

# IA for Conversational Interfaces

World IA Day 2020

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UX Lead, Hiebing



**SMALL AGENCY  
OF THE YEAR**

*Midwest Region*

Madison + Austin

106 Associates



# Conversational Interfaces

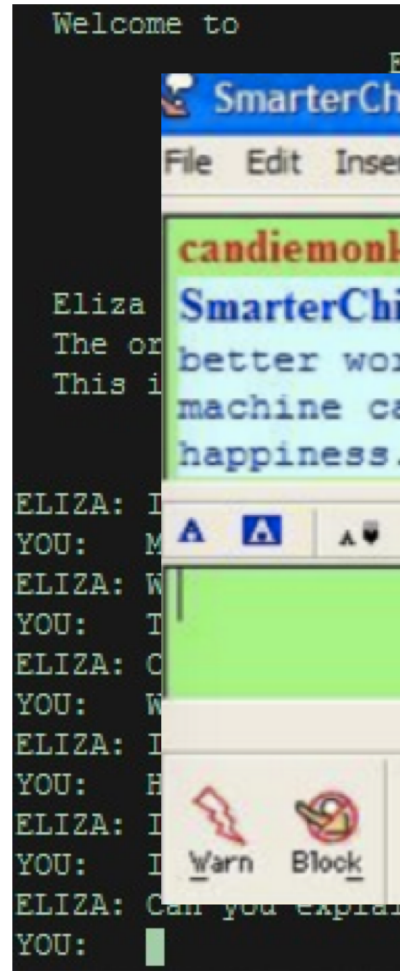
What they are and how we got here



Any non-human interface that intentionally mimics human conversation using text or audio

# A Non-Exhaustive History

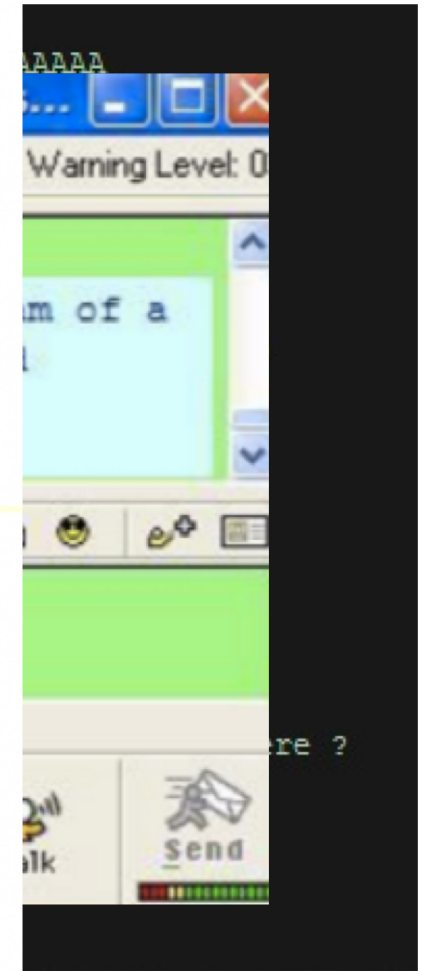
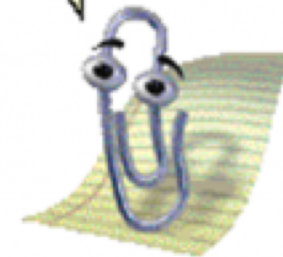
- Eliza
- Clippy
- SmarterChild



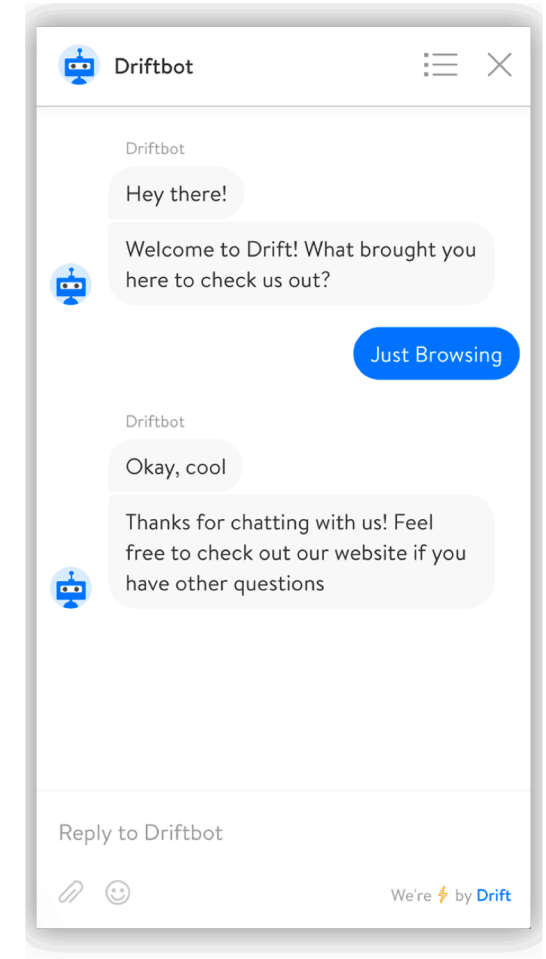
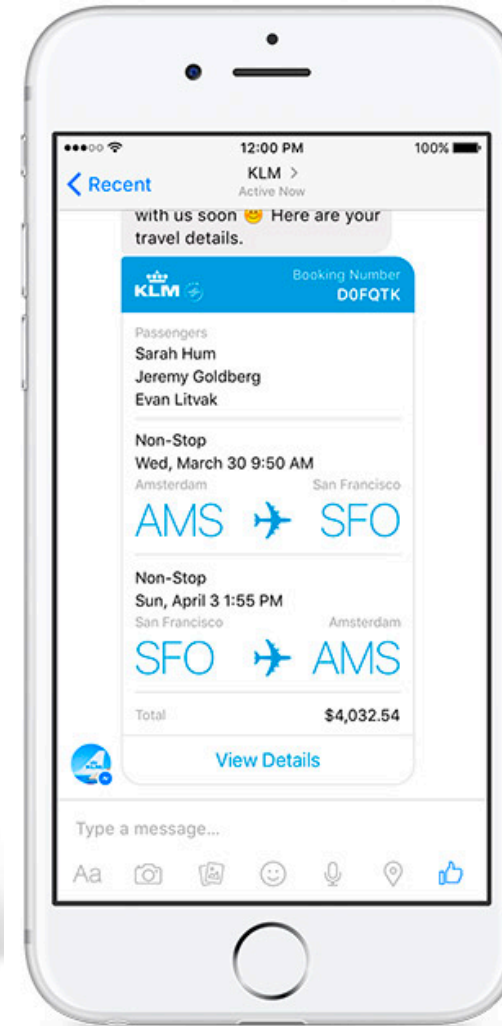
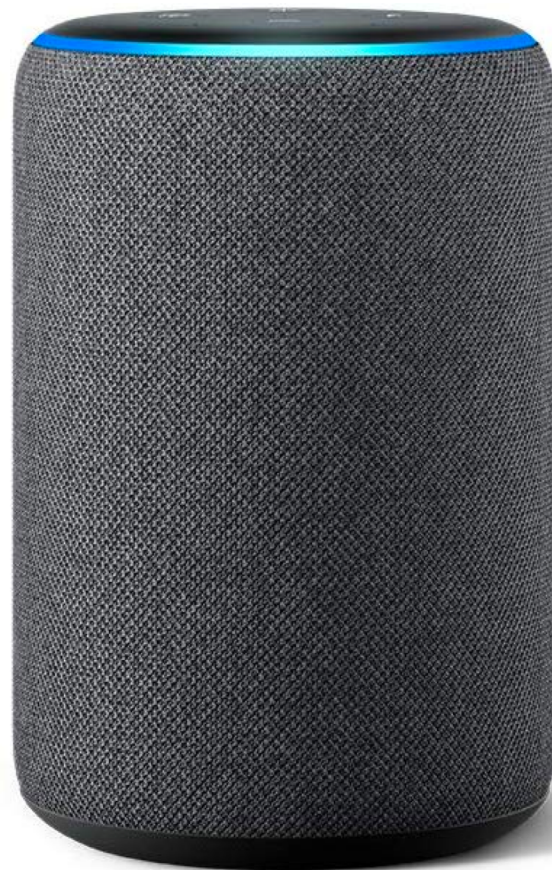
It looks like you're writing a letter.  
Would you like help?

- Get help with writing the letter
- Just type the letter without help

Don't show me this tip again



# Modern Conversational Interfaces



# 100M

Smart speakers deployed in  
the U.S.

# 31%

of U.S. households

# 60%

of owners use once or more  
per day

# 85%

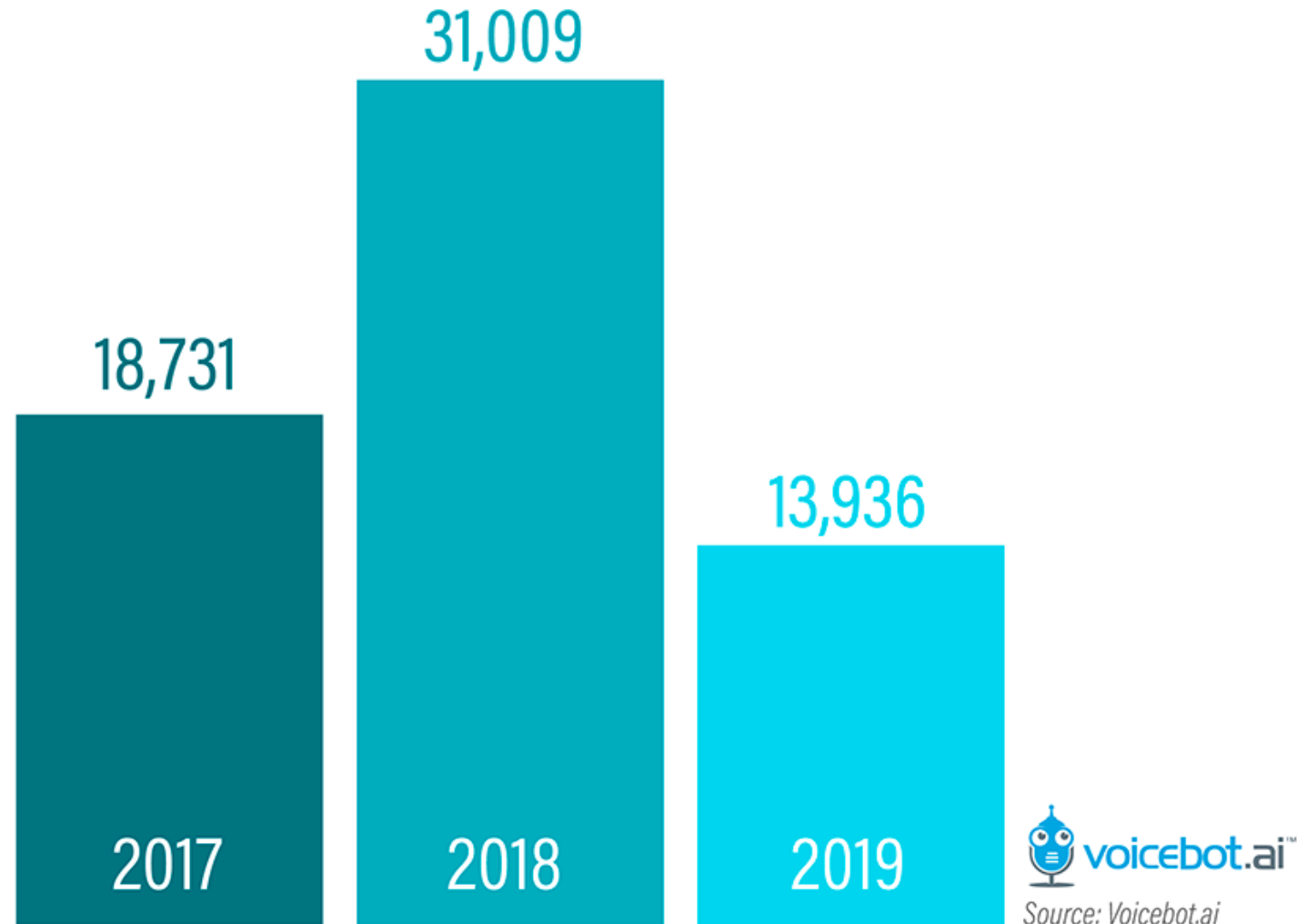
Estimated customer  
interactions without human  
intervention by Q4 2020

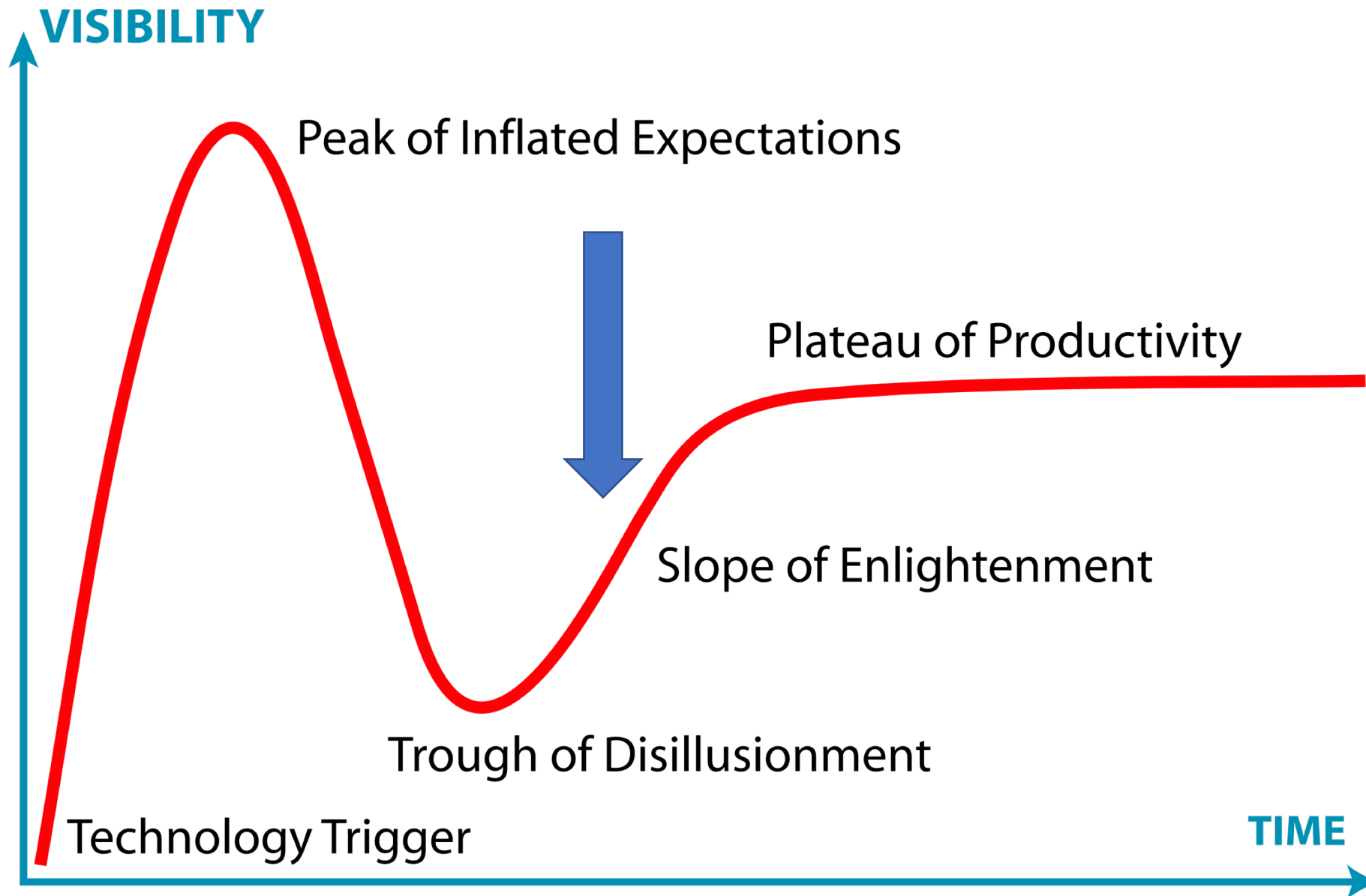
# Not Just the Kids





# New Alexa Skills Introduced Per Year





# More Complex Bots



# The Challenge

What's the problem?

Conversations must respect  
the **rules of good conversation** and  
the **limits of human performance**



# Rules of Conversation

Oh yeah, there are rules

# Grice's Maxims

## Quantity

Give as much information as is needed, and no more

## Quality

Be truthful; give only information supported by evidence

## Relation

Give information that is pertinent to the conversation; be relevant

## Manner

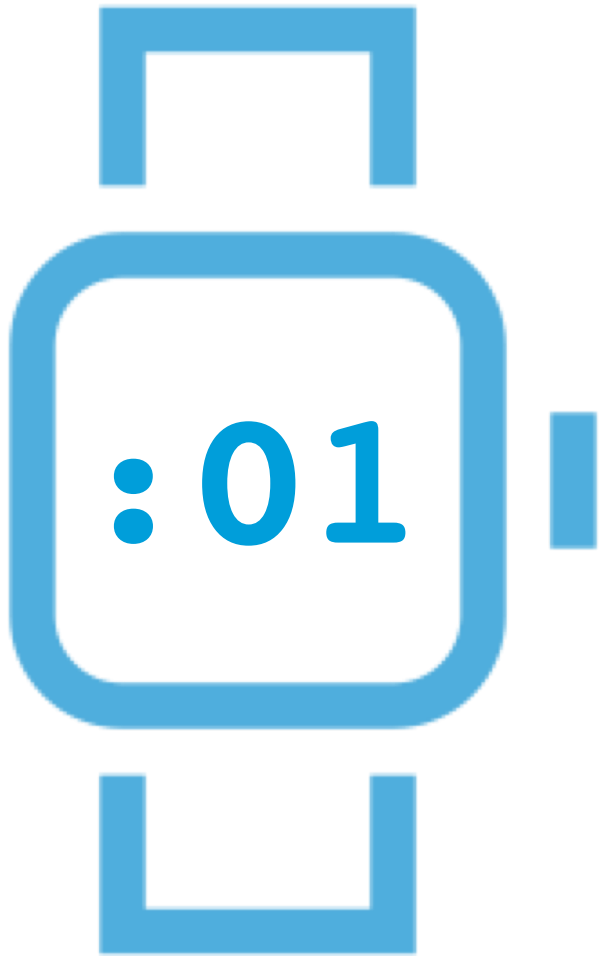
Be as clear, brief, and orderly as possible

# Turn Taking

- Generally speakers take turns
- But sometimes it's ok to overlap or cut in
  - Interrupting vs. interjecting
- Cultural differences
- "Repairing" a conversation that has gone awry



# Standard Maximum Silence



- Conversation partners are unwilling to let one full second of silence go by

“They create **rights to rebuke** when people don’t do what they’ve effectively signed up to do by virtue of the simple fact that they are engaged in a conversation.”

–N.J. Enfield, *How We Talk*



 future  tense

# I Don't Date Men Who Yell at Alexa

How you treat your digital assistant says a lot about you.

By RACHEL WITHERS

APRIL 30, 2018 • 4:26 PM

# Limits of Human Ability

Nobody's perfect

Envelopes ▾

Paper & Cardstock ▾

Custom Printing ▾

Mailroom Supplies ▾

Ways To Shop ▾

Tax Shop 📄

Shop by Size

Shop All Sizes

Business Envelopes

- #10 (4 1/8 x 9 1/2)
- #9 (3 7/8 x 8 7/8)
- #6 3/4 (3 5/8 x 6 1/2)
- 6 x 9
- 9 x 12
- 10 x 13

All Business Envelopes ▶

Mini Envelopes

- #1 Coin (2 1/4 x 3 1/2)
- #17 Mini (2 11/16 x 3 11/16)
- Credit Card Sleeves (2 3/8 x 3 1/2)
- #7 Coin (3 1/2 x 6 1/2)
- #6 Coin (3 3/8 x 6)
- #5 1/2 Coin (3 1/8 x 5 1/2)
- #5 Coin (2 7/8 x 5 1/4)
- #4 1/2 Coin (3 x 4 7/8)
- #4 Coin (3 x 4 1/2)
- #3 Coin (2 1/2 x 4 1/4)
- 2 x 2 Square Coin
- #00 Coin (1 11/16 x 2 3/4)
- #3 Mini (2 1/8 x 3 5/8)
- #56 Mini (3 x 4 1/2)
- #63 Mini (2 1/2 x 4 1/4)

Envelopes ▶

Invitation Envelopes

- A1 (3 5/8 x 5 1/8)
- A2 (4 3/8 x 5 3/4)
- A4 (4 1/4 x 6 1/4)
- A6 (4 3/4 x 6 1/2)
- A7 (5 1/4 x 7 1/4)
- A8 (5 1/2 x 8 1/8)
- A9 (5 3/4 x 8 3/4)
- A10 (6 x 9 1/2)

All Invitation Envelopes ▶

Square Envelopes

- 2 x 2 Square Coin
- 3 1/4 x 3 1/4
- 4 x 4
- 5 x 5
- 5 1/4 x 5 1/4
- 5 1/2 x 5 1/2
- 5 3/4 x 5 3/4
- 6 x 6
- 6 1/4 x 6 1/4
- 6 1/2 x 6 1/2
- 7 x 7
- 7 1/2 x 7 1/2
- 8 x 8
- 8 1/2 x 8 1/2
- 9 x 9
- 9 1/2 x 9 1/2
- 10 x 10
- 12 1/2 x 12 1/2
- 13 x 13
- All Square Envelopes ▶

Shop by Category

Business Envelopes

- Regular Envelopes
- Window Envelopes
- Peel & Press Envelopes
- Square Flap Envelopes
- Booklet Envelopes
- Open End Envelopes
- Clasp Envelopes
- Remittance Envelopes
- Coin Envelopes
- Jumbo Envelopes
- Expansion Envelopes
- Paperboard Mailers
- Tyvek Envelopes
- All Business Envelopes ▶

Invitation Envelopes

- Square Flap Envelopes
- Contour Flap Envelopes
- Pointed Flap Envelopes
- Lined Envelopes
- Square Envelopes
- Mini Envelopes
- Photo Greeting Envelopes
- All Invitation Envelopes ▶

Specialty Envelopes

- Airmail Envelopes
- First Class Envelopes
- Coin Envelopes
- Gift Card Envelopes
- Credit Card Sleeves
- Currency Envelopes
- Expansion Envelopes
- Tyvek Envelopes
- Conformer® Mailers
- W-2 Envelopes
- Full Face Window Envelopes
- Button & String Envelopes
- All Specialty Envelopes ▶

Shop By Brand

- LUXPaper™
- Reich Paper
- Neenah Paper
- Fedrigoni
- Strathmore®
- Conformer®
- Tops™
- All Brands ▶

Shop By Color

- White
- Natural
- Grocery Bag
- Grey
- Black
- Clear
- Silver
- Gold
- Yellow
- Orange
- Red
- Pink
- Blue
- Green
- Purple
- Brown
- All Colors ▶

Shop by Collection

- LUXPaper
- Metallics
- Recycled
- LUXFoil
- Lined
- Linen
- Neon
- Tyvek
- Woodgrain
- Tax
- Envelopes
- Holiday
- Prints

Features

- The Tax Shop
- NEW New Arrivals
- The Wedding Shop
- Shop By Size
- Shop By Color
- Direct Mail Service
- Folders
- Envelope Size Guide
- Swatchbook
- Made to Order

Accessories

- Envelope Liners
- Gift Tags
- Hole Punchers
- All Accessories ▶

Clearance

Up to 75% Off ▶

Folders.com

**Folders.com**

- Custom Folders
- Blank Folders
- Certificate Holders
- Diploma Covers
- and more!

**Shop Now**

FR  
ON  
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Custom P

er \$99

Contact us!

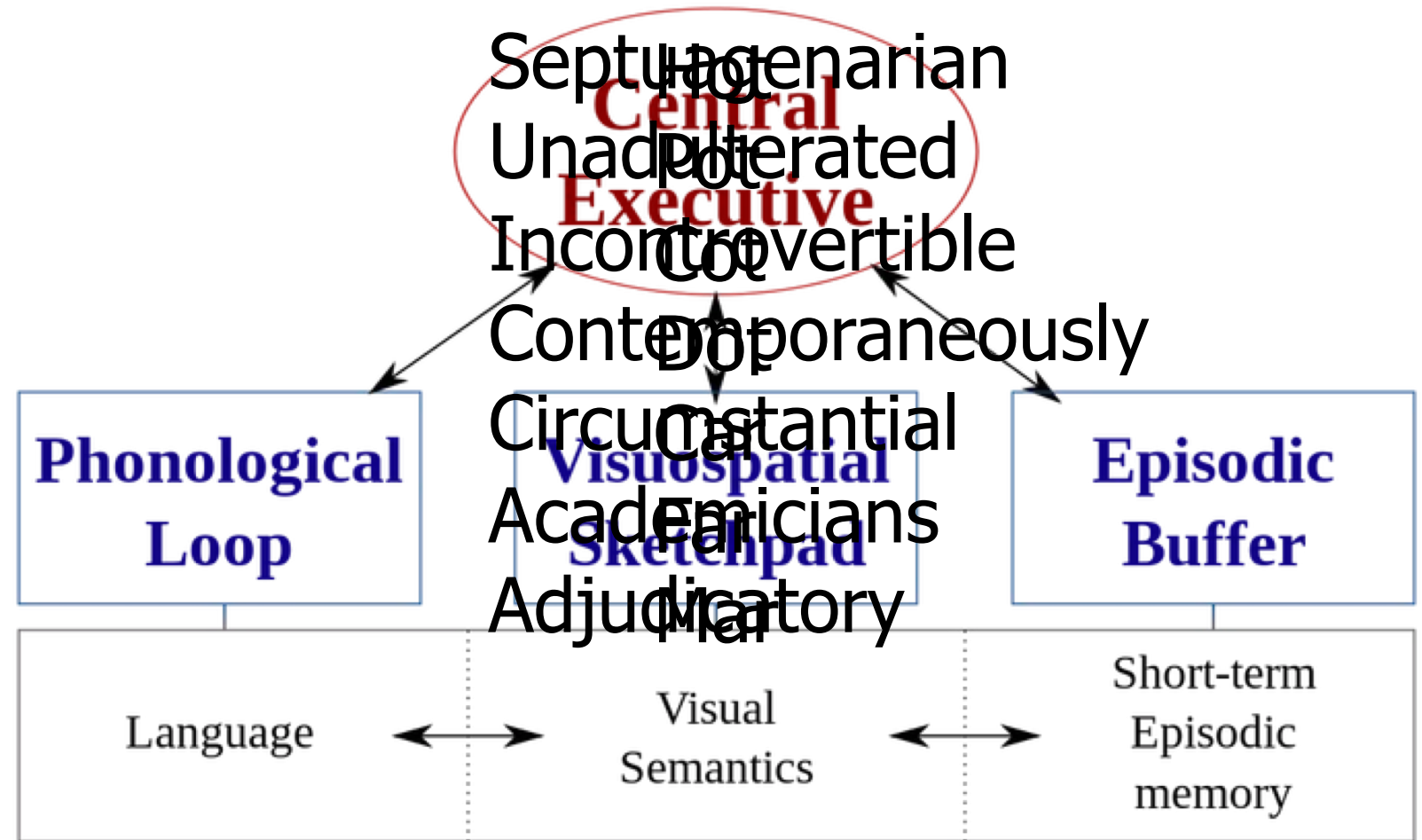
# Weak placemaking signals

The image is a composite of three overlapping elements:

- Left Panel:** A screenshot of the Summit Credit Union website. The URL is `summitcreditunion.com/bank/checking-...`. The Summit Credit Union logo is at the top left. A green text element reads "Routing# 275979". The main headline is "SPEND, TRACK, GO." followed by "let's talk CHECKING" in a mix of bold sans-serif and cursive fonts. A purple button says "OPEN AN ACCOUNT".
- Middle Panel:** A chat window titled "Message Us". It shows a conversation about event planning. The messages are:
  - User: "best describes the type of event you're planning." (with a "Conference" tag)
  - Agent: "Okay! Let's find some spaces that might work well for your conference." (with a "200" tag)
  - User: "How many attendees are you expecting?" (with a "200" tag)
  - Agent: "Great! Here are some options I found for you. First, we'll look at options for your main conference event. If you need separate spaces for breakout events or meals, we'll talk about those next."
- Right Panel:** A screenshot of a website header with a search bar, "MEMBER LOGIN" button, and navigation links for "BUSINESS", "MONEY SMARTS", and "ABOUT". Below the header is a photograph of a grey cylindrical smart speaker on a wooden surface.

# Working Memory

- Miller's Law
- Baddeley's Model





# Solutions

"For every complex problem, there is a solution that is simple, neat, and wrong."

– H.L. Mencken or Mark Twain

Conversations must respect  
the **rules of good conversation** and  
the **limits of human performance**

1. Map it out
2. Be careful about turns
3. Keep lists short
4. Shape the path
5. Act it out

# Map it out

IMAGE REMOVED

# Be careful about turns

IMAGE REMOVED

- Simple questions get simple answers
  - Maxim of Quantity
- Stay on topic
  - Maxim of Relation
- Don't presume the user's response
  - Maxim of Manner

# Keep Lists Short

- Applies to choices/options and responses/results
- Remember the phonological loop
- Paradox of choice/decision paralysis



## Message Us



planning your event today by telling you about the many unique and flexible spaces available at Monona Terrace.

Today at 5:23 PM



For now, I can only recommend spaces based on the size of your group. If you choose to host your event at Monona Terrace, we'll assign you a dedicated staff member who will work with you to manage every detail of your event from start to finish, including answering questions about food, A/V, and cost.

Today at 5:23 PM



First, please tell me which of the following best describes the type of event you're planning.

Wedding

Banquet

Conference

Meeting

Trade Show

Type your message...



IMAGE REMOVED

# Shape the Path

- Start broad, let the user narrow
- Helps the user know what's possible, what's expected of them
- Lower memory burden
  - Remember the “local” options, not the whole tree



# Act it out

- Gives a sense of:
  - Rule following
  - Memory load
  - Timing
  - Structure/flow

*Request with no geographic location specified (short version)*

**User: Alexa, ask Culver's for the flavor of the day.**

Alexa: The flavor of the day is Salted Caramel Banana Nut at [nearest location to stored address].

---

*Request with no geographic location specified (long version)*

**User: Alexa, ask Culver's for the flavor of the day.**

Alexa: The flavor of the day is Salted Caramel Banana Nut at [nearest location to stored address]. I also found 4 more flavors near you. Would you like to hear them?

**User: Yes**

Alexa: Mint Avalanche, Really Reese's, Banana Cream Pie, Caramel Fudge Cookie Dough are also available nearby today.

**User: Where is Banana Cream Pie?**

Alexa: Banana Cream Pie is the flavor of the day at Culver's on East Main Street in Waunakee.

---

*Request for flavor of the day near me (short version)*

**User: Alexa, ask Culver's for the flavor of the day near me.**

Alexa: The flavor of the day is Salted Caramel Banana Nut at [nearest location to stored address].

---

*Request for flavor of the day near me (long version)*

**User: Alexa, ask Culver's for the flavor of the day near me.**

Alexa: The flavor of the day is Salted Caramel Banana Nut at [nearest location to stored address]. I also found 4 more flavors near you. Would you like to hear them?

**User: Yes**

Alexa: Mint Avalanche, Really Reese's, Banana Cream Pie, Caramel Fudge Cookie Dough are also available nearby today.

**User: Where is Banana Cream Pie?**

Alexa: Banana Cream Pie is the flavor of the day at Culver's on East Main Street in Waunakee.

ations

Really Reese's, Banana Cream Pie, Caramel  
u like?

ation name].

---

location

**ume Indiana based on user location].**

ans Parkway in Jeffersonville.

---

**on Todd Drive?**

h Todd Drive in Madison.

---

**08<sup>th</sup> Street.**

s or West Allis?

in West Allis.

# Resources

## Books

- How We Talk by N.J. Enfield
- Building Bots by Amir Shevat
- Designing Voice User Interfaces by Cathy Pearl

## Podcasts

- Voicebot.ai (+ website + weekly newsletter)
- V.U.X. World



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**Thank you!**  
Any questions?

