Self-consciousness in the split-brain subject

Liz Schechter

"You think you're yourself,

but there are other persons in you."

—Barth, 1968, "Lost in the funhouse"

Today

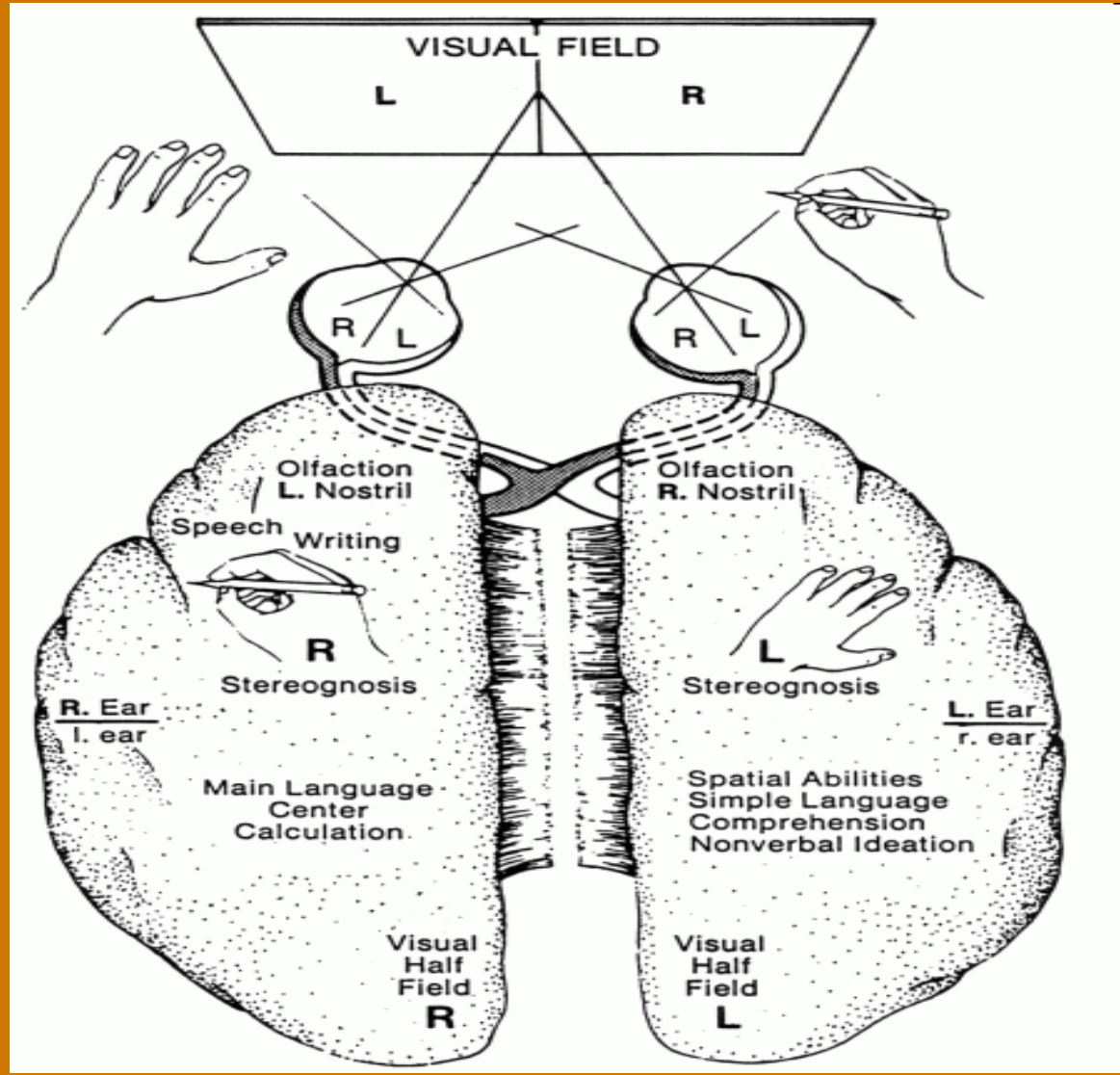
- Talk uses features of self-consciousness after split-brain surgery to argue that although a split-brain subject, S, is composed of two conscious and indeed in some sense self-conscious thinkers, R and L....

- ..... S is nonetheless *one of us,* in an interesting psychological sense.

Outline

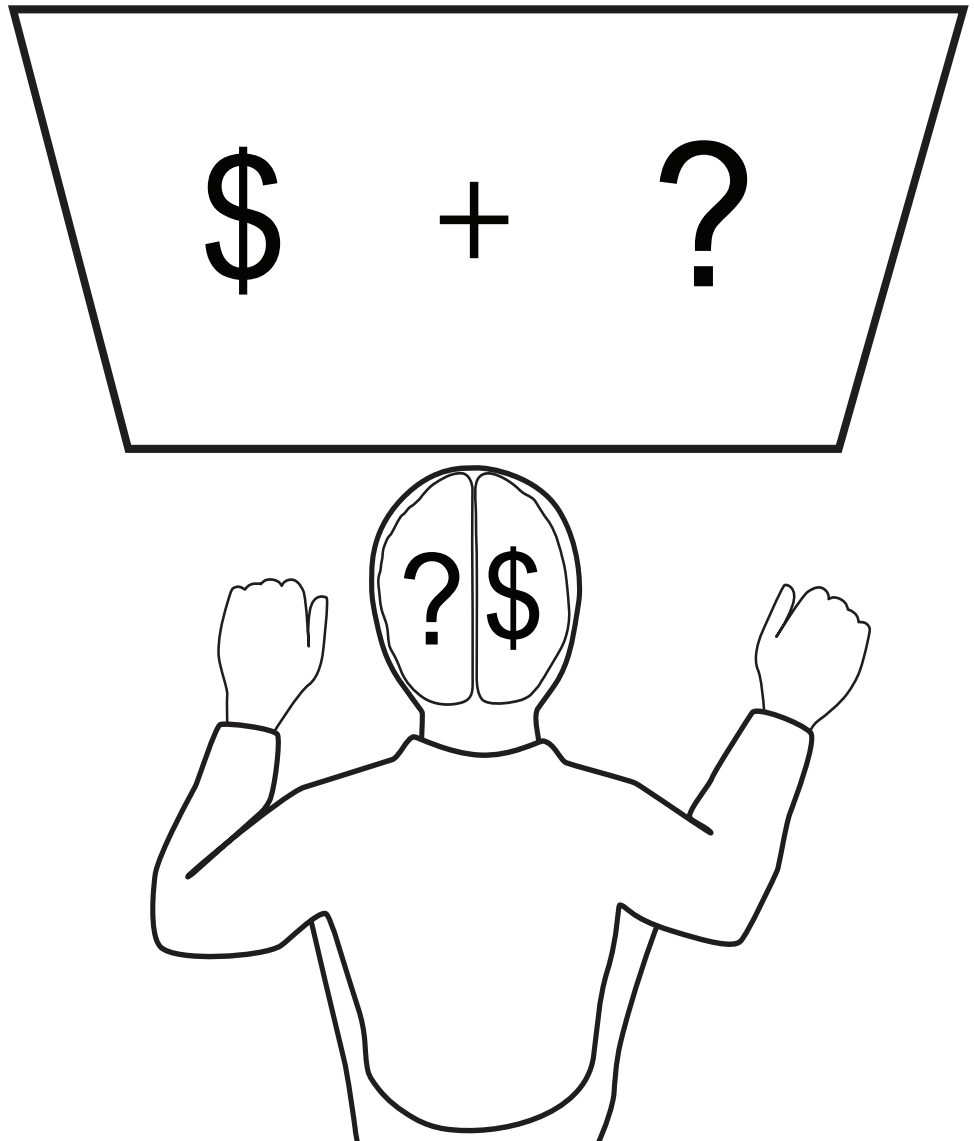
- The split-brain phenomenon
- The two intuitions
- The 2-I-thinkers claim
- Self-consciousness after split-brain surgery

1 The Split-brain Phenomenon and the Unity Puzzle



Sperry, R., Vogel, P., and Bogen, J. 1967.
Syndrome of hemisphere deconnection.

1.1 The split-brain phenomenon



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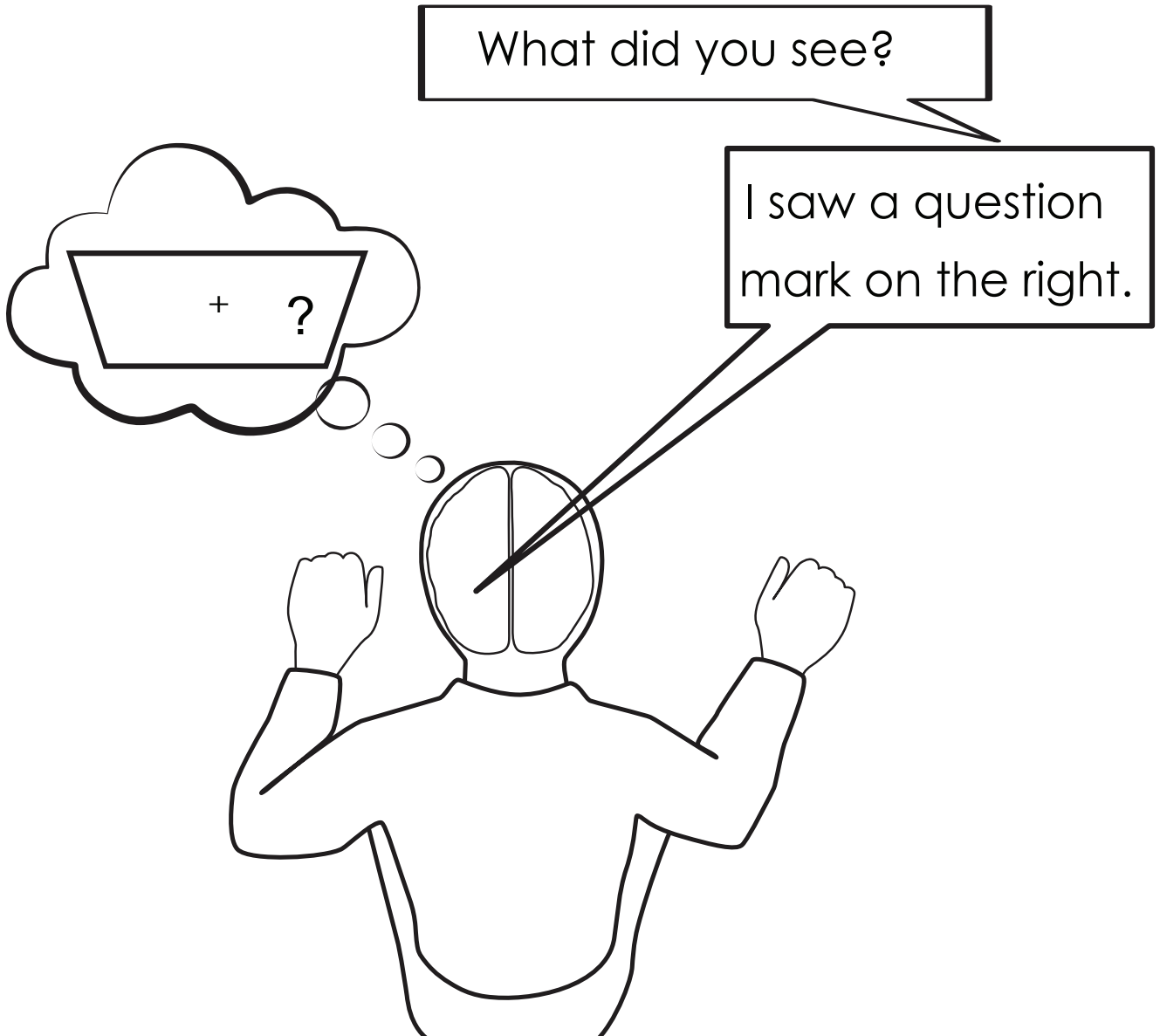

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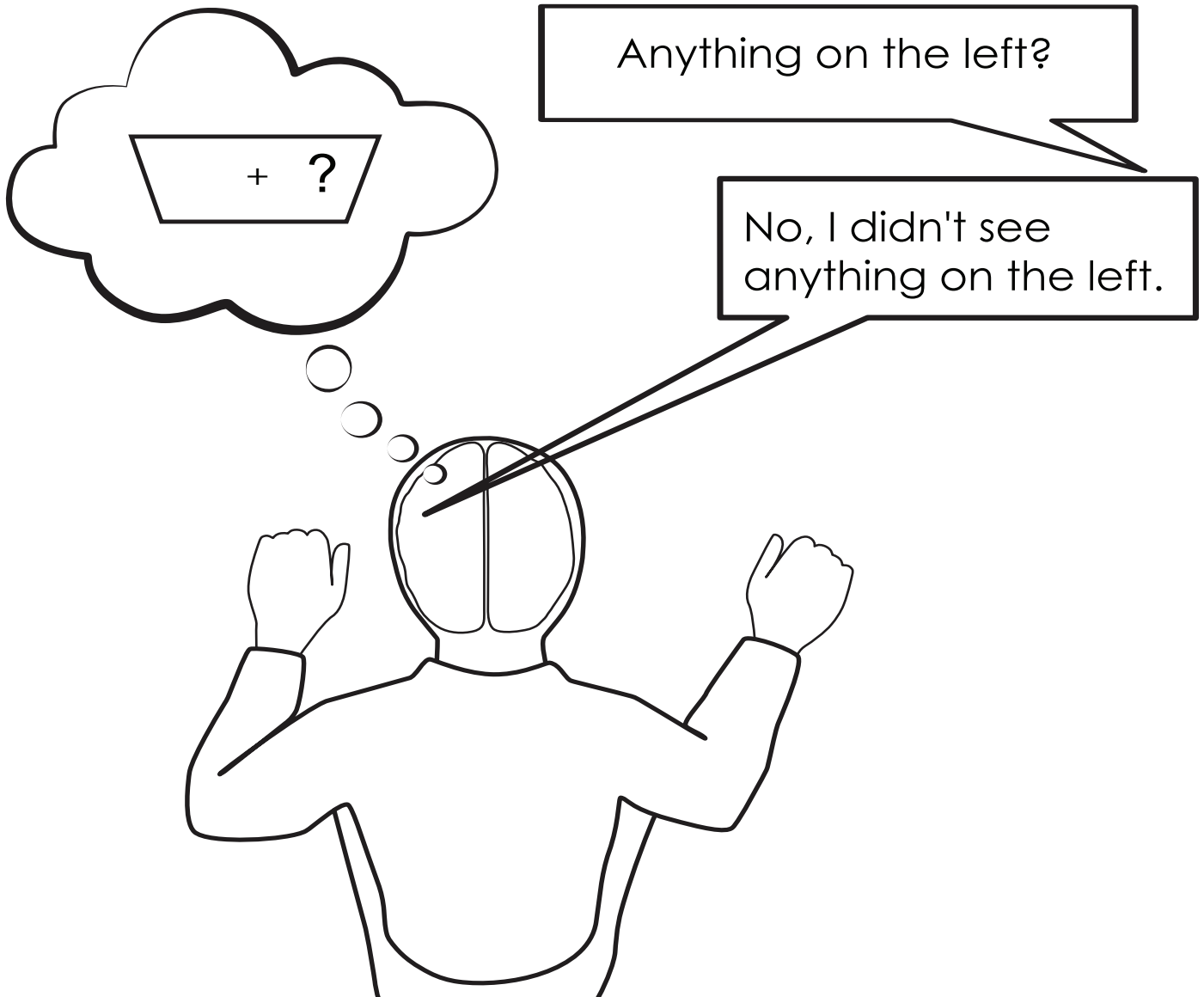

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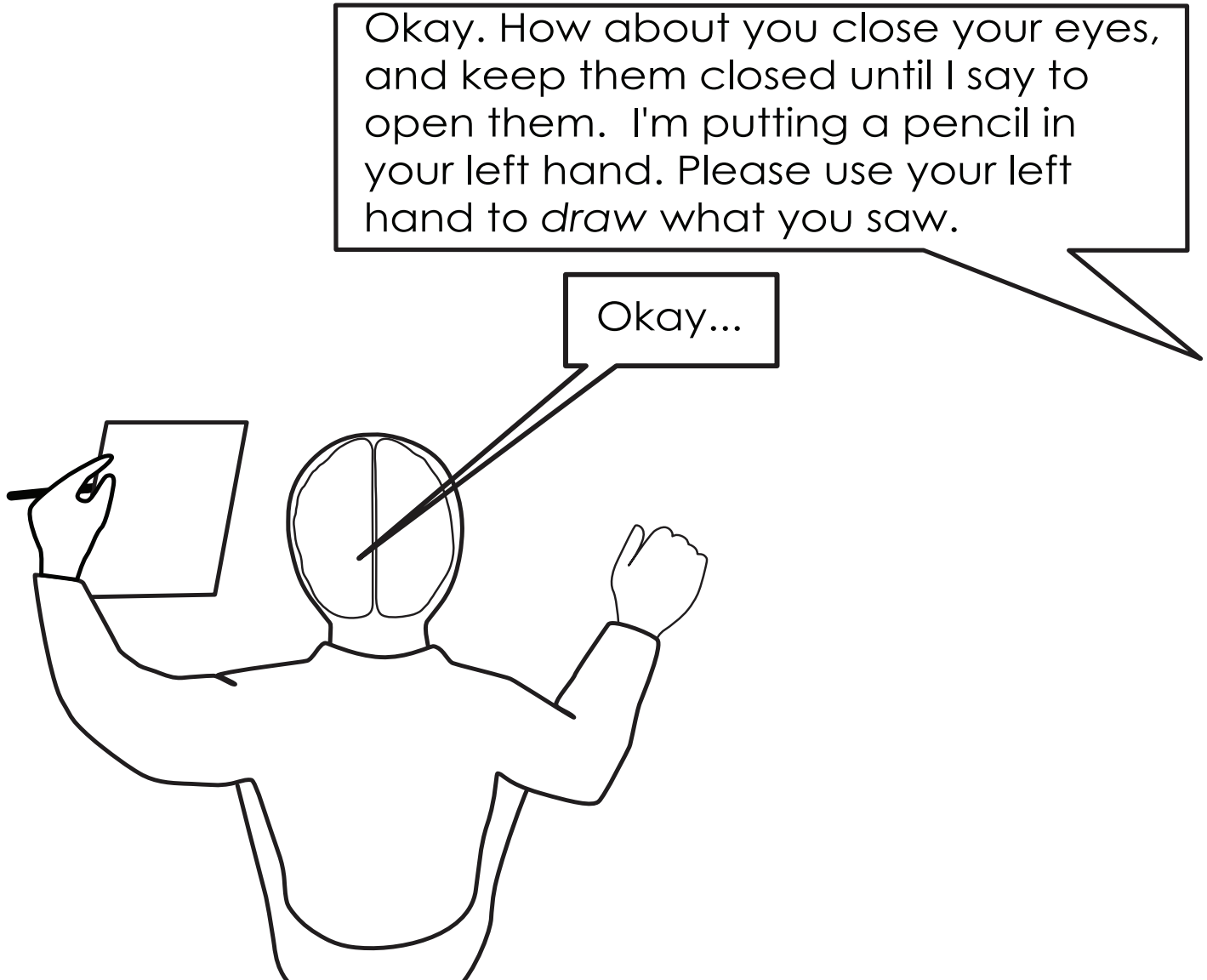

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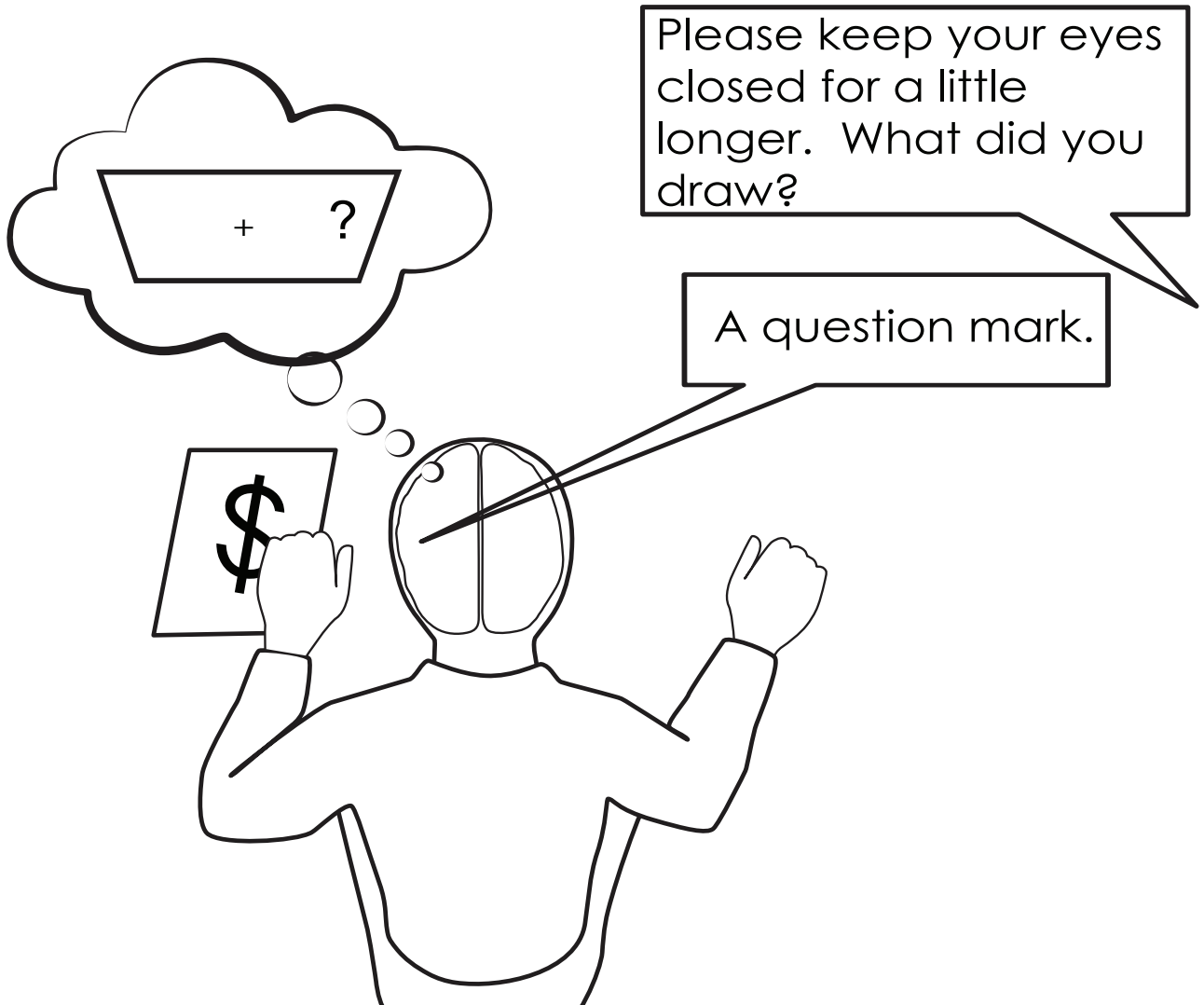

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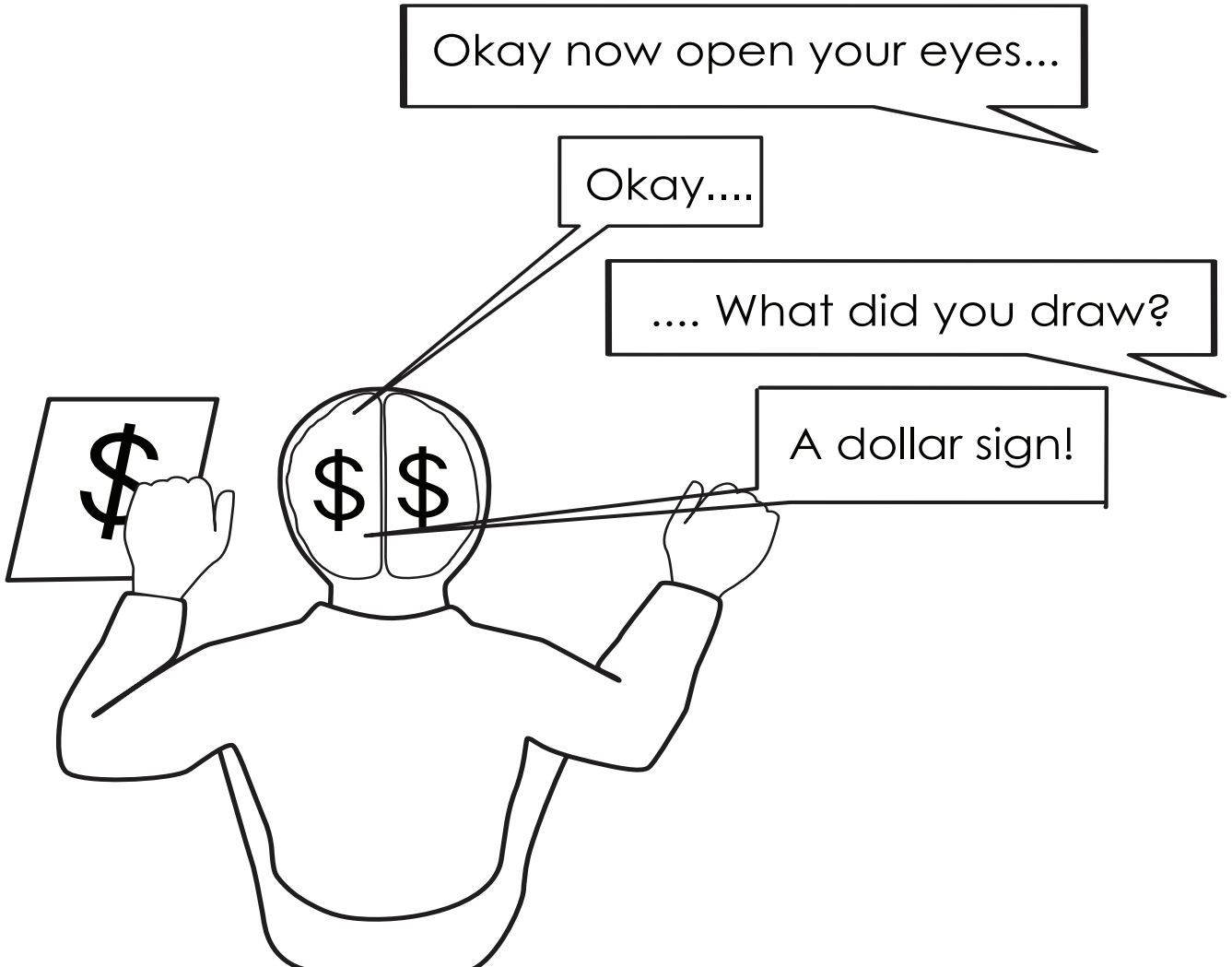

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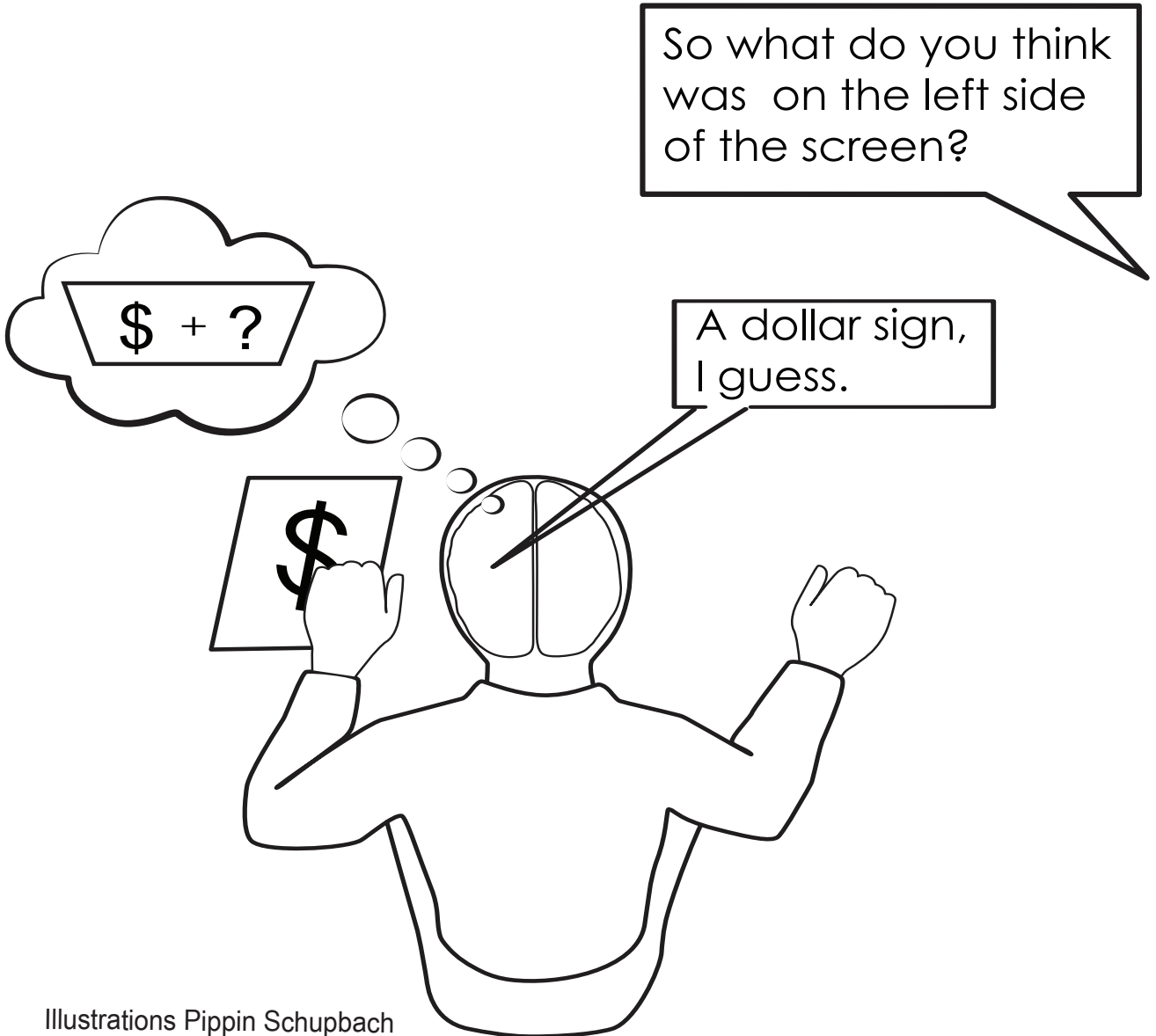


1.1 The split-brain phenomenon

- Under experimental conditions, split-brain subjects act in ways eerily suggestive of two conscious minds in one body.
- But a split-brain subject nonetheless seems like *one of us*—**not** like *two persons* trapped in one body.
- But each of us is just *one* conscious thinker, right?
- So how many of *us* is a split-brain subject?

1.2 The unity puzzle

1. A split-brain subject has two conscious minds.

   the duality intuition

2. A split-brain subject is one person.

   the unity intuition

3. Each person necessarily has just a single conscious mind.

   the one-mind-per-person rule

1.2 The unity puzzle

What are we picking up on, when a split-brain subject strikes us as *one person?*

1.2 The unity puzzle: The unity intuition

- Usually people say that, *outside* of experimental conditions, a split-brain subject behaves in a unified, ordinary fashion.

- But very little systematic study of split-brain subjects' day-to-day behavior was ever done.

1.2 The unity puzzle: The unity intuition

- Split-brain subjects' behavior outside of experimental conditions was studied just *once*... and found to be regularly *disunified*:

The literature has emphasized the paucity of behavioral findings after CCS [corpus callosum section]. Evidence of cerebral hemisphere competition and language problems, particularly mutism, were said to be transient, leaving the patient indistinguishable from his preoperative self…. We found in [all six of] our cases that impairments in higher cerebral functions were evident outside the laboratory and caused considerable intrusion in the patient's everyday life.

—Ferguson, Rayport, and Corrie, 1985, "Neuropsychiatric observations on behavioral consequences of corpus callosum section...", p. 503

1.2 The unity puzzle: The unity intuition

- The claim that split-brain subjects generally behave in a unified, ordinary fashion, has been overstated.

1.2 The unity puzzle: The unity intuition

- But the subjects do seem *socially ordinary*:
  - that is, in *conversing* with a split-brain subject...
    1. you don't in any way have the sense that you are conversing with two psychological beings
    2. you don't have the sense that you're conversing with one of only two psychological beings present

1.2 The unity puzzle: The unity intuition

- A split-brain subject seems like *one person*—**not** like *two persons* trapped in one body.

- Explain the basis of this *unity intuition*.

2 The Case for Two I-Thinkers, R and L

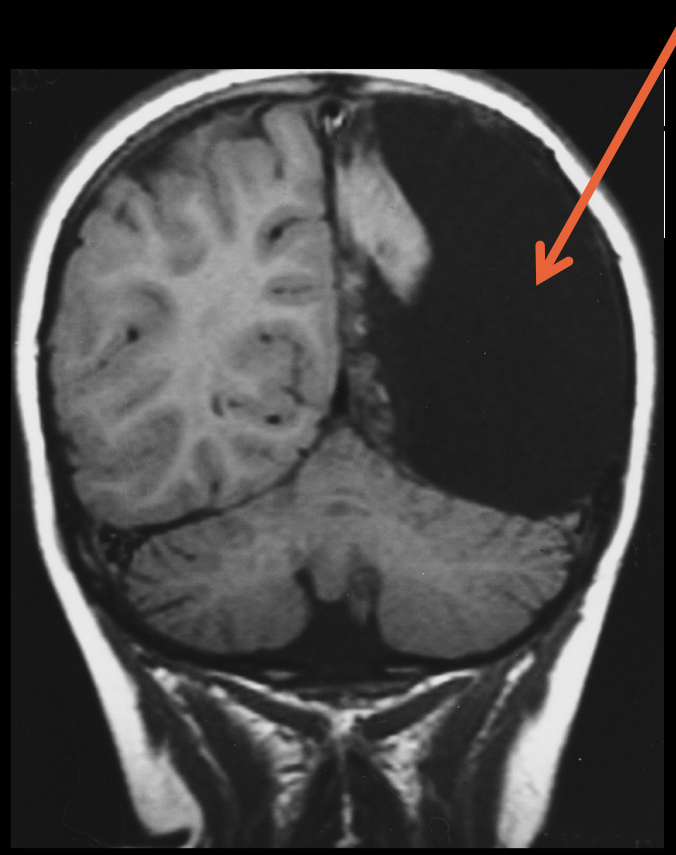
1. First, are both hemisphere systems truly *thinkers?*
   - Why not just think that the RH and LH are merely *associated* with distinct conscious experiences and thoughts?
   - After all, can a *mere hemisphere* really *think?*

2. If so, are both hemisphere systems truly the thinkers of *I-thoughts?*

2.1 Candidate thinkers in the split-brain case

1. The split-brain subject as a whole: *S*
2. The RH and the LH
3. *R* and *L*

2.1 Candidate thinkers in the split-brain case



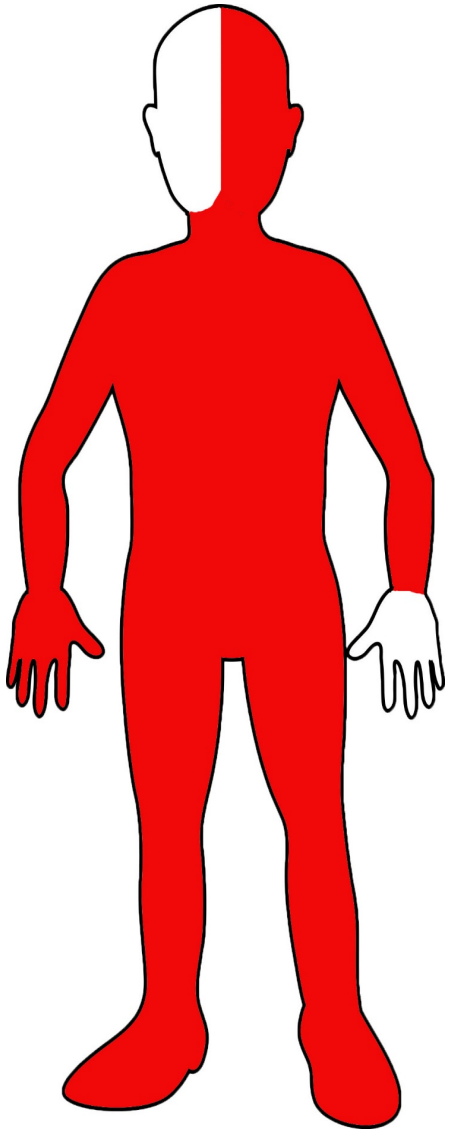
Borgstein and Grootendorst, 2002. "Half a brain." The Lancet 359. www.today.com. "To fight seizures, girl loses half a brain." March 25, 2010.

2.1 Candidate thinkers in the split-brain case

- Hemispherectomy shows that an entire human being minus a single hemisphere is still a thinker.

- It thus picks out two strong candidate thinkers in the split-brain case.

2.1 Candidate thinkers in the split-brain case



A split-brain subject
- his right hemisphere

Lefty (or *L*)

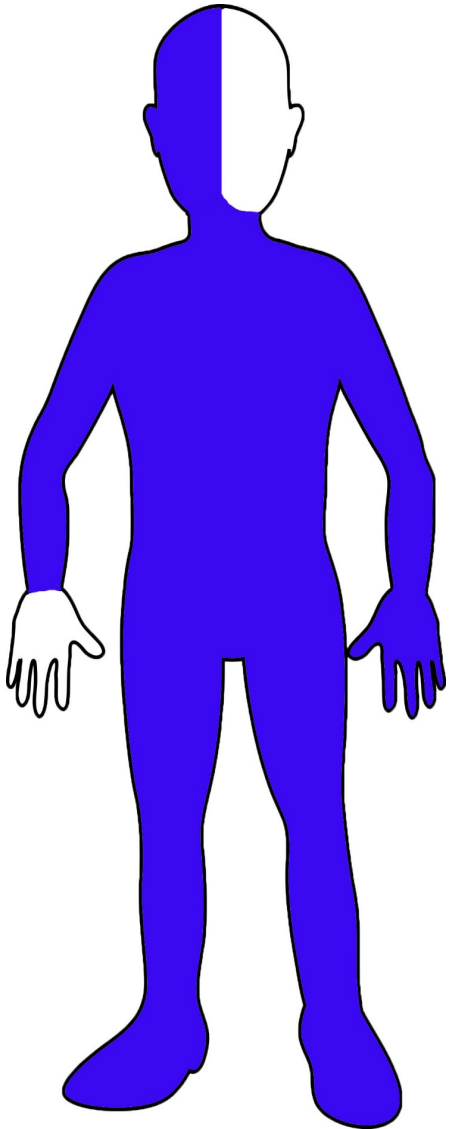
L is *intrinsically equivalent* to a human being who has undergone right hemispherectomy.

2.1 Candidate thinkers in the split-brain case

A split-brain subject

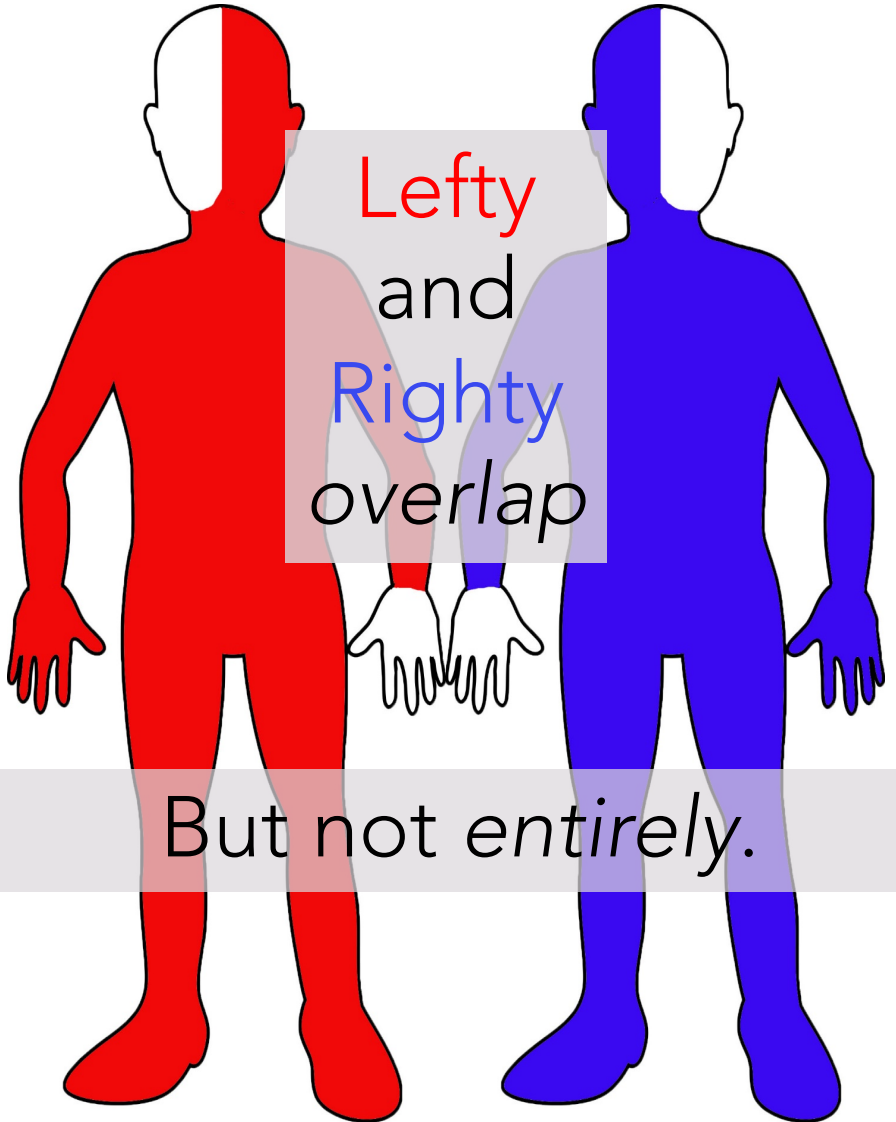
- his left hemisphere

Righty (or *R*)



R is *intrinsically equivalent* to a human being who has undergone left hemispherectomy.

2.1 Candidate thinkers in the split-brain case



But not *entirely*.

2.1 Candidate thinkers in the split-brain case

- Hemispherectomy means that our question isn't whether things with R's and L's intrinsic properties can be thinkers.
- Thanks to hemispherectomy, we already know that they can.
- Our question is whether, when R and L are both present and functioning in *one body,* they are inevitanbly parts of *one* thinker.

2.2 The 2-thinkers claim

- Hemispherectomy doesn't show that the 2-thinkers claim is true.
- After all, you and I also each contain an **R** and an **L**!
- But you and I also each contain a corpus callosum, which subserves interaction between R's cerebral hemisphere and L's.
- When both hemispheres are present and functioning, do they *inevitably* interact so as to realize a single mind?
- Or only when the corpus callosum is *also* present?

2.2 The 2-thinkers claim

- Shoemaker's account of the *thinking* relation (1984, 2004, 2008):

1. A thinker is a specific kind of *causal system*....
2. .... the kind which specific kinds of activities take place: judgment-making, goal-forming, perceiving, attending, etc.
3. Each of these kinds of activity is itself causally defined.....
4. ..... largely in terms of the way it interacts with other psychological activities.

2.2 The 2-thinkers claim

- It is in the *nature* of mental activities to interact with other mental activities in particular ways...
  - e.g., it is the nature of perceiving to give rise to desires, and the nature of desires to be caused by percepts and *not* to cause them
  - e.g., beliefs and desires are the mental states that interact to form intentions to perform actions sufficient to satisfy the desires were those beliefs true
    - e.g., believing that it is raining interacts with desiring not to get wet to produce the intention to bring an umbrella

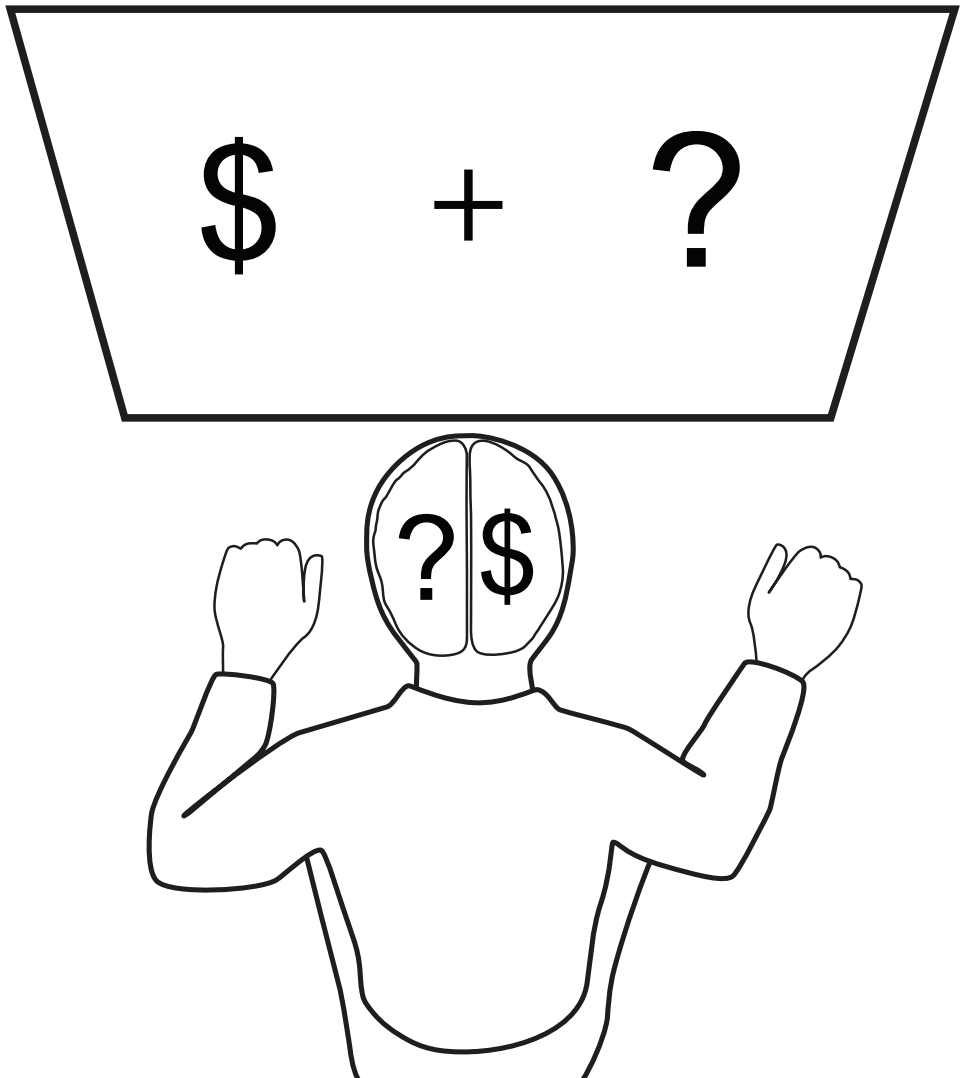
2.2 The 2-thinkers claim

- It is in the *nature* of mental activities to interact with other mental activities in particular ways...
- … **but only other mental activities *of the same thinker.***
  (Shoemaker, 1984, *Personal Identity: A Materialist's Account*)
  - E.g. *my* wanting to stay dry interacts with *my* believing it's raining to dispose *me* to take an umbrella.
  - If *only you* believe that it's raining and *only I* want to stay dry, *no one* will be disposed to take an umbrella.

2.2 The 2-thinkers claim

- It is in the *nature* of mental activities to interact with other mental activities *of the same thinker* in particular ways:
  - R's mental activities interact with R's in those ways.
  - L's mental activities interact with L's in those ways.
  - But R's mental activities do not (for the most part) interact with L's in those ways.
- This makes R and L distinct thinkers.

2.2 The 2-thinkers claim



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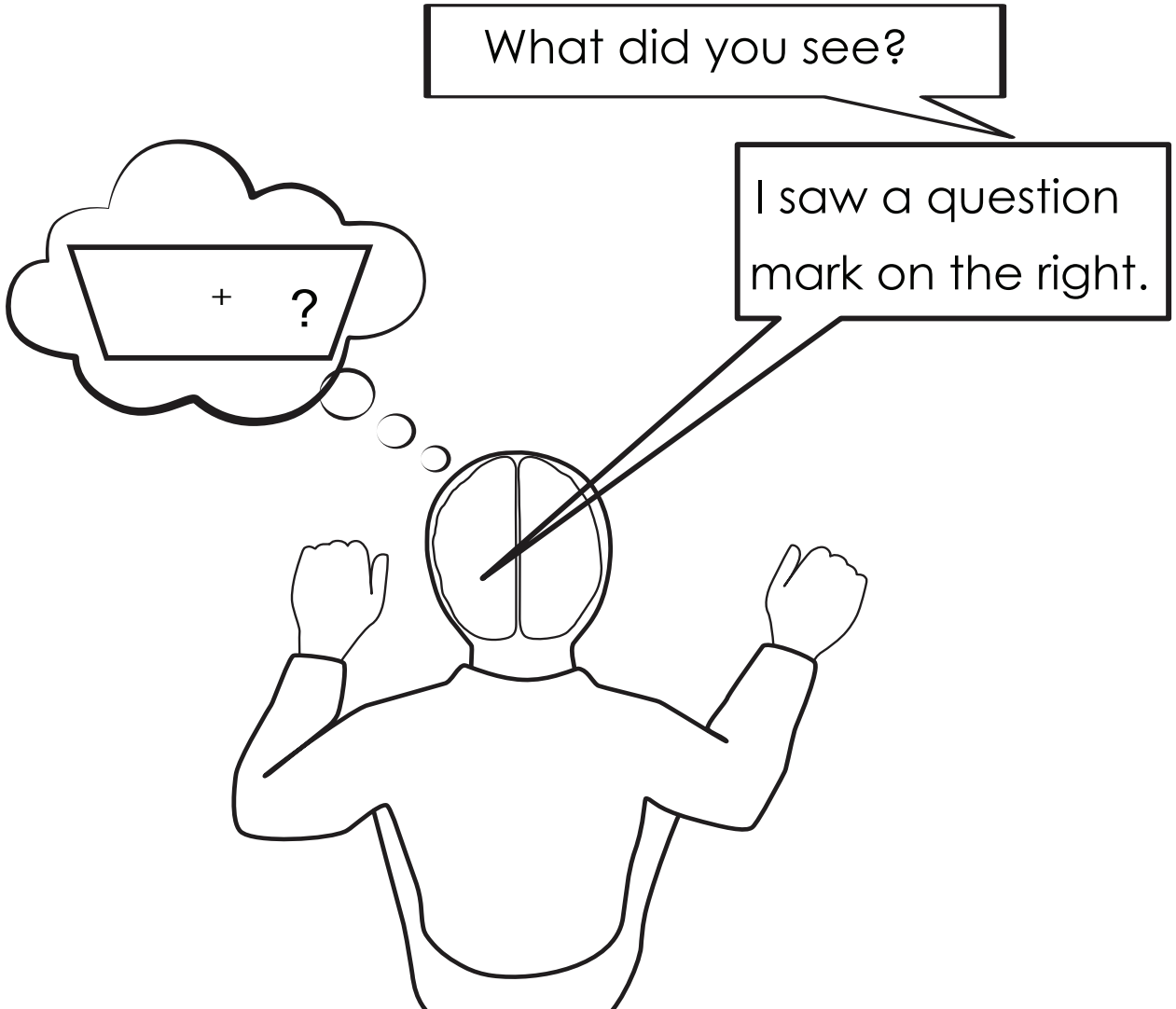

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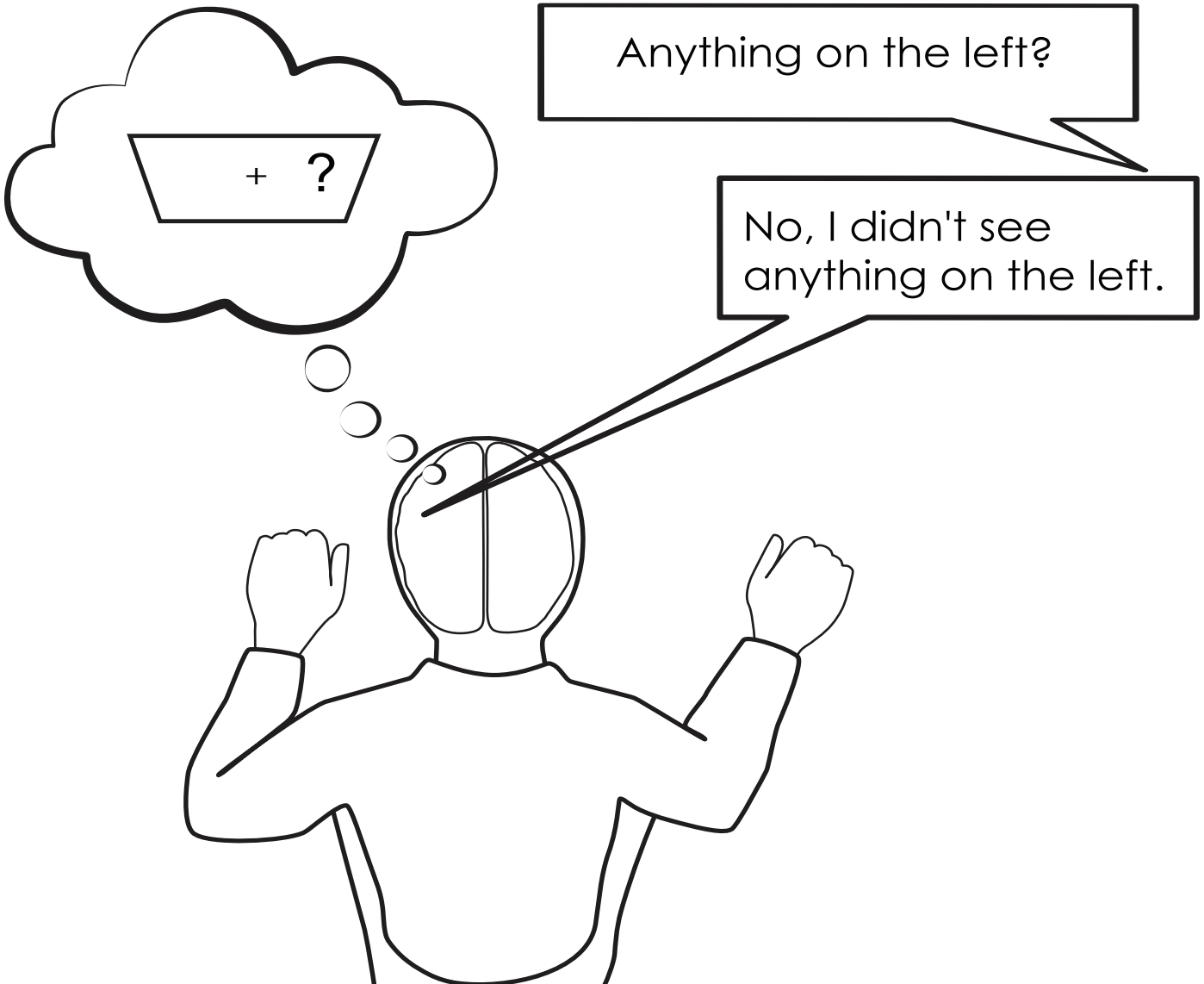

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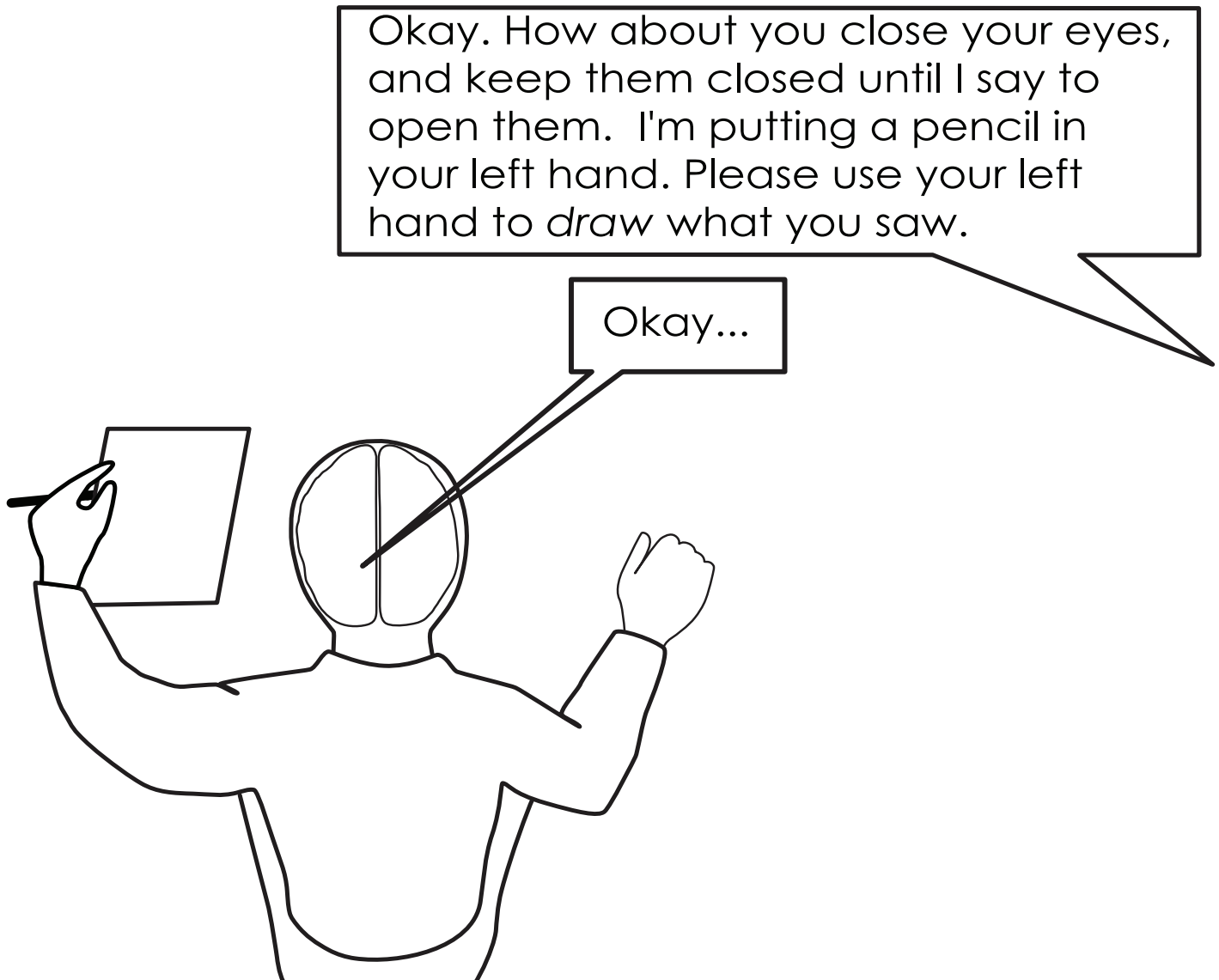

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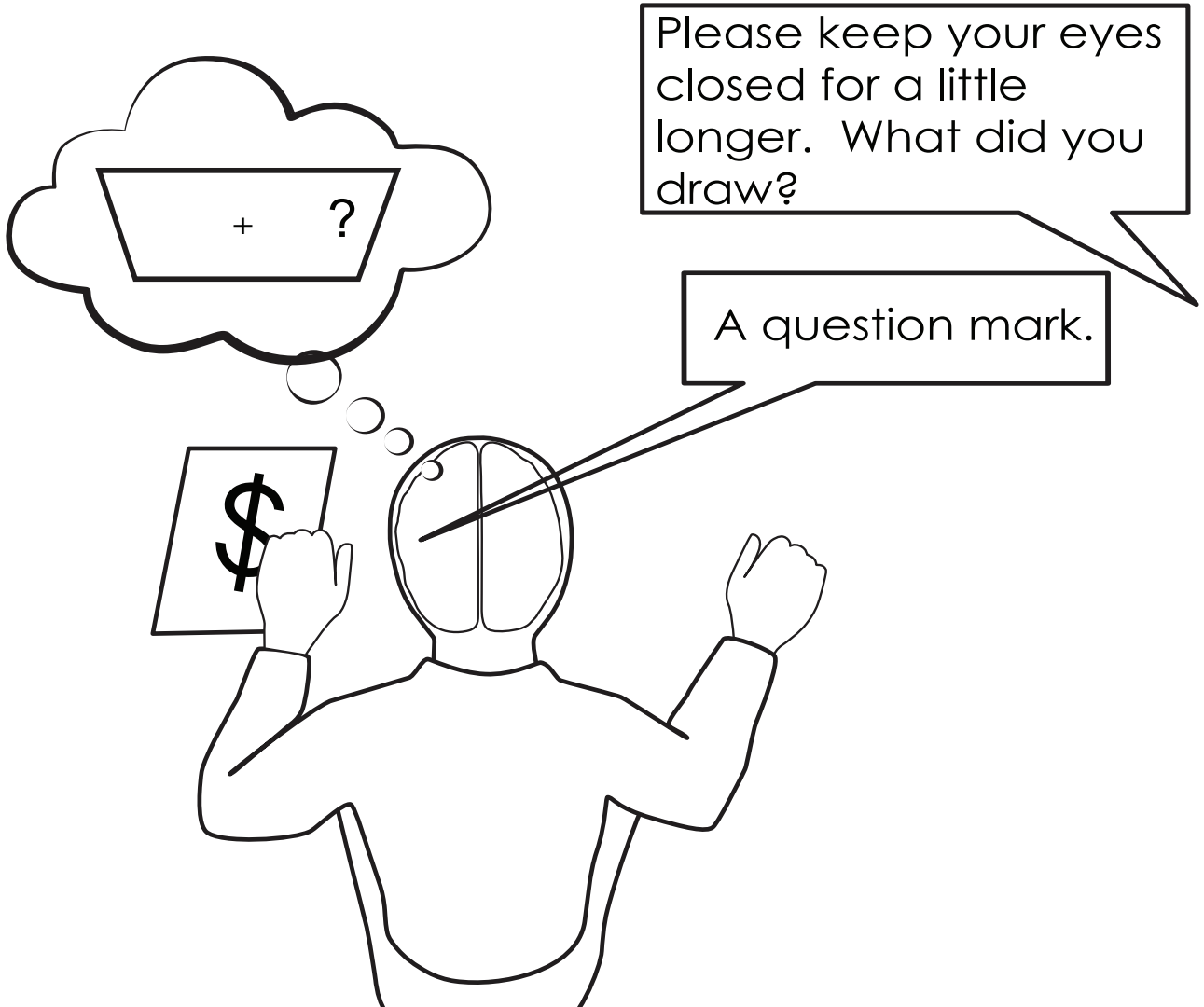

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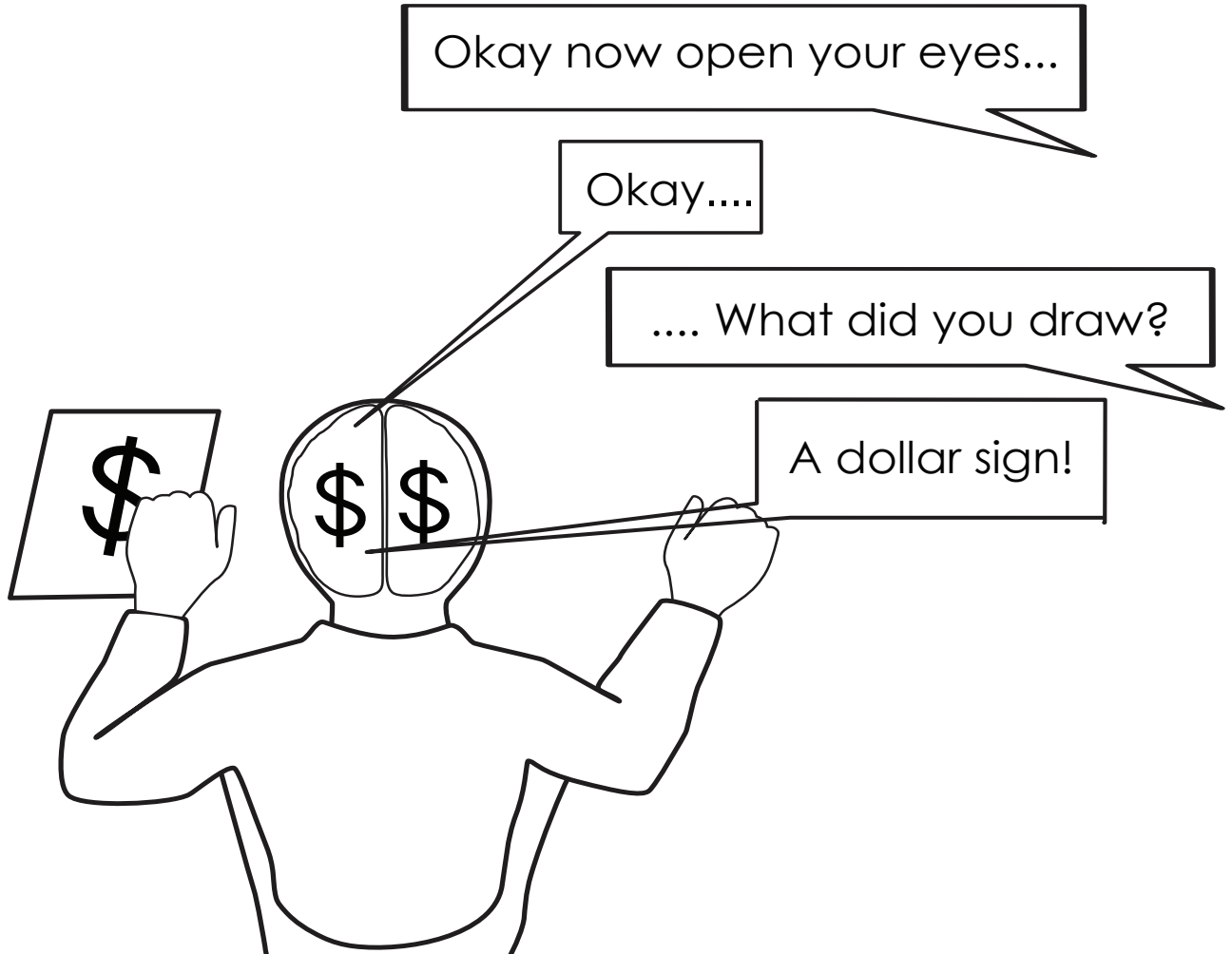

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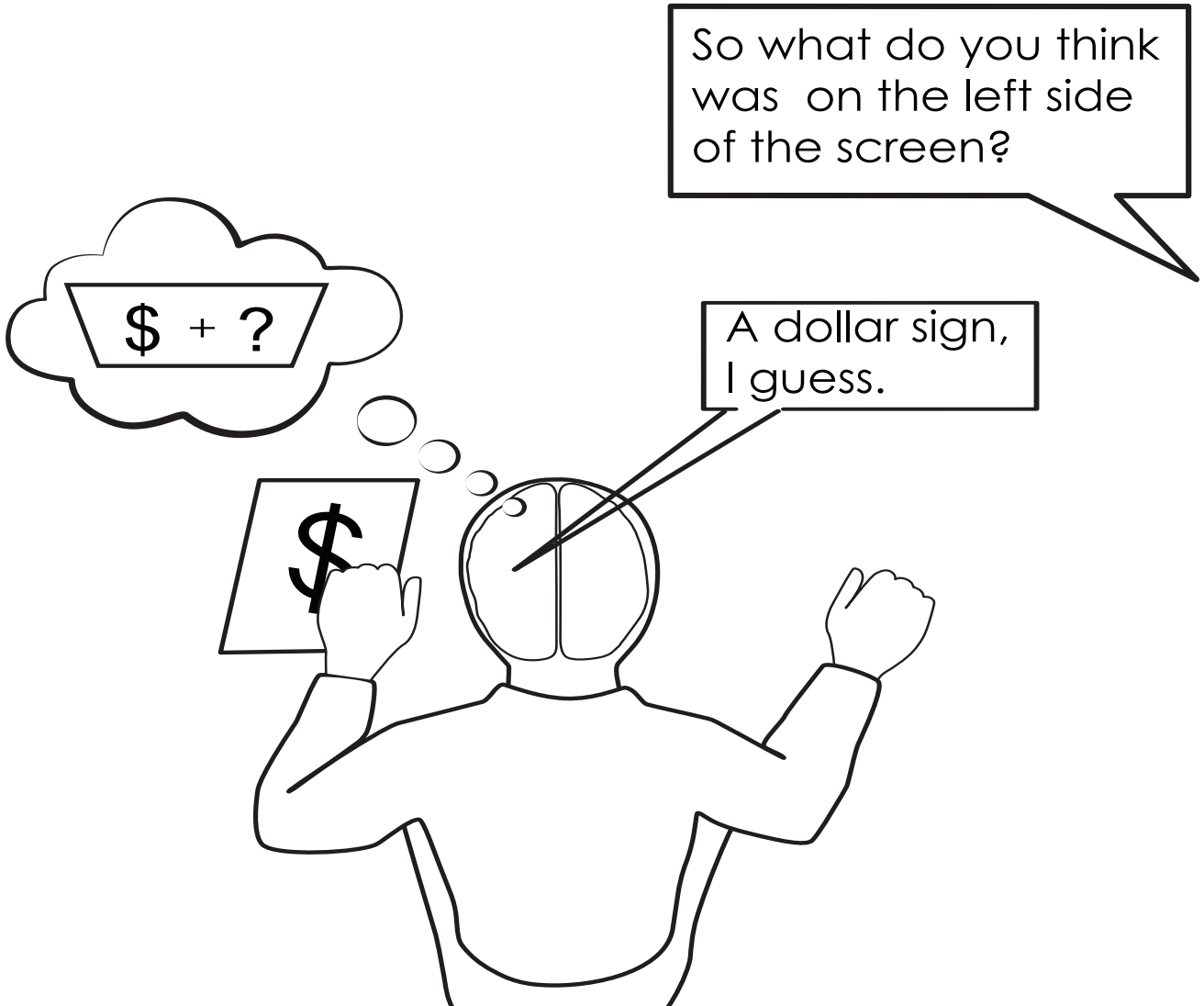

2.2 The 2-thinkers claim

- That is, the initial (RH) *percept* of the $ behaves like a percept only *relative to* other states of the RH.

- And so on for other RH and LH mental states.

- *This* is why it's so difficult even to *describe* a lot of the split-brain data without referring to what the RH saw, what the LH said, etc.
  - Explaining Bogen's observation.

2.2 The 2-thinkers claim

- Can't simply say, "*S* saw the dollar sign on the left", given S's verbal denial of having seen anything together with a generalization about the causal role of seeing.

- Of course there's a fuller description: "Well, he saw it with or in his RH, whereas with his LH, he denied having seen anything."

- This statement implicitly acknowledges that it's within the boundaries of each hemisphere system that psychological activities are operating.

2.2 The 2-thinkers claim

1. Activities of perceiving, judgement-forming, remembering, and so on, operate within the boundaries of each hemisphere system more so than within those of the human being as a whole.

2. RH psychic activities still *interact with* LH psychic activities.... But mostly only via the mediation of action and perception.

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2.2 The 2-thinkers claim

1. First, are both hemisphere systems truly *thinkers?*
   - Yes!

2. If so, are both hemisphere systems truly the thinkers of *I-thoughts?*

2.2 The 2-I-thinkers claim

- Schiffer et al. 1998, "Different psychological status in the two hemispheres..."

2.2 The 2-I-thinkers claim

1. First, are both hemisphere systems truly *thinkers?*
   - Yes!

2. If so, are both hemisphere systems truly the thinkers of *I-thoughts?*
   - Yes!

3 Self-consciousness after split-brain surgery

3.1 Lack of mutual recognition

- It appears to be the case that:

1. Neither R nor L recognizes the other's existence.
   - e.g. MacKay and MacKay, 1982, "Explicit dialogue between left and right half-systems..."

- **First claim:** *lack of mutual recognition*. Neither R nor L recognizes the existence of a second thinker sharing its body.

3.1 Lack of mutual recognition

"... when one of the patients first told me about... [intermanual conflict] I just could not tell anybody else because I did not think they would believe it. He and his wife came to the office and I said, 'How are things?' He said, 'All right except I'm having a little bit of trouble with my left hand.' I said, 'How's that?' He said, 'Well, I picked up the paper to read it and my left hand took the paper away and set it down. So I picked it up again and my left hand came up and set it down again. So I picked it up and this time the left hand came up and picked up the paper and threw it on the floor.' I never reported that because it was just too exotic."
(Bogen, 2003, "Joseph E. Bogen": 94)

3.2 Co-identification

- *Instead* of recognizing that they share one body....

2. R and L both *identify as* S.

- **Second claim:** *co-identification*. R and L both assume that S is one thinker, and each takes itself to be that thinker.

3.2 Co-identification

- True: L clearly identifies more strongly with *L's* actions than with R's.

  (Less evidence concerning R, but presumably this is mutual.)

E.g. it is not uncommon for Lefty to say, of R's responses, "I didn't mean to do that" or "I don't know why I did that" or "I must've done it unconsciously."

But note that Lefty still inevitably says *I* didn't mean to do that—not "He did that" (or even—with only one exception that I know of—"I didn't do that").

3.2 Co-identification

- True: L clearly identifies more strongly with *L's* actions than with R's.

  (Less evidence concerning R, but presumably this too is mutual.)

- Still: R and L at least *weakly* identify even with each other.

But of course they don't know about each other. They weakly identify with each other only indirectly, by each self-identifying as S.

3.2 Co-identification

- Instead of recognizing that they share one body....

2. R and L both *identify with* (as) S.

Second claim: *co-identification.* R and L both assume that S is one thinker and each takes itself to be that thinker.

3.3 Incapacity for self-distinction

- What explains lack of recognition and co-identification is:

3. R and L cannot distinguish themselves from each other.

Even if R and L intellectually knew that they were two.... Neither would be able to tell on a moment-to-moment basis who had done what.... Not on ordinary first-personal grounds.

3.3 Incapacity for self-distinction

- When prompted to explain his own behavior, L.B. used to sometimes say things like:

- *"I cannot name objects in the left visual field because the information is conveyed to my right hemisphere which has no language centers and, because of surgery, that information cannot reach my left hemisphere."* (Levy and Trevarthen, 1976, p. "Metacontrol of hemispheric function," p. 301)

- But: *"One has a very strong impression that his intellectual understanding is completely separate from his ordinary self-consciousness."* (ibid.)

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3.3 Incapacity for self-distinction

Note: Strictly speaking no one distinguishes herself from others on *wholly* first-personal grounds:

- we can't introspect their mental states;
- our "personal" perceptual modalities aren't sources of information about their bodies.

Rather, **in the normal case**, the "impersonal" perceptual modalities provide you information about agents about whom your introspection and your personal perceptual modalities provide no information.

3.3 Incapacity for self-distinction

- But **in the split-brain case**, R and L each have "first-personal" knowledge of and privileged control over not *only* its own but *also* the other's body.

The unity intuition

- Here's an explanation for the oft-cited "*social normalcy*" of split-brain subjects.
- E.g. when R does something and you ask, "Why did you do that?", L never says, "Who knows why that guy does anything?" or "*I* didn't do anything—why don't you ask *him?*"
- Even at their most "disunified", R and L still act as though S were a single *social subject*.
- And if I am right, they have no other option.

Thanks.