

UNITED WISDOM

Prediction and perception: what the brain expects to see

World and Consciousness

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Epigraph

> *Custom, then, is the great guide of human life.*

David Hume, *An Enquiry concerning Human Understanding*, V.6, SBN 44–45; English text. The context concerns customary inference from experience, rather than a modern neural mechanism.

What this article is about

We expect a familiar sign, recognize an object in poor light, or notice something departing from an established arrangement. Such situations invite a question: does perception only receive information, or also use what is already expected? An answer needs care. A person's conscious supposition, a theoretical information-processing model, and an experimental measurement are different things. This article considers expectation in Hume, a modern proposal about predictive processing, and one primary visual experiment. It does not suggest that thought arbitrarily creates the external world or that positive expectations change reality. We will distinguish expectation from desire, examine why a weaker measured signal need not mean less represented information, and consider how a first impression can remain open to correction. Everyday scenes are hypothetical. The practical task is smaller than a comprehensive brain theory: notice what was assumed, what was actually presented, and what now needs checking before deciding what the encounter establishes.

I. Forecasting a future and recognizing a present

Imagine someone approaching a familiar shop and reading the name above its door. In this hypothetical scene the sign has changed, but the person initially names the previous shop. That does not demonstrate a particular mechanism: we invented an encounter rather than conducted research. It does let us separate questions. The person expected the former shop; a definite inscription was present; the first answer was inaccurate. Prediction here need not concern a distant future. It can be a supposition about what is before us now. This makes the discussion broader than weather forecasting: previous knowledge meets a current presentation, and their relation becomes a question for examination rather than an explanation already established for any incorrect response.

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The word expectation also does several jobs. We can wait for a door to open, believe a particular inscription is above it, or hope the shop survives. The first concerns an event's arrival, the second an assumed content, and the third a desirable outcome. They may coexist in one person without being interchangeable. Desire sometimes needs discussion separately from the grounds of a forecast. When a scientific author speaks of prediction, this does not automatically mean that a participant formulated a conscious hope or felt a particular emotion. A reader should first recover the term's meaning in the specific work. Otherwise an everyday word quietly explains a process that nobody measured or reported in that particular sense.

Clarification need not prohibit ordinary language. In conversation, 'I expected to see something else' can be perfectly useful. Research inference needs more than verbal convenience: conditions and observations must distinguish expectation from its absence. In our scene the initial name and later reading provide two responses. What happened between them remains unknown. We might ask which line was read, whether the new inscription was seen, and when the change was recognized. These questions do not announce the brain's organization; they define a more definite conversational subject. A good formulation distinguishes a person reporting a supposition from a model intended to explain data. Their encounter is interesting because neither description should close every question belonging to the other in advance.

II. Hume: expectation without a preceding proof

In Section V of the Enquiry, Hume asks how the transition from the observed to the expected arises. The paragraphs actually read, 2–12, develop custom's role: repeated conjunction disposes someone to expect one event upon another's appearance. This is philosophical reasoning about inference from experience. It neither measures visual cortex nor uses today's predictive-processing terminology or experimentally confirms it. The historical text performs a different job: separating a customary transition from proof of a necessary connection. Confidence that a familiar sequence will continue does not itself make its continuation logically compulsory. That boundary is worth retaining when familiarity becomes grounds for a practical decision rather than allowing habitual confidence to stand in for all further evidence.

Consider another invented case: in a familiar room a lamp normally responds to one switch. Someone uses it without first giving a lecture on electricity. Such economy of action makes sense within the ordinary task. If no light appears, however, repeating the expectation does not investigate present conditions. Perhaps the arrangement has changed; perhaps the question has another structure. We are neither establishing the fault's cause nor offering repair instructions. We are examining a response to mismatch: the earlier arrangement helped initiate action, while the new result calls for clarification. Confidence need not vanish altogether. It can become narrower: 'This worked before; I do not yet know what happened now.' That retains both experience and a fact that does not presently agree with it.

Hume is not needed here as authority for ‘everything is illusory’. Customary inference does not imply that every inference is equally good. Our own question remains practical: what grounds does the chosen action need, and how consequential would an error be? Checking a new shop name may be easier than deciding from complicated disputed testimony. We introduce that distinction editorially; it is not a concealed quotation from Hume. The historical source helps expose a transition’s conditional character, while a further choice requires the definite task. Reading a tradition becomes a substantive conversation when we name what we took from the text without assigning answers it did not provide. A contemporary model still needs its own grounds even when its question resembles an earlier philosophical problem.

III. A theoretical prediction need not be a spoken thought

In Whatever next?, Andy Clark discusses a hierarchical model in which predictions interact with incoming information and discrepancies. The actual reading covers the abstract, introductory sections 1.1–1.2, and a selected caution distinguishing general principle from particular architecture. This is a processing proposal, not a new human sample or declared final consensus. The relevant boundary is that a model’s term need not mean a consciously spoken forecast. A claim about definite neural organization needs separate examination; the image of a brain guessing does not perform that work by itself.

An invented card-sorting arrangement can clarify the distinction. Someone has a rule: a card bearing a certain mark goes in the left box. They can state that rule aloud. An automatic system might also sort by a specified condition, but matching outcomes would not establish a human experience of expectation in that system. The arrangement neither models the brain nor constitutes an experiment about consciousness. It exposes a translation error between levels: a familiar psychological word does not transport all its properties into every computational process. When reading, ask what is predicted, how a supposition is represented, and what observation supports calling it changed. Without such clarification a technical term quietly turns into a little person living inside the head.

Metaphors can nevertheless help when their intended job is explicit. ‘Guess’ may communicate a decision’s provisional character: correction remains possible. It does not prove an internal sentence, separate decision-maker, or human doubt in every described mechanism. In our own arrangement we can replace the image with questions: what information is available, which alternatives are allowed, what was expected, and what changed the answer? These are not a complete scientific protocol. They help readers detect an explanatory omission. If only an appealing picture remains, the grounds are still insufficient. If a procedure and data have been specified, discussion of a model can become definite while retaining the difference between its formal meaning and the accessible language used to tell a popular account of it.

IV. One experiment: expectation and represented information

In the primary 2012 study by Kok, Jehee, and de Lange, 20 people initially participated; after two exclusions, 18 were analyzed. An auditory cue predicted grating orientation with 75% validity; tasks concerned orientation or contrast. Using fMRI and multivoxel classification, the authors reported reduced V1 amplitude but improved pattern-based orientation classification for expected orientation. Main methods, results, and discussion were read, not supplementary material. This finding is bounded by that procedure; sharpening representations remains the authors' interpretation rather than proof of perception's complete architecture.

Why does the distinction between measures deserve attention? Imagine two hypothetical tables. One has more entries, but relevant categories are mixed together. Another has fewer entries arranged so the categories can be distinguished. Row count and classifiability are different properties. This analogy neither explains a neural signal nor makes a table a visual-cortex model. It exposes the logical problem in 'less activity means less information'. Such an inference first needs a named activity measure, an information assessment, and reasons for expecting a simple correspondence between them. Otherwise one measure's magnitude replaces the entire question. The analogy should stop where the definite research procedure begins, instead of continuing into an invented physiology supposedly established by the illustration.

When reading an experiment, retain three consecutive statements: what was done, what was found, and how the authors explain it. The last need not be wrong; it simply performs a different job. Competing explanations should be assessed against data rather than dismissed merely because they are interpretations. Nor should a summary, figure, and discussion count as independent confirmations when they describe the same result. Attending to this boundary does not devalue an experiment. It makes its real contribution visible without assigning every question about people to it. Knowing how a result was obtained makes an inference more examinable than a reference to the brain in general. Readers gain grounds for definite agreement or a definite further question, rather than an obligation to adopt a finished worldview.

V. Expectation does not cancel what is presented

Return to the sign. If someone reads the new name after their first response, the possibility of correction matters. One cannot both declare the inscription arbitrarily created by expectation and use it to check the earlier response without explaining that transition. In our hypothetical scene different answers concern a definite object: the sign above the door. It does not become any convenient version simply because familiar context participated in recognition. This is editorial reasoning about a check's form, not proof of philosophical realism or a particular neural model. We retain the object sufficiently to compare two assertions. Otherwise 'perception' quietly replaces an examinable encounter with an account to which every possible content fits equally well in advance.

Retaining an object does not require instant infallibility. Dim lighting, distance, another person's account, or an available image may enter a question about what was established. This article has not measured those conditions' effects. They are possible questions for a definite encounter, not established causes of every mistake. If the name matters, someone can choose a suitable check: read it closer, examine an official notice, or ask which record currently applies. The method depends on the task and available options. A further action supplies new grounds; it neither rewrites the earlier impression nor turns it into a lie. Fallibility remains part of working with content rather than a reason to declare someone unreliable in everything they report.

Distinguishing impression from checking also matters for respect. We can accept someone's report of initially seeing a familiar name without agreeing that this name is now inscribed there. Their experiential account and the shared task of establishing the inscription need not compete for a single status of reality. They answer different questions. A definite clarification might be: 'You are naming the previous shop; let us look at the current line.' This does not promise universal conversational efficacy; other relationships may be more complicated than one scene. It illustrates an available choice: neither denying someone's experience nor abandoning examination of an external assertion. Agreeing with all reported content is not the only way to hear another person; accuracy can remain part of respectful conversation.

VI. Mismatch invites clarification rather than a verdict

We need the word error, but its meaning depends on the question. Misnaming a shop is an incorrect response relative to the current inscription. An error in a mathematical expression may be defined by a formal rule. Human culpability requires another conversation about responsibility and circumstances. A technical discrepancy in a model does not automatically carry that last meaning. If an information-processing account includes prediction error, this does not itself mean someone lives badly, lacks maturity, or is morally at fault. The shift is tempting in popular explanation: the familiar word makes the account feel already understood. Restore its definite subject: what is compared with what, how is a difference established, and which inference actually follows from that difference?

Surprise is not a ready-made instrument either. Someone in our hypothetical scene was surprised by the new name; that is a possible personal reaction rather than a measurement of every necessary variable. Another person might expect the change and feel no surprise, while a third might find the name irrelevant. We imagined these differences rather than established them in a sample. An experience’s intensity should therefore not directly replace a technical quantity from a scientific model. ‘I was surprised’ can matter for understanding someone without supplying a numerical process estimate. Two descriptive languages can meet in research if their procedure and relationship are specified. Until then, careful speech lets experience retain its human meaning and the model its defined technical one.

A practical mismatch can be made definite: ‘I expected the previous name, read another one, and want to establish which shop operates here.’ This does not prove neural updating. It connects a supposition, present grounds, and a next step. Some questions need no more; others require a competent source or another check. The choice follows the decision’s consequences rather than a wish to maximize surprise. Someone may also postpone answering when new information exists but its significance is unclear. A pause need not become endless doubt. It can have an intelligible ending condition, such as obtaining the currently registered name. This lets expectation change without demanding abandonment of all earlier experience or passing judgment on the person for an initial inaccuracy.

VII. Personal confidence and a measure’s definiteness

Someone may confidently name the former shop. Confidence describes their relation to an answer; it does not print the name on the sign. We need not call confidence useless to distinguish those questions. In conversation it matters how uncertain a speaker is and whether they are willing to check content. But confident delivery cannot directly become a model’s technical quantity; that correspondence would need explanation. No such investigation is provided here. When precision appears in a scientific text, establish whether it refers to response success, a measurement’s properties, or a special parameter. A familiar term can connect different meanings only after definition, not merely because it looks the same in adjacent sentences and makes a story easy to continue.

Consider a fictional shopping list with one illegible name. Someone may feel sure it is a favorite product because that item appeared in previous lists. They can also honestly say the current line has not been read. These statements are compatible: one names grounds for a supposition, the other limits present access. Separating them makes a next action clearer: clarify the line rather than dispute memory’s overall reliability. This example establishes neither an error frequency nor a particular brain region’s role. It helps retain an argument’s form. Familiarity with an earlier arrangement can matter for starting a search without certifying today’s presentation. Responsibility for the next choice remains proportionate to what this definite task actually requires.

In a shared task, people can agree on confidence language without ranking one another. ‘I infer this from the previous list’, ‘I read the current line’, and ‘I cannot distinguish it yet’ name different grounds. They need not describe three permanent personality types or test anyone’s sincerity. A consequential choice may need an accessible confirmation; an insignificant uncertainty need not trigger a lengthy investigation. The aim is not to abolish trust but to give it a definite subject. Trusting an experiential report and checking a particular name can coexist. Expectation then remains useful for clear discussion rather than becoming another scale of human worth or a demand to demonstrate every impression’s infallibility before joining an ordinary conversation.

VIII. A check must allow an unexpected answer

When checking a name, establish what could change the answer. Looking only for photographs of the old sign may not address the current inscription. Our hypothetical scene makes this visible without a large theory: one material concerns an earlier arrangement, while the question needs present evidence. This does not declare confirmation-seeking a pathology or establish a hidden mechanism. We are discussing whether a checking method matches its question. A preselected answer can organize a search so contrary content never enters it. Name a possible disconfirming result: if a current applicable record gives another name, the initial supposition needs revision. Without that possibility, ‘checked’ may mean only ‘found the familiar once again’, although the task required something different.

The same issue arises when reading a scientific idea. If every success is called good prediction and every failure a special prediction of failure, an explanation may lose a definite risk of encountering contrary data. This is a conditional logical concern, not a verdict on all predictive-processing theories. Assessing a particular model requires its claims and testing procedure; its general name is insufficient. A preliminary reader’s question is available: what observation would distinguish this account from another? A popular text may omit the answer, and omission there does not prove absence in the scientific work. It marks what we can currently assess. An honest account leaves that boundary visible rather than closing it with a universal statement about brains.

A personal decision can have a small revision condition tied to the chosen question rather than complete self-reeducation. ‘If the line differs, I will clarify the name’ is more definite than ‘If I was wrong, I will never trust myself again.’ The latter transfers one result to all future situations without grounds. The former preserves learning within a particular task. No clinical or educational study establishes this formulation’s efficacy here; it is offered as a logically clear action record. Someone can choose another wording, decline the exercise, or leave the question open. What matters is an available way to acknowledge new grounds without turning correction into personal defeat or demanding that every unfamiliar content be immediately accepted as true.

IX. Different expectations do not exhaust a disagreement

Two people might disagree about a sign, inviting an easy explanation through different expectations. Yet that is only a possibility. One may refer to a previous name and another to the current one; one may mean a registered name and another a trading brand. These alternatives have not been established in a real case. They show why even a relevant scientific word cannot replace clarifying a disagreement's subject. Ask which question each person addresses and what grounds they use. Such conversation need not produce identical internal histories. A shared task may only require establishing the presently applicable name while retaining the possibility that earlier answers concerned different objects. Expectation can identify one factor without absorbing language, purpose, and circumstance throughout a human encounter.

Explanation through expectations becomes particularly problematic when used to dismiss: 'You only see what you want.' Sometimes a definite error can be checked; sometimes the phrase ends a conversation without offering grounds. This article does not infer speakers' motives from one expression. It proposes restoring an examinable subject. Which content was inaccurate? What establishes its inaccuracy? What remains a report of personal experience? Different answers may call for different actions. An extra photograph will not resolve every disagreement, but neither is every disagreement an encounter between incommensurable inner worlds. Between those extremes there is room for definite clarification that neither promises to read another brain nor declares another position arbitrary before its grounds have been considered.

Respect does not remove participation boundaries. If a conversation becomes continuous accusation of incorrect perception, someone can stop the exercise and choose another discussion method or suitable support. That is an ethical possibility, not a diagnosis or universal advice about difficult relationships. Expectation does not itself justify coercing a single event version. A person need not prove complete transparency of an internal process to have the right to ask a question. Shared work needs a sufficiently clear object and acceptable conditions rather than one participant's authority over every impression of another. With those conditions, correction may concern one definite line. Without them, new terminology does not create them or oblige a reader to continue any conversation merely to apply a scientific idea correctly.

X. A familiar arrangement can remain open

Expectation matters beyond the possibility of explaining mistakes. It raises a question about previous knowledge entering a new encounter. We need not treat someone as a blank slate to allow examination of present content, or declare experience infallible to recognize its significance. These propositions are compatible within our argument. Perception’s detailed organization remains a research question. Hume’s historical reasoning, a theoretical proposal, and one experiment perform different jobs rather than providing three equivalent confirmations. Their comparison keeps a question open without turning openness into total groundlessness. We have actually read passages and definite boundaries. New knowledge can refine them if we know which assertion it supports and what procedure it actually used to do so.

A reader can reconstruct an unpretentious sequence: which expectation is discussed, what was presented, which response or measure was obtained, and what can be said on those grounds? In research every link requires the author’s precision. In an everyday scene a clear account of the chosen task may suffice while no scientific generalization is made. Movement between levels is possible, but should be named. ‘I assumed something else’ does not prove the brain’s complete architecture; measurement in a definite procedure does not automatically describe every property of a personal impression. Preserving both boundaries does not obstruct curiosity. It gives us a richer question than ‘the brain deceives us’: what relation between earlier supposition and present grounds was established, and what remains unknown?

At the familiar shop the outcome may be simple: someone reads the new name and corrects the first answer. They have neither abandoned all memory nor proved a new consciousness theory. They allowed a definite object to refine a definite supposition. That modest scale matters: reasonable correction need not come with a grand story of defeating the brain. Sometimes it is enough to say the arrangement previously differed, a new record now exists, and subsequent action will account for it. If content remains disputed, missing grounds can be named without presenting earlier expectation as final outcome. Familiarity remains a useful beginning and encounter with something new an opportunity to continue. Perception becomes an open question connecting interest in people with respect for content and its examination.

What this means in practice

Choose a neutral inscription or short list that can comfortably be examined. Before reading, record what you expect to find. Afterwards, separately state which line is actually accessible and what remains indistinct. Do not use consequential decisions or distressing material as an exercise site. This is a voluntary reasoning record rather than a perceptual diagnosis.

If expectation differs from what was read, formulate one next step matching the question, such as clarifying a current name through an applicable record. Name a condition for revising the answer, leaving room for the question to remain open. Do not turn one inaccuracy into a general verdict about yourself. If you reread, record the changed conditions: the first result is now known.

For research, make four lines: the expectation procedure, stimulus presentation, measured outcome, and inferential limit. Separately name the proposed explanation. An abstract link does not become full-methods reading, nor one finding all brain science. No efficacy, therapeutic effect, or diagnostic value is established for this practice here. A sufficient personal outcome is a clearer question and a suitable way to check the chosen content. Participation remains optional, and the exercise does not require trusting every new assertion merely because it is unexpected.

Key quotation

> *All inferences from experience, therefore, are effects of custom, not of reasoning.*

David Hume, *An Enquiry concerning Human Understanding*, V.5, SBN 43; English text. The sentence belongs to the customary-inference argument, not a modern experimental result.

Connections between traditions

1. **Hume: customary transition / Clark: prediction model.** Both raise a question about prior knowledge entering a new encounter. A philosophical argument does not become a neural mechanism, and a similar question does not establish historical influence.

2. **Clark: proposal / Kok and colleagues: definite procedure.** Theory and primary result can be discussed together without becoming two equivalent experiments or final confirmation of a complete model.

3. **Hume: confident expectation / experimental expectation.** Assumed and obtained content can be distinguished in both. Everyday custom is not the specified experimental manipulation; transfer requires separate grounds.

4. **Historical inference / contemporary interpretation.** Both benefit from naming a transition between grounds and assertion. Methods differ: participant counts do not assess a philosophical argument, and a historical quotation does not confirm an experiment.

5. **Predictive model / everyday correction.** Both allow discussion of new content, but a reader’s voluntary record neither tests neural architecture nor has established efficacy. This is editorial application rather than a general scientific conclusion about conversation.

Primary sources

1. David Hume. An Enquiry concerning Human Understanding, V. Primary historical text; §§ 2–12 and exact V.5–6 passages, SBN 43–45.

2. Andy Clark. Whatever next? Predictive brains, situated agents, and the future of cognitive science, 2013. BBS 36(3):181–204; abstract, introductory 1.1–1.2, selected architectural caution. Theoretical proposal.

3. Peter Kok, Janneke F. M. Jehee, Floris P. de Lange. Less Is More: Expectation Sharpens Representations in the Primary Visual Cortex, 2012. Neuron 75:265–270; main methods, results, and discussion, not supplementary material. DOI 10.1016/j.neuron.2012.04.034.

Tags

prediction, perception, expectation, Hume, custom, Clark, Kok, Jehee, de Lange, vision, V1, fMRI, interpretation, external world, desire, checking, mismatch, confidence, measure, experiment, model, error, surprise, primary source, sign, disagreement, uncertainty, respect, inferential limit

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