

Possible solutions

- ◆ Either to allow space for the box, or:
- ◆ Make the box ***dynamic***. it grows when the user types in it
(not it can also cover other parts of the page, no need to have reserved space)

Other interaction modes..?

- ◆ We saw users prefer the box «search-engine like»
- ◆ Are there other interaction ways we are used to, so that we could offer something different?
- ◆ *str4





Siri

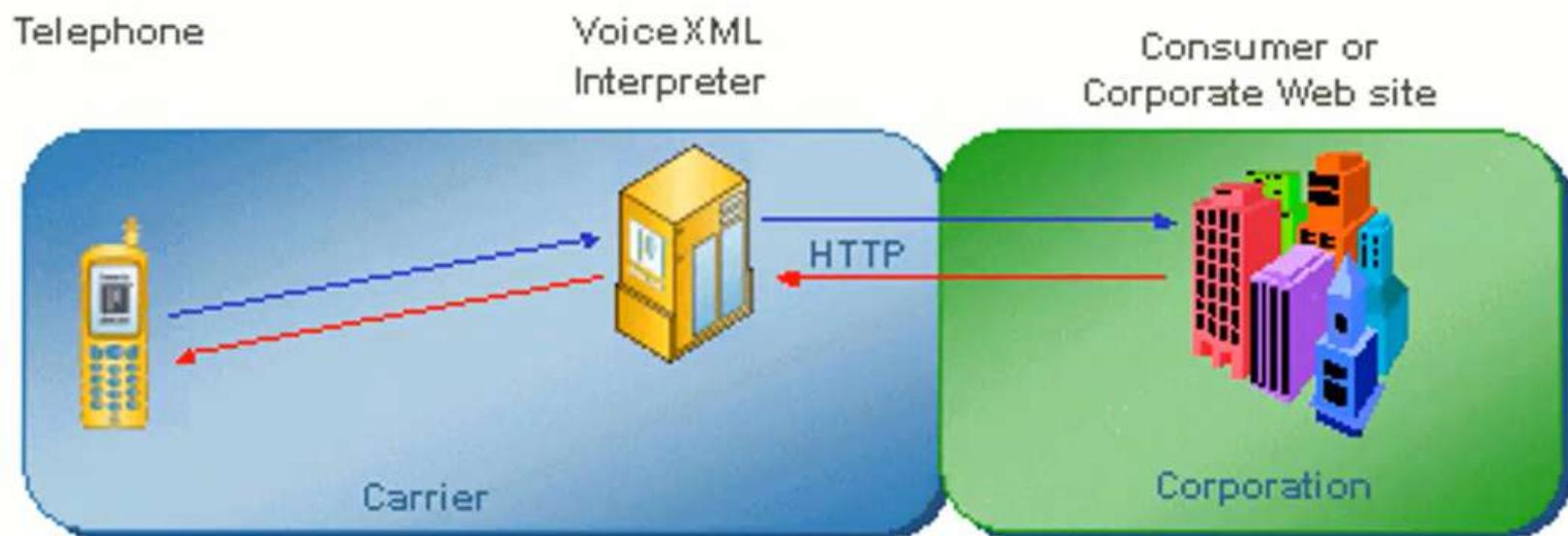


VOICEXML

- ◆ The idea: web == visual
- ◆ Why not: web == also **audio??!!**

VOICEXML...

- ◆ The main technology born to go beyond the visual-only
- ◆ Initially born as a bridge to telephones



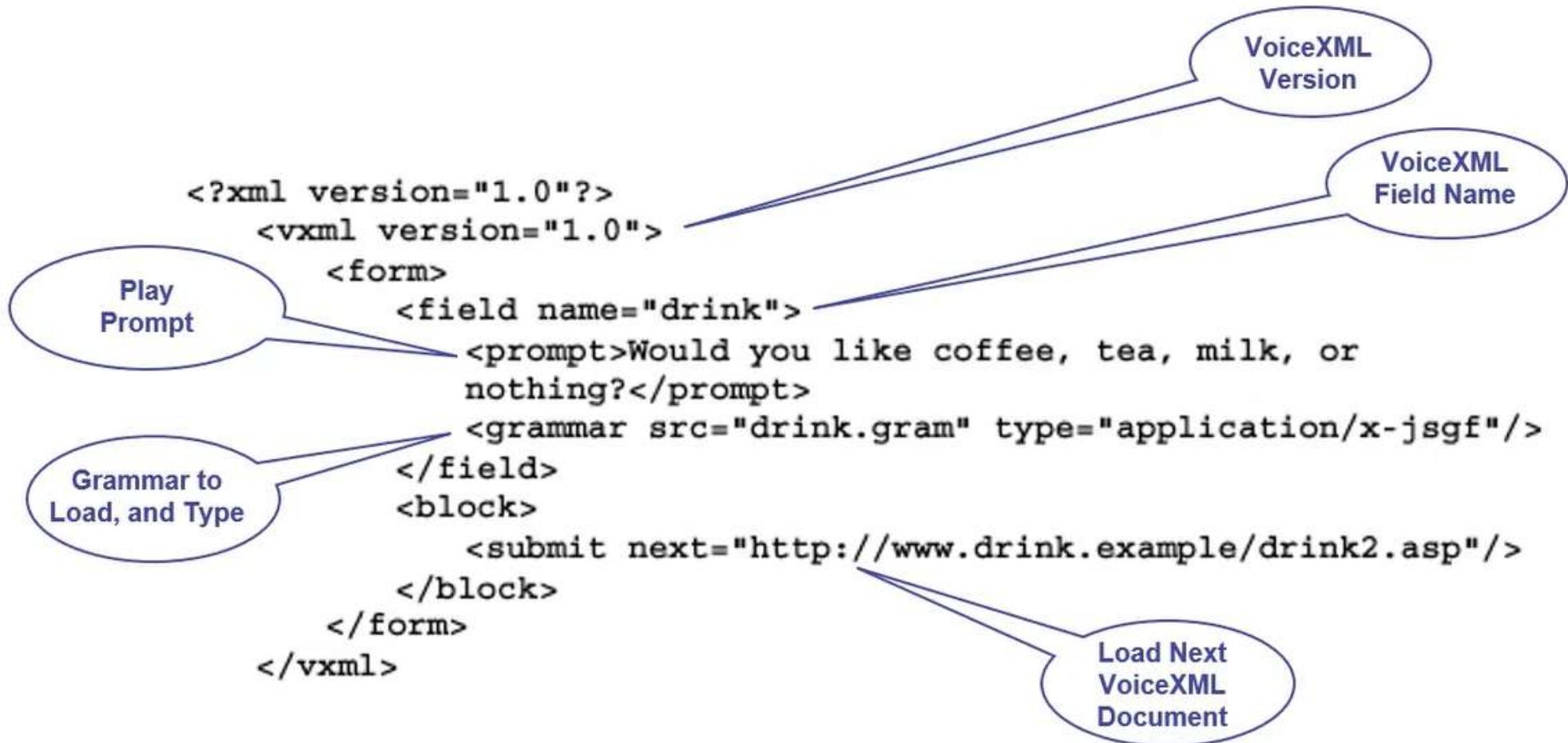
Please note...

- ◆ Voice is only a media: what matters is that voice is actually turned into text
- ◆ So eventually there is interaction with text (**natural language**)

In turn...

- ◆ Don't be fooled by the «Voice» word in VoiceXML: this is a family of technologies, starting from the vocal fronte-end, that can be used for superior interaction

VoiceXML example



VoiceXML and HTML...

◆ The media changes...

```
<form action="url">
    Enter your Id:
    <input name='id'>
    <input type='submit'>
</form>
```

```
<form>
    <field name='id'>
        <prompt>
            Your ID, please.
        </prompt>
    </field>
    <block>
        <submit next="url"/>
    </block>
</form>
```

VoiceXML technologies

- ◆ **Speech Synthesis Markup Language (SSML)**: how to pass from (enriched) text to voice
- ◆ **Pronunciation Lexicon Specification (PLS)**: specifies word pronunciation

VoiceXML technologies (cont.)

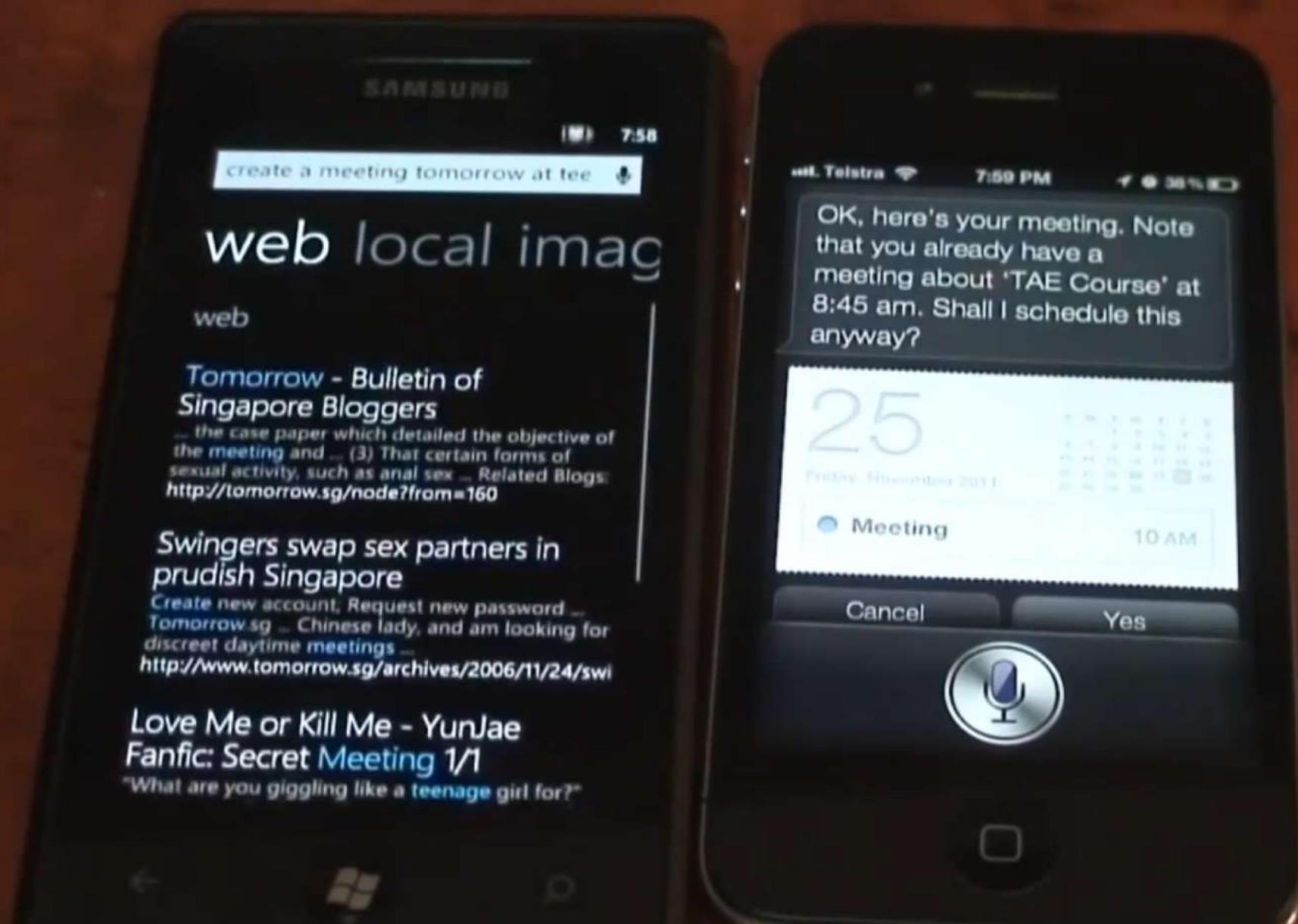
- ◆ **Call Control XML (CCXML):**
handling a voice interaction flow (like a phone call, voice web service, digital assistant and so on)

CCXML's «successor»

- ◆ State Chart XML (**SCXML**):
general language for defining execution environments based on
state-machines
(Harel-like, similar but more powerful than UML).

The Big Problem

- ◆ Let's see the big problem of every vocal application: *cmp



The Big Problem

- ◆ Let's see the big problem of every vocal application: *cmp
 - ◆ → ***the context!***
 - ◆ **Speech Recognition Grammar Specification (SRGS):**
defines the user grammar, so providing context to the audio channel

SISR

- ◆ **Semantic Interpretation for Speech Recognition (SISR):**

gives a meaning (corresponding actions) to what the user said

VoiceXML example menu

- ◆ <vxml version="2.0">
 <menu> <prompt> Say one of: <enumerate/>
 </prompt>
 <choice
 next="http://www.sports.example/start.vxml"
 > Sports </choice>
 <choice
 next="http://www.weather.example/intro.vxml
 "> Weather </choice>
 <choice
 next="http://www.news.example/news.vxml">
 News </choice> <noinput>Please say one of
 <enumerate/>
 </noinput> </menu> </vxml>

VoiceXML example (meteo)

```
<form id="weather_info">
  <block>Welcome to the weather information
  service.</block>
  <field name="state">
    <prompt>What state?</prompt>
    <grammar src="state.gram"
      type="application/x-jsgf"/>
    <catch event="help">
      Please speak the state for which
      you want the weather.
    </catch>
  <field>
```

VoiceXML meteo (cont.)

```
<field name="city">
  <prompt>What city?</prompt>
  <grammar src="city.gram"
           type="application/x-jsgf"/>
  <help>
    Please speak the state for which
    you want the weather.
  </help>
<field>
<block><submit next="/servet/weather"
          namelist="city state"/>
</block>
</form>
```

Grammar (city.gram):

California | Illinois | New Jersey | New York

VoiceXML meteo (variant)

- ◆ Interaction with the audio layer (accuracy):
 - ◆ <field name="city">
 <prompt>Which city?</prompt> ... <filled>
 <if cond="city\$.confidence < 0.3">
 <prompt>Sorry, I didnt get that</prompt> <clear
 namelist="city"/>
 <elseif cond="city\$.confidence < 0.7"/> <assign
 name="declaration" expr="city\$.declaration"/>
 <goto nextitem="confirmcity"/>
 </if> </filled> </field>

E-commerce VoiceXML example

```
<field name="card_type">
  ...
  <b><b>grammar</b></b>>
    visa                      {visa}
    | master [card]           {mastercard}
    | amex                     {amex}
    | american [express]     {amex}
  </b></b></grammar>
  <help>Please say Visa, Mastercard, or
        American Express.</help>
  ...
</field>
```

The interesting part

- ◆ Interaction with **Javascript** to decide how to interpret and do actions:
Javascript is the «action» language of VoiceXML

So... Voice Power Up?...



◆ Lulu

◆ Hellenia

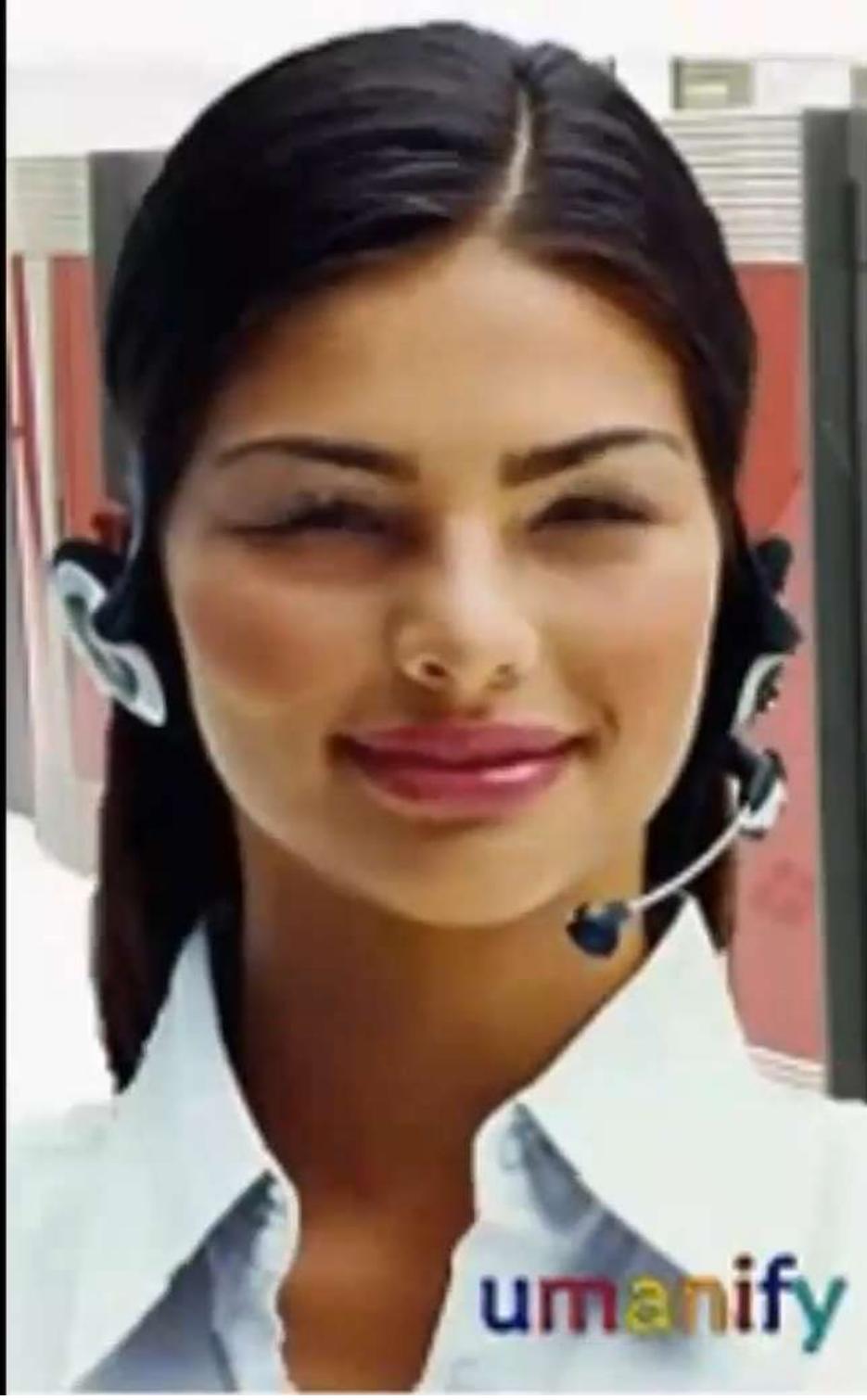




Jayden - Guile 3D Studio 2012

So... Voice Power Up?...

- ◆ Lulu
- ◆ Hellena
- ◆ And the hybrid's: Umanify, Sonia.



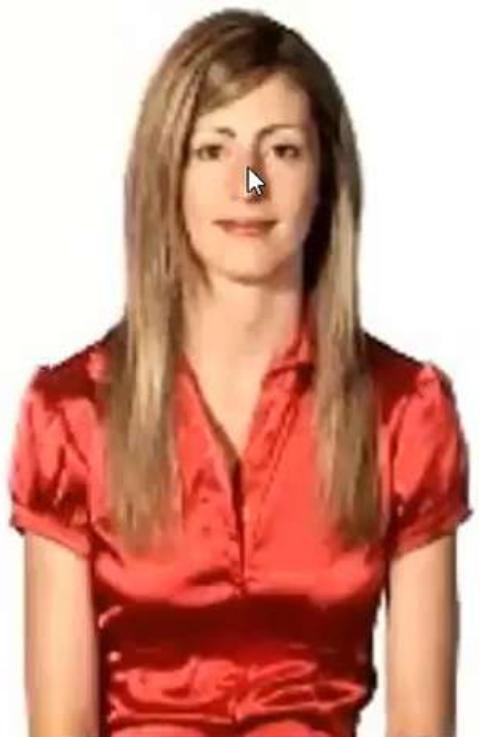


What happened?

- ◆ User satisfaction level?
- ◆ Roughly **-42%** (!!)

So, beware...

- ◆ Of the usability component!!
- ◆ (and remember “less is more”...)
- ◆ Users, faced with a human digital assistant, have corresponding ***expectations***: finally I can use my natural language!



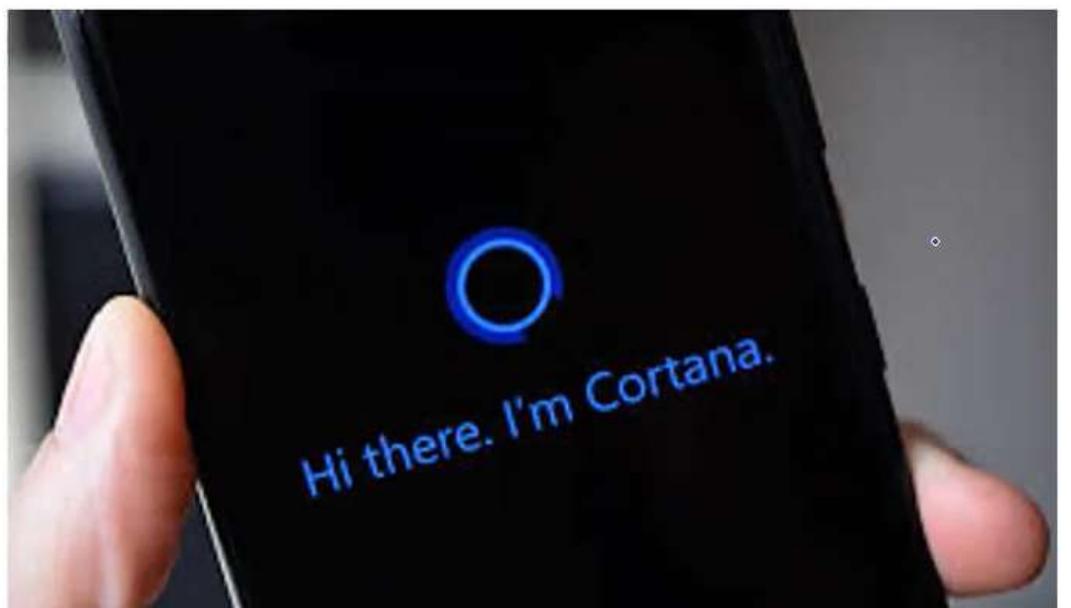
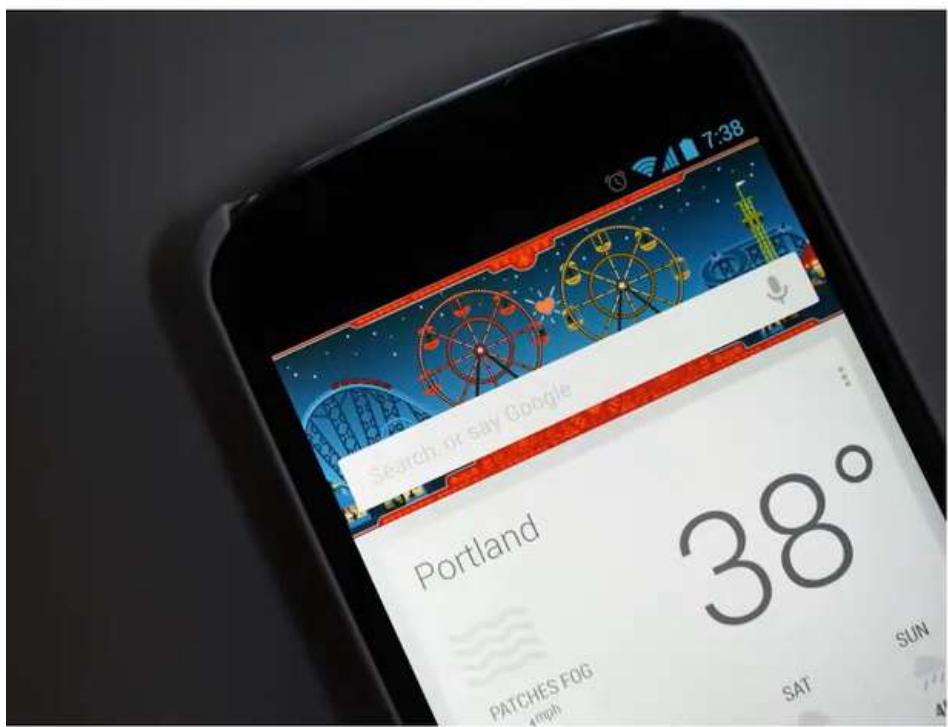
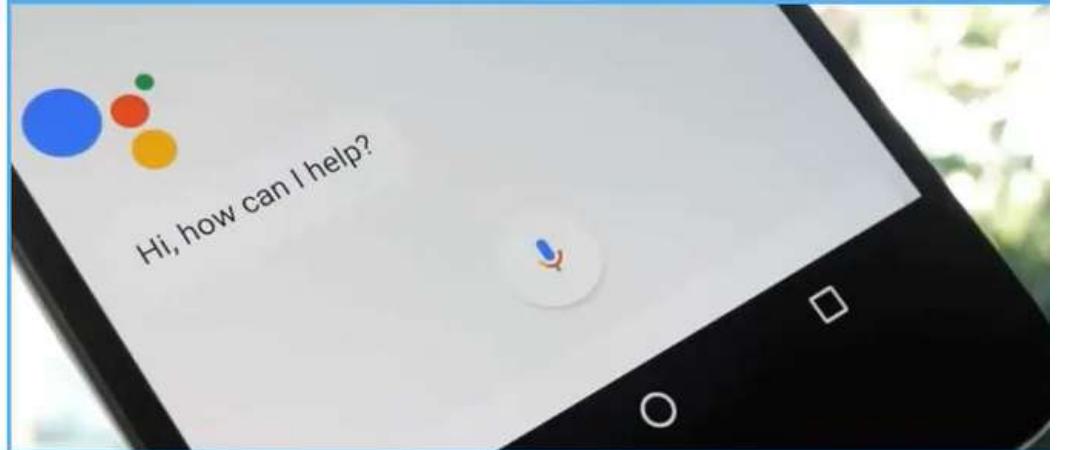
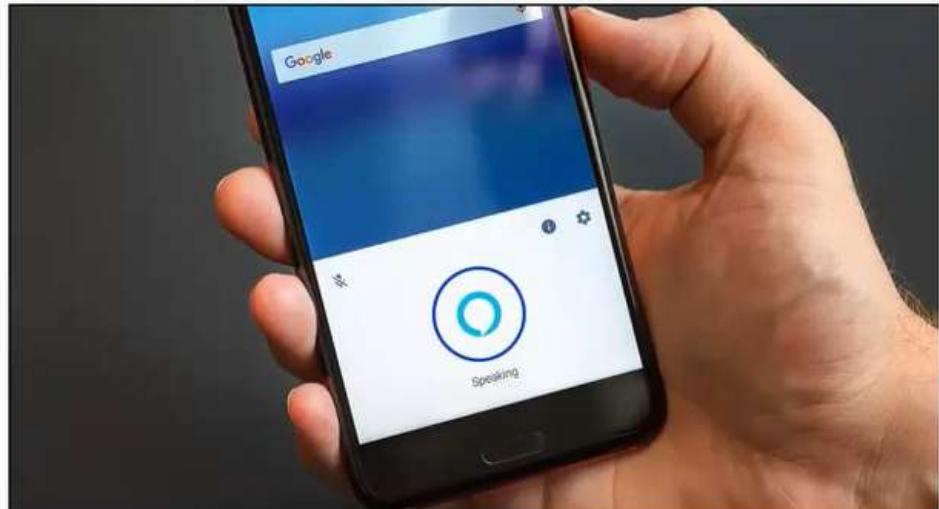


So, beware...

- ◆ Of the usability component!!
- ◆ (and remember “less is more”...)
- ◆ Users, faced with a human digital assistant, have corresponding ***expectations***: finally I can use my natural language!
- ◆ → When this doesn’t work, users get ***angry***: lost time, frustration etc!!



Consequently..



Other direction....

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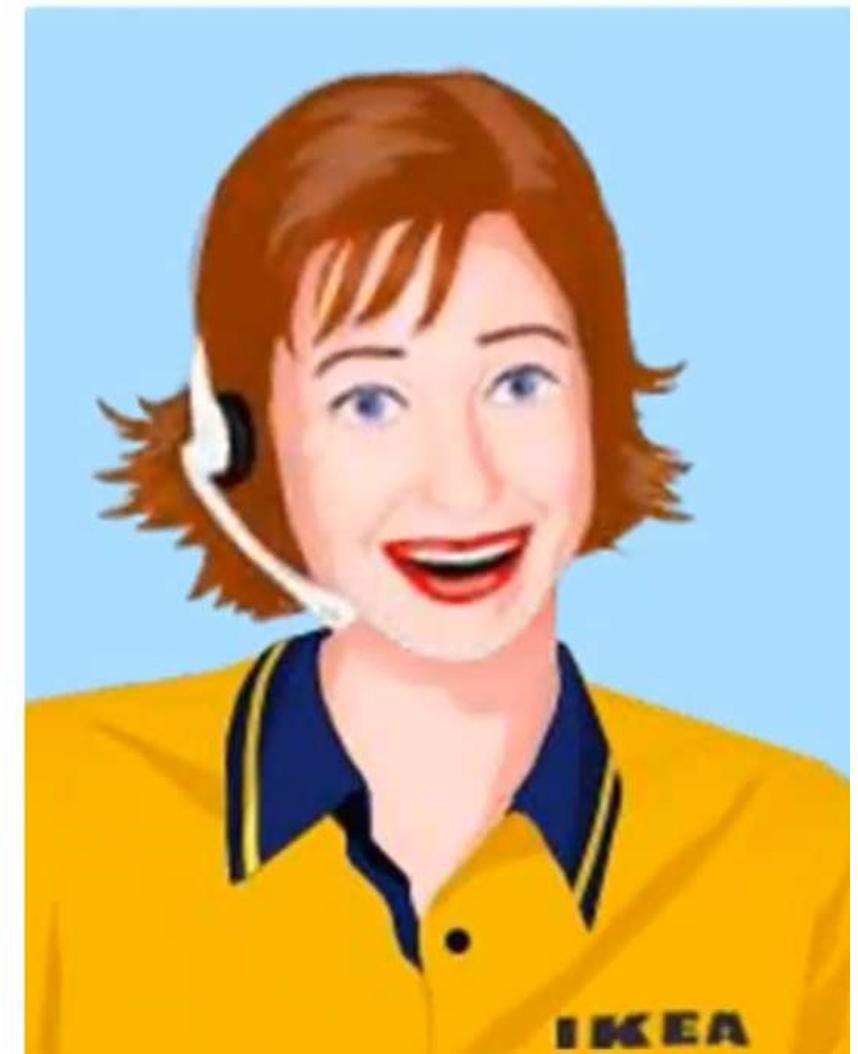
The «Anna» case...

- ◆ Ikea eventually stayed with a «cartoon» picture, without going to photorealism
- ◆ And only textual input...
- ◆ And a language engine (based on VoiceXML) quite powerful and complete
- ◆ And... it was an **optional** assistant (*users choice!*)



Result

- ◆ Ikea counter-trending: users actually appreciated!
- ◆ 10 years duration, now ended: why??



Main reason (!)

IKEA ChatBot - Mozilla Firefox

IKEA Help Centre



You said: Do you know about designer furniture?

The designers we choose and who choose us come from all over the world. Some work from the studio in Älmhult, Sweden, where IKEA first began. But wherever they are, they share our common goal to create beautiful, functional home furnishings at a price that

Go

close

Printed by S&A Technics P.V. 11/09 - 2004

Read 193.108.42.79

IKEA ChatBot - Microsoft Internet Explorer

IKEA Help Center



Welcome to IKEA. I'm Anna, IKEA USA's Automated Online Assistant. You can ask me about IKEA and our products and our services. How can I help you today?

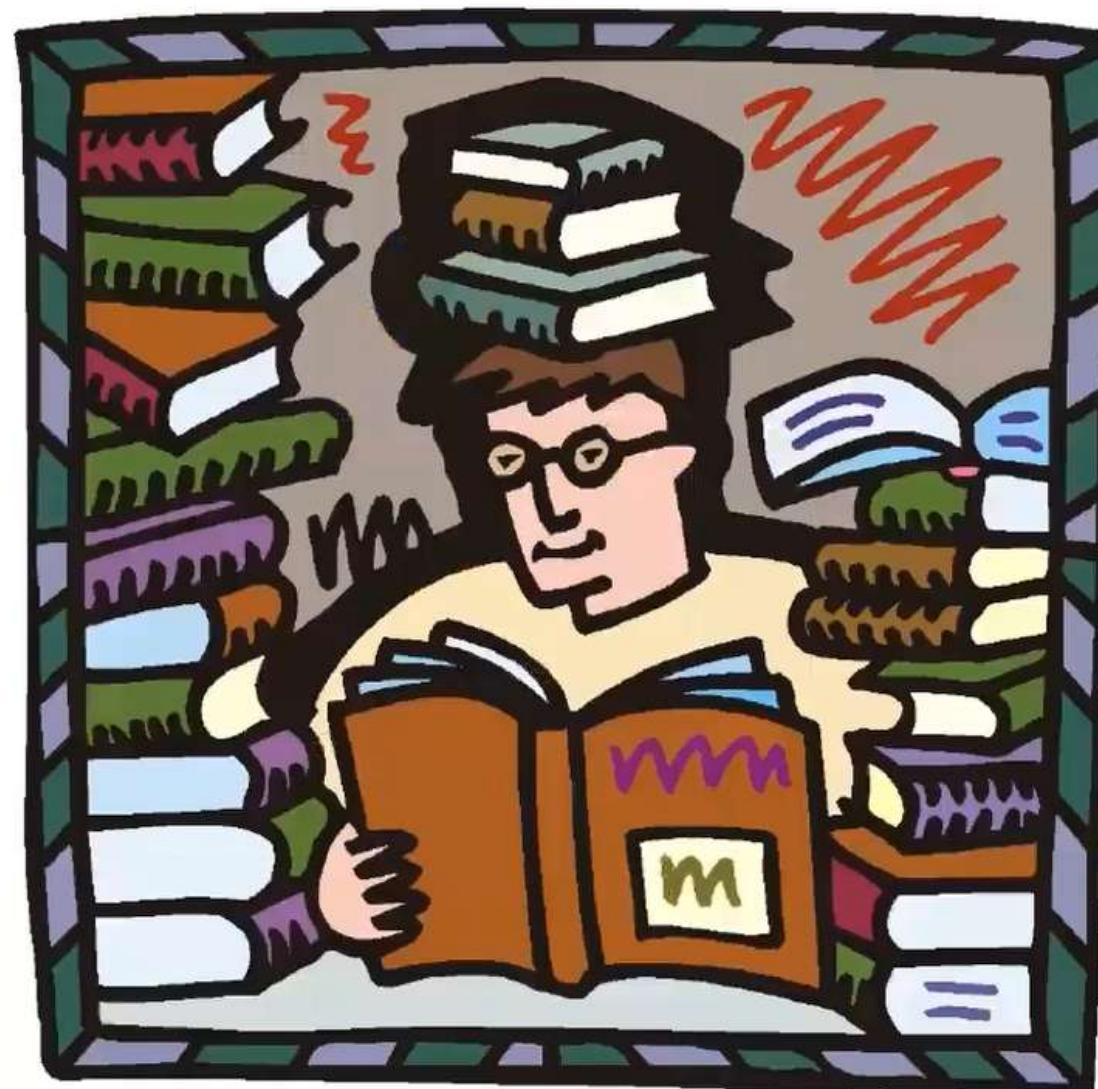
Go

close

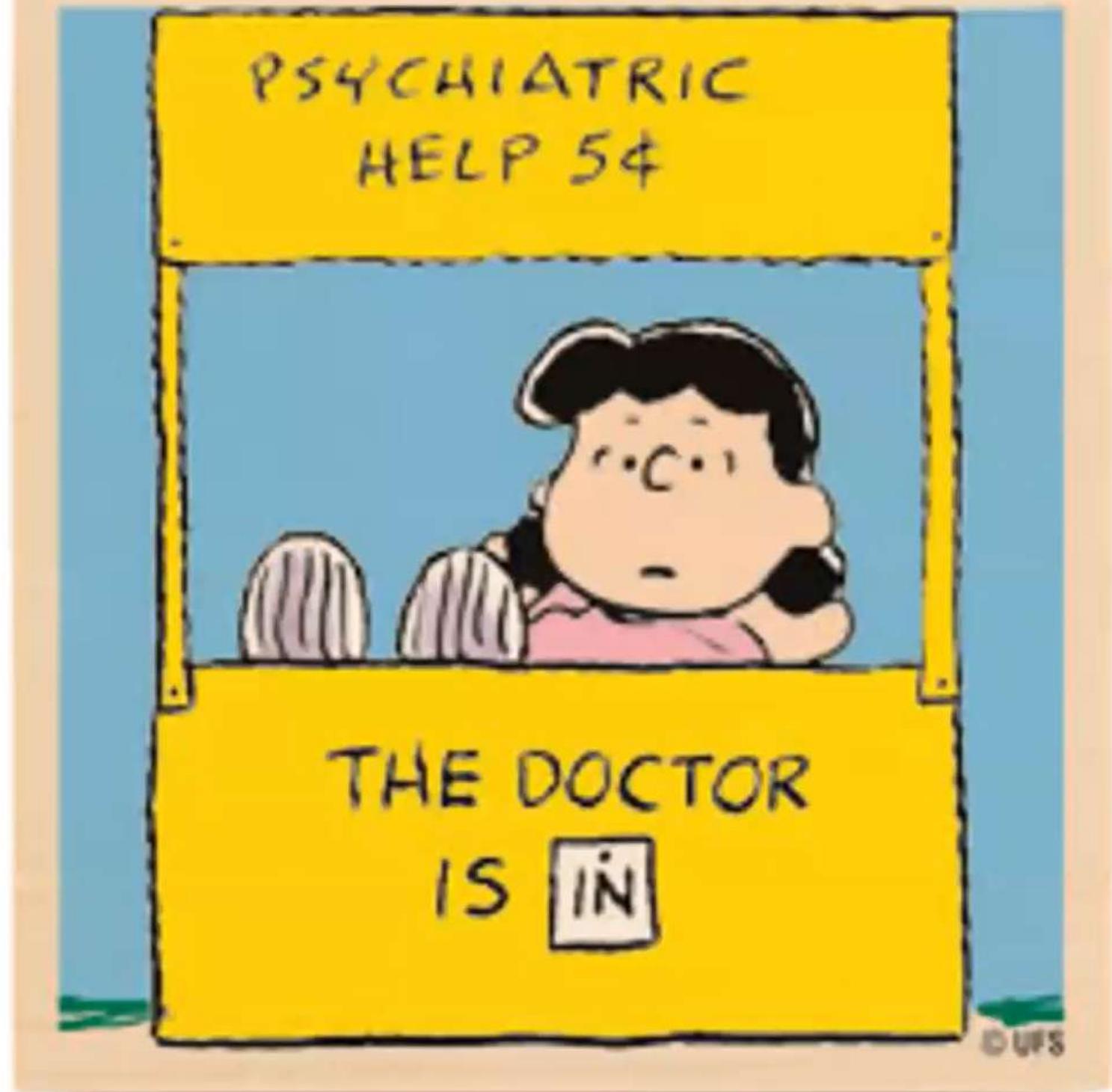
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Read 193.108.42.79

Evolutionary perspective...



1966



Eliza, a chatbot therapist X +

https://web.njit.edu/~ronkowit/eliza.html eliza bot

Talk to Eliza by typing your questions and answers in the input box.

```
> Hello, I am Eliza. I'll be your therapist today.
```

I

TYPE HERE

The screenshot shows a web browser window with the title 'Eliza, a chatbot therapist'. The address bar displays the URL 'https://web.njit.edu/~ronkowit/eliza.html'. A search bar to the right of the address bar contains the text 'eliza bot'. The main content area features a large blue header with the instruction 'Talk to Eliza by typing your questions and answers in the input box.' Below this, a message from the chatbot is displayed: '> Hello, I am Eliza. I'll be your therapist today.' A cursor is visible in the text input field below. The input field is part of a larger blue box with the placeholder 'TYPE HERE'.

Tandy/Radio Shack computers that made up the first computer lab in the junior high school where I taught in the 1970s. By then, ELIZA was a

ssing program had been written in the mid-1960s at the MIT Artificial Intelligence Laboratory by Joseph Weizenbaum. It supposedly had been

ic Rogerian psychotherapist chatbot

Talk to Eliza by typing your questions and answers in the input box.

```
> Hello, I am Eliza. I'll be your therapist today.  
* hi eliza  
> What would you like to discuss in this session?  
* i don't know  
> Don't you really know?  
* ok, i want to discuss about life  
> Suppose you got to discuss about life?  
* yes  
> I see. Let's explore that a bit more.
```

1975...

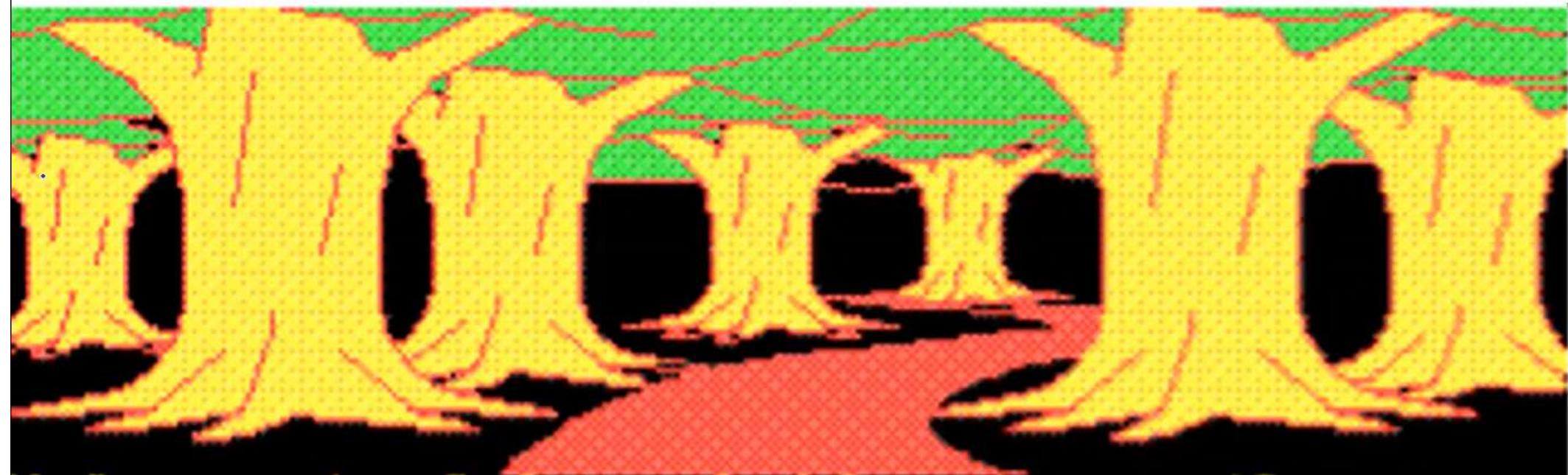
PAUSE INIT DONE statement executed []
To resume execution, type go. Other input will terminate the job.

go []
Execution resumes after PAUSE.

WELCOME TO ADVENTURE!! WOULD YOU LIKE INSTRUCTIONS?

SOMEWHERE NEARBY IS COLOSSAL CAVE, WHERE OTHERS HAVE FOUND
FORTUNES IN TREASURE AND GOLD, THOUGH IT IS RUMORED
THAT SOME WHO ENTER ARE NEVER SEEN AGAIN. MAGIC IS SAID
TO WORK IN THE CAVE. I WILL BE YOUR EYES AND HANDS. DIRECT
ME WITH COMMANDS OF 1 OR 2 WORDS.
(ERRORS, SUGGESTIONS, COMPLAINTS TO CROWTHER)
(IF STUCK TYPE HELP FOR SOME HINTS)

YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK
BUILDING . AROUND YOU IS A FOREST. A SMALL
STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.



Welcome to Colossal Adventure, the
first of the Jewels of Darkness,
copyright (C) 1986 Level 9 Computing.
(This version allows you to use RAM
SAVE and RAM RESTORE to save a position
in memory, and OOPS to "take back" bad
moves).
You are standing beside a small brick
building at the end of a road from the
north. A river flows south. To the
north is open country and all around is
dense forest.
What now?

Later...

◆ *s *gr *iw



GRIM FANDANGO

16:31

60

42



Twist me up one of them, eh fella?
Can I walk through your tent? I want to see the parade.
Some festival, eh?
I have to go. That sound makes me want to kill somebody.

Later...

- ◆ *s *gr *iw
- ◆ And relatedly: *swy

swype





the inner world

Play

THANK YOU FOR
YOUR UNDERSTANDING

PLAY FLUTEnOSE

SETtings

cREDITS

quit







?





EG 2001

Note on interaction/ evolution ...

- ◆ Hellena vs betty 2 and liz 3...
- ◆ **s *sac







Note on interaction/ evolution ...

- ◆ Hellenas vs betty 2 and liz 3...
- ◆ **S *sac
- ◆ *P0 *P1





Cam Pos: {X:60498.31 Y:6428.55 Z:20406.24}



Note on interaction/ evolution ...

- ◆ Hellena vs betty 2 and liz 3...
- ◆ **s *sac
- ◆ *P0 *P1
- ◆ *scapex



The key: noise!



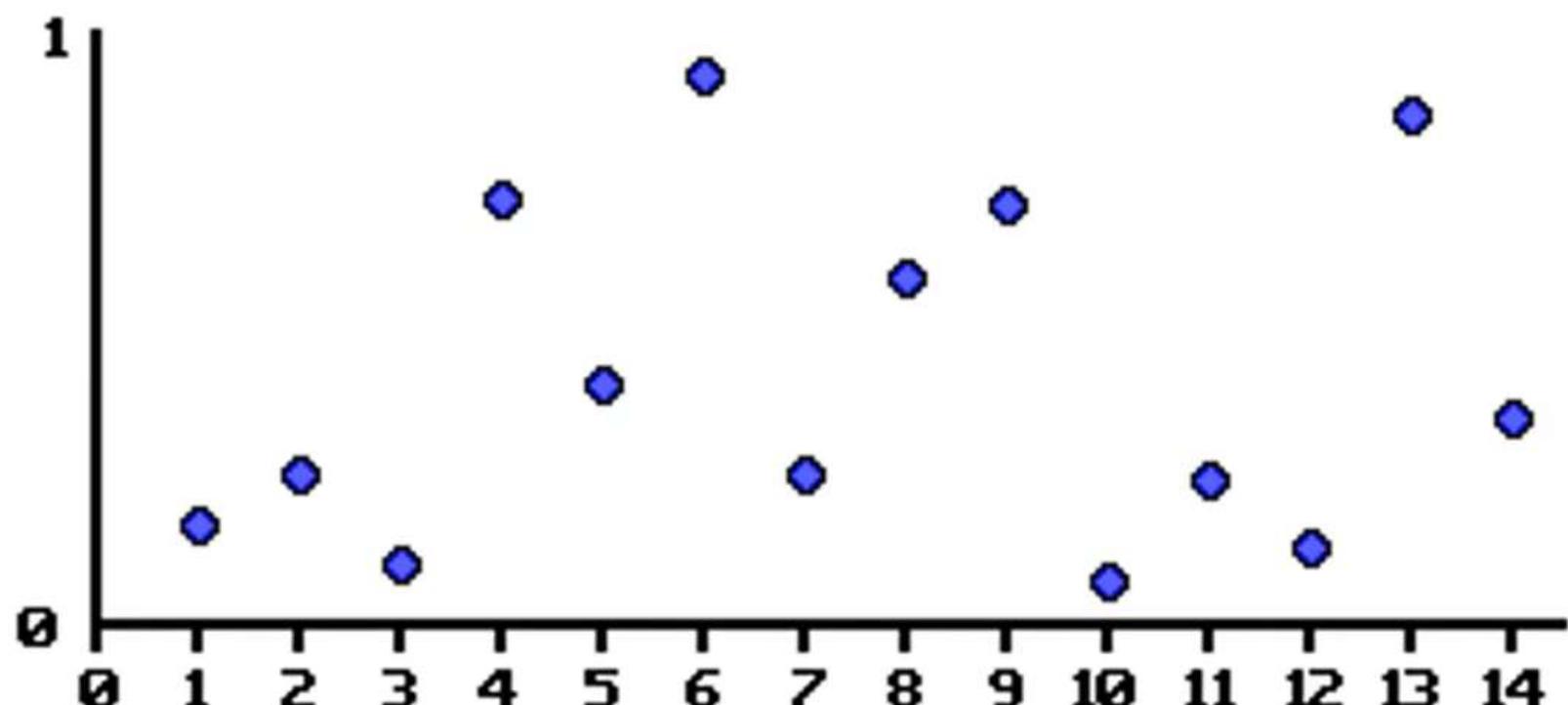


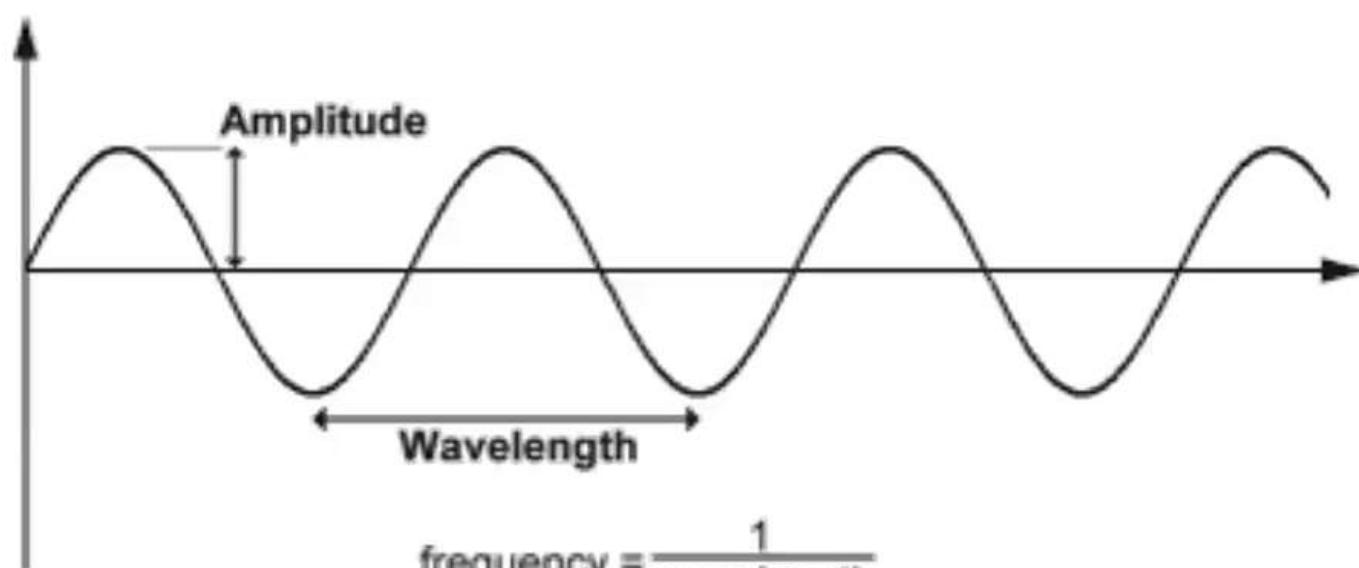
Cam Pos: {X:123370 Y:13179.78 Z:70892.81}



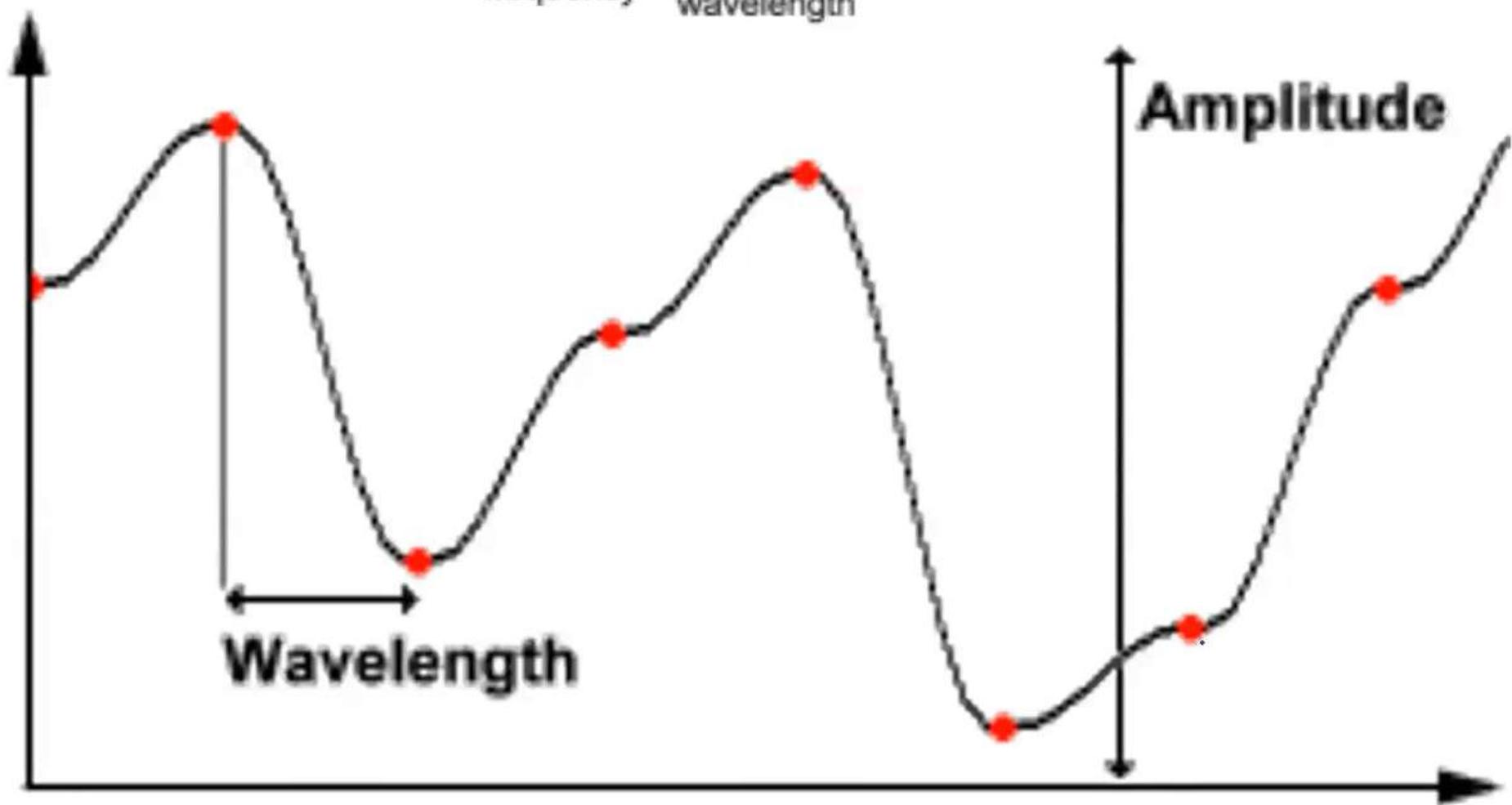
Cam Pos: {X:60498.31 Y:6428.55 Z:20406.24}







$$\text{frequency} = \frac{1}{\text{wavelength}}$$





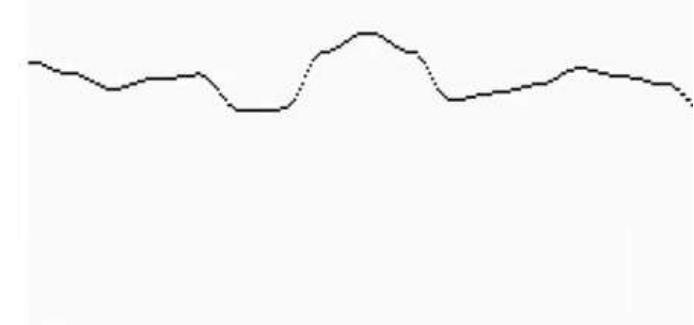
Amplitude : 128
frequency : 4



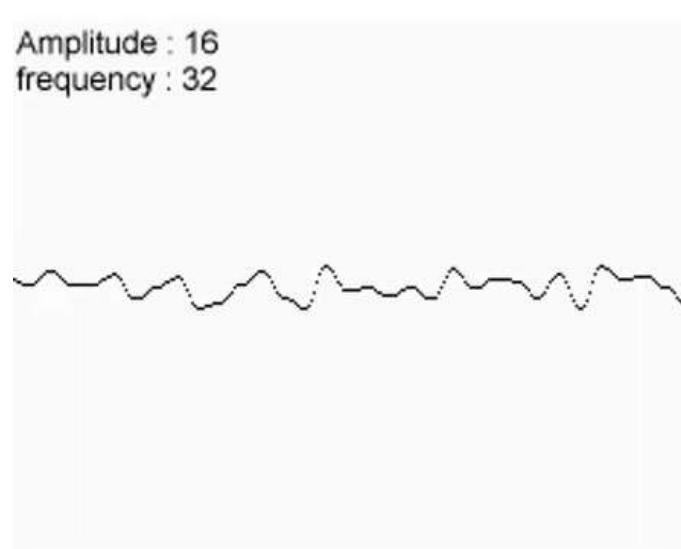
Amplitude : 64
frequency : 8



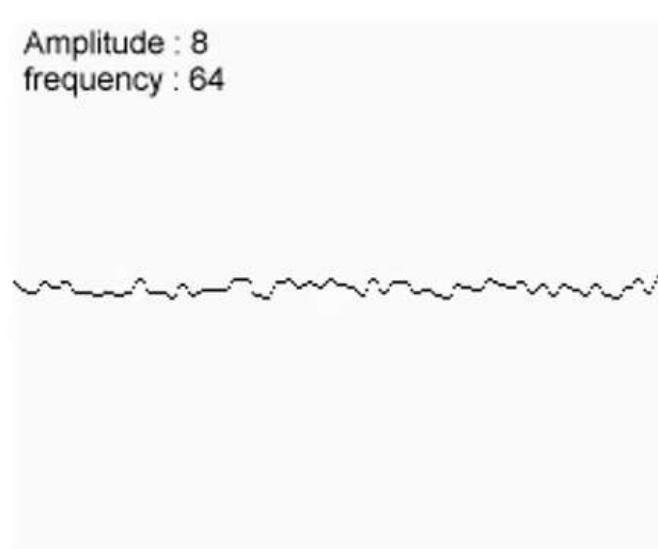
Amplitude : 32
frequency : 16



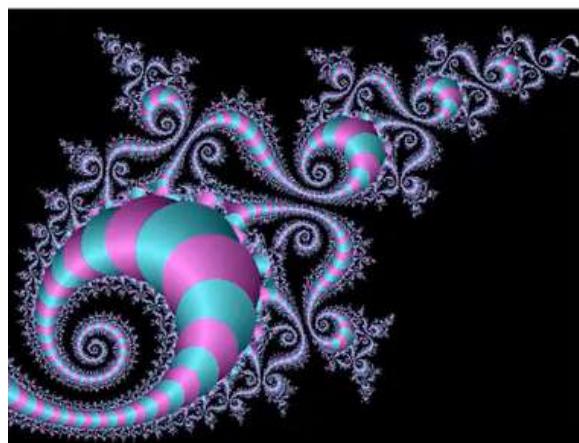
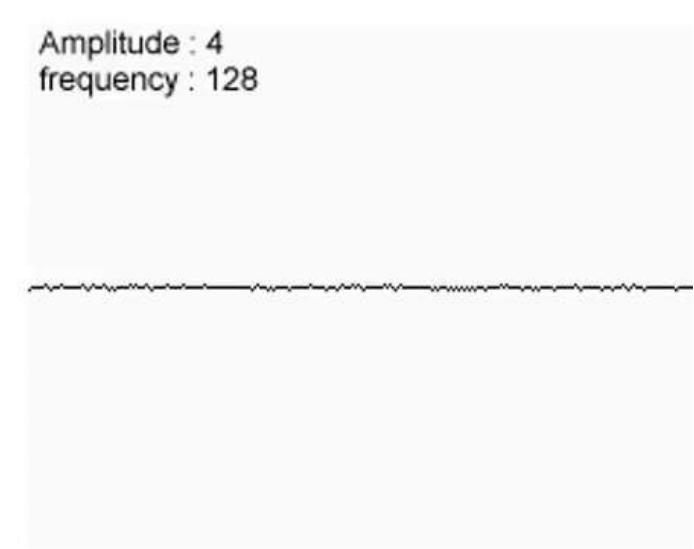
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frequency : 32



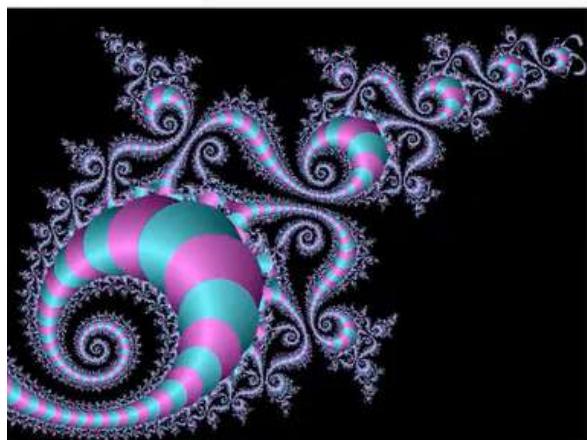
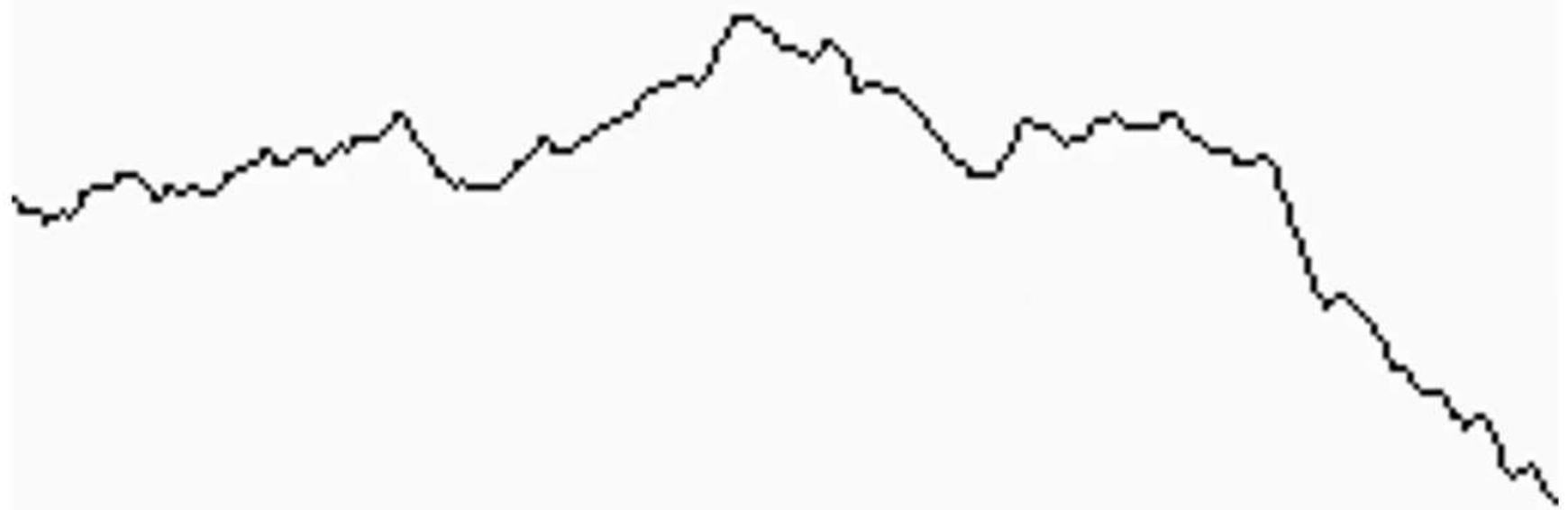
Amplitude : 8
frequency : 64

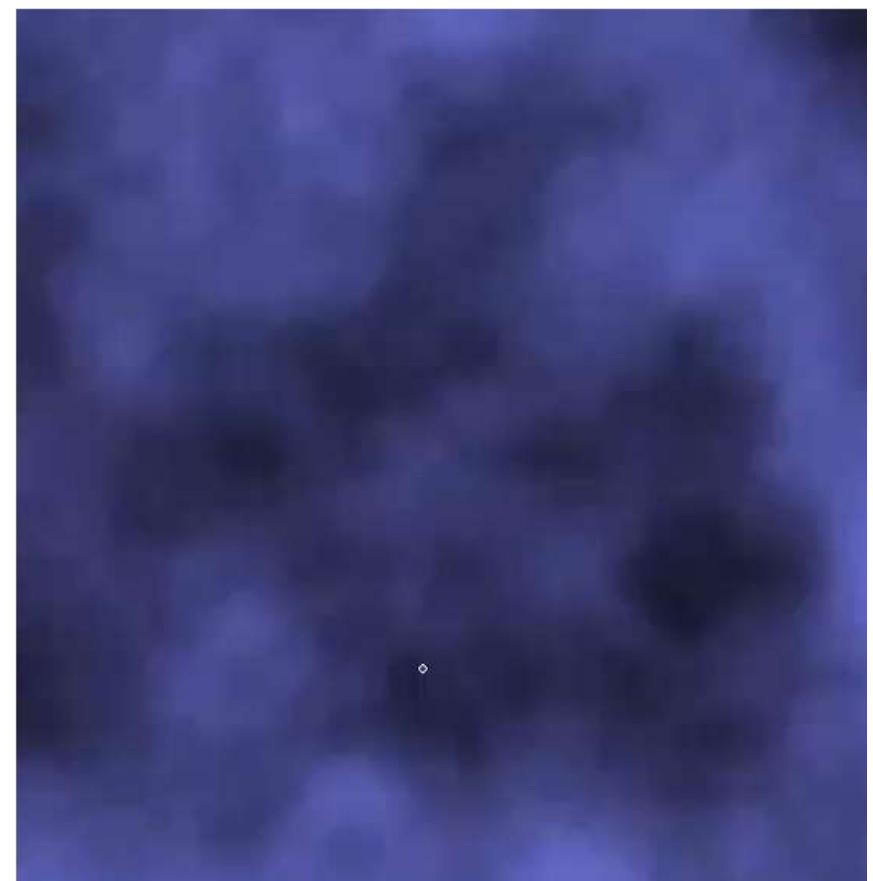
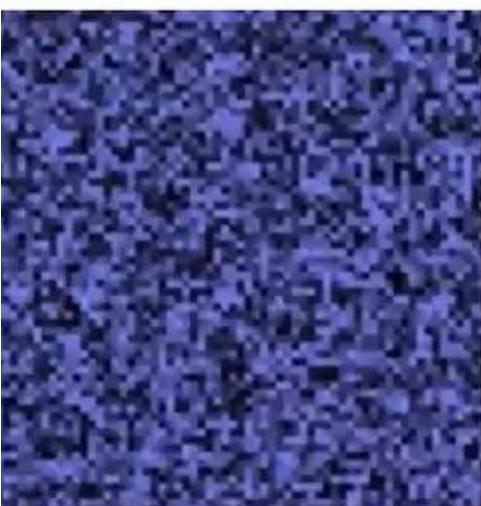
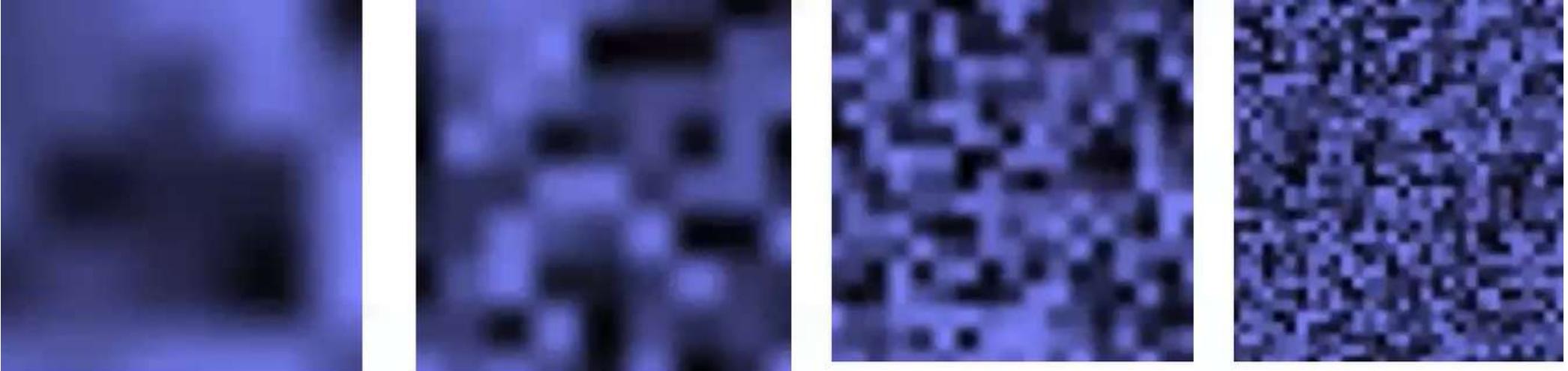


Amplitude : 4
frequency : 128

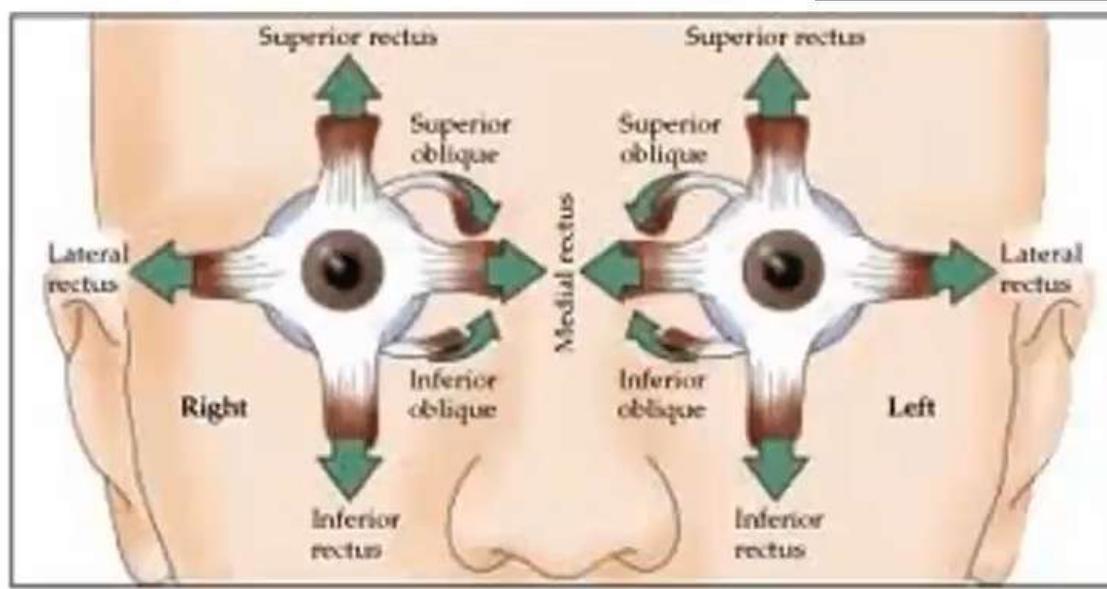
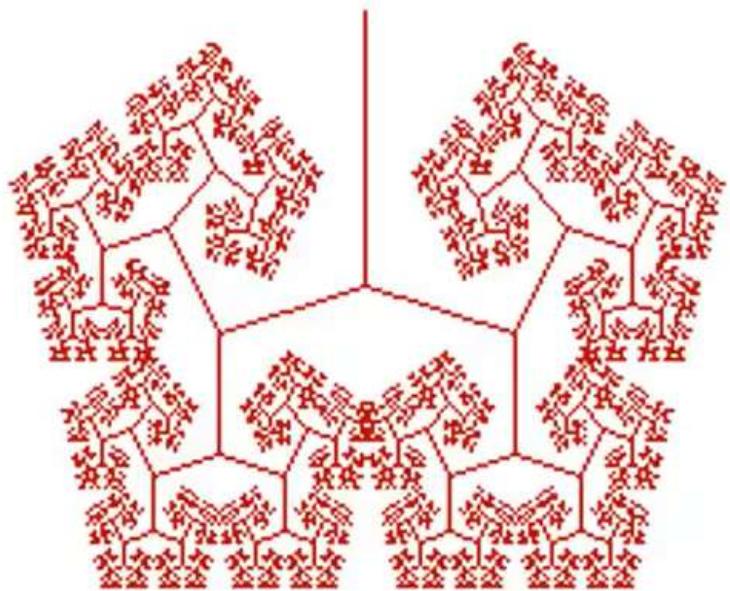


Sum of Noise Functions = (Perlin Noise)





2D....



So the real point...

- ◆ Is to view technology from every angle, to better understand its limits and potential

