Make Slides. Assess.

Your Turn

Draw a number from the hat.

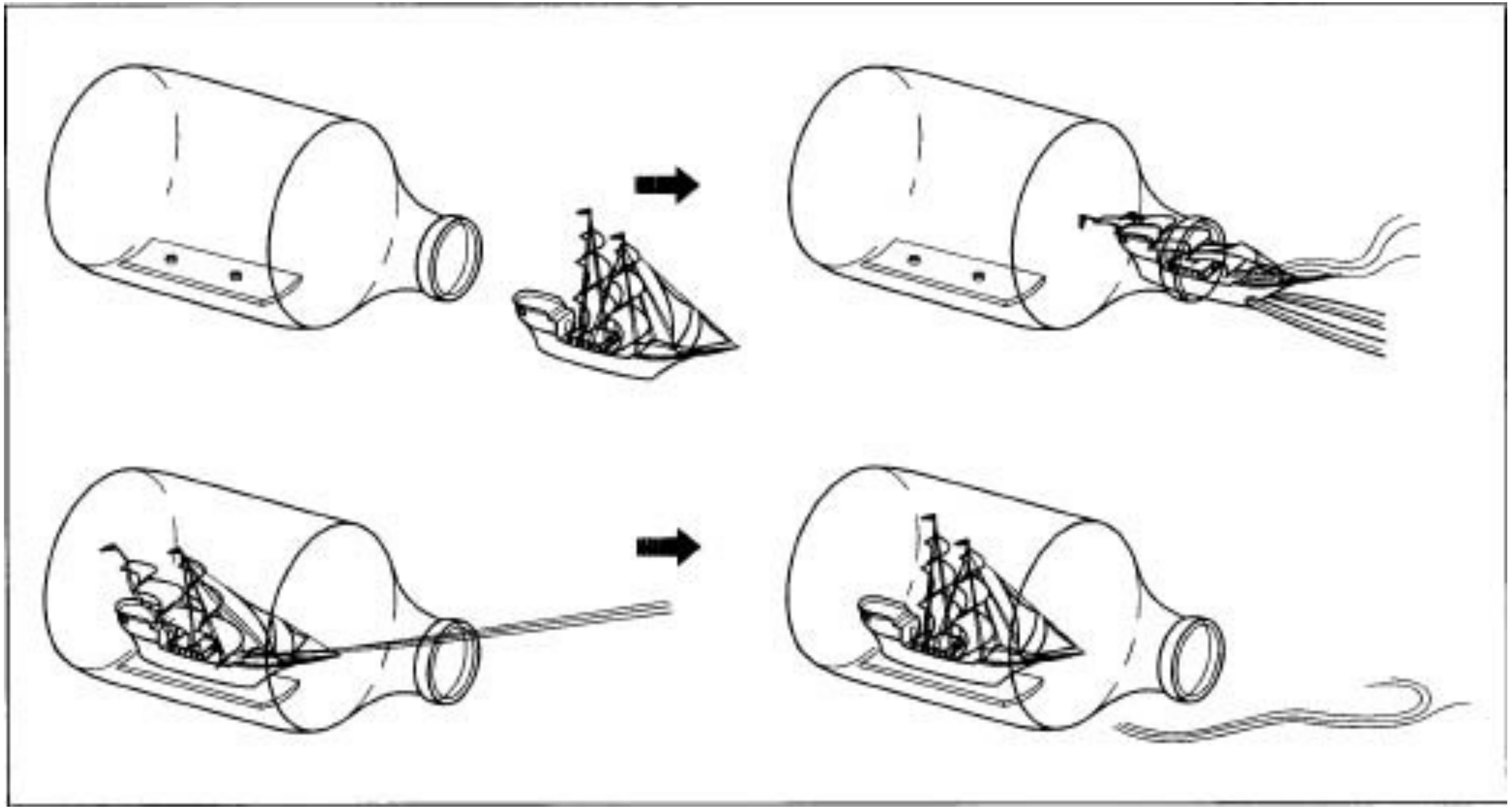
Goal

Complete and share your lesson.

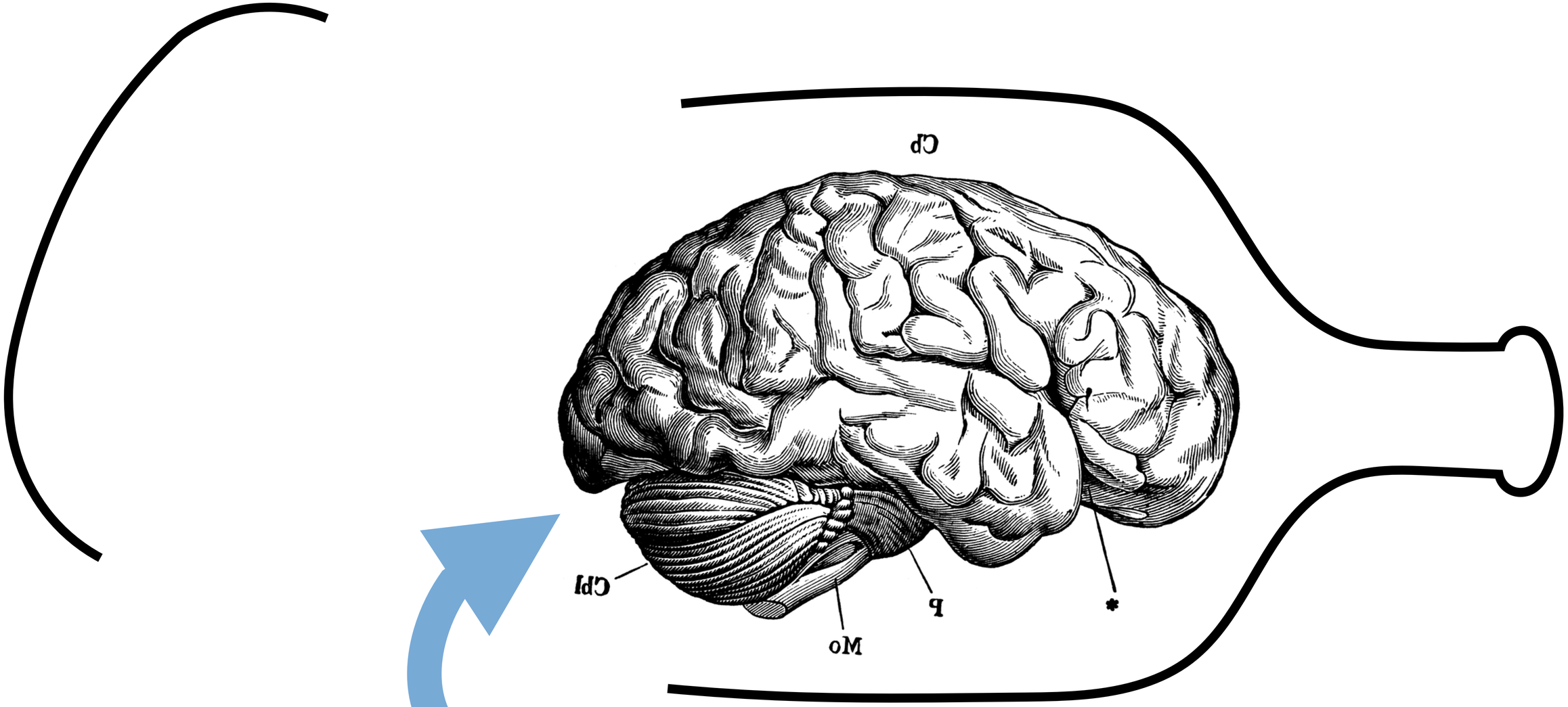
Understand why and how (and how not to) improve all of your lessons with visuals.

Your Turn

How effective is communication?



http://www.madehow.com/Volume-7/Ship-in-a-Bottle.html

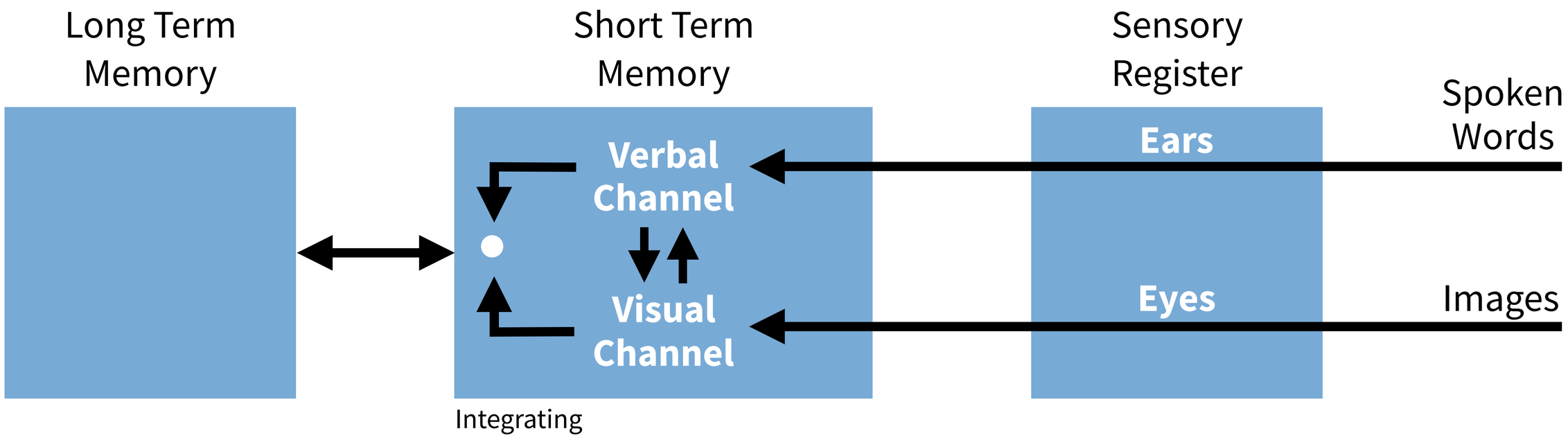


How?

Visualization

x	y
0	-0.25
-0.5	-0.68
-1	-0.95
-1.5	-0.98
-2.5	-0.38
0.5	0.25
2	0.98
1.5	0.95
3	0.38
1	0.68
2.5	0.78
-3	0.11
-2	-0.78

Dual Coding Theory



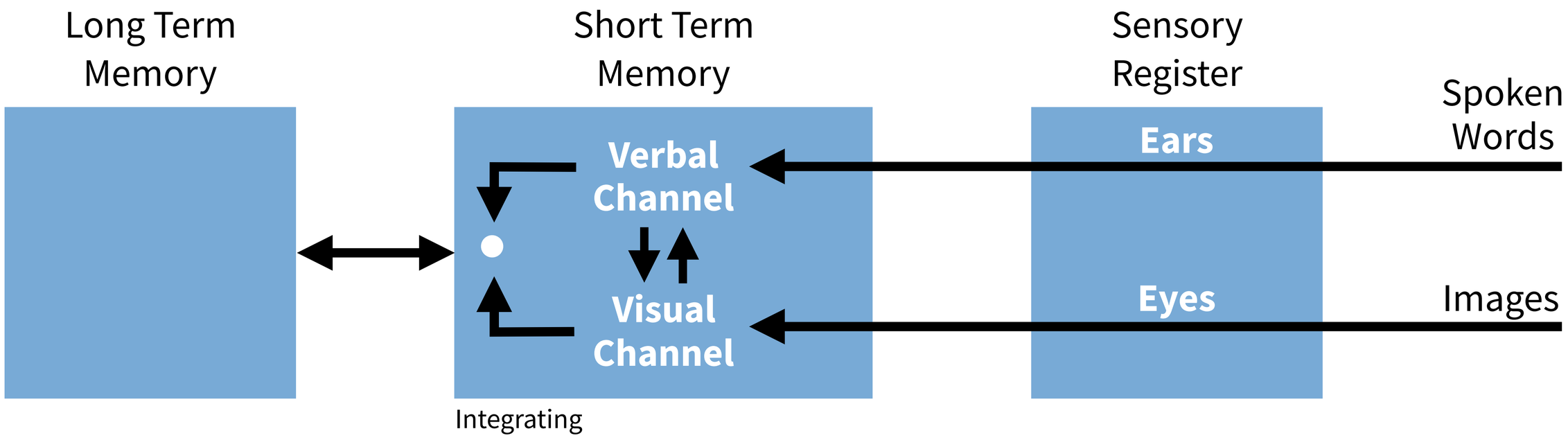
- Adapted from Mayer, R. E. (2002). Multimedia learning. Psychology of learning and motivation, 41, 85-139. Chicago

Vision	**83**% of info	**30**% of neurons
Hearing	**11**% of info	**2**% of neurons
Smell	3.5% of info	
Touch	1.5% of info	**8**% of neurons
Taste	1.0% of info	

Telling Ain't Training

nationalgeographic.com

Dual Coding Theory



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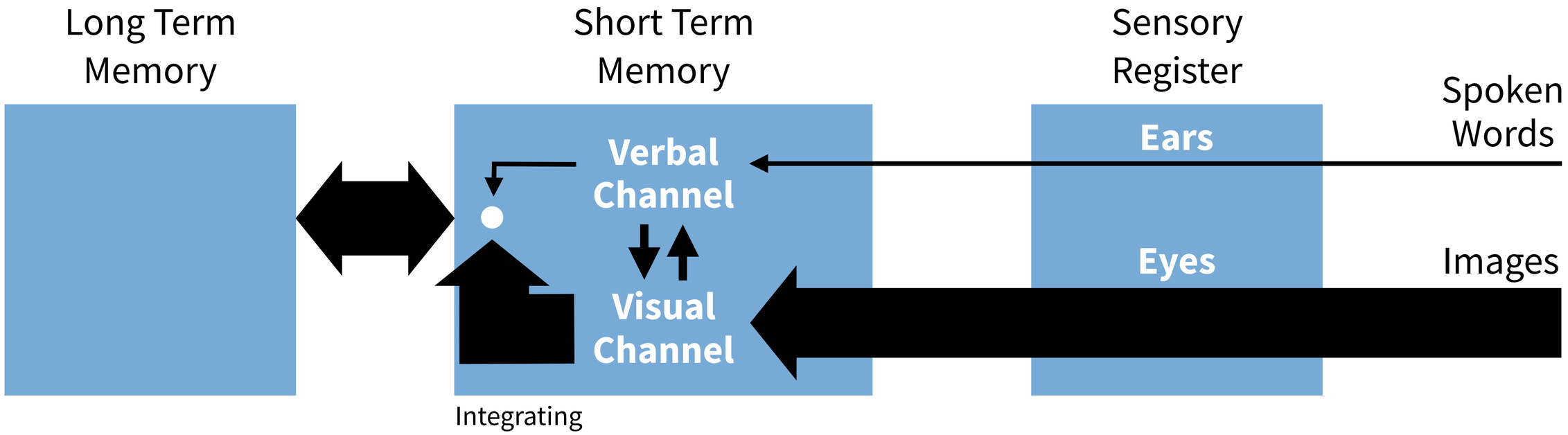
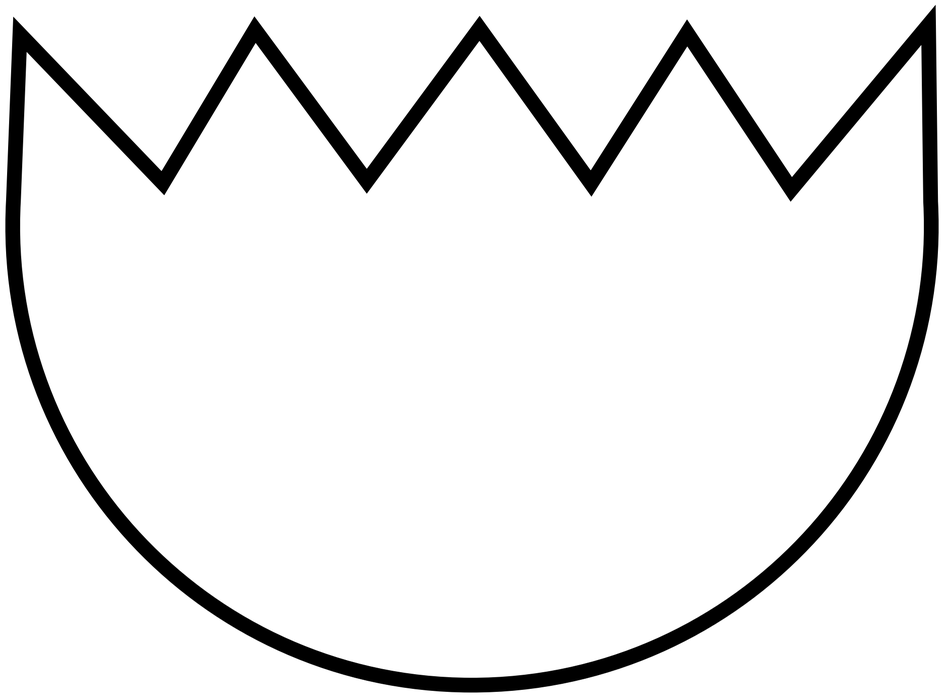
Dual Coding Theory

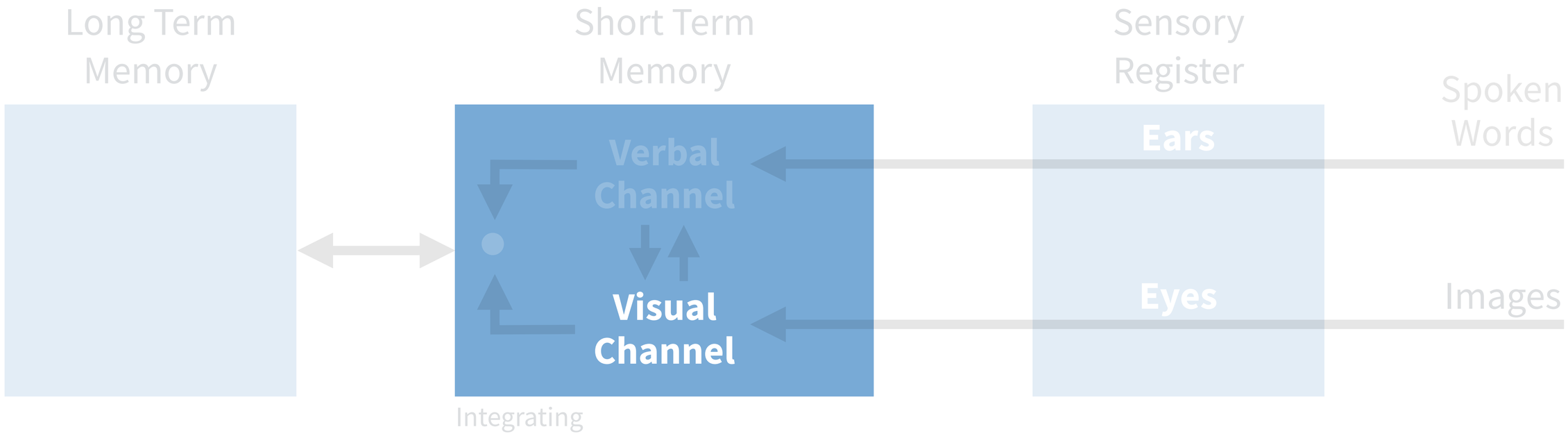


- Adapted from Mayer, R. E. (2002). Multimedia learning. Psychology of learning and motivation, 41, 85-139. Chicago

Picture a shape that is a half circle on the bottom, but a flat squiggly line across the top.

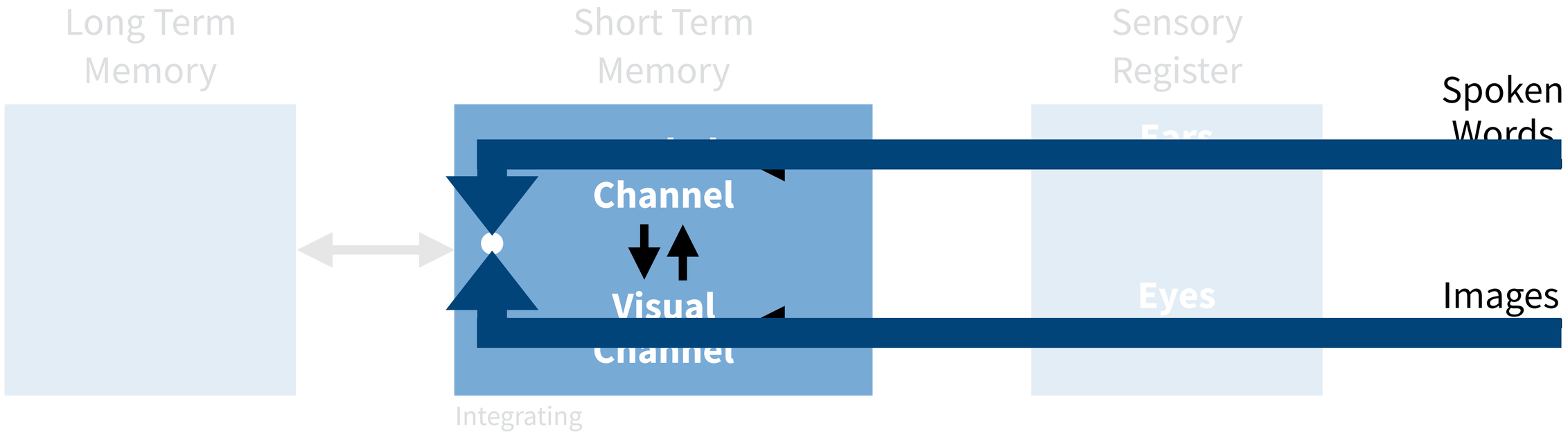


Dual Coding Theory



- Space
- Time
- Magnitude

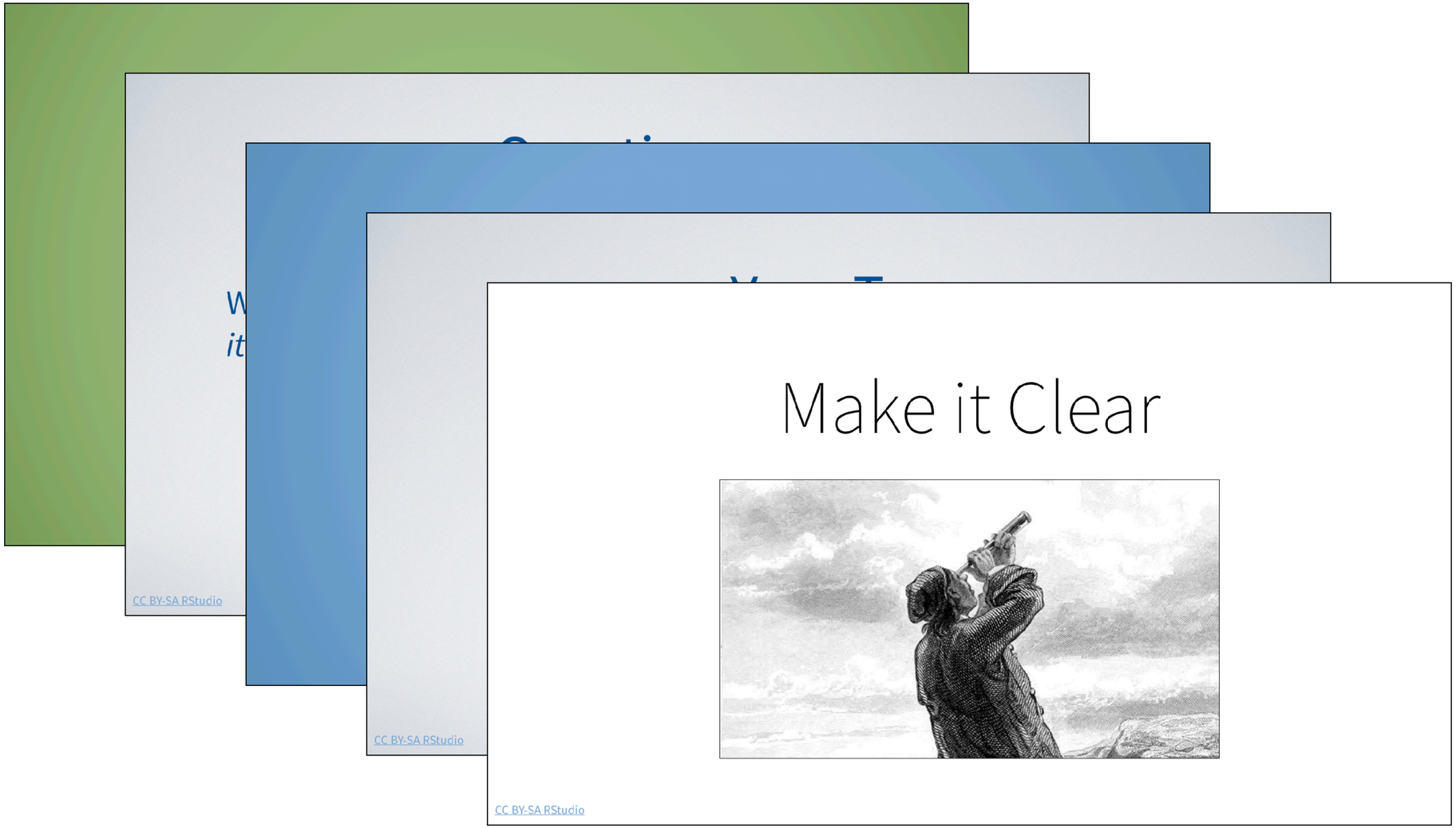
Dual Coding Theory



Your Turn

What is the most common way to pair visual and verbal information in a presentation?

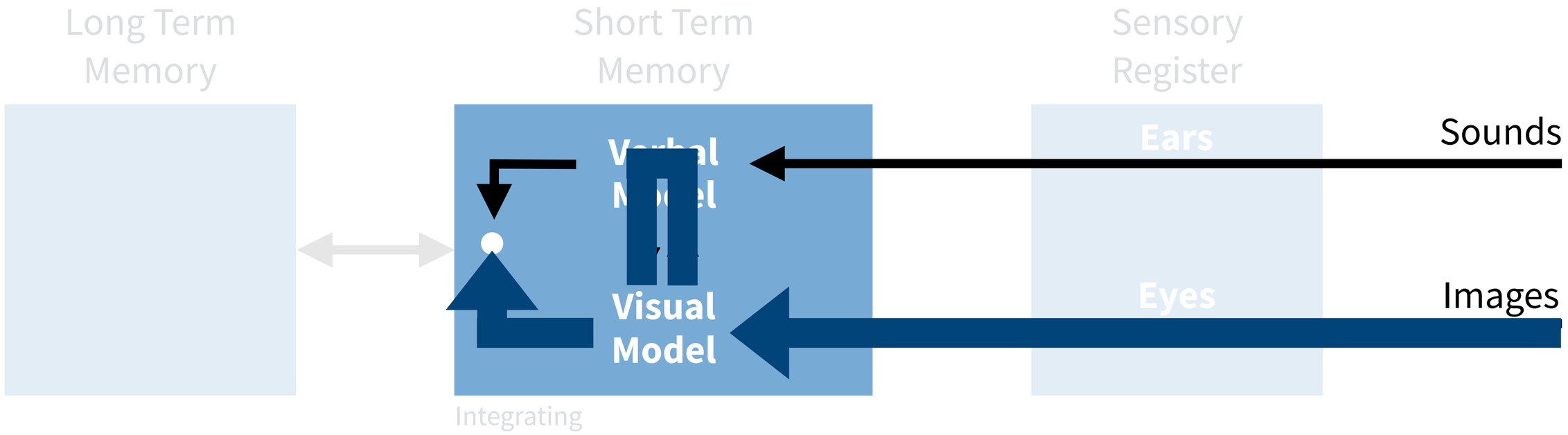
Slides



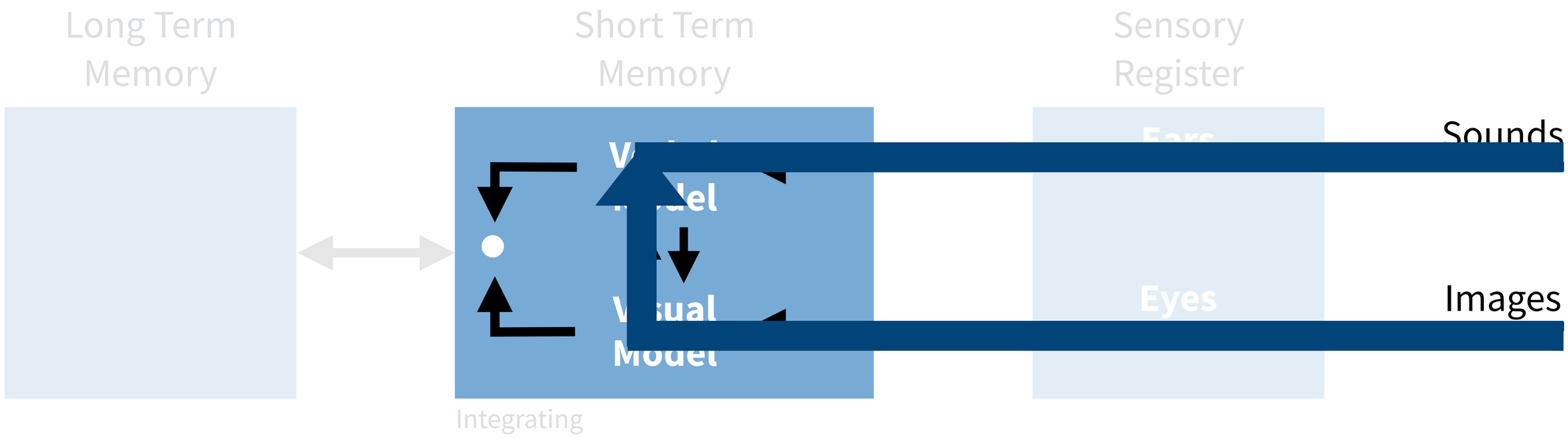
We’re excited to announce community.rstudio.com, a new site for discussions about RStudio, the tidyverse, and friends. To begin with, we’re focussing on three main areas: The Tidyverse, Shiny, and the RStudio IDE.

In the near future, we expect to launch a category for RStudio admins. This will be a place to coordinate knowledge about best practices for installing, configuring, and managing RStudio products, and for running R in production. Stay tuned for more details!

Dual Coding Theory



Dual Coding Theory



Rule #1

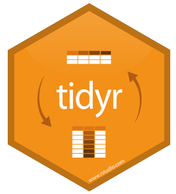
Slides are for visual information only!

name of the new key column (a character string)

gather()

```
cases %>% gather(key = "year", value = "n", 2:4)
```

name of the new key column (a character string)



```
babynames %>%
  group_by(name, sex) %>%
  summarise(total = sum(n)) %>%
  arrange(desc(total)) %>%
  ungroup() %>%
  slice(1:10) %>%
  ggplot() +
    geom_col(mapping = aes(x = fct_reorder(name,
      desc(totol)), y = total, fill = sex)) +
    theme_bw() +
    scale_fill_brewer() +
    labs(x = "name")
```

```r
babynames %>%
  group_by(name, sex) %>%
  summarise(total = sum(n)) %>%
  arrange(desc(total)) %>%
  ungroup() %>%
  slice(1:10) %>%
  ggplot() +
    geom_col(mapping = aes(x = fct_reorder(name,
      desc(totol)), y = total, fill = sex)) +
    theme_bw() +
    scale_fill_brewer() +
    labs(x = "name")
```

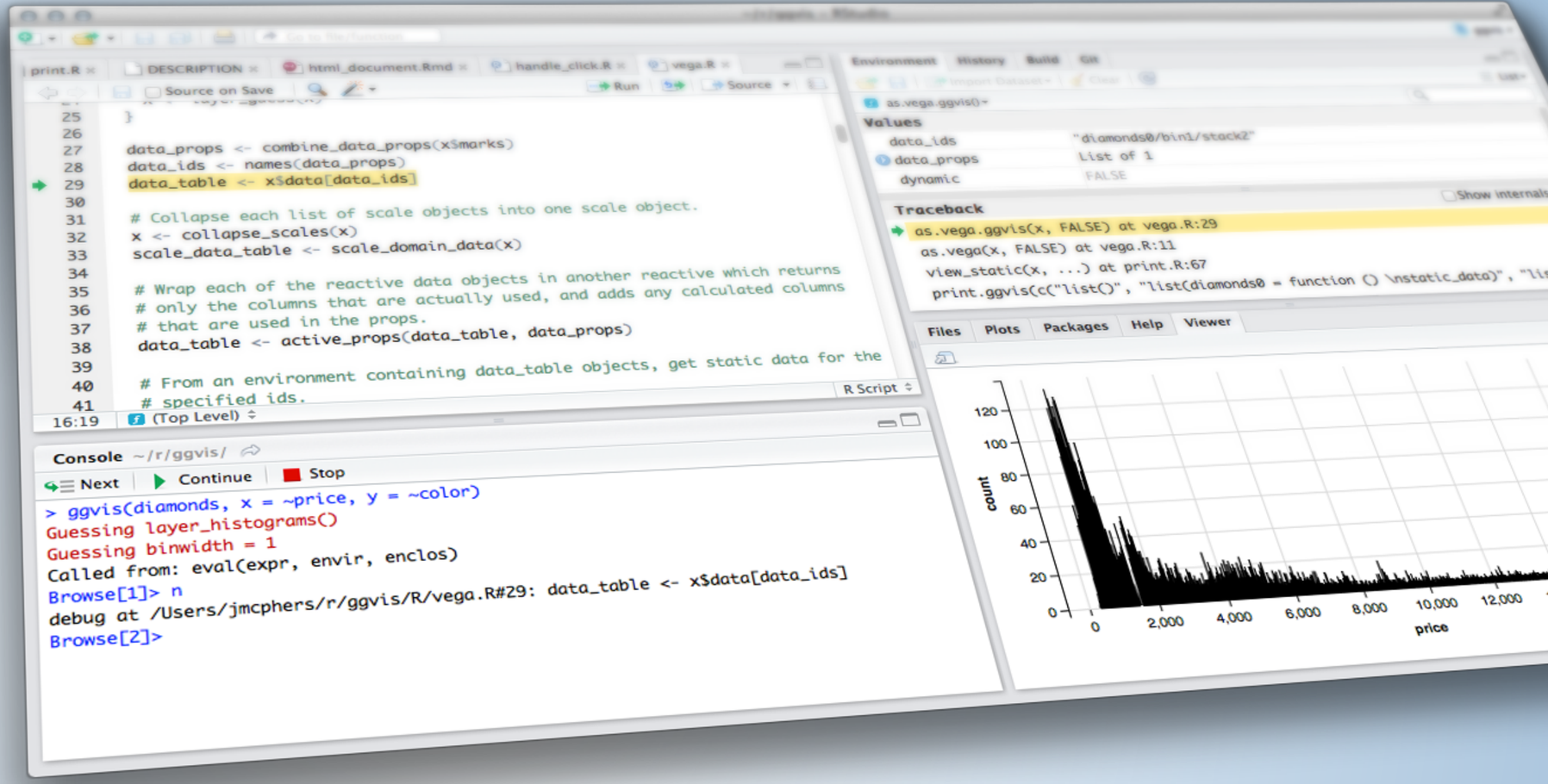
Rule #1

Slides are for visual information only!

(exception: information that **needs** to persist)

Volunteer?

Critique the following slide presentation.



WHAT IS SHINY?

Shiny from RStudio™

Shiny is an R package that makes it easy to build interactive web apps straight from R.

Shiny applications have two components, a user interface object and a server function. You create an app by defining these components and then passing them as arguments to the shinyApp() function.

When you run shinyApp(), R launches a web server that serves up a webpage, the one defined by the user interface object of your app. Parts of that webpage will be interactive. For example, they might contain drop down menus or sliders. A user can interact with these parts to change an input value used by the app. When this happens, R will immediately run code to update the output values displayed by the app.

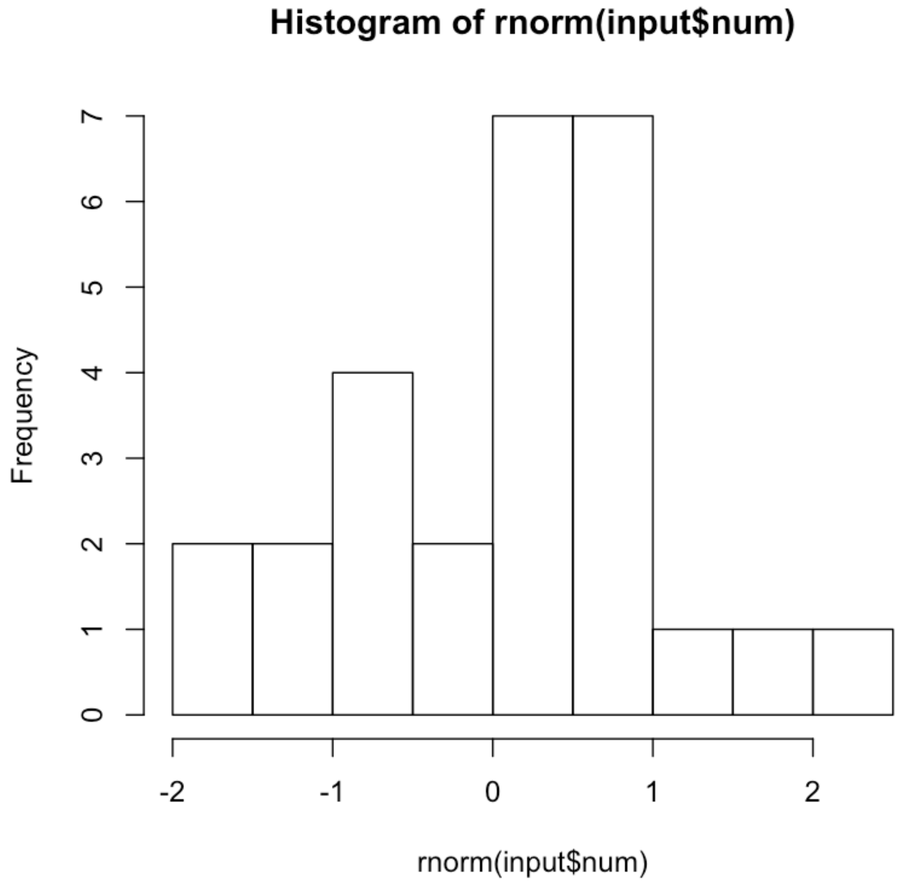
You can launch this webserver locally on your computer, or you can place the app online with a Shiny Server Pro or shinyapps.io.

Open in Browser | Publish

Choose a number

1 27 100

1 11 21 31 41 51 61 71 81 91 100

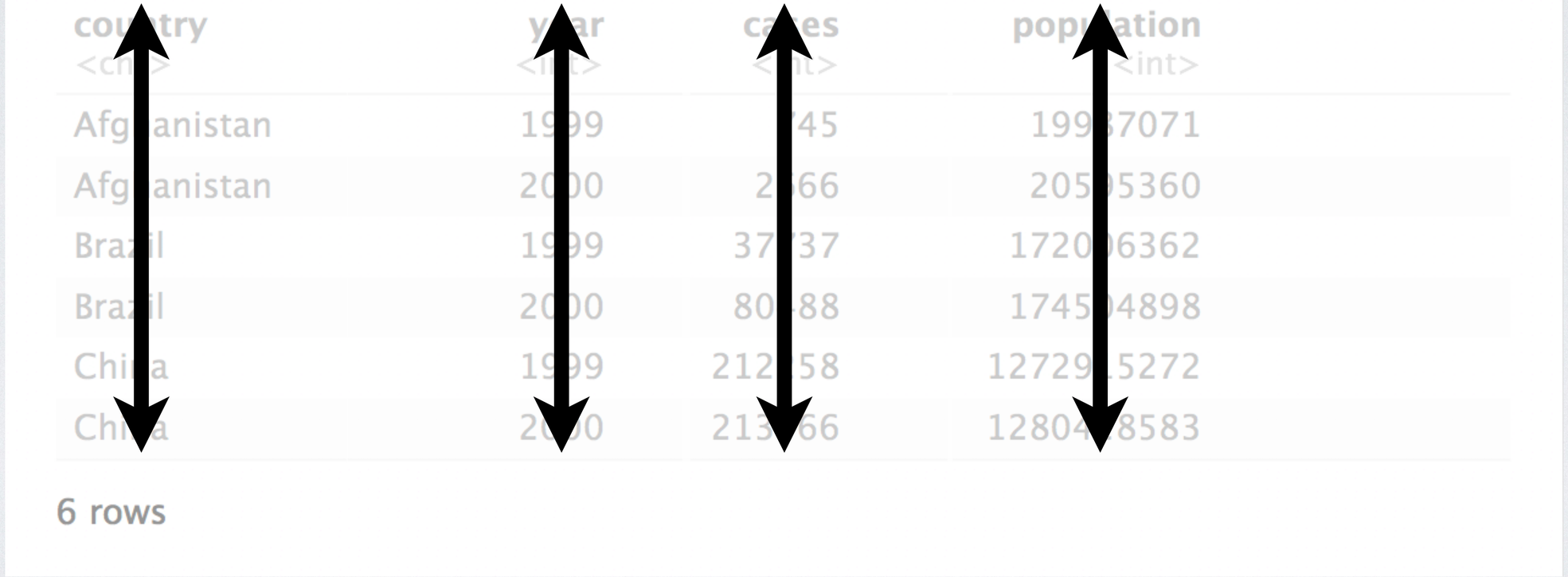


How about this one?

Quiz

What are the variables in this data set?

```
table1
```



country	year	cases	population
Afghanistan	1999	745	19987071
Afghanistan	2000	2666	20595360
Brazil	1999	37737	172006362
Brazil	2000	80488	174504898
China	1999	212258	1272915272
China	2000	213766	1280428583

6 rows

Quiz

What are the variables in this data set?

```
table2
```

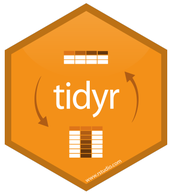
country	year	type	count
<chr>	<int>	<chr>	<int>
Afghanistan	1999	cases	745
Afghanistan	1999	population	19987071
Afghanistan	2000	cases	2666
Afghanistan	2000	population	20595360
Brazil	1999	cases	37737
Brazil	1999	population	172006362
Brazil	2000	cases	80488
Brazil	2000	population	174504898
China	1999	cases	212258
China	1999	population	1272915272

1–10 of 12 rows Previous 1 2 Next

```
table3
```

	country <chr>	year <int>	rate <chr>
1	Afghanistan	1999	745/19987071
2	Afghanistan	2000	2666/20595360
3	Brazil	1999	37737/172006362
4	Brazil	2000	80488/174504898
5	China	1999	212258/1272915272
6	China	2000	213766/1280428583

6 rows



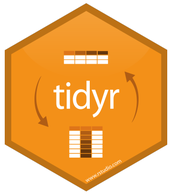
```
table4a
table4b
```

	country <chr>	1999 <int>	2000 <int>
1	Afghanistan	745	2666
2	Brazil	37737	80488
3	China	212258	213766

3 rows

	country <chr>	1999 <int>	2000 <int>
1	Afghanistan	19987071	20595360
2	Brazil	172006362	174504898
3	China	1272915272	1280428583

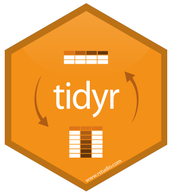
3 rows



```
table5
```

	country <chr>	century <chr>	year <chr>	rate <chr>
1	Afghanistan	19	99	745/19987071
2	Afghanistan	20	00	2666/20595360
3	Brazil	19	99	37737/172006362
4	Brazil	20	00	80488/174504898
5	China	19	99	212258/1272915272
6	China	20	00	213766/1280428583

6 rows



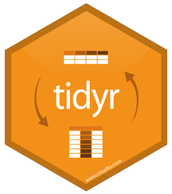
"Data comes in many formats, but R prefers just one: tidy data. "

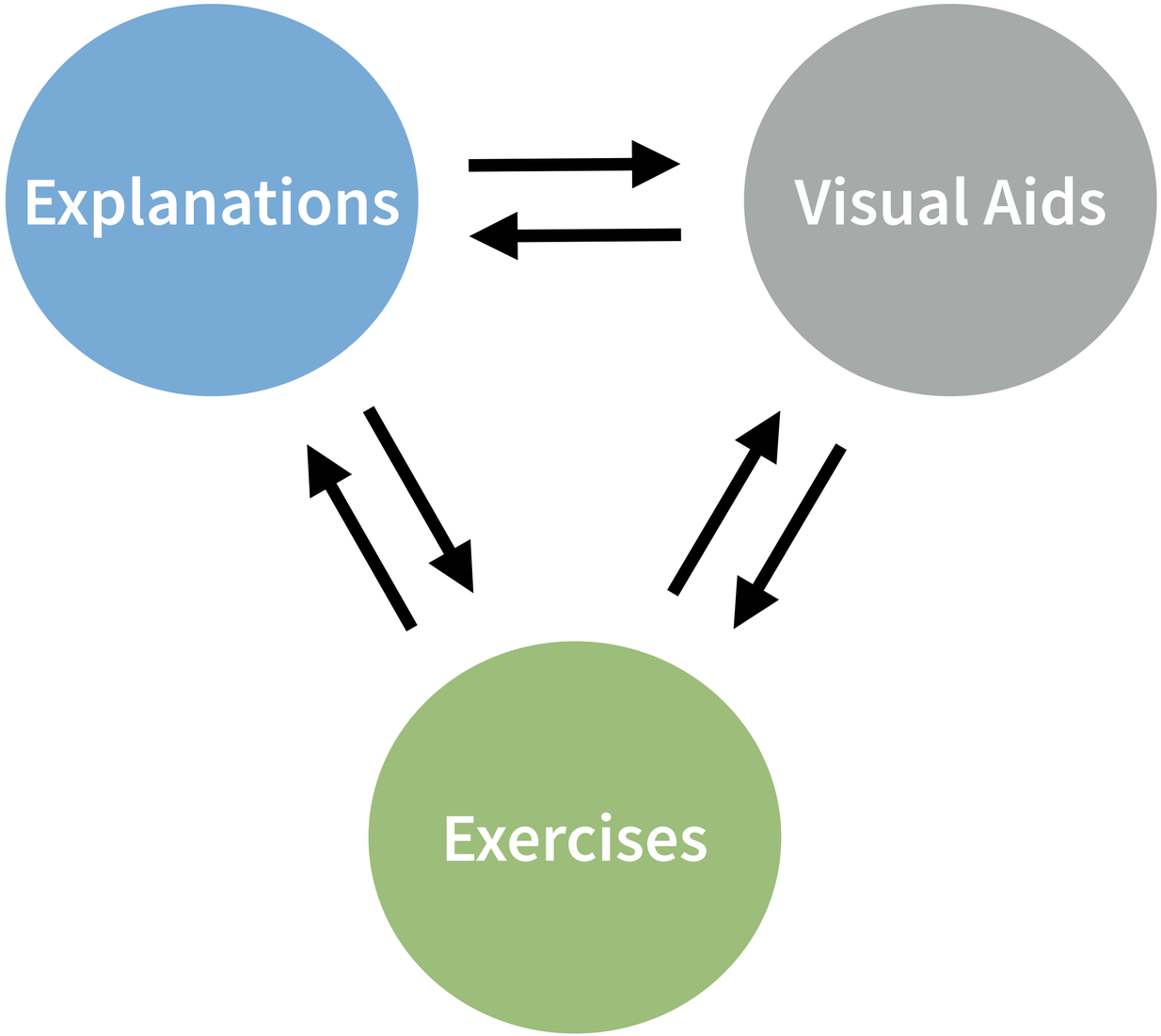
- Garrett Grolemund

Tidy data

A data set is **tidy** iff:

1. Each **variable** is in its own **column**
2. Each **case** is in its own **row**
3. Each **value** is in its own **cell**





Your Turn

Consult the slides you drew from the hat.

Decide how you would use them to briefly explain the topic (~2 minutes). Prepare to explain it.

Assess

Your Turn

Spend 20 minutes, integrating your outlines, exercises and ideas about visuals into a sample lesson. Place all of the materials in your RStudio Cloud project.

Make, sketch, or borrow slides (from Master the Tidyverse) as you go.

Your Turn

Step a partner through your lesson, asking for tips and feedback. Incorporate the feedback.

Your Turn

Return to your original three person team. Share your project with your teammates and step them through your final lesson.

Final Thoughts

$161 Billion was spent by US companies on training in 2016.

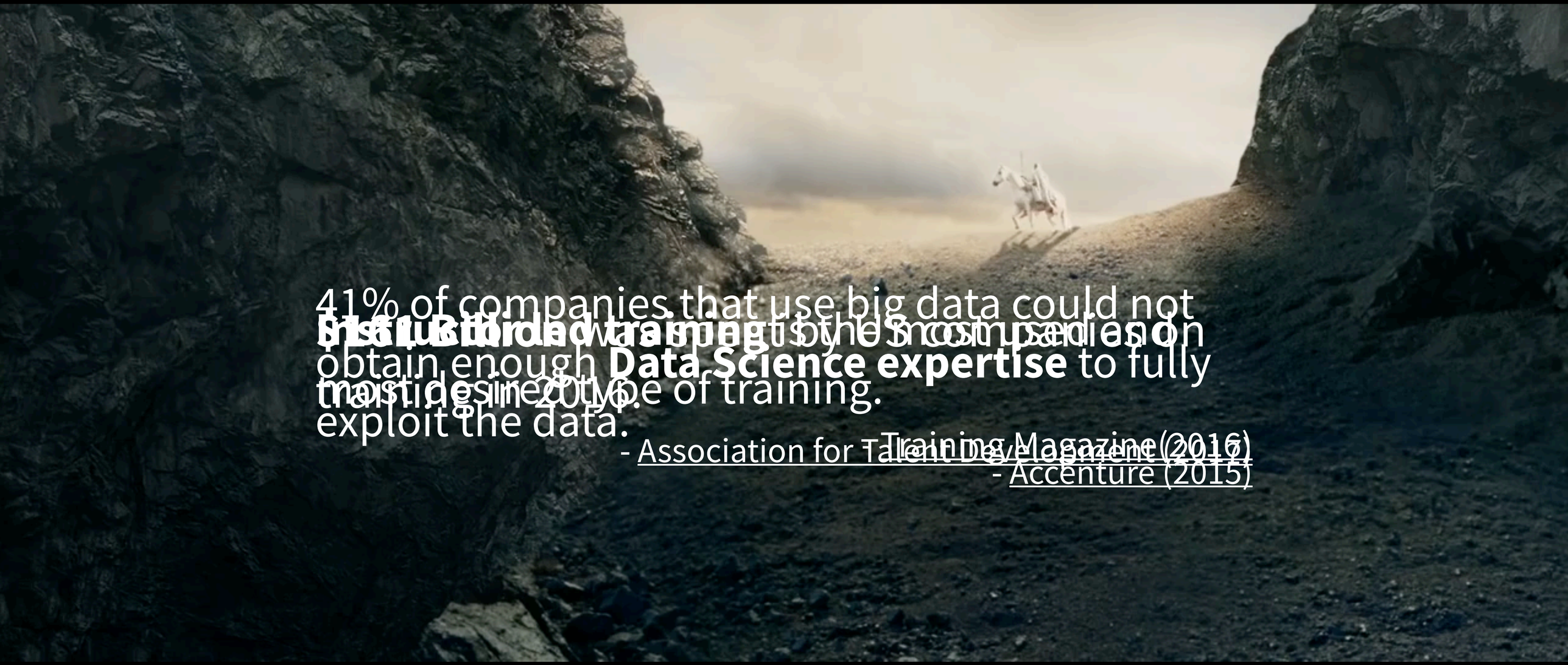
- Training Magazine(2016)

Instructor led training is the most used and most desired type of training.

- Association for Talent Development (2017)

41% of companies that use big data could not obtain enough **Data Science expertise** to fully exploit the data.

- Accenture (2015)



41% of companies that use big data could not obtain enough **Data Science expertise** to fully exploit the data.

- Association for Talent Development (2016)
- Accenture (2015)