

BUILDING VOICE RESPONSIVE APPS ON IOS

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ABOUT ME

- iOS at Netcetera
- Blogging on martinmitrevski.com
- Book Author - “Developing Conversational Interfaces for iOS”
- @mitrevski



Developing Conversational Interfaces for iOS

Add Responsive Voice Control
to Your Apps

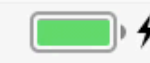
—
Martin Mitrevski

LORD OF THE RINGS EXPEDITION





9:41 AM



Lord of the rings tour

[Settings](#)

[Stop Recording](#)

[Tell me the people on the expedition](#)



9:41 AM



Lord of the rings tour

[Settings](#)

[Start recording](#)

Фродо

[Tell me the people on the expedition](#)



9:41 AM



Lord of the rings tour

[Settings](#)

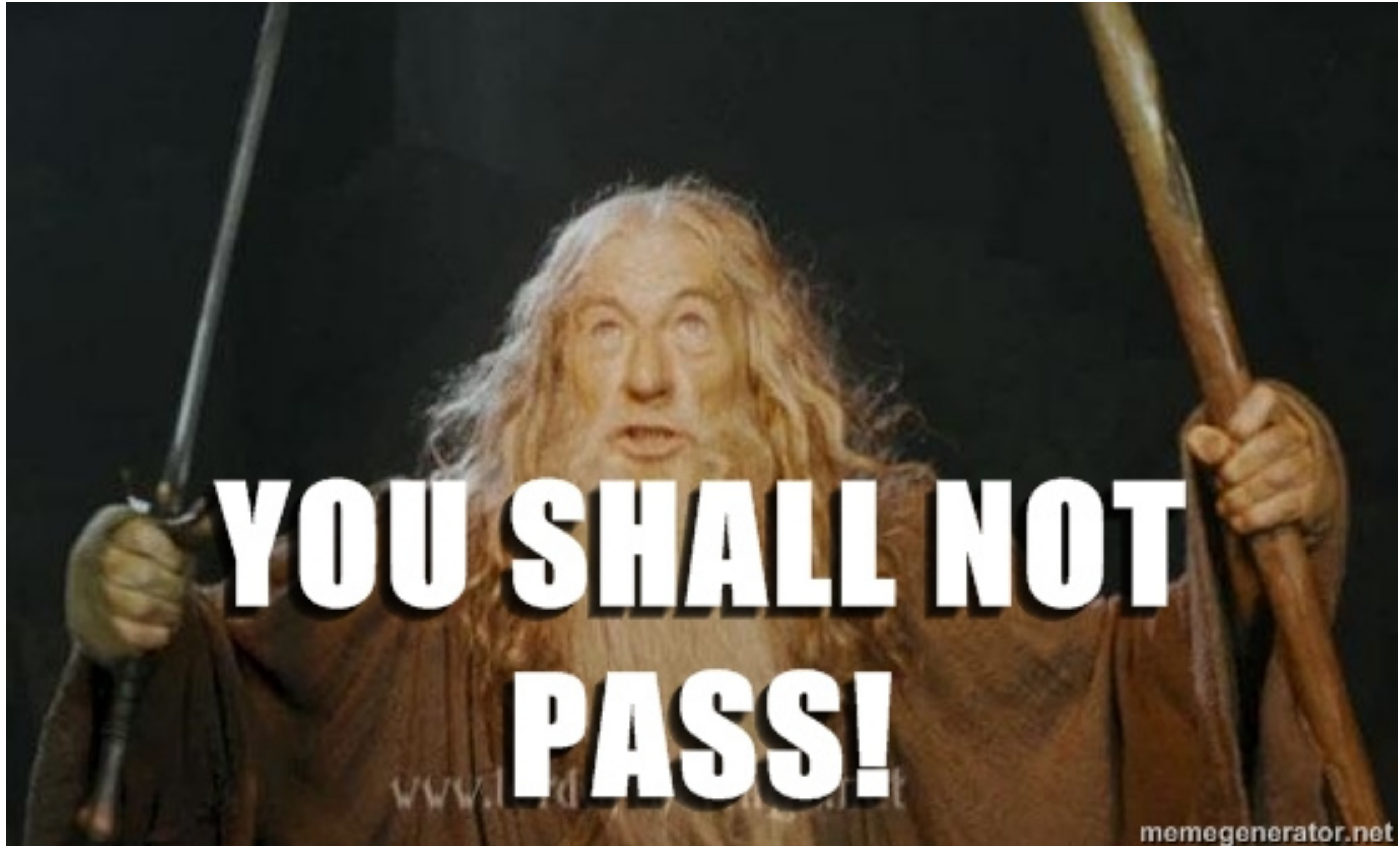
[Stop Recording](#)

Фродо

Сарумана

Гэндальфа

[Tell me the people on the expedition](#)



Language,

Ambiguity

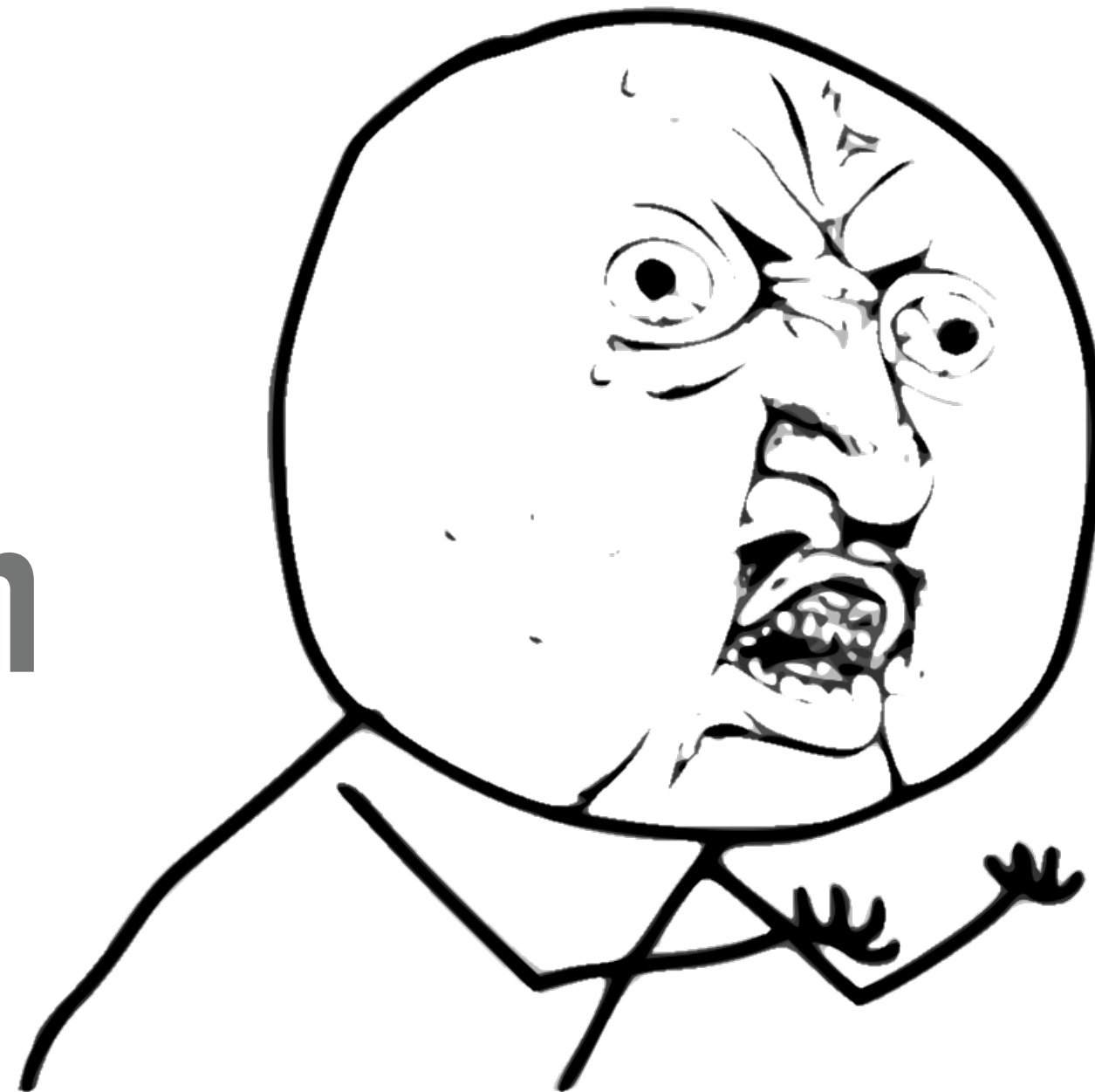
Punctuation

Figurative speech

Context

Uncertainty

Implications



why so complex?

NATURAL LANGUAGE UNDERSTANDING CONCEPTS

Intent



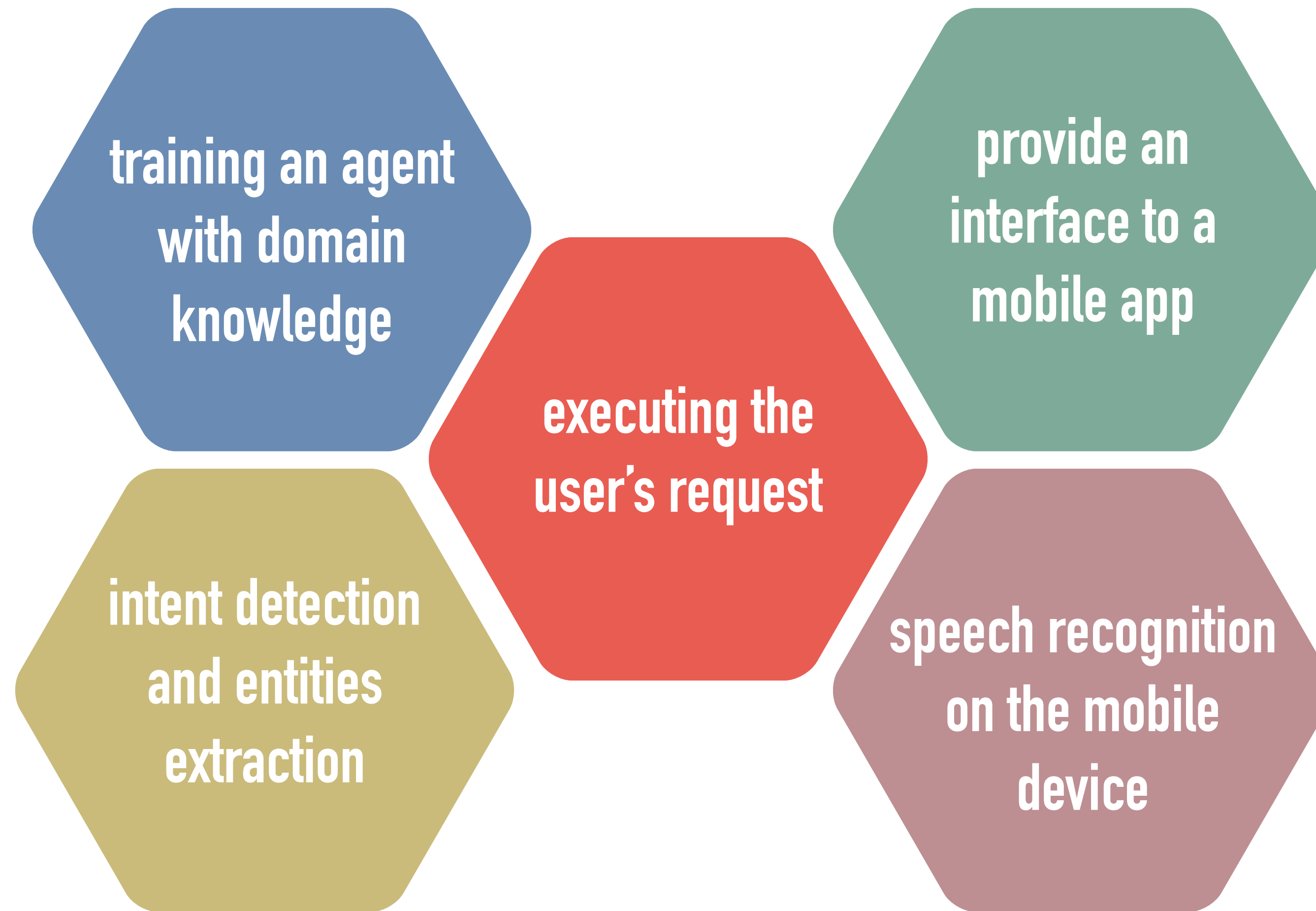
Entity



*Я хочу добавить Фродо и Сэма в
экспедицию.*

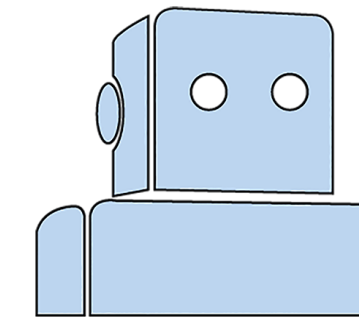
Мне нужна их помощь. ← Context

ADDING VOICE TO YOUR APP



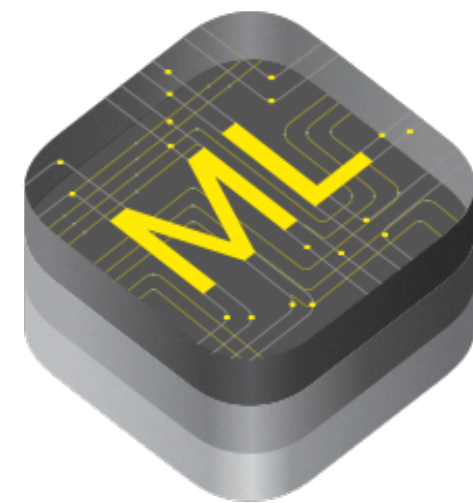
What can you use?

easy



not
flexible

flexible



hard

DIALOGFLOW INTENTS

 Dialogflow

LordOfTheRings ▾ ⚙

ru +

Intents +

Entities +

Training ^[beta]

Integrations

Analytics ^[new]

Fulfillment

Prebuilt Agents

Small Talk

Docs

● AddPerson SAVE ⋮

Contexts ▾

User says Search in user says 🔍 ^

” Add user expression

” пригласите Фродо и Сэма в экспедицию.

PARAMETER NAME	ENTITY	RESOLVED VALUE	
Person	@Person	Фродо	×
Person	@Person	Сэма	×

” пригласить Сэма в экспедицию

” добавьте gandalf и saruman

” добавьте frodo

REMOVE PERSON INTENT

 Dialogflow

LordOfTheRings  

ru 

 Intents 

 Entities 

 Training [beta]

 Integrations

 Analytics [new]

 Fulfillment

 Prebuilt Agents

 Small Talk

 Docs

 Support

● RemovePerson  

Contexts 

User says

Search in user says  

” Add user expression

” Избавьтесь от Сарумана, он плохой парень.

” Удалите Сарумана. Он предатель!

Events  

Action 

Enter action name

REQUIRED 	PARAMETER NAME 	ENTITY 	VALUE	IS LIST 	PROMPTS 
☒	Person	@Person	\$Person	☐	Define prompt s...
☐	Enter name	Enter entity	Enter value	☐	—

DIALOGFLOW ENTITIES

 Dialogflow

LordOfTheRings

ru

Intents

Entities

Training ^[beta]

Integrations

Analytics ^[new]

Fulfillment

Prebuilt Agents

Person

SAVE

☒ Define synonyms ?

☐ Allow automated expansion

Separate synonyms by pressing the enter, tab or ; key.

Frodo	Frodo
Sam	Sam
Saruman	Saruman
Sam	Sam
Gandalf	Gandalf Enter synonym

+ Add a row

TESTING AN AGENT

Try it now

 Set-up [Google Assistant integration](#).

AgentDomains

USER SAYSCOPY CURL

Удалите Сарумана. Он предатель!

 DEFAULT RESPONSE

Not available

INTENT

RemovePerson

ACTION

Not available

PARAMETERVALUE

PersonСарумана

SHOW JSON

JSON

```
1 {
2   "id": "2c91e640-f69f-4b79-a35b-bf778d940aa1",
3   "timestamp": "2018-02-08T21:32:18.435Z",
4   "lang": "ru",
5   "result": {
6     "source": "agent",
7     "resolvedQuery": "Удалите Сарумана. Он предатель!",
8     "action": "",
9     "actionIncomplete": false,
10    "parameters": {
11      "Person": "Сарумана"
12    },
13    "contexts": [],
14    "metadata": {
15      "intentId": "c89e58cc-5739-4214-a5b0-63ac46516f86",
16      "webhookUsed": "false",
17      "webhookForSlotFillingUsed": "false",
18      "intentName": "RemovePerson"
19    },
20    "fulfillment": {
21      "speech": "",
22      "messages": [
23        {
24          "type": 0,
25          "speech": ""
26        }
27      ]
28    },
29    "score": 1
30  },
31  "status": {
32    "code": 200,
33    "errorType": "success",
34    "webhookTimedOut": false
35  },
```


IOS IMPLEMENTATION

```
private var recognitionRequest: SFSpeechAudioBufferRecognitionRequest?
private var recognitionTask: SFSpeechRecognitionTask?
private let audioEngine = AVAudioEngine()
private let speechRecognizer: SFSpeechRecognizer! =
    SFSpeechRecognizer(locale: Locale.init(identifier: "ru-RU"))
private var speechSynthesizer = AVSpeechSynthesizer()
private var audioSession = AVAudioSession.sharedInstance()
```

START THE RECORDING

```
self.recognizedText.text = ""  
cancelCalled = false  
checkExistingRecognitionTask()  
startAudioSession()  
createRecognitionRequest()  
startRecording()  
recordingButton.setTitle("Stop Recording", for: .normal)
```

SPEECH RECOGNITION

```
recognitionTask = speechRecognizer.recognitionTask(with: recognitionRequest!,
                                                    resultHandler:{
                                                        [unowned self] (result, error) in

var recognized: String?
if result != nil {
    recognized = result?.bestTranscription.formattedString
    self.timer?.invalidate()
    self.timer = nil

    if !self.cancelCalled {
        self.timer = Timer.scheduledTimer(withTimeInterval: 2,
                                            repeats: false,
                                            block: { _ in
                                                _ = self.handleStop()
                                            })
    }
    self.recognizedText.text = recognized
}
```


FINISH THE RECORDING

```
extractPeople(fromText: recognizedText.text)
audioEngine.stop()
self.stopAudioSession()
recognitionRequest?.endAudio()
recordingButton.isEnabled = false
recordingButton.setTitle("Start Recording", for: .normal)
```

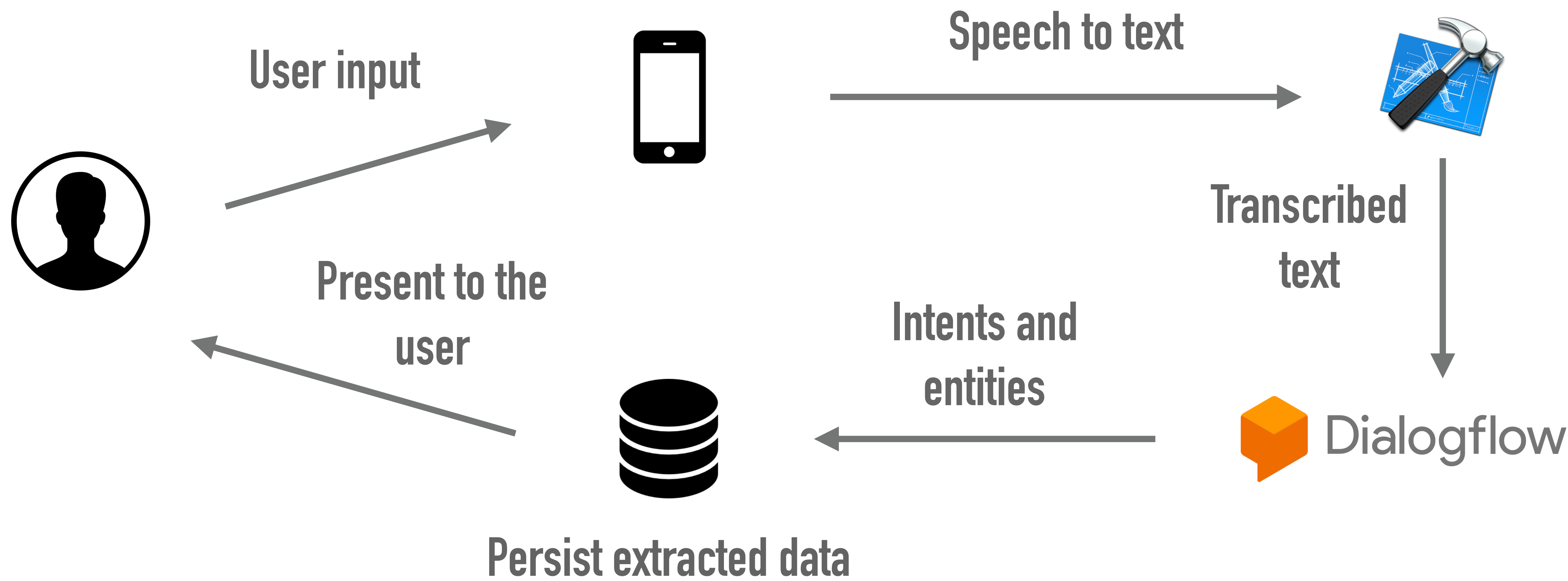

SETUP DIALOGFLOW (API.AI)

```
private func setupApiAI() {  
    let configuration = AIDefaultConfiguration()  
    configuration.clientAccessToken = ApiAIService.clientAccessToken  
    self.apiAI.configuration = configuration  
    self.apiAI.lang = "ru"  
}
```

MAKING TEXT REQUEST

```
let request = self.apiAI.textRequest()
request?.query = text
request?.setCompletionBlockSuccess({ [unowned self] (request, response) in
    if let response = response as? Dictionary<String, Any> {
        success(self.extractPeople(fromResponse: response))
    }
}, failure: { (request, error) in
    failure(error)
})
self.apiAI.enqueue(request)
```

SUMMARY



CHALLENGES

- Multi-language support
- Offline vs. Online
- It will never be perfect
- User adoption



*Would you add voice
interface to your apps?*

THANK YOU!

- Questions?
- martinmitrevski.com
- @mitrevski