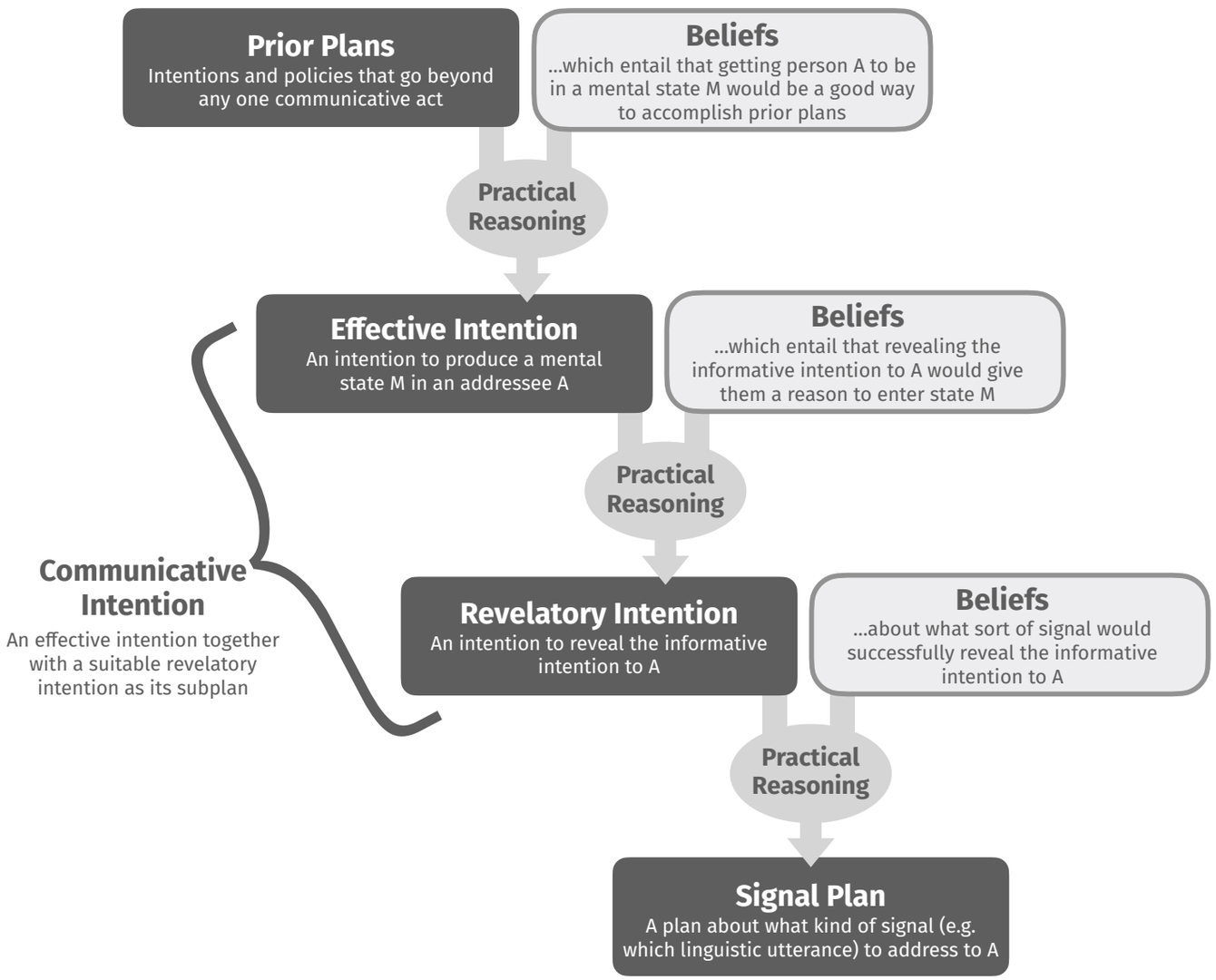
COMMUNICATION & COGNITIVE ARCHITECTURE

Week 2: Intention Recognition and its Psychological Underpinnings

Daniel W. Harris

2. Designing Communicative Acts

(Sept 21)

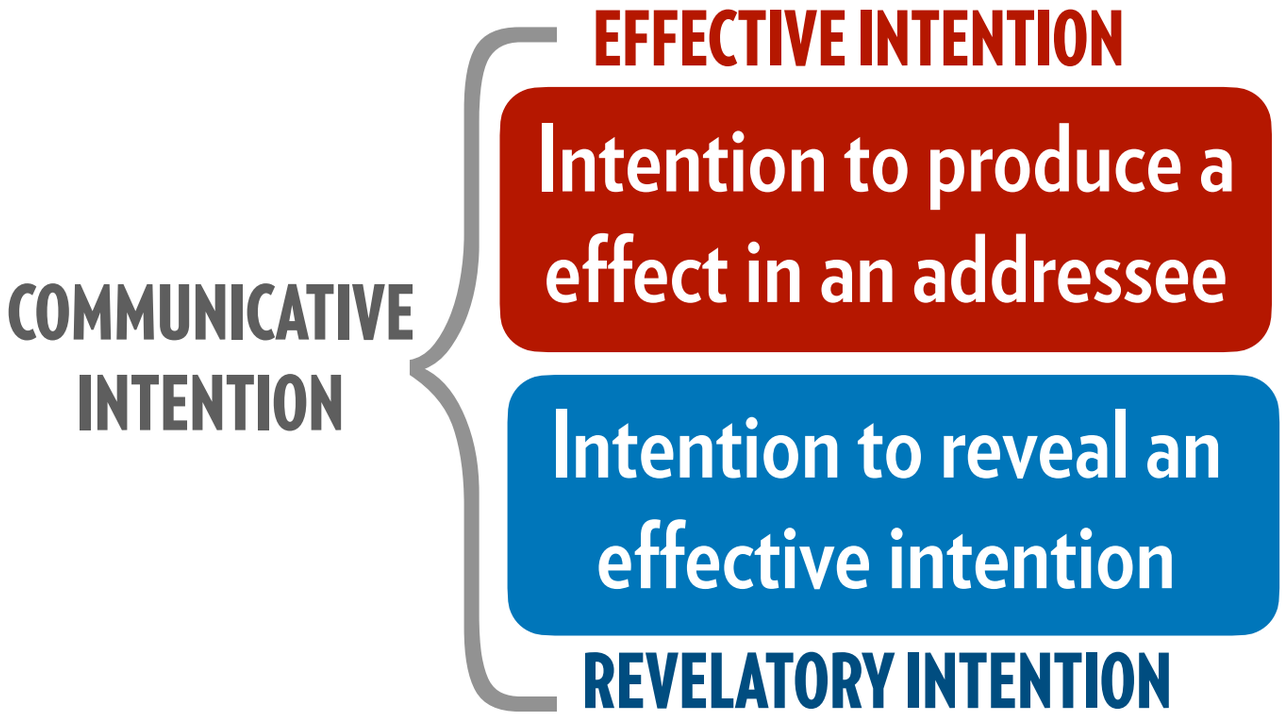


We form communicative intentions as part of the process of designing communicative acts for our addressees.

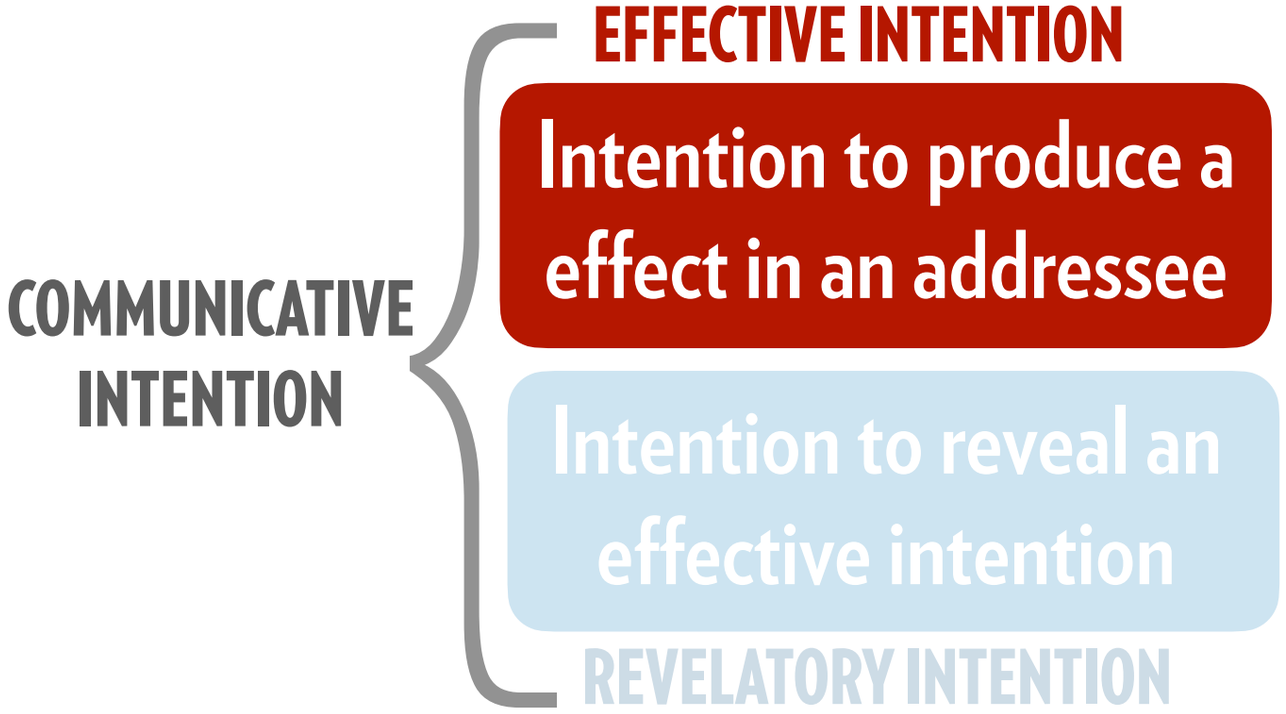
This design process makes human communication much more powerful and efficient, and this is why we bother with communicative intentions.

Why Communicative Intentions?

Why Communicative Intentions?



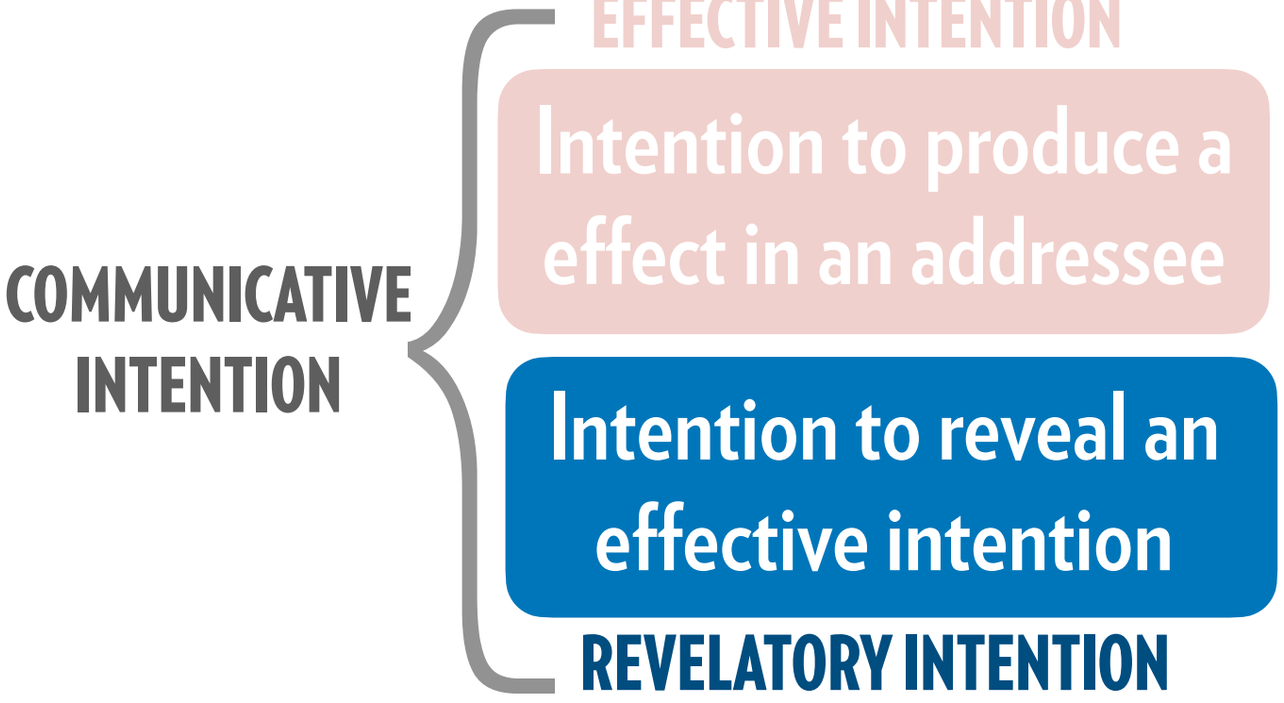
Why Communicative Intentions?



We form effective intentions as part of the process of designing what we say for our addressees.

As a result of their role in this process, they set the terms of successful communication.

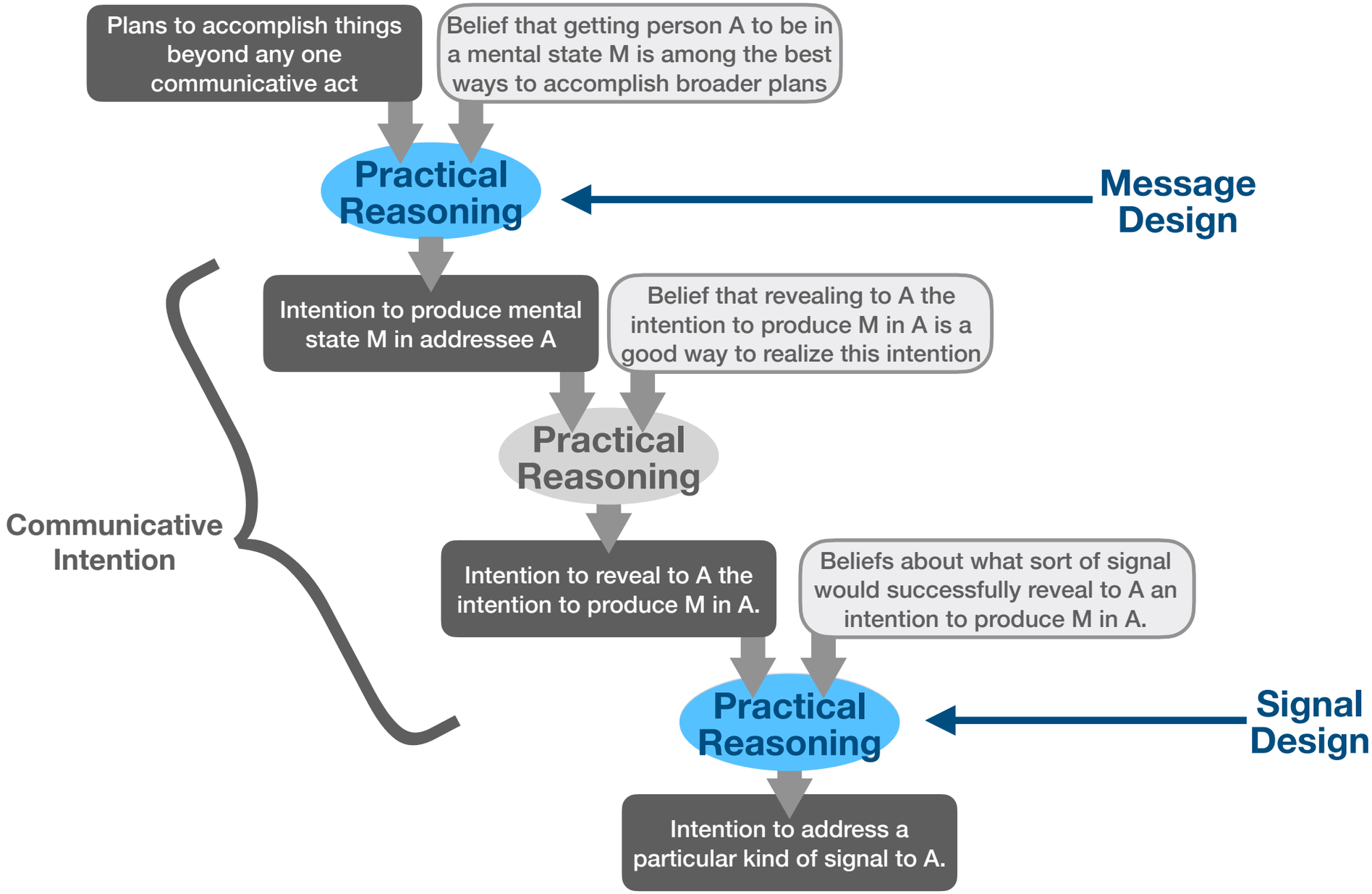
Why Communicative Intentions?



We form revelatory intentions as part of a highly effective strategy for achieving our effective intentions.

Part of what makes this strategy effective is that it leverages our addressee's trust and cooperativity.

Planning and Communicative Intentions



Why do we need effective intentions?

1. To explain communication design, we need to posit domain-general practical reasoning that bridges abstract goals and motor instructions.

2. The results of intermediate steps in practical reasoning are intentions.

3. There will be one such intention that first pairs a message to be communicated with an addressee:

   - Message design must culminate with such an intention.

   - Signal design must begin from such an intention.

4. This is (the first component of) a communicative intention.

Cornelia

A few thoughts about methodology: I don't think we should dismiss the sort of approach that Grice used to arrive at his analysis of "meaning" just so easily. Here's why: the notion that we are investigating is one that matters to us in real life. We want the conclusions that we draw from philosophizing to be applicable to real life, we want to learn something about meaning in the sense in which it matters to us. If the concept we ended up with after a different kind of investigation (a more empirical one, perhaps), call it meaning', were so different from the folk concept meaning, meaning' would not be what we ordinarily care about when we use the term "meaning". We want to find out something about meaning the way we understand it, and not about a removed, theoretical concept which only tangentially resembles our folk concept, because it's unclear what actual pragmatic ramifications the removed theoretical concept meaning' would have if it cannot be tested against our intuitions.

Cornelia

This line of thought is heavily based on Hansen 2014 (https://doi.org/10.1111/phc3.12152) and Cappelen/McKeever 2023 (https://doi.org/10.1002/9781394160747.ch5), who maintain this claim about "knowledge". What we are investigating in epistemology is the thing that, in everyday life, fulfils the role that we ascribe to knowledge. And so, when we come up with a theory of knowledge, it should be tested against our intuitions/our folk concept. For it's unclear what consequences a removed, theoretical concept of, say, knowledge' would have on our everyday lives. Why should we care about knowledge'? We care about knowledge.

I find this convincing about "knowledge". Our folk concept does matter here, at least in the sense that our theory should withstand the test against intuitions. Do we have reasons to dismiss this sort of argument for "meaning"?

Elliot, responding to Cornelia:
...I'm a little skeptical we even have a strong folk concept of meaning, at least the meaning Grice is primarily concerned with. In his 1957 article "Meaning" Grice distinguishes between natural meaning (e.g. "Those clouds mean its going to rain") and nonnatural meaning (e.g., "The red light means stop"). His goal is to conceptually analyze non-natural meaning. But notice, this 'meaning' is already a quasi-technical concept, not a folk concept (we have to prefix it with "non-natural"). To give one of Grice's examples, suppose Herod shows John the Baptist's head to Salome. I'm okay saying Herod meant something in this case, even though I also have the intuition that this isn't an instance pure non-natural meaning in Grice's sense. So perhaps it's actually a virtue of Dan's approach that we don't have to draw firm boundaries around meaning while at the same time acknowledging that intention-recognition is a powerful and frequently used communicative tool.

Cornelia
This line of thought is heavily based on Hansen 2014 (https://doi.org/10.1111/phc3.12152) and Cappelen/McKeever 2023 (https://doi.org/10.1002/9781394160747.ch5), who maintain this claim about "knowledge". What we are investigating in epistemology is the thing that, in everyday life, fulfils the role that we ascribe to knowledge. And so, when we come up with a theory of knowledge, it should be tested against our intuitions/our folk concept. For it's unclear what consequences a removed, theoretical concept of, say, knowledge' would have on our everyday lives. **Why should we care about knowledge'? We care about knowledge.**
I find this convincing about "knowledge". Our folk concept does matter here, at least in the sense that our theory should withstand the test against intuitions. Do we have reasons to dismiss this sort of argument for "meaning"?

Compare Cornelia's Argument to This One:

We want the conclusions that we draw from philosophizing to be applicable to real life, we want to learn something about **simultaneity** in the sense in which it matters to us. If the concept we ended up with after a different kind of investigation (a more empirical one, perhaps), call it **simultaneity'**, were so different from the folk concept **simultaneity**, **simultaneity'** would not be what we ordinarily care about when we use the term "**simultaneity**". We want to find out something about **simultaneity** the way we understand it, and not about a removed, theoretical concept which only tangentially resembles our folk concept, because it's unclear what actual pragmatic ramifications the removed theoretical concept **simultaneity'** would have if it cannot be tested against our intuitions.

(Important Background: Special relativity theory entails the counter-intuitive result that whether two events can be simultaneous only relative to a reference frame, and not absolutely. This clashes pretty hard with folk physics but seems to be nonetheless correct.)

Two ways of doing epistemology:

(Please note: I am *extremely* not an epistemologist.)

1. Identify the role that knowledge attributions play in our folk theorizing, and figure out what (if anything) could play that role.

This project will articulate our tacit folk theory of knowledge.

Benefit: Saves appearances! Won't change the subject!

Cost: No guarantee that our folk theories are coherent. Even if they're coherent, they might not give good explanations of how humans actually do things.

2. Construct a theory that makes good explanations and predictions about how we acquire and use information to do things.

We might wind up talking about knowledge', but no guarantee that it will match our folk concept.

Benefit: The promise of a good explanations of things that humans actually do!

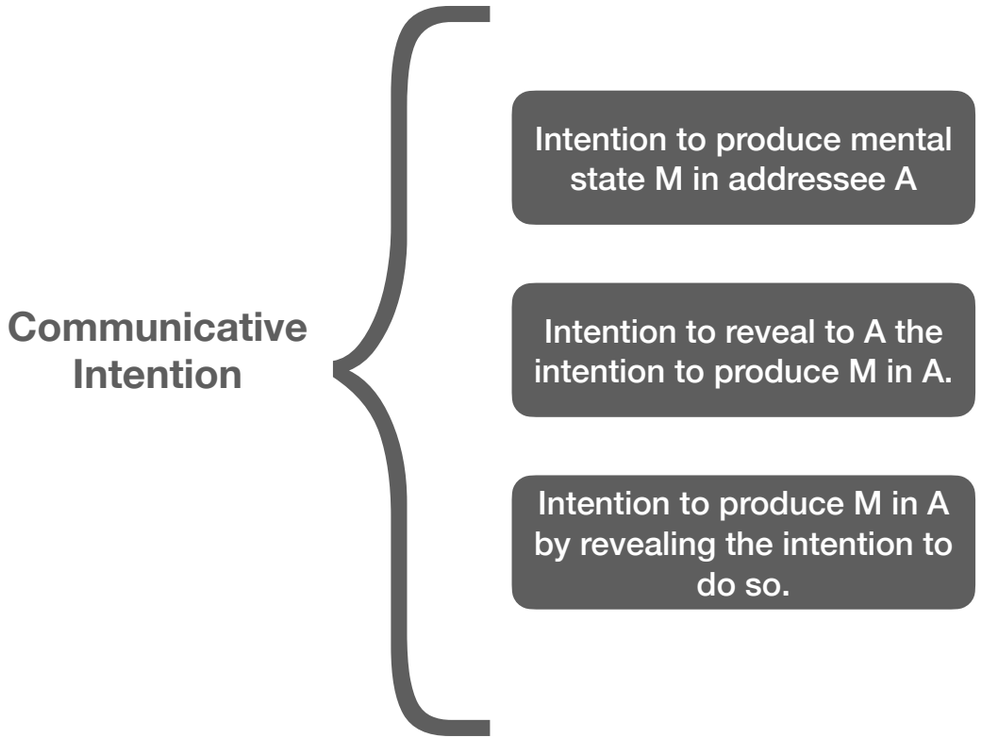
Cost: We might not save appearances. It might seem like we haven't answered all the questions we started with.

Quine, "Epistemology Naturalized" (1969):

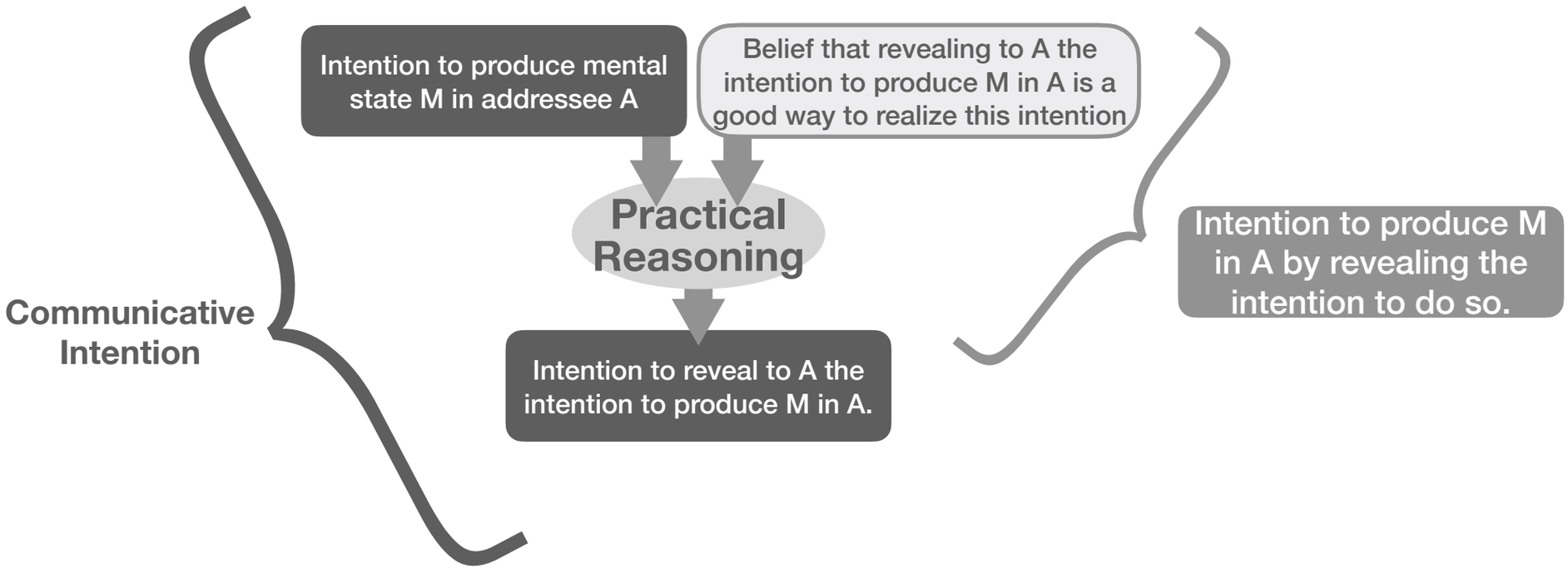
The stimulation of his sensory receptors is all the evidence anybody has had to go on, ultimately, in arriving at his picture of the world. Why not just see how this construction really proceeds? Why not settle for psychology?

Elliot, responding to Cornelia:
Also a terminological point: in the example, would we say Herod had an effective intention (he wanted to produce a certain psychological state in Salome) but not a communicative intention (since his effective intention didn't have a revelatory intention as a sub plan)?

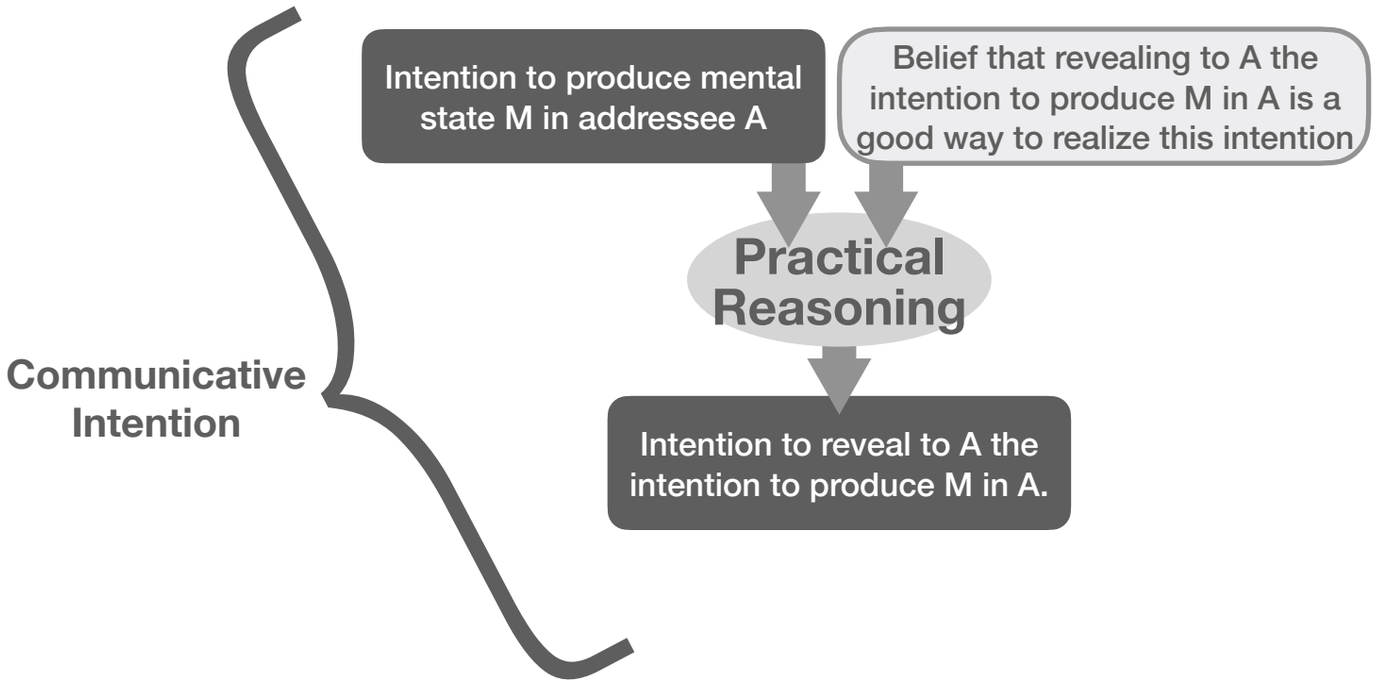
Planning and Communicative Intentions



Planning and Communicative Intentions



Planning and Communicative Intentions



Steven:
I strongly doubt that communicative design is a conscious process, as it seems to be in this chapter. This doubt has been echoed in several student responses thus far, namely: Cornelia's behavioralist take on waving down cars (from last week); Steve's caricature of an overweight communication design process; and Petru's support for Millikan vis a vis a framework whereby associative links enable a recursive contextualization of generalized responses.

It is easy to look back on the conversation with Oona and reflect on one's communicative design process, but such reflections are not memories, per se; indeed, it's unlikely that any of those design considerations existed as "explicitly formulated linguistic (or quasi-linguistic) intentions", per Grice's concession. While intentions may have truly patterned Dan's response, it is impossible to ascribe any level of intentionality to that process after the fact, as any such ascription is, perhaps, a mere rationalization.

...if Grice meant only that our communicative acts aren't guided by *conscious* plans, then I agree: much of the reasoning and many of the states of mind behind our communicative acts are non-conscious. This puts these thoughts and psychological processes in good company: much of our behavior is driven my non-conscious psychological states and processes. Nonetheless, many of these states and processes are perfectly "explicit" in two senses that may have little to do with consciousness: they have or traffic in specific representational contents, and they guide our actions in specific, rational ways. We are warranted in positing these mental states and processes not because we can reliably introspect them, but because they their existence is entailed by the best explanation of some aspect of human behavior. I have argued that this criterion is met by communicative intentions and the mindreading and practical reasoning by means of which we form and reason from them. We are compelled to posit communicative intentions as part of our best explanation of humans' remarkable capacity for communication design." (Ch.2, p.16)

Griffin:
Harris uses the term "communicative intention" to refer to the complex intention that consists of both the effective intention and the revelatory intention. Harris also says that a communicative intention is a "bottleneck" between message design and signal design (12). This suggests that both parts of the communicative intention are the upshots of the message design process. This upshot then serves as the starting point for the signal design process.

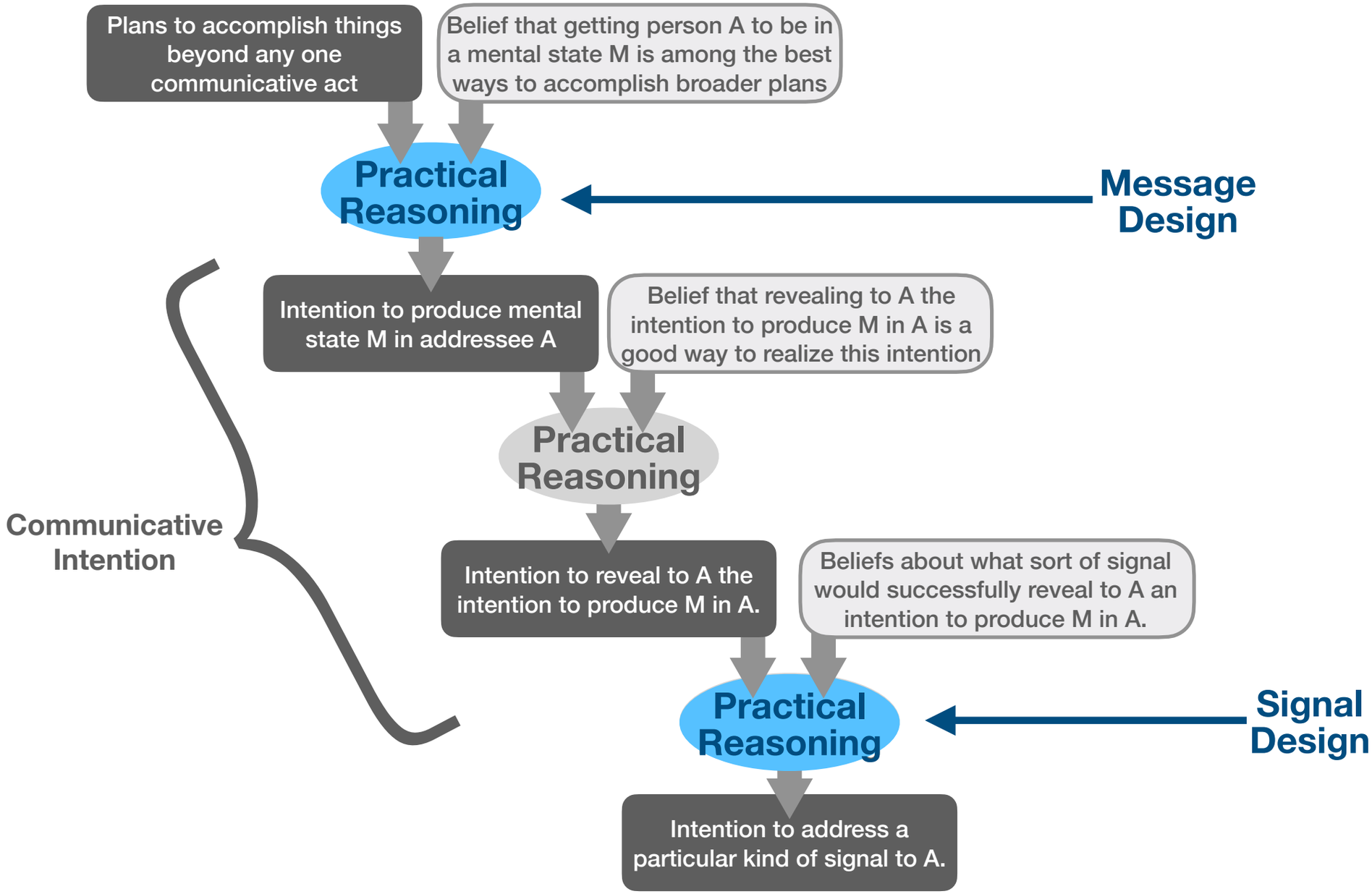
Griffin:
Here's a worry. Harris claims that the message-design process results in a communicative intention, which is the starting point for the signal-design process. But shouldn't the revelatory intention, which is part of the communicative intention, be one result of the signal-design process, not a result of message design and thus signal design's starting point?

There are two views here. Harris's view is that in designing a signal, one figures out how to convey a complex communicative intention for a particular addressee. An alternative view is that in designing a signal, one tries to convey an effective intention, and one way to do that (and thus, one option in the signal design process) is to reveal one's effective intention (i.e., have a revelatory intention). I'm inclined towards the latter view because the signal-design process is the process of figuring out how to convey a message to a particular addressee, and it seems that deciding whether to reveal one's effective intention is part of the signal-design process because it is one way, among many, to convey a message.

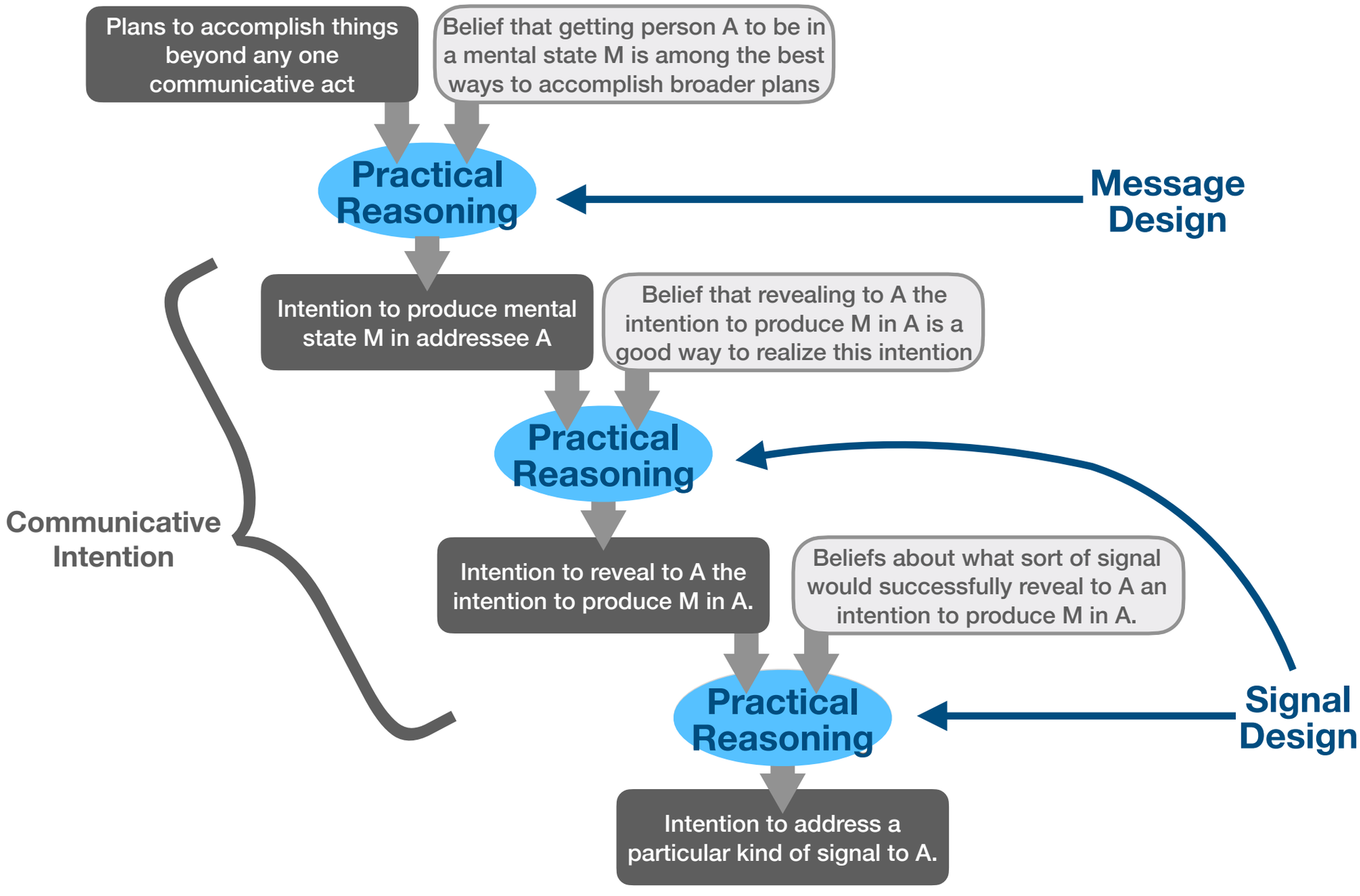
Griffin:

(A seemingly related point is Harris's claim that the revelatory intention is a subplan of the effective intention (12-13). Perhaps this bears on the issue. But I can't figure out how it all fits together.)

Planning and Communicative Intentions



Planning and Communicative Intentions



Eleonora

I wonder whether "communication design" truly is "a special case of hierarchical practical reasoning" (Harris, Ch. 2, p. 9) and, consequently, whether it can perform the explanatory heavy-lifting required to (partly) account for human communication. More specifically, I worry that an appeal to communication design so understood may collapse into an appeal to rational reasoning broadly construed, which is somewhat unsatisfactory as a theory of human communication. In more detail, the suggestion is that communication design is a special case of hierarchical practical reasoning because it is: (i) hierarchical; (ii) responsive to rational requirements; (iii) unfolded in pursuit of goals that are abstract and social; (iv) a complex, coordinated action.

These features, taken jointly, may certainly account for how successful communication can occur. However, there seems to me to be nothing communication-specific about (i)-(iv)! That is, these features seem to more broadly explain how humans interact with the world, i.e. how they are able to adjust their behavior in such a way which, per their beliefs, will successfully bring about a desired outcome. As such, (i)-(iv) do not seem to me to stand in any special relation to communication design, nor to explain what makes human communication "special".

Special case

6 languages

Article Talk Read Edit View history Tools

From Wikipedia, the free encyclopedia

This article **does not cite any sources**. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.

Find sources: "Special case" – news · newspapers · books · scholar · JSTOR *(August 2012) (Learn how and when to remove this template message)*

In logic, especially as applied in mathematics, concept A is a **special case** or **specialization** of concept B precisely if every instance of A is also an instance of B but not vice versa, or equivalently, if B is a generalization of A. A limiting case is a type of special case which is arrived at by taking some aspect of the

"The only plausible explanation of our capacity for communication design is that it is **an application of** our capacity for hierarchical practical reasoning, informed in a domain-general way by our beliefs, including our beliefs about our addressees and their states of mind." (Ch.2, p.8)

Griffin, Responding to Eleonora

[Eleonora's point] made me think of two broad replies, one that tries to justify the close relatedness of practical reasoning and communication design, and another that attempts to emphasize the specialness of human communication. Starting with the former, it seems a truism that communication design is an instance of practical rationality: we communicate for broader practical ends. We don't just talk to talk; we talk to achieve certain things. (Even in cases where we seem to talk to talk (e.g., filibustering) the "talking to talk" does serve some end (such as wasting time)). And this outlook explains why communication design exemplifies the features (i)-(iv) of practical reasoning that you emphasize: it is one means of practical reasoning.

Griffin, Responding to Eleonora

However, as I think you rightly point out, the danger of emphasizing the commonalities between practical reasoning and communication design is that we do not adequately appreciate the uniqueness of human communication when compared to other forms of practical behavior. But I wonder if Harris has the tools to do justice to uniqueness too, even within the general outlook that communication design is an instance of practical reasoning. To name three features that are distinct to human communication (at least according to Harris): (v) our practical reasoning can utilize communicative intentions as means to practical ends; (vi) carrying out our communicative intentions (at least often) employs mindreading capacities, because we read others' minds when deciding what message to convey to them (e.g., we read people's behavior to figure out what they want from us, which may then prompt us to design message to pair with them) and how to convey that message to them (e.g., with selection among possible noun phrases); (vii) human communication can employ a separate module, the linguistic system, to convey (part of) our messages to addressees. None of these are engaged, at least to their fullest extent, when we engage in practical reasoning without communicative means. (I add the "fullest extent" caveat because it seems that (vi) mindreading can be involved, but maybe for different ends?)

Pragmatics, Modularity and Mind-reading (2002)

DAN SPERBER AND DEIRDRE WILSON

Abstract: The central problem for pragmatics is that sentence meaning vastly underdetermines speaker's meaning. The goal of pragmatics is to explain how the gap between sentence meaning and speaker's meaning is bridged. This paper defends the broadly Gricean view that pragmatic interpretation is ultimately an exercise in mind-reading, involving the inferential attribution of intentions. We argue, however, that the interpretation process does not simply consist in applying general mind-reading abilities to a particular (communicative) domain. Rather, it involves a dedicated comprehension module, with its own special principles and mechanisms. We show how such a metacommunicative module might have evolved, and what principles and mechanisms it might contain.

Elliot

Following up on last week's seminar, I think message design may give some additional reason to think there are more than two relevant senses of what an utterance means. Suppose A has a communicative intention to inform B of something and subsequently performs a communicative act by uttering X. According to Neale (2004 p.78) we can distinguish "(i) what A intended to say by uttering X on a given occasion, and (ii) what a rational, reasonably well-informed interpreter in B's shoes would think A intended to say by uttering X on that occasion." When we design a message for a specific hearer, there aren't any clear limits as to what information about our hearer we can factor in. So, if B is irrational or ill-informed A can communicate specifically with these facts in mind. This leads me to think we can't systemically idealize any aspect of the interpretative situation; any irregularity in B could be crucial to A's communicative intention. This would give us (iii) what B interpreted X to mean on the particular occasion. To paraphrase, if acts are designed with specific speakers in mind, those speakers are their own best models. But this doesn't mean we should do away with (ii); in moral/legal contexts it may matter what an idealized interpreter would take X to mean. For example, a certain utterance may count as harassment even if A didn't intend it as such and B didn't interpret it as such.

Kristin

Bratman seems to be talking about a number of consistency requirements. For instance, plans are in need of internal consistency, beliefs consistent with those plans, a web of intentions/plans becomes subject to the consistency/coherency demands, and intention-based inconsistencies put rationality up for question, etc. ... What I'm unsure about, is the role beliefs have in the formulation of these consistency requirements, and I wonder if it's because these formulations rely on all-out beliefs rather than graded, partial beliefs or degrees of belief... Is this the case? I read page 5 thinking that we're supposed to maybe understand belief in this chapter within that framework (all-out belief) and I'm wondering if its possible to get a further understanding of what might be at stake with that.

28

Probability and Partial Belief Sept 1929

The defect of my paper on probability was that it took partial belief as a psychological phenomenon to be defined and measured by a psychologist. But this sort of psychology goes very little way and would be quite unacceptable in a developed science. In fact the notion of a belief of degree $\frac{2}{3}$ is useless to an outside observer, except when it is used by the thinker himself who says "well I believe it to an extent $\frac{2}{3}$" i.e., this at least is the most natural interpretation, if I have the same degree of belief in it as in prop

Frank Ramsey: "Probability and Partial Belief" (1929)

ANNUAL REVIEWS

Annual Review of Linguistics

The Rational Speech Act Framework

Judith Degen

Department of Linguistics, Stanford University, Stanford, California, USA; email: jdegen@stanford.edu

Annu. Rev. Linguist. 2023. 9:26.1–26.22

The *Annual Review of Linguistics* is online at linguistics.annualreviews.org

https://doi.org/10.1146/annurev-linguistics-031220-

Keywords

probabilistic pragmatics, computational pragmatics, experimental pragmatics, experimental semantics, context

Philosophers' Imprint

VOLUME 16, NO. 14
JULY, 2016

A PREFACE PARADOX FOR INTENTION

Simon Goldstein

Rutgers University

1. Introduction

Consider the following pair of norms for intention:

Noncontradiction S ought not: intend ϕ and intend not ϕ.
Agglomeration S ought not: intend ϕ, intend ψ, and not intend ϕ and ψ.

These norms are *prima facie* plausible. Many writers accept both of them in some form or other.[1]

These norms have direct analogues for belief: don't believe contradictory things; believe the conjunction of your other beliefs. However, there is a well-known counterexample to such norms: the preface paradox.[2] Imagine a historian who writes a long book on some topic, full of carefully researched claims. The historian seems perfectly rational to concede, in the preface of her book, that at least one claim is false. So either she does not believe the conjunction of every claim in the book, or her beliefs are inconsistent. In response, many have argued that Agglomeration is not a genuine norm on belief. In its place, they suggest a series of norms governing *partial belief*.[3] A rational agent's partial beliefs must satisfy the laws of probability. In doing so, her full beliefs may fail to agglomerate.

This raises a natural question: Does the preface paradox have an analogue for intention? I will argue that there is such an analogue. There is a preface paradox for intention that shows that there is a rational agent who does not satisfy both Noncontradiction and Agglomeration. In this section, I will present two instances of the paradox. Then I will give an argument that we should expect a preface paradox for intention, given some principles that connect belief and intention.

1. For discussion, see Bratman [1984] 380, Velleman [1989], Yaffe [2004], Bratman [1999] 194, Bratman [2009], Ross [2009], Broome [2013] 76.
2. Makinson [1965]. See Ryan [1991] and Foley [1993] 143 for formulations of the preface paradox for belief that uses principles analogous to Noncontradiction and Agglomeration.
3. For representative examples, see Foley [1993] and Christensen [2005].

Partial Belief, Partial Intention

Richard Holton

Is a belief that one will succeed necessary for an intention? It is argued that the question has traditionally been badly posed, framed as it is in terms of all-out belief. We need instead to ask about the relation between intention and partial belief. An account of partial belief that is more psychologically realistic than the standard credence account is developed. A notion of partial intention is then developed, standing to all-out intention much as partial belief stands to all-out belief. Various coherence constraints on the notion are explored. It is concluded that the primary relations between intention and belief should be understood as normative and not essential.

Partial Belief, Partial Intention

Richard Holton

Is a belief that one will succeed necessary for an intention? It is argued that the question has traditionally been badly posed, framed as it is in terms of all-out belief. We need instead to ask about the relation between intention and partial belief. An account of partial belief that is more psychologically realistic than the standard credence account is developed. A notion of partial intention is then developed, standing to all-out intention much as partial belief stands to all-out belief. Various coherence constraints on the notion are explored. It is concluded that the primary relations between intention and belief should be understood as normative and not essential.

All-out Belief
One all-out believes *p* iff one takes *p* as a live possibility and does not take not-*p* as a live possibility.

Partial Belief
One partially believes *p* iff one takes *p* as a live possibility and takes not-*p* as a live possibility.[21]

Partial Intention
An intention to F is partial iff it is designed to achieve a given end E and it is accompanied by one or more alternative intentions also designed to achieve E. If an intention is not partial it is all-out.

Partial Belief, Partial Intention

Richard Holton

Is a belief that one will succeed necessary for an intention? It is argued that the question has traditionally been badly posed, framed as it is in terms of all-out belief. We need instead to ask about the relation between intention and partial belief. An account of partial belief that is more psychologically realistic than the standard credence account is developed. A notion of partial intention is then developed, standing to all-out intention much as partial belief stands to all-out belief. Various coherence constraints on the notion are explored. It is concluded that the primary relations between intention and belief should be understood as normative and not essential.

8.3 Does intention (whether partial or all-out) entail partial belief?

Here, at last, a positive response has some plausibility. If I intend to do something then it might seem that I must regard success as a real possibility. If I did not then I would be in no position to plan and coordinate around it; and it is only if I plan and coordinate around it that we can really see it as an intention. I raise two worries though.

Nevertheless, I think that the central idea, that all-out belief is at heart a practical attitude, is right.[14] We are cognitively limited creatures. Maintaining and manipulating large numbers of credences would overload our capacities, and our reasoning would get nowhere. So as a practical matter it makes sense to accept certain premisses as given, and to do our reasoning on the basis of them, even though we acknowledge that there is some chance that they will be wrong. In making my plans

Minxin

In the section on practical reasoning, the practical reasoning function is described as a capacity that is able to form plans that are "rational." But rationality is vague and I am not certain how we should understand it.

Minxin

In *The Enigma of Reason*, Sperber and Mercier propose a model rejecting the dichotomy between intuitive thinking and reasoning. The practical reasoning function described in section 2 reminds me of the "reason" myth that Sperber and Mercier tried to debunk (some of the results they cite seems to only indicate the problematic nature of material implications, but there are also others that appear to indicate that humans tend to make an inference based on customary thinking before looking for supporting arguments/evidence for the conclusion). I agree with them that the existence of a wholistic logic reasoning module of the brain does is unlikely as indicated by the many psychological errors and biases we hold. But then, it is not sure to me what the inference mechanism described as practical reasoning in section 2 is. So far as I remember it, Mercier and Sperber do not give an explanation as to exactly how we reach the various inferences in their book, and this lack of foundation has always been troubling me.

It is possible for the purpose of defending intentional recognition, all is needed here is the existence of one such mechanism that produces a plan based on an intention constrained by rational requirements and we apply it iteratively.

Sadie
I'm interested in other features of our communication design process that aren't directly connected to our intention that someone understand what we're saying in one particular communicative act, but either relate to other social objectives (which might possibly be really off track as these aren't really communicative goals) or future goals/plans to be understood in some particular way. This doesn't necessarily figure into what it is we mean in a particular instance, but may interact with how we communicate and how we are interpreted.

In particular thinking here about meeting new people, and designing our communicative acts to somewhat 'design' their set of beliefs about us and how they relate to us in future: your first conversations with your new boss, your partner's parents, or a member of the army regiment of which you are the commander – I can imagine all of these cases, to some extent, impacting how you respond when someone asks about your hibiscus tea (how much detail you include in your message, how you get it across in your signal). Along with aiming for our new conversation partners to understand what we mean, and designing our communicative acts as such, we might also design our communicative acts with the goal of shaping their perceptions of us (and whether they like us, respect us) in subtle ways that will help us in future to operate how we wish to in future conversations. Does this seem like it's getting too far away from our communicative acts?

Even if people don't like or respect us, they will still usually be able to understand us! I did nonetheless want to raise this because the notion of 'trust' has come up a few times now – it seems like trust is important for communication, and I think some ways in which we manage other people's perceptions of us may relate back to us managing whether or not they trust us.

Theo

I'm curious about how contending theories, such as that of Milikan, explain the means by which a communicative act got its proper function in the first place. And, to the extent she touched on this in the paper and chapter cited, I'm not convinced it avoids needing reference to complex mental processes. She compares it to the communicative acts performed by other animals "with learning standing in for natural selection" – which on its own seems suspicious to me as learning seems rather different in some relevant ways, such as attentiveness from natural selection – but missing here is that other piece of Darwinian theory. What in human behavior can play the role of random mutation?

When a conventional pattern of behavior is handed down because it is solving a coordination problem, the mechanism for this is usually quite simple. No matter how the precedent for the convention was originally set, if the coordination it effects is an obvious and important one it will tend to proliferate without anyone's thinking about anyone else's thoughts. Like other higher animals, people repeat behaviors that have been successful in achieving wanted results in the past. Unlike most other animals, they tend also to copy behaviors of others that have been successful in producing wanted results. Behaviors that constitute solutions to coordination problems achieve results desired by all parties to the coordination, hence these behaviors will tend to be reproduced when similar results are desired. There is no need for the various parties in the coordination even to recognize the problem as a coordination problem, let alone to think about one another's thoughts in order for the convention to proliferate.

—Ruth Garrett Millikan, *Language: A Biological Model*, pp.56–57

Theo
I find other issues in the 'mere association' theory of common communications. Among these is that the felicity conditions for successful use of speech acts are more complex than those of bird calls, and therefore seem to require the difficult processes of audience/signal design Milikan's theory was meant to avoid. You must think your audience speak English and are paying attention, among other things, to utter "leave", even if part of your decision to use it was seeing its relevant past success. (edited)

Alanna
Those who are strong at mind reading may not be equally skilled at message design and vice versa.

[...]

The less we know about the person one is meeting, the less information a person can use to form message design into communicative intention yet it does not seem to necessarily hinder a person's immediate ability to perform intention recognition. Yet it would seem obvious that the more time spent with a person would develop intention recognition ....

...does one have to have a high emotional intelligence (how is that quantified?) to distinguish level of likeness and adjust accordingly?

Perhaps the most deceptive people are also the ones who also have the clearest understanding of who they versus who they want to project making them strong communicators.

Petru

Against Millikan's view, Harris (p. 17) raises two claims for the psychological reality of his account: (1) Communication design is ubiquitous, with communicative intentions forming an inevitable part of the process. (2) There are several features of natural language whose competent use is best explained by a communication design process comprising communicative intentions.

Claim (1) seems to work in the following way. Literal communicative acts cannot be mostly the product of associative links between certain utterances and corresponding actions, for communication design is remarkably common and, when competently executed, depends on creative uses of natural language, unique to the communicative situation (and, presumably, the receiver).

Petru

Here's one conceivable counterproposal: The social context in which agents are embedded fixes many of the relevant features of communication design, making it such that communicative acts are not bespoke interactions tailored by speakers to each receiver, but rather to a class of receivers, individuated contextually. If so, the communicative design process outputs a type of communicative act suitable to the class which I then token in individual interactions with class members. Perhaps communicative intentions do play some role as I dial in the communicative-act-type which best furthers my communicative goals. However, once I winnow down to a successful general form that satisfies my communicative needs, it's plausible that mere associative links to previous uses take over the otherwise laborious design work. After some trial-and-error, maybe an explicit, but introspectively unavailable communicative-act-type is formed, to be tokened in particular interactions with members of the class in the future; if it leads to reliably successful communicative situations, perhaps the need to return to my communicative intentions as part of the design process eventually becomes obviated, and associations to such past successes take over.

Herbert Clark (1996), *Using Language*:

Common ground (shared basis)

p is common ground for members of community C if and only if:

1. every member of C has information that basis *b* holds;
2. *b* indicates to every member of C that every member of C has information that *b* holds;
3. *b* indicates to members of C that *p*. (p.94)

The principle of justification. In practice, people take a proposition to be common ground in a community only when they believe they have a proper shared basis for the proposition in that community. (p.96)

Herbert Clark (1996), *Using Language*:

Communal Common Ground

We often categorize people by nationality, profession, hobbies, language, religion, or politics as a basis for inferring what they know, believe, or assume. When I meet Ann at a party and discover she's a classical music enthusiast, my picture of her suddenly expands. I assume she knows everything any such enthusiast would know - and that is a great deal. Once she and I establish we are both enthusiasts, we have a shared asis for taking all this information to be common ground. That, in turn, opens the door to a plethora of new topics — from *Aïda* to *Die Zauberflöte*. How does this work? (pp.100–101)

Steve

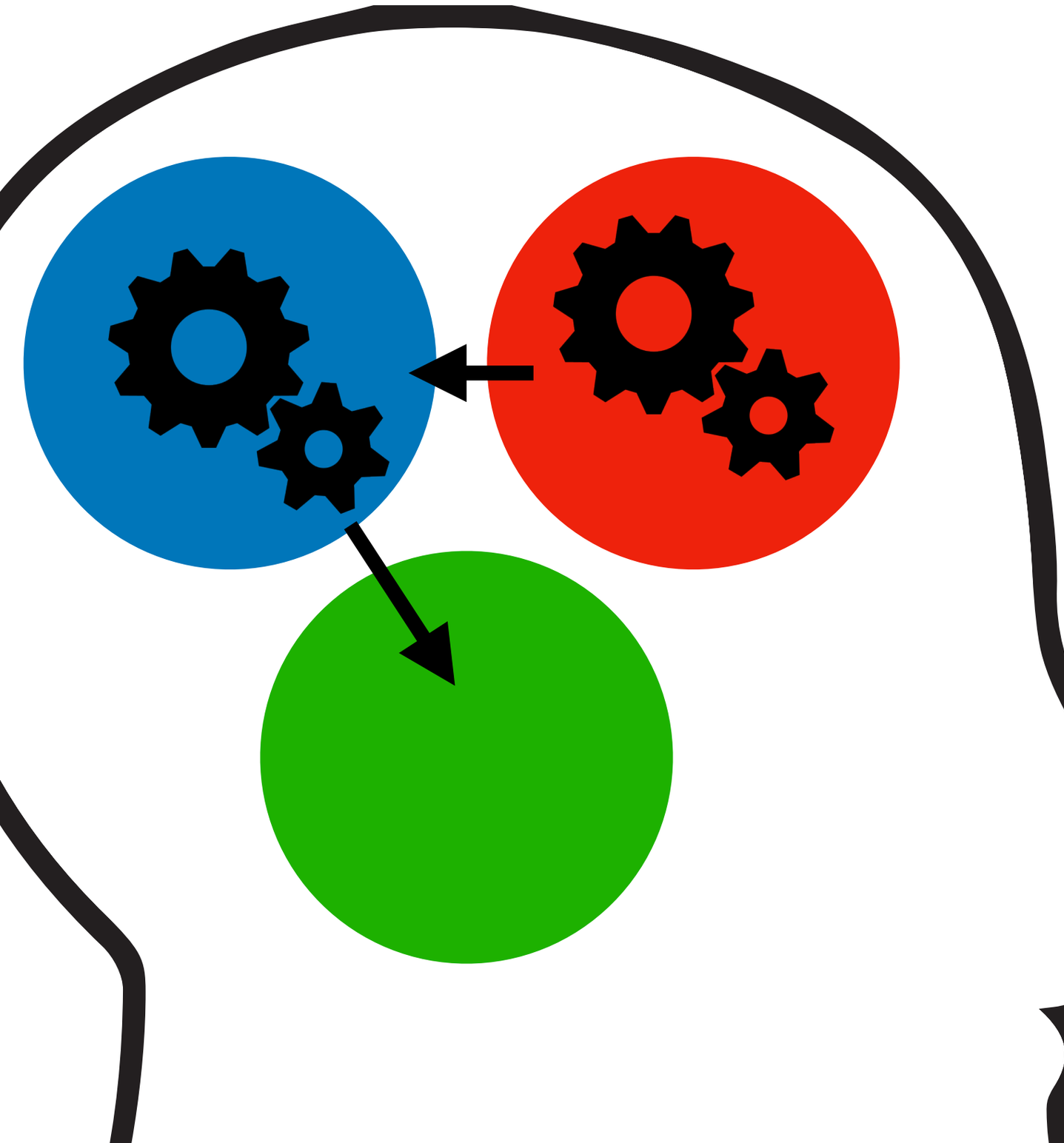
What's going on in our heads when we're engaging in bespoke communication design? Eg, when I'm designing a way to tell Dan that I think his use of the term "conscious" in this chapter is a little funky, how, if I am optimally competent, am I gonna go into my mind palace and come out with an utterance? Some non-mutually-exclusive candidates:

(a) I need to construct a candidate sentence, then run the Dan-interpretation-simulation to figure out how he would interpet the utterance. This would require some hefty imaginative resources.

(b) Given the information I have about Dan's beliefs and interpretive tendencies, I infer how he would interpret the candidate utterance.

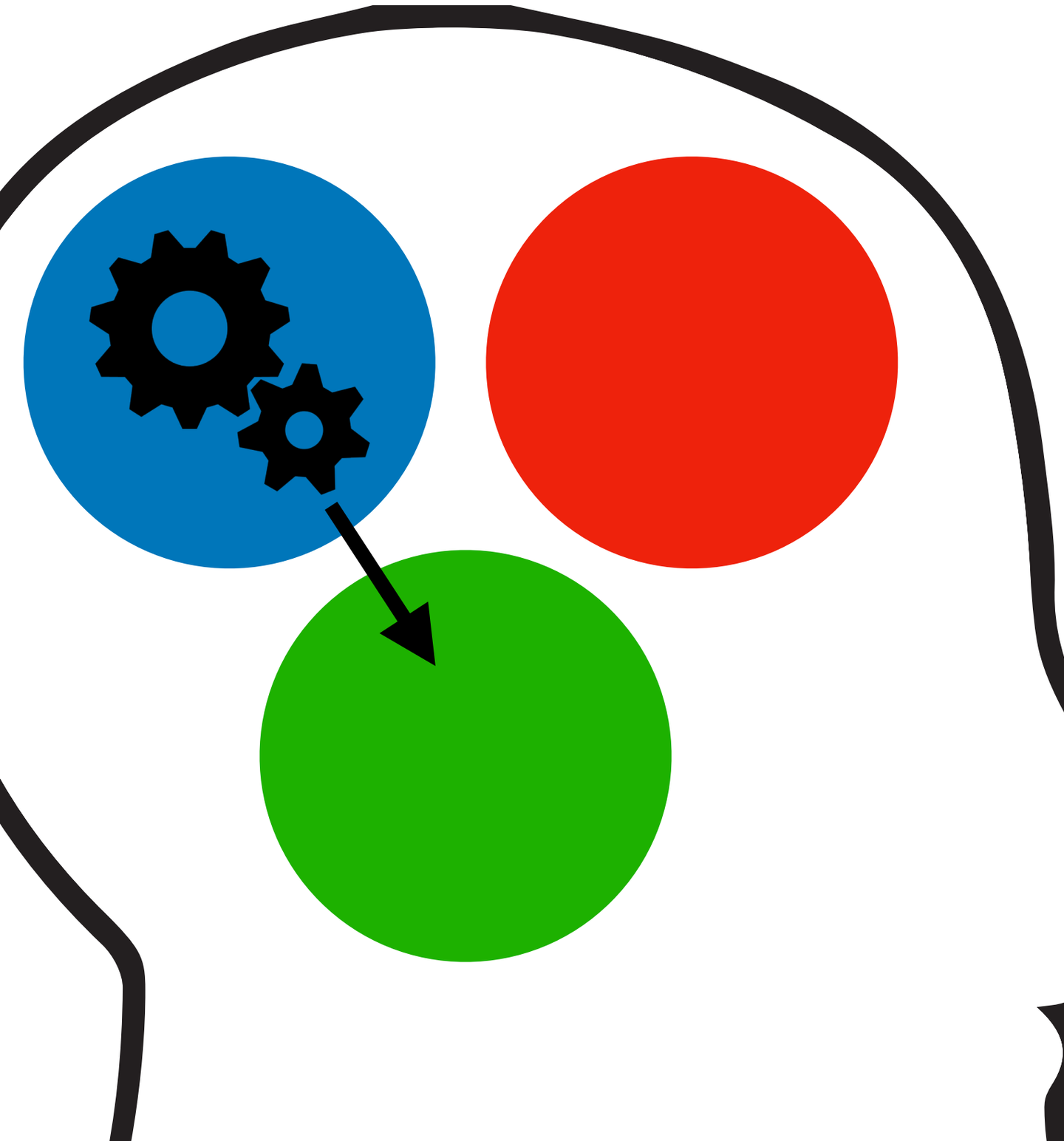
(c) I design my utterance, word by word, in light of what I take to be Dan's beliefs and interpretive tendencies

(c) is clearly not going to work very well, since there are going to be issues of force that arise at the sentence level that do not arise at the level of individual words. So I would think (c), if plausible, is going to be a holistic process. (a) and (b) seem plausible, but they also seem to involve a kind of internal trial-and-error process. And that seems super demanding to constrain competent language use.



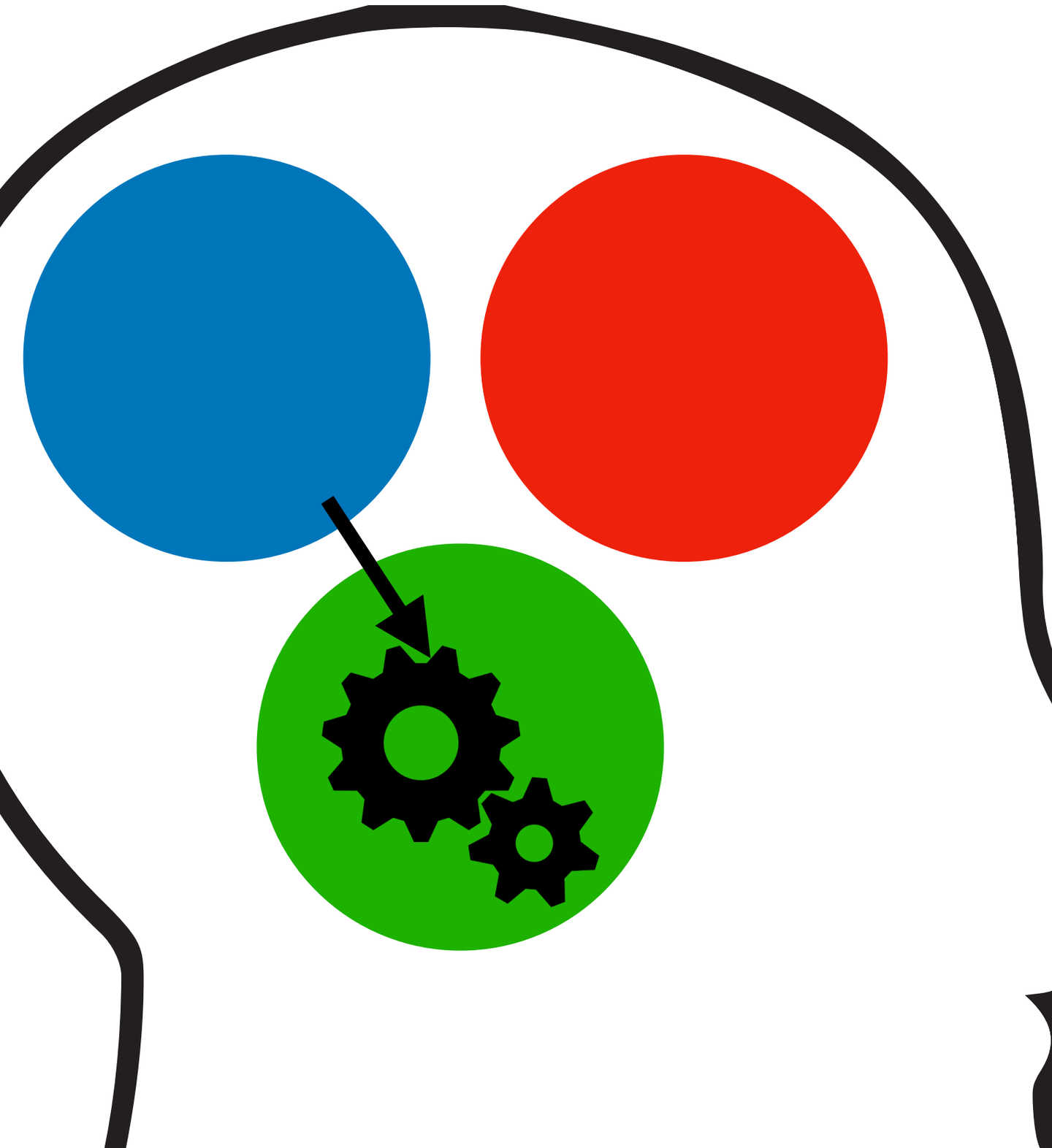
The planning system reasons about what to say, using info from mindreading.

The planning system sends instruction to the language system.



The planning system sends instruction to the language system.

These instructions are a subplan of S's communicative intention(s).



The planning system sends instruction to the language system.

The language system then encodes linguistic evidence of my intentions

Planning

PRIOR INTENTION

Intention to communicate that Dan is talking.

SUBPLAN

Instruction for language system to encode

λp . (∃x : x is the speaker) p = λw . x is talking at w

Planning

PRIOR INTENTION

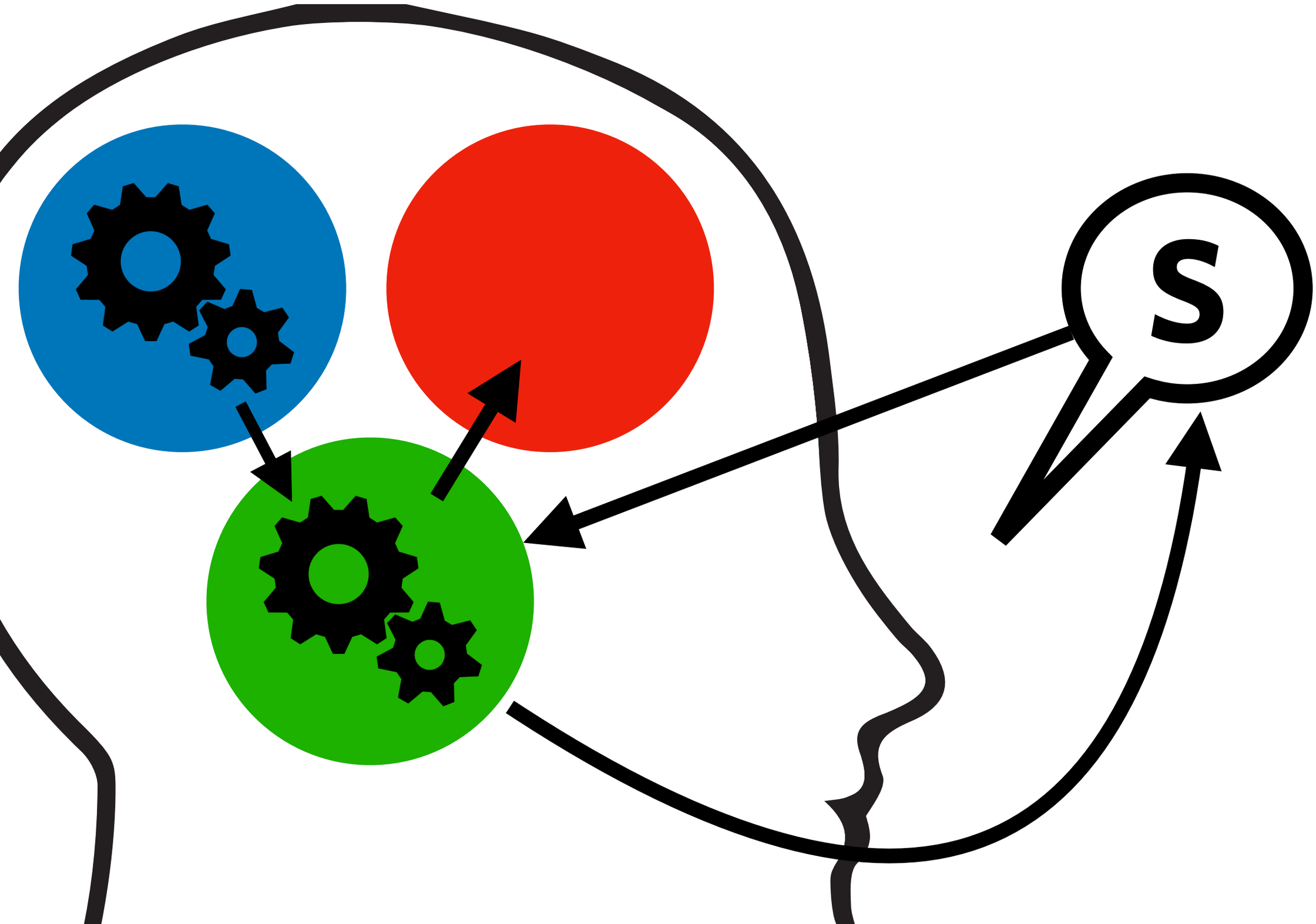
Intention to practice communicating that Dan is talking.

SUBPLAN

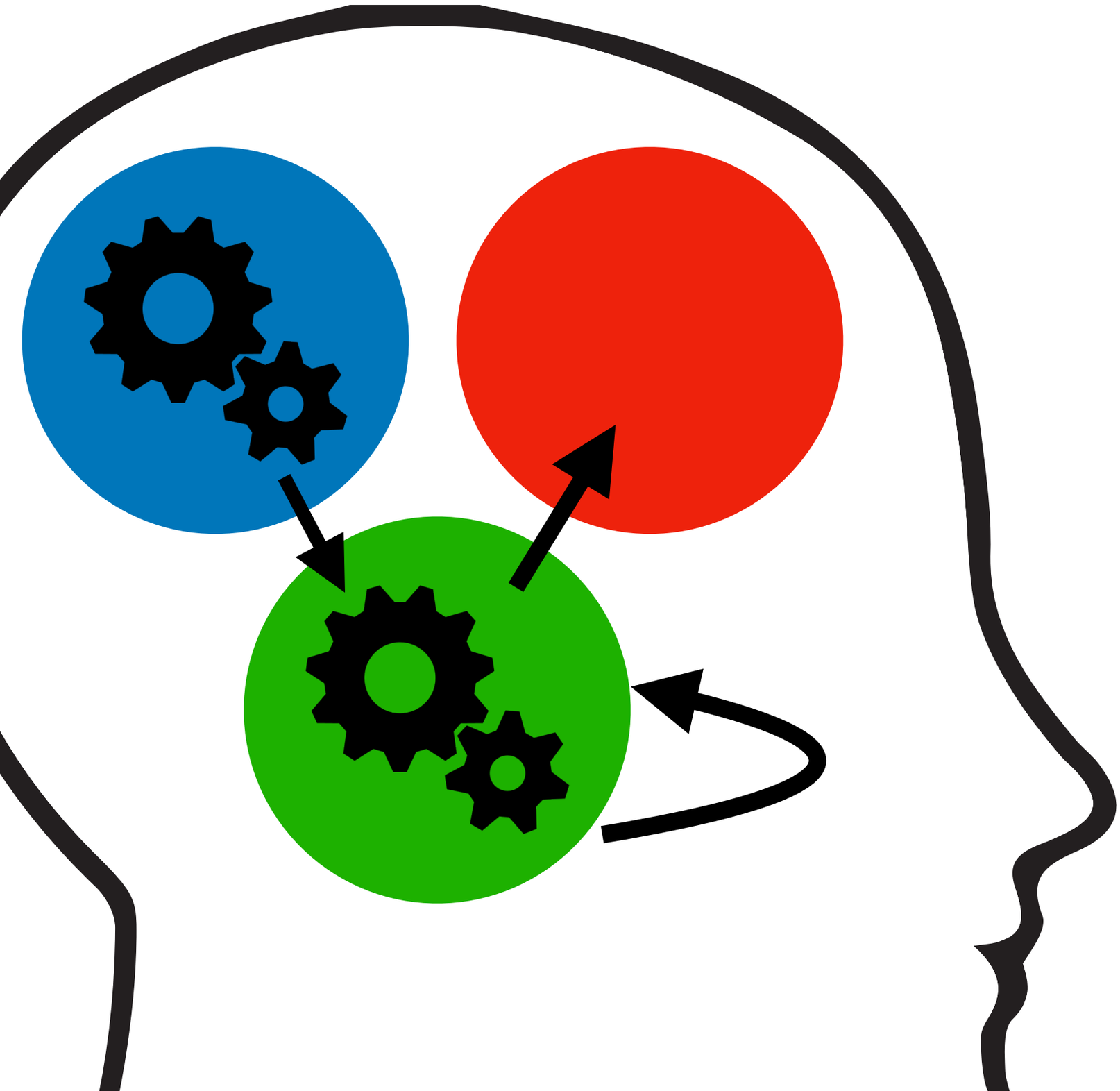
Instruction for language system to encode

λp . (∃x : x is the speaker) p = λw . x is talking at w

Vocal Rehearsal

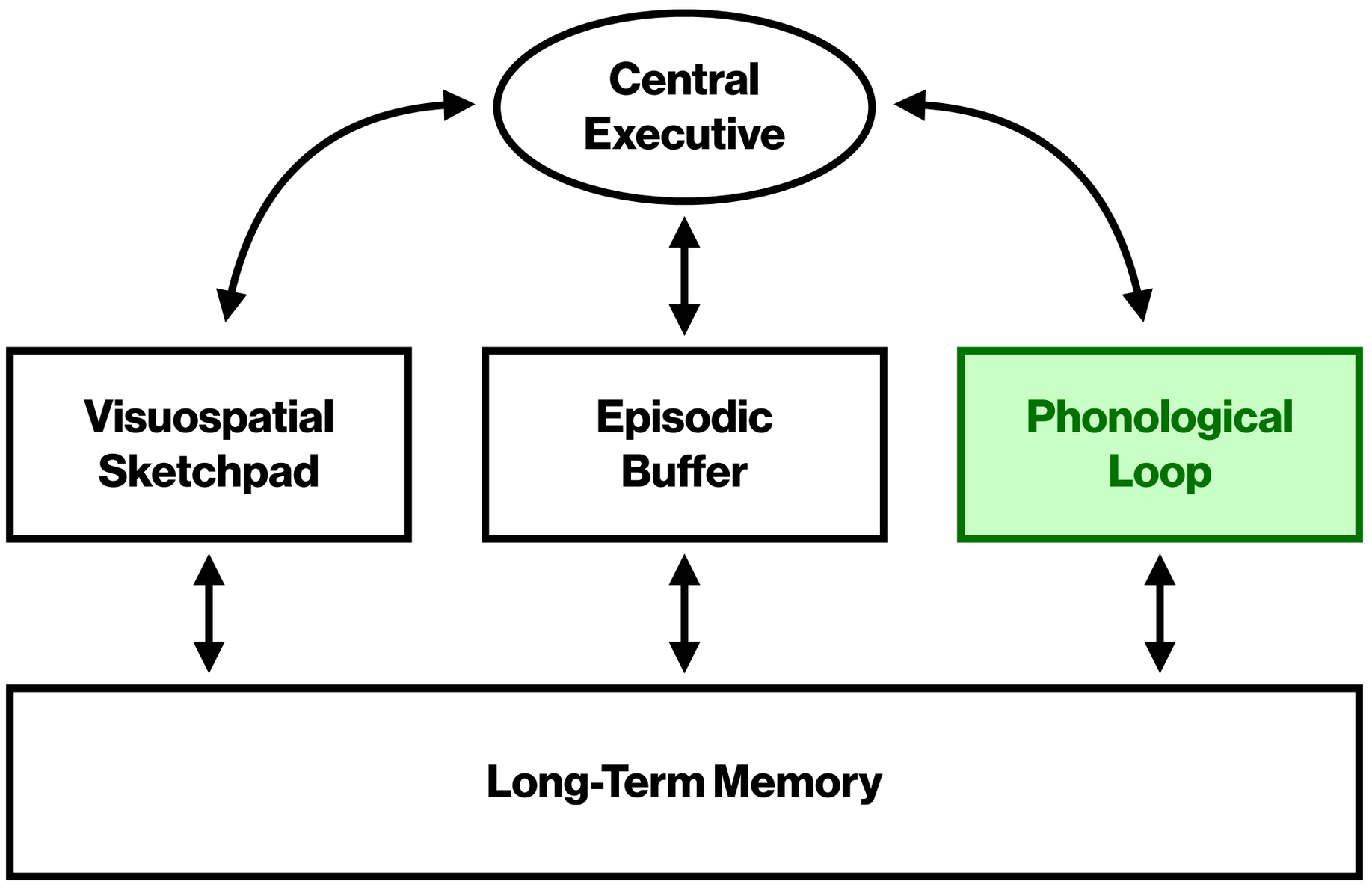


Subvocal Rehearsal

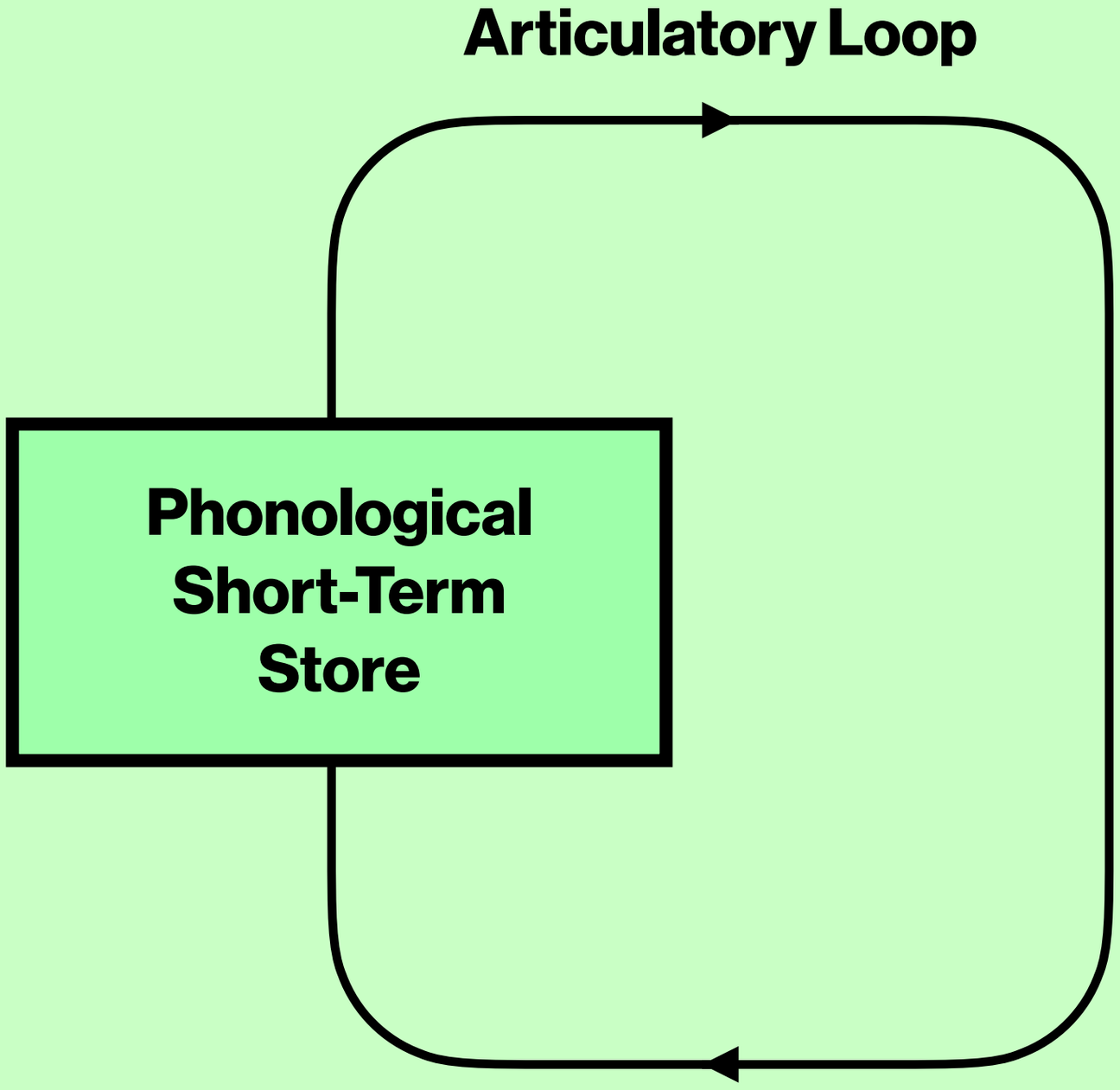


Working Memory

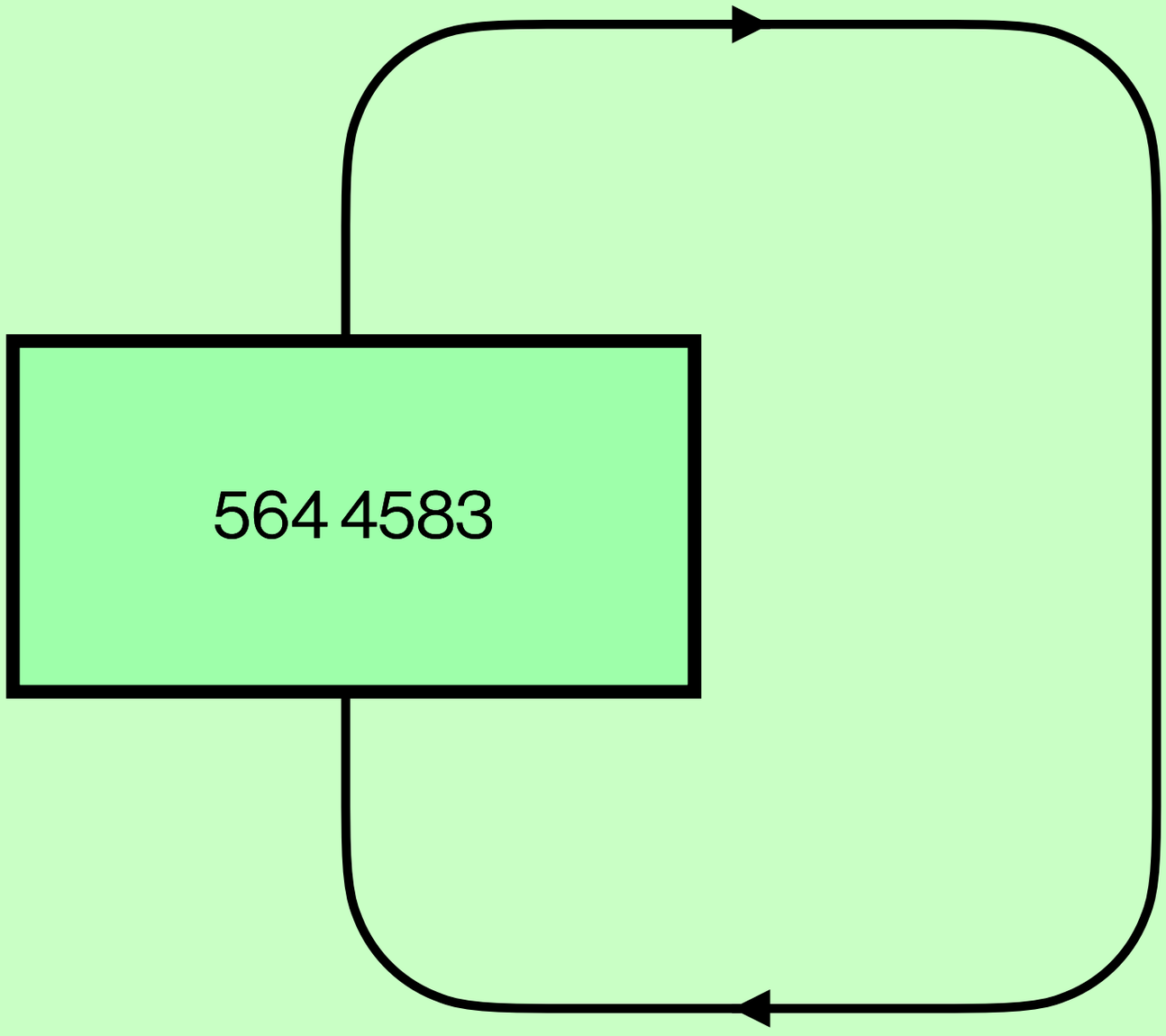
Baddeley (2000)



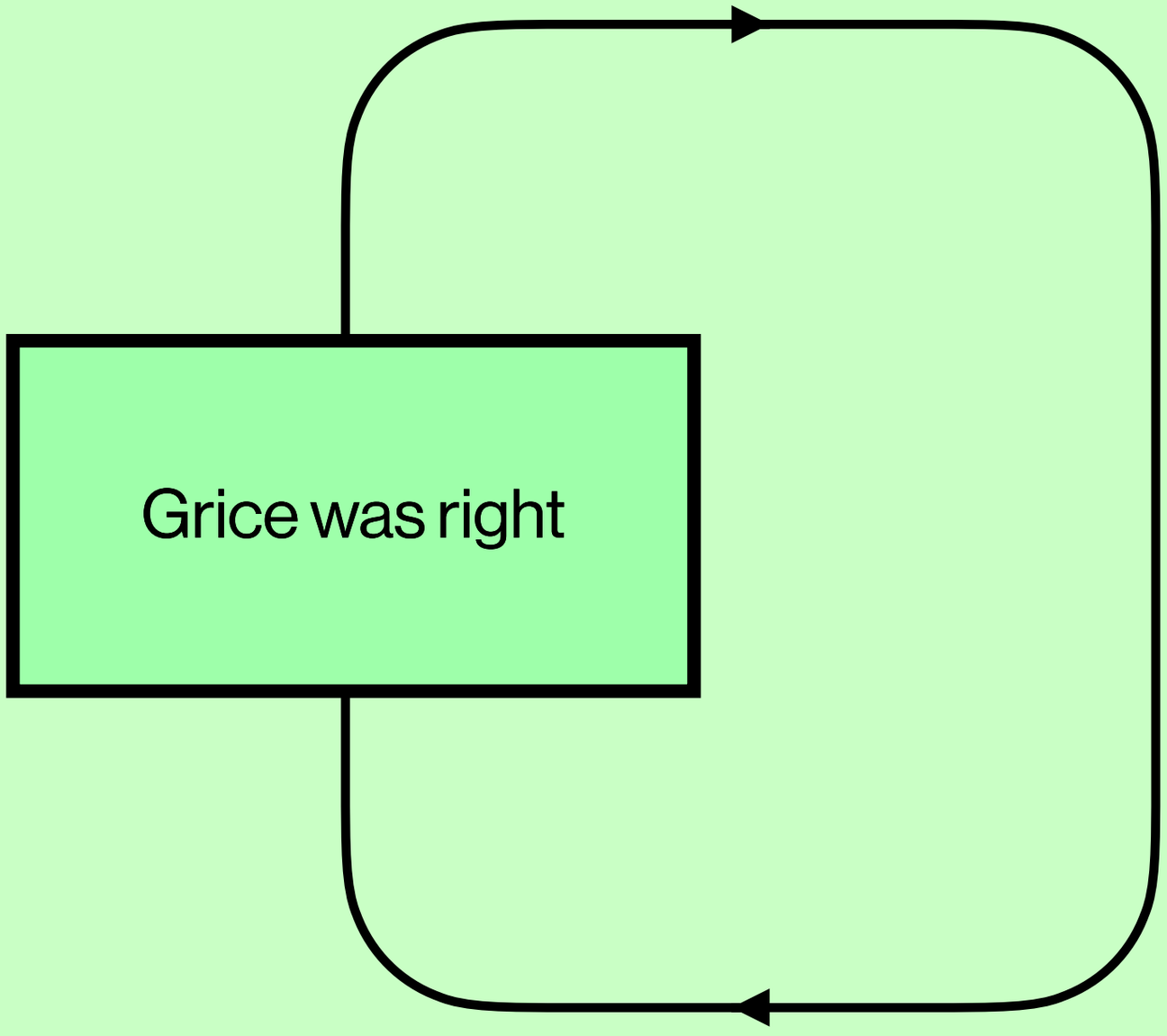
Phonological Loop

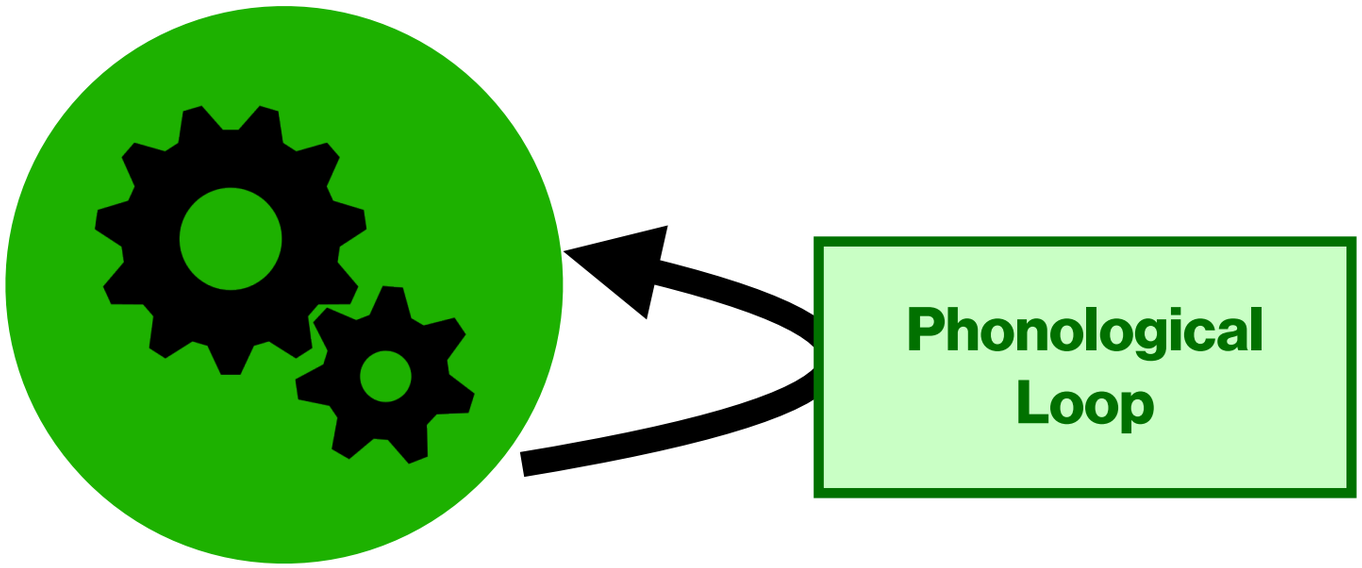


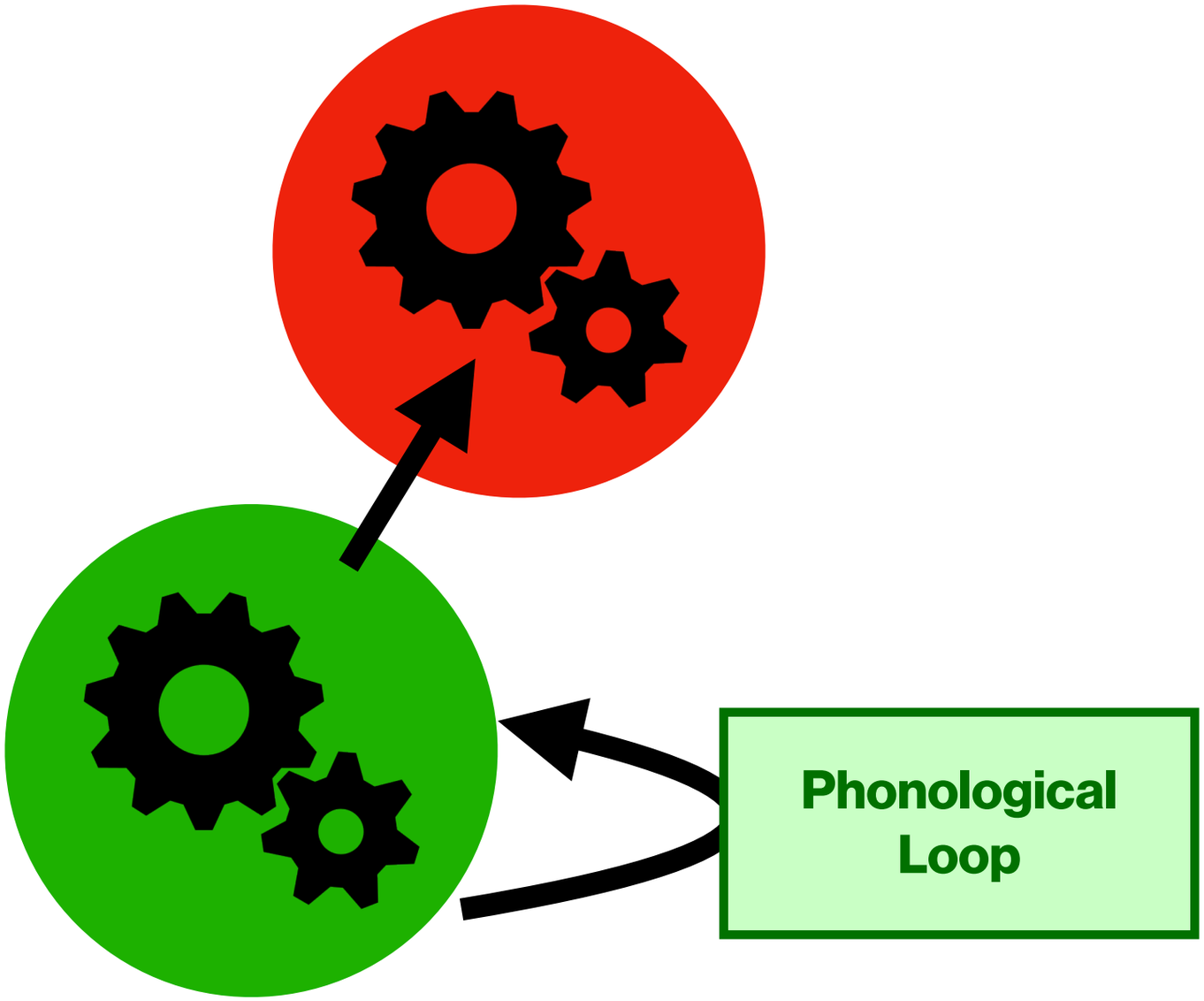
Phonological Loop



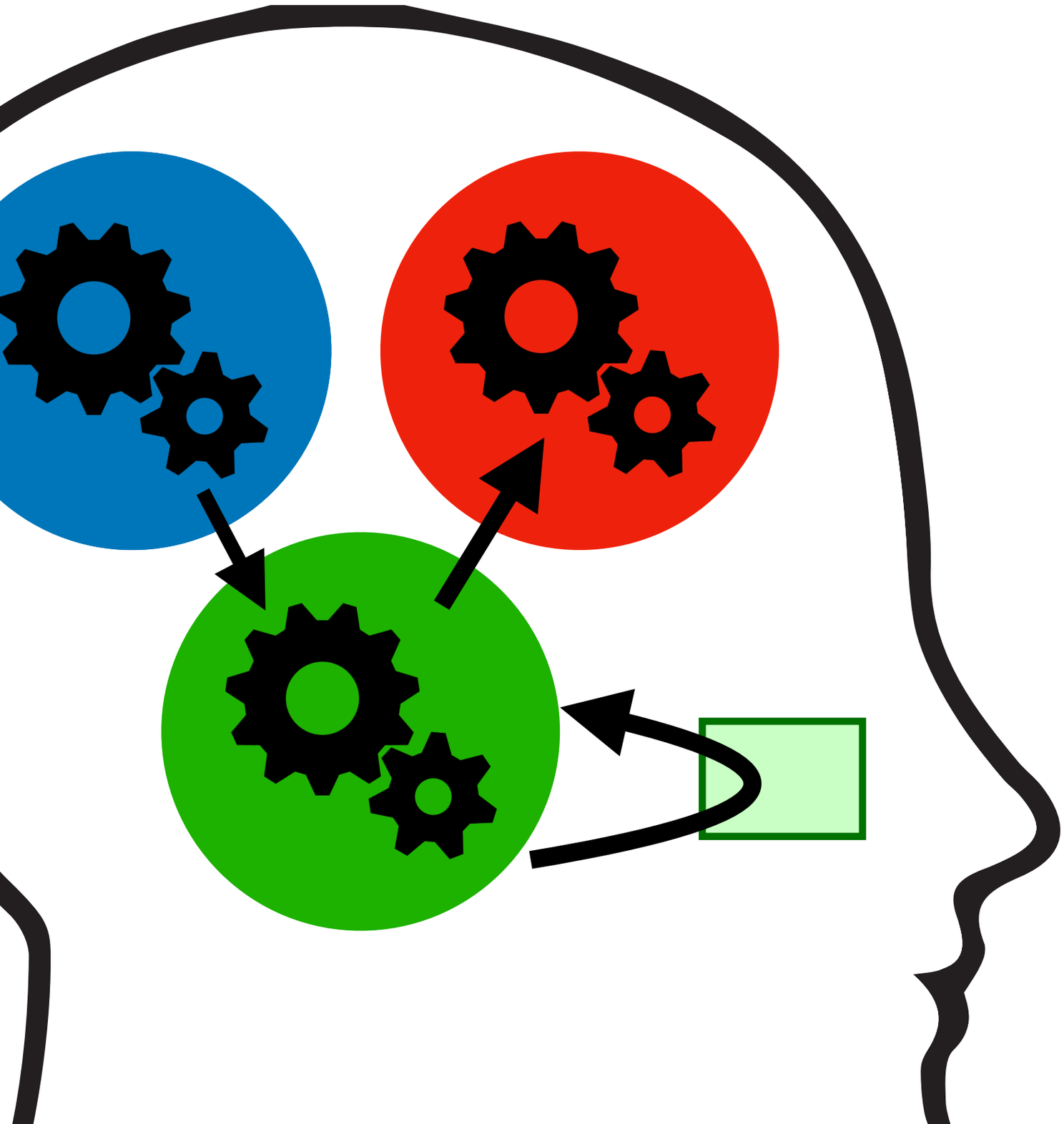
Phonological Loop




Phonological
Loop


Phonological
Loop

Subvocal Rehearsal



- Verbal-working-memory deficit → more egocentric speech and interpretation (Lin et al 2010)
- cognitive load → more egocentric speech and interpretation (Keysar 2008)
- cognitive load → faster speech, but more errors (Ivanova and Ferreira 2008)

Cf. work on language production and audience design by V. Ferreira (2009)

ANNUAL REVIEWS

Annual Review of Psychology

A Mechanistic Framework for Explaining Audience Design in Language Production

Victor S. Ferreira

Department of Psychology and Center for Research in Language, University of California, San Diego, La Jolla, California 92093, USA; email: vferreira@ucsd.edu

Annual Review of Psychology

A Mechanistic Framework for Explaining Audience Design in Language Production

Victor S. Ferreira

Department of Psychology and Center for Research in Language, University of California, San Diego, La Jolla, California 92093, USA; email: vferreira@ucsd.edu

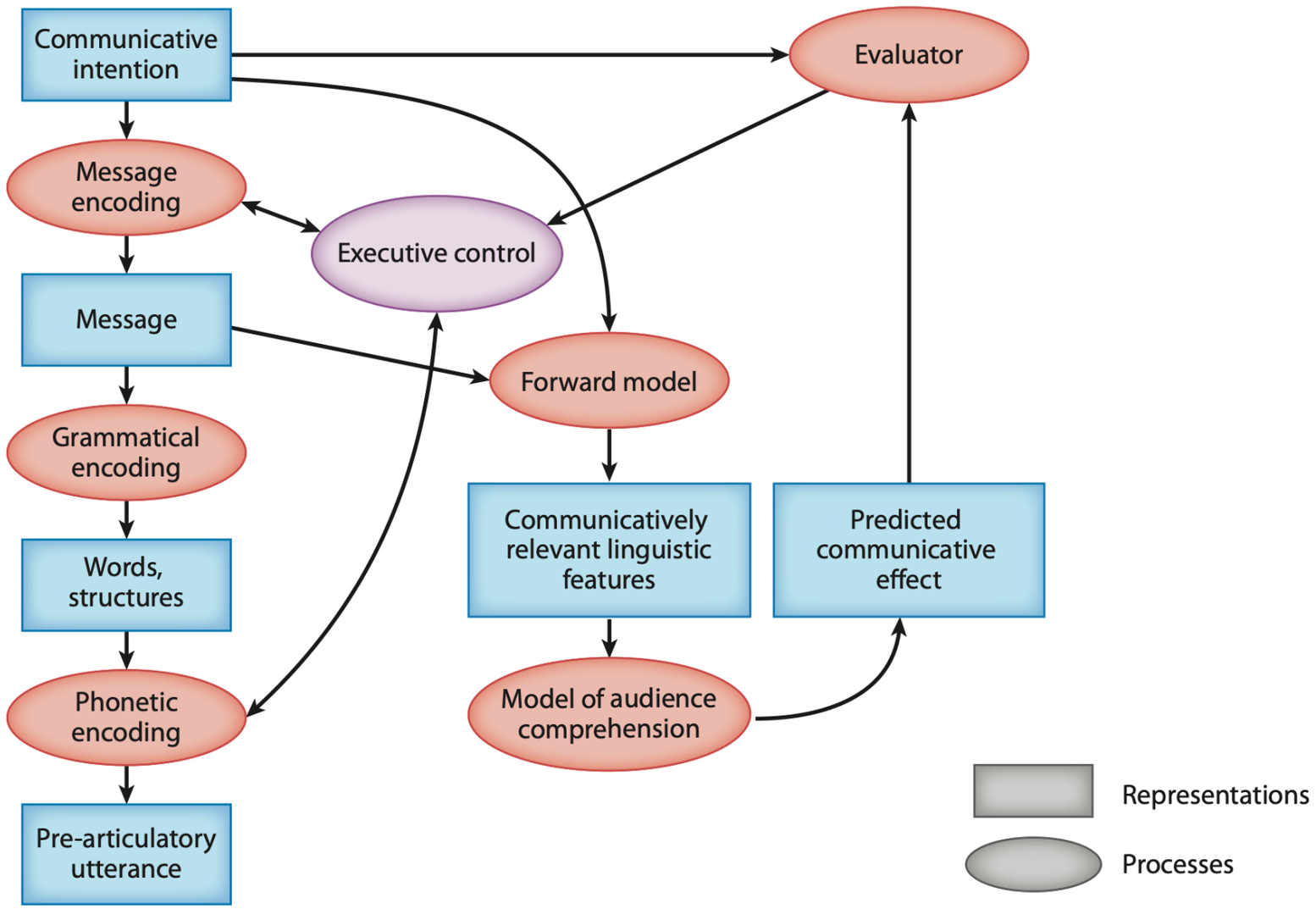


Figure 2

Architecture of audience design using forward modeling to predict and adjust based on communicative effects. Representations of the communicative intention and message are fed to a forward modeling process that computes communicatively relevant features and uses those features to generate predictions of likely communicative effects.

Shin:
There are two sub-processes in communication design: “message design is the process of deciding what to communicate to whom, and signal design is the subsequent process of deciding how to convey this message to the addressee.” (p. 3). It seems to me that signal design is supposed to proceed message design, since design process is hierarchical and depends on what a speaker wants to communicate (p. 8). If the whole process has psychological reality, as argued in section 5, is there any temporal order between message design and signal design? (My further concern with this question is the possibility of feedback effect between these two designing mechanisms. Can a signal design process affect the content of a message? though I have no such particular example now)

Kelly:
I'm wondering if the temporal order of this iterative process can be reversed, in which a communication is designed from one of the downstream decisions/practical constraints. Take the dinner party as example, I can imagine someone hosting a dinner party inspired by the very fresh scallop they found at the market that day or by a neat collection of dinner plates they just purchased. And all the steps of the hierarchical practical reasoning process will be the same but reversed or different in temporal order. In this case, is the intention to host already present but not partial? Or that our communication design process is able to take into practical constraints in no particular temporal order and work them into the hierarchical reasoning process? Or is it that in cases like this, the intention is different altogether? This question arises because it seems like the explanation of the hierarchical practical reasoning implies that temporally prior decisions/information inform later decisions.

Out-of-order case 1:

You start talking before you finish designing the whole message:

What's something that happened in 1998?

In 1998...
Michael Jordan...
...had the most...
...exciting...
...and scrutinized...
...season in the history of...
...professional sports.

Out-of-order case 2:

You revise your message after already saying part of it.

What's something that happened in 1998?

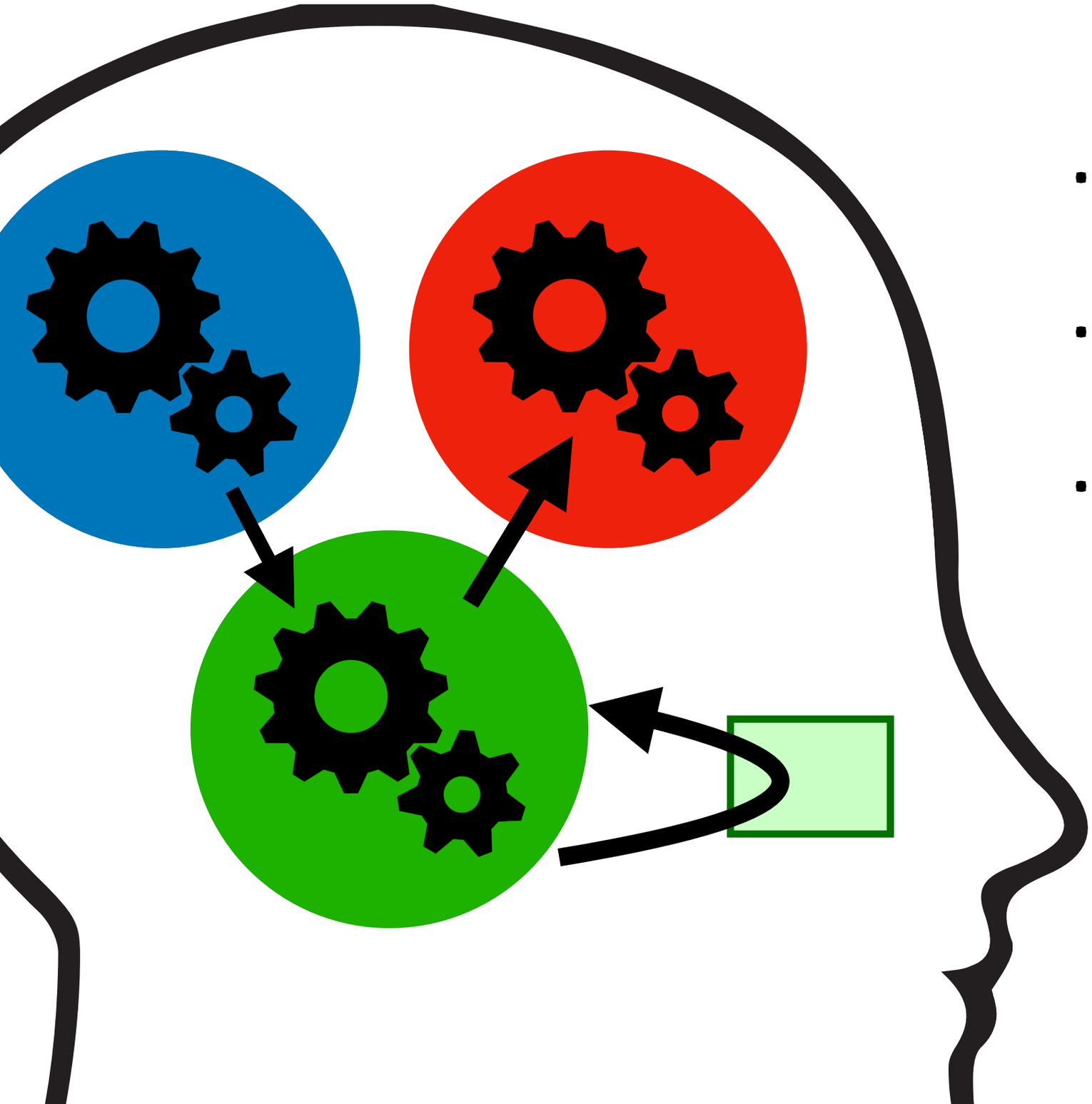
In 1998...
Michael Jordan...
...had the most...
...exciting...
...and scrutinized...
...season in the history of...
...professional ~~sports~~...
...I mean basketball.

Steve, responding to Shin:
I imagine there's (at least) two ways signal design might affect the content of a message. (a) different signals not be capable of expressing identical contents, or (b) the signal, once designed by the speaker, changes the content of the message as understood by the speaker.

I'm not sure of examples of (a), so let's try (b): I think, a lot of the time when we're doing philosophy, what we're doing is figuring out what the content of our message is. So maybe: the content of the messages we have floating around in our heads is amorphous and unspecified, and the point of signal design is to precisify the message into determinate propositional form.

Another thing you might say in the ballpark of (b): the process of artmaking is expressive; you're getting something you know not what from inside you, out onto the canvas/the written page/etc (one classic discussion is Greenberg's "Modernist Painting," attached). And once you've done that, you stand back and look at the signal you've designed, realizing what the message is (think Pollack slapping rocks and paint and cigarette butts all over his canvas). One plausible explanation of this data: the creation of the signal shaped your message, and helped you understand it.

Clarifying Thoughts?



- It *seems* like we sometimes speak in order to clarify our thoughts.
- Writing is a good example of this for many people.
- Is this even compatible with Grice's view that what we say is determined by our intentions?

Planning

PRIOR INTENTION

Intention to practice saying that .

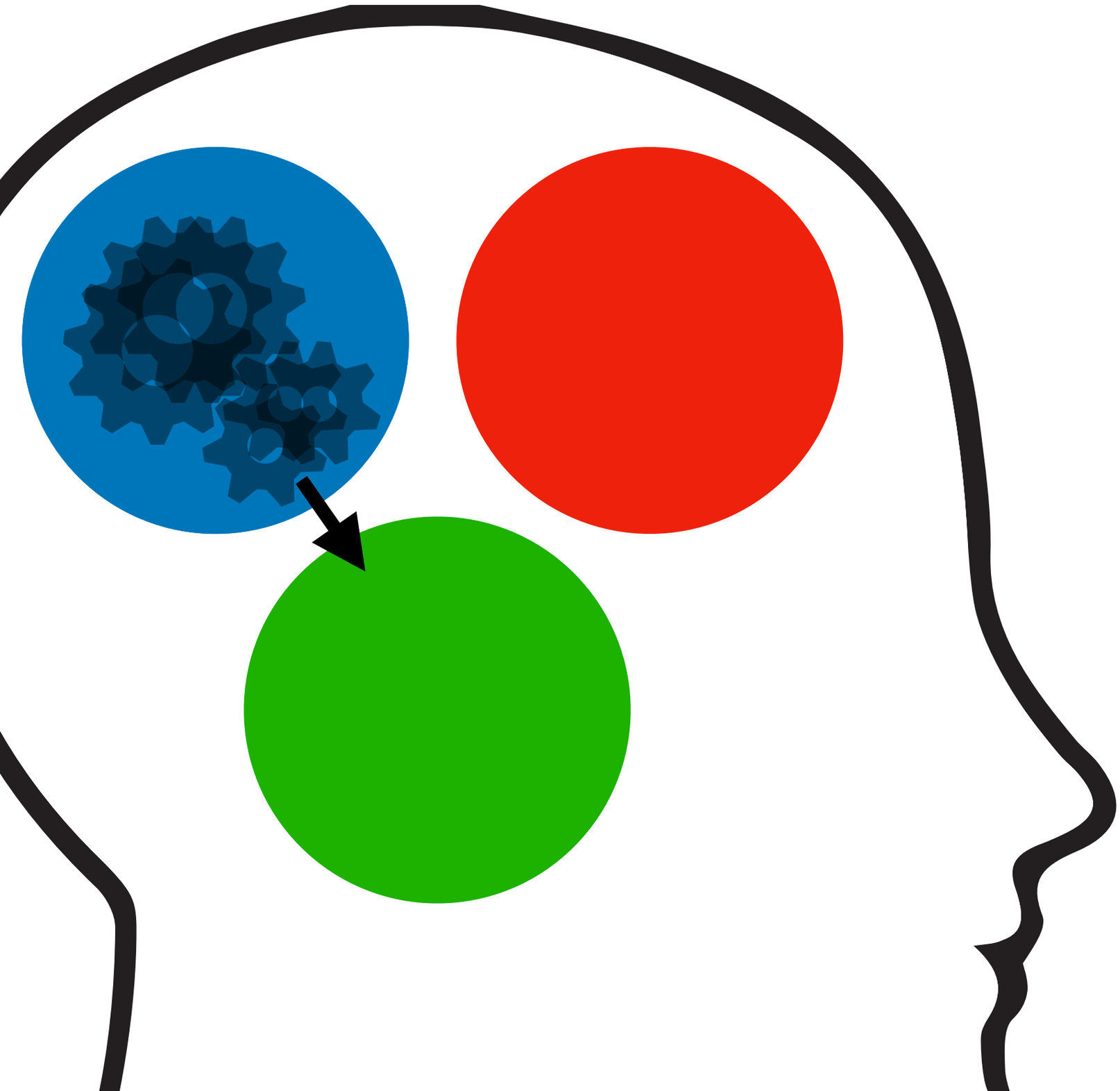
Grice was right

SUBPLAN

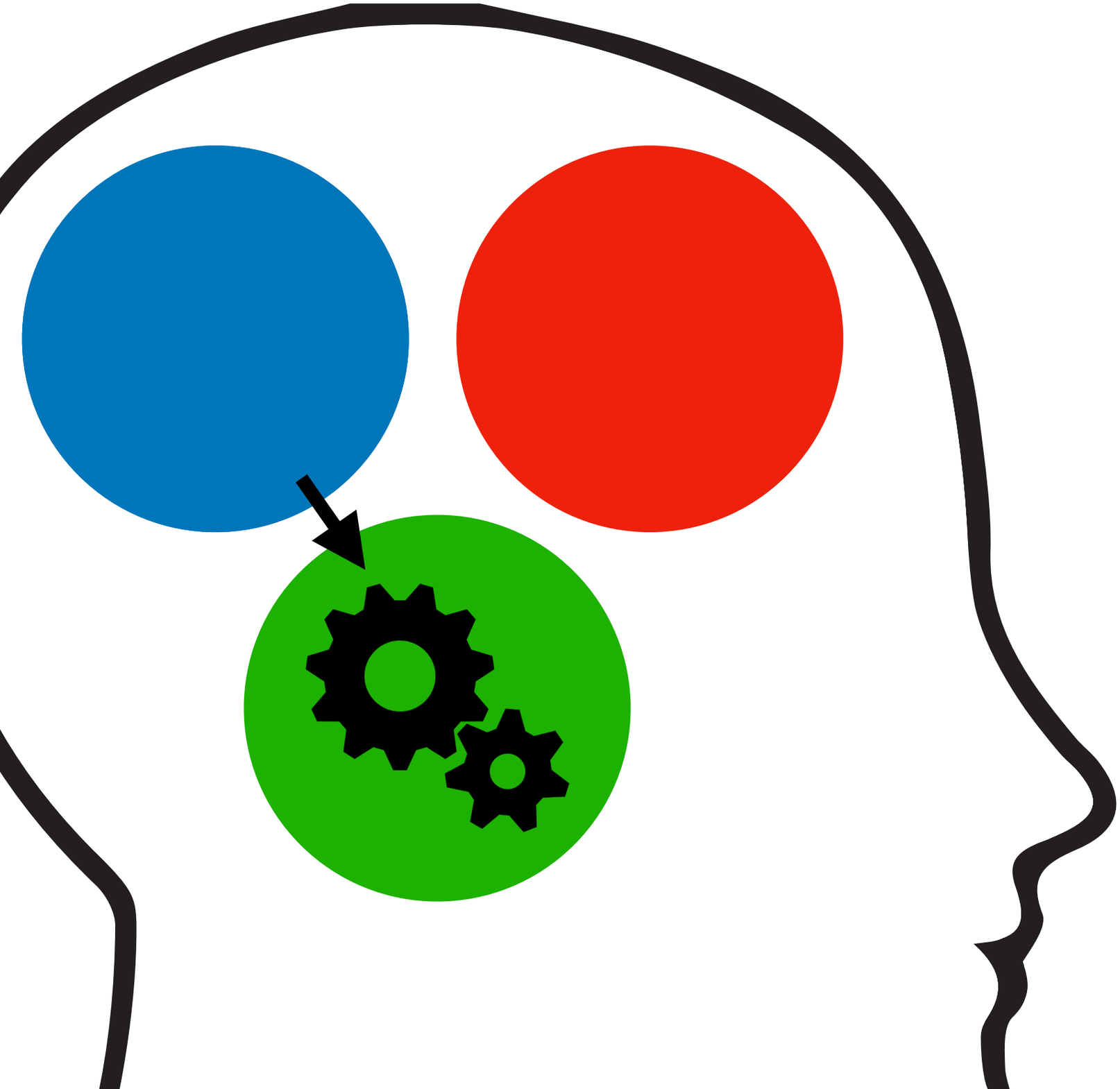
Instruction for language system to say that

Grice was right

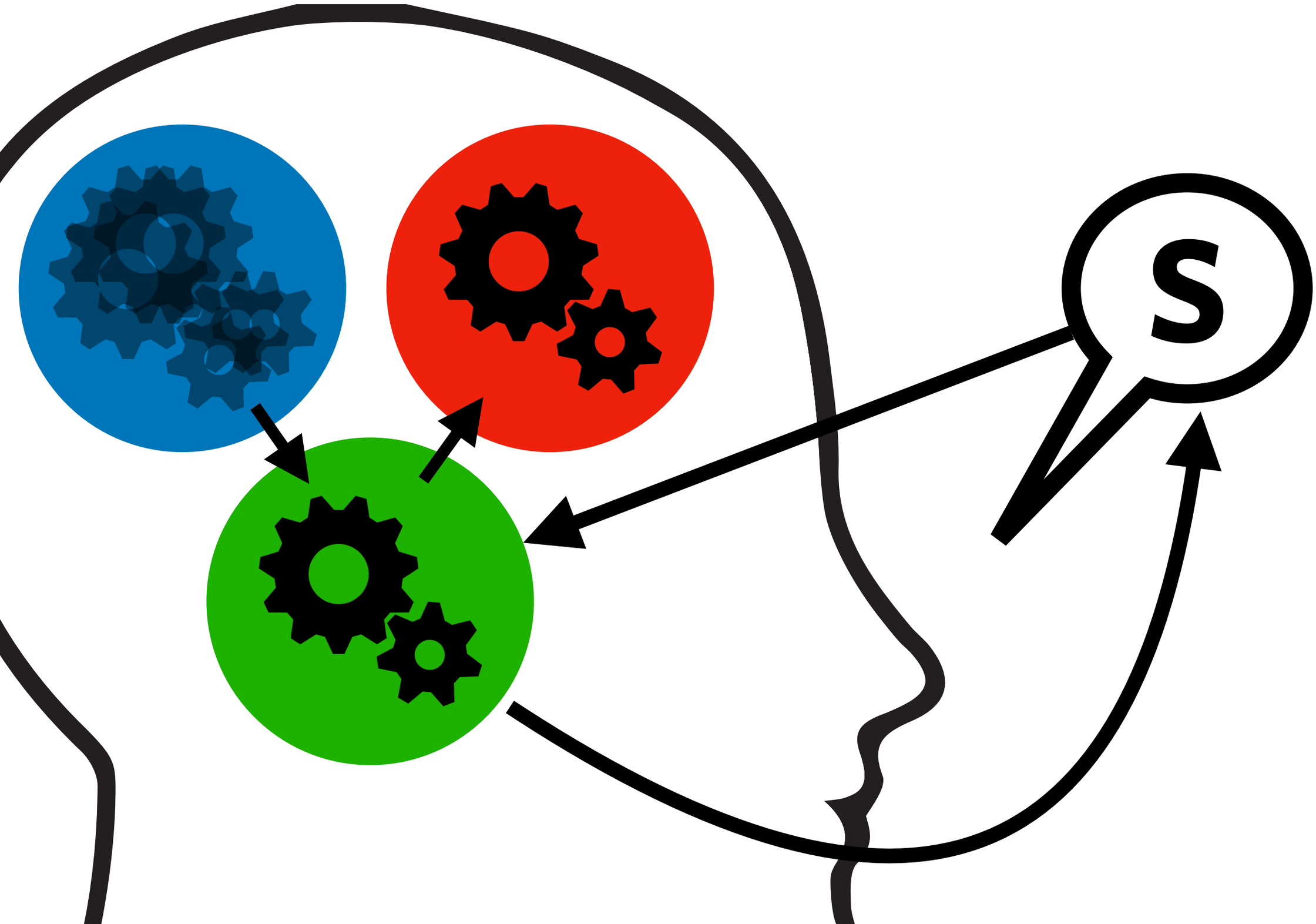
Clarifying Thoughts



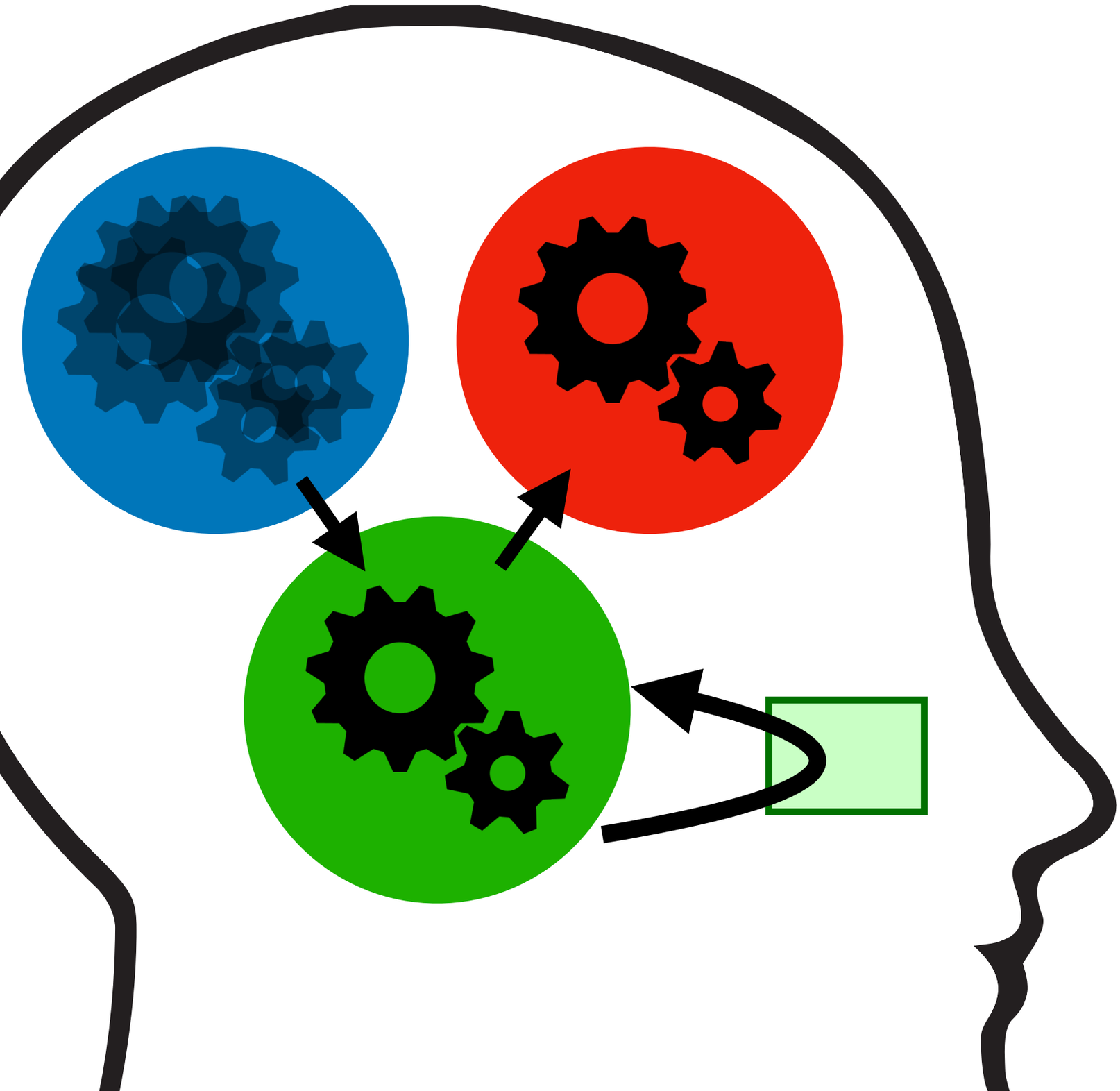
Clarifying Thoughts



Clarifying Thoughts

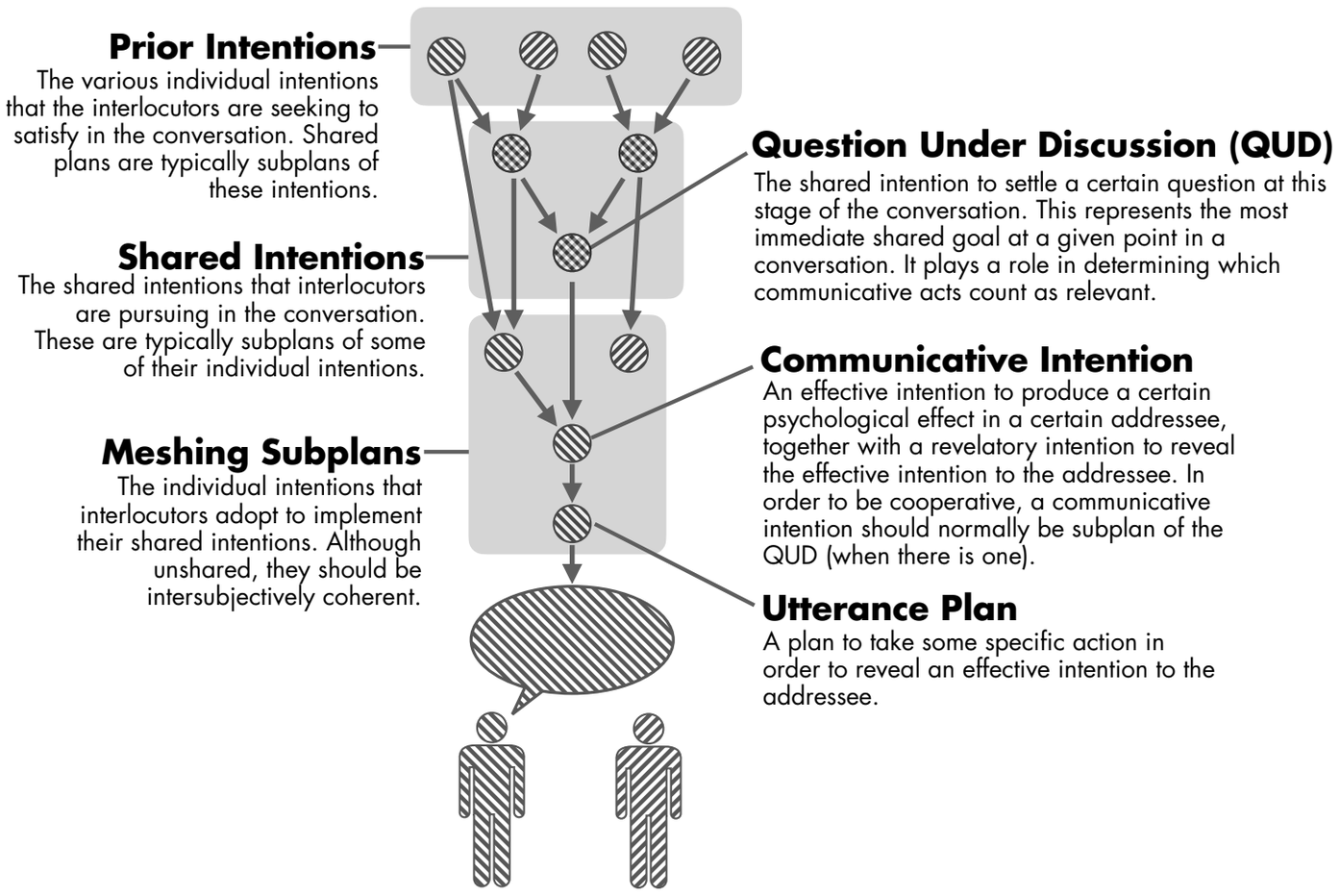


Clarifying Thoughts



3. Planning Conversations Together

(Sept 28)



We reveal our intentions to our addressees to allow them to coordinate their communicative efforts with ours.

More generally, we reap many benefits from treating communication as a shared, cooperative activity that is governed by shared plans.