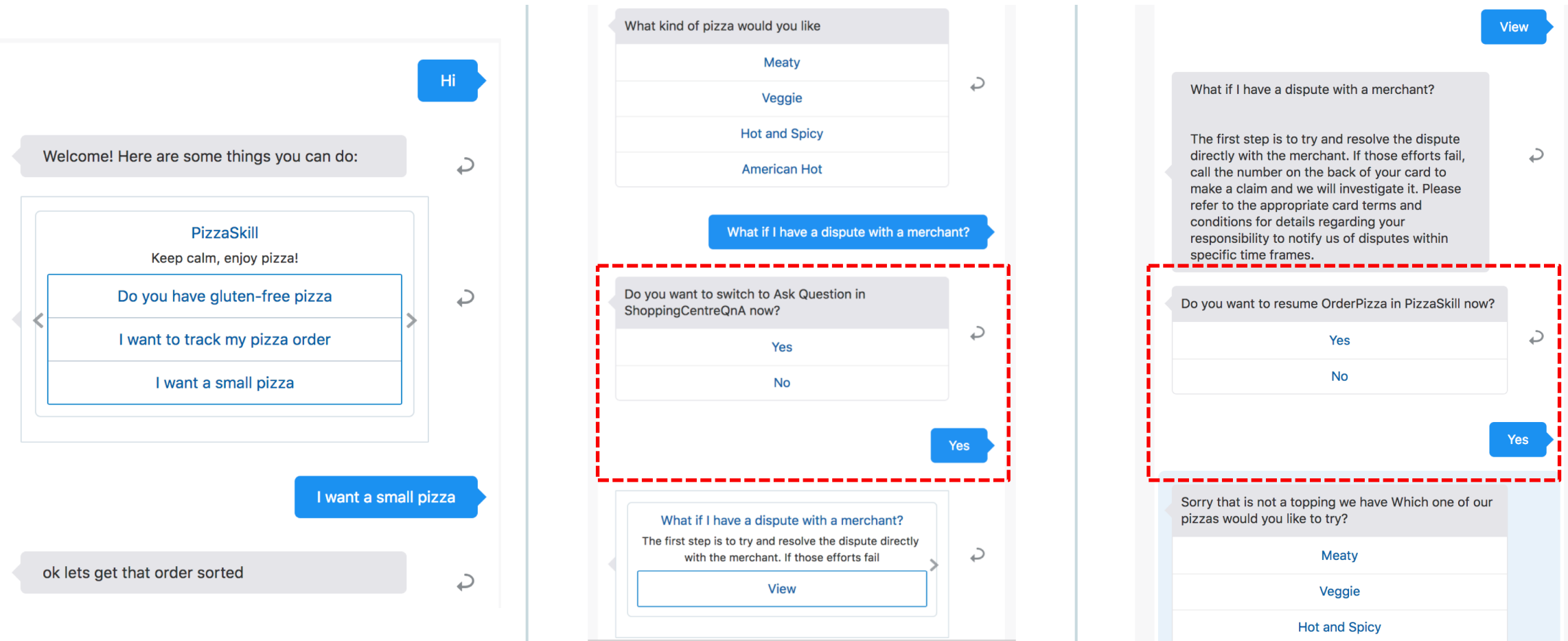
Digital Bank Skill

Pizza King skill

Shopping center FAQs skill

Enabled	Name	Type
✓	DigitalBankFAQ Last updated: an hour ago	CSV
✓	PizzaKingFAQ Last updated: an hour ago	CSV

Demo – Having a separate QnA skill in DA



Which approach is better?

- Calling QnA in different Bot
 - **More Flexibility:** BotML coding required, hence more control to the user the way he/she wants to invoke QnA
- Creating separate QnA only skill and consuming in DA
 - QnA skill will be shown upfront in welcome message!
 - No additional code required since the routing will be managed by DA



Oracle Digital Assistant Hands-On

TBD

Integrated Cloud

Applications & Platform Services

ORACLE®