



Quine and language as a social art: projection, harmony, and the illusion of shared linguistic standards

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Abstract

Quine is generally taken to be a paradigmatic defender of the idea that language is a shared public resource, learned by internalizing shared standards. I argue that this misreads him. The correct Quinean picture is what I call the Projection Thesis: our linguistic practices result from the projection of individual organization and the harmony among individual neurophysiological mechanisms, not from the internalization of anything shared. Establishing this requires distinguishing Quine's heuristic vocabulary—behavioral dispositions, which delimit phenomena to be explained—from his explanatory vocabulary—neurophysiology, which actually explains them. Conflating these levels generates what I call the Philosophical Illusion: the seamlessness of practice is taken at face value, leading us to posit shared entities to explain it. I trace the Projection Thesis through two domains. In grammar, I show that the child's acquisition of grammatical structure is a projection from her own resources, not an extraction from the data—a point connected to Quine's indeterminacy of translation through the parallel with the radical translator's analytical hypotheses. In the domain of perceptual similarity standards, I show how the preestablished harmony among innate standards sustains communication without shared resources while generating the illusion of shared language. The philosophical payoff of dissolving this illusion is substantial: negotiation emerges as the real social art, and the absence of shared standards reveals that the only available measure of communicative success is the response of the other—a result that, as I argue in the conclusion, points toward a Cavellian picture of mutual responsibility as the ground of linguistic community.

Keywords Quine · Behaviorism · Bifurcation of the canonical notation · Preestablished harmony · Shared languages

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1 Introduction

Quine is generally taken to be a paradigmatic defender of the idea that meanings are inherently public and language is a social phenomenon.¹ Indeed, *Word and Object* opens with the declaration: “Language is a social art. In acquiring it we have to depend entirely on intersubjectively available cues as to what to say and when. Hence there is no justification for collating linguistic meanings, unless in terms of men’s dispositions to respond overtly to socially observable stimulations” (Quine, 1960/2013, p. xxix). Passages such as this one apparently justify attributing to Quine the following thesis:

Language Internalization Thesis: People learn a language by the internalization of shared linguistic standards.

I claim that this is to misread Quine. The opening of *Word and Object* describes language as a social *art*. A social art is a social practice, that is, minimally, a mutual adjustment of behavior in reaction to the actions of others, hence the dependence on “intersubjectively available cues”. This mutual adjustment can seem so seamless as to generate the *illusion* that there is an underlying standard—a set of conventions, or perhaps internalized meanings, or something else—that *guarantees* or *explains* this natural flow by having all the speakers of the language internalize it. This is the move that Quine rejects. He was never convinced of the explanatory power of languages conceived as shared entities and, in particular, argued that a science of language (and language acquisition) has no need for them. I will therefore argue that a properly Quinean philosophy of language should subscribe to the *Projection Thesis*:

Projection Thesis: Our linguistic practices are the result of (a) the projection of our own organization and (b) the harmony among our individual neurophysiological mechanisms.²

In other words, I will argue that, from a Quinean perspective, we need to distinguish between two things. First, there is the level of language as a social practice, the mutual adjustment of each person’s behavior based on the actions of others. Crucially, for Quine, this corresponds to *the phenomenon to be explained*, not to the explanation. Second, there is the level of the mechanisms that explain the conver-

¹ See, for instance, Dummett (1974/1978, pp. 382ff), Smith (2014), and Rey (2020, pp. 102ff).

² My position is thus very similar to Kemp (2017, 2026) and Drobnák (2018), interpreters who also insist that Quine’s explanation of our linguistic practices is resolutely individualistic. I differ from these interpreters primarily by showing how Quine provides us with an account of the allure of the Language Internalization Thesis and, more importantly, how, once we reject this thesis, the social character of language can be seen in its proper light.

gence of behavior. There we find, instead of the internalization of shared resources, a *projected harmony* among a myriad of individual neurophysiological mechanisms.³

So, on the one hand, we have the superficial level of *explananda*, and here the sufficiently similar dispositions shared among a population do constitute a language. But on the deeper level of the *explanans*, we have a *harmony* of neurophysiological mechanisms that underlie the behavioral dispositions in question. My proposal is that there are good reasons to hold that this harmony is sustained by individual mechanisms, and that the appearance of shared linguistic resources is therefore merely an *illusion* generated by taking this harmony at face value. In Quinean jargon (Quine, 1960/2013, p. 238), the reconstruction of a language as the harmony of individual neurophysiological mechanisms can thus be seen as an *explication* of the notion of language, that is, a recruitment of this term for scientific purposes. It therefore does not have to capture all the dimensions of the superficial notion—on the contrary, that would defeat its purpose as a scientific *replacement* for the common notion.⁴

This Quinean explanation also provides a Quinean diagnosis of the philosophical source of the Language Internalization Thesis. Because our linguistic practices are so seamless, it may seem that we are all being guided by the same shared resource. By taking this appearance at face value, we are naturally led to search for this shared resource, treating it as the real phenomenon to be explained. But, from a Quinean perspective, this is a mistake: the phenomenon to be explained is the *practice*, not the alleged shared resource. This is an instance of a more general philosophical problem:

Philosophical Illusion: Our linguistic practices (a) appear seamless and (b) are generally understood in terms of commonsense explanations, thus leading us to look for *entities* to ground these purported explanations. Once the shape of a scientific account is in place, we may see that what we took to be explanations were merely superficial features of the target phenomenon.⁵

Since the contrast between the two theses is largely a matter of direction of explanation, the first order of business is to examine the distinction between what must be explained and what does the explaining. Quine argued that this distinction between levels results in a *bifurcation* of our canonical notation into what I call the *heuristic*

³I owe this way of formulating the contrast, viz., in terms of shared private resources vs. harmony, to Robert Sinclair (forthcoming). In this very illuminating article, Sinclair shows how Quine moved away from the Lewisian hypothesis of shared private resources, in the 1950s, to the harmony hypothesis late in his career. Ebbs (forthcoming) and Nagase (forthcoming[b]) also discuss this turn. Note that, if Gandon (forthcoming) is correct, perhaps Lewis is closer to the late Quine than those authors have argued. Although I cannot pursue this historical point for lack of space, it should be noted that, if the interpretation offered here is correct, the Lewisian undercurrent, which stresses the *subject's* contribution to the organization of experience, provides the framework for Quine's own investigations, much more than behaviorism. For Lewis's influence on Quine, cf. Sinclair (2022) and Verhaegh (2023).

⁴To be sure, we have here a peculiar type of explication, since there is no ready paraphrase to replace the term “language” or “meaning”. It is thus analogous to the explication of mental terms in physical terms: cf. Raab (2024, pp. 2063ff) for details. In any case, this means that Quine would part company with Lewis (1974/1983), for whom the term “language” is a theoretical term—in the sense of Lewis (1970/1983)—which appears in a rough formalization of common sense, and thus for whom philosophical analysis of this term cannot consist in anything more than an elucidation of the “platitudes” which common sense associates with it. For more on how Quine is close to Carnap in his repudiation of this commonsense methodology, cf. Kemp (2023a).

⁵Gregory (forthcoming) also notes the therapeutic dimension of Quine's naturalism.

vocabulary and the *explanatory vocabulary*; confusion about this distinction is one of the main sources of the philosophical illusion named above. The allure of this illusion also reveals the nature of Quine's behaviorism, a re-description of surface phenomena that disciplines us into resisting the appearance of explanation provided by the mentalistic idiom. If we have only individual neurophysiological mechanisms, whence the harmony? Quine explicitly traces this harmony to our standards of perceptual similarity. These play an essential role in our linguistic exchanges and are the main engine of the illusion of a shared language. Curiously, once we are clear about what is involved in this role, we will see restored to its central place the *essentially dramatic act* of empathetic projection, so that the elimination of shared languages from scientific explanations has the surprising Cavellian consequence of restoring what is truly social to our linguistic practice.

2 The bifurcation of canonical notation

In the introduction, I stated that Quine actually held that scientific explanations had no need for shared languages, and that his conception of explanatory depth could illuminate why the purported existence of such languages is best seen as an *illusion*. This claim may give us pause, for it seems to be conflating two different issues, namely an *epistemological* issue about whether such languages are explanatory and an *ontological* issue about the existence of such languages.⁶ The answer to this worry is, from a Quinean point of view, relatively simple: the issues are conflated because our criterion for the existence of something is whether it figures in our best scientific explanations.⁷ Indeed, as we will see, it is precisely by ignoring how science can come to replace common sense that we may be tempted by philosophical reification. Because this discussion is tied to Quine's criterion for ontological commitment, it will be useful to review it here in order to get a better grip on the issue at hand.

As is well known, Quine's naturalism is especially pronounced when dealing with ontology. In order to determine our ontological commitments, we look not to common sense or to a first philosophy, but to science: "(...) it is within science itself, and not in some prior philosophy, that reality is to be identified and described" (Quine, 1981, p. 21).⁸ Of course, simply looking at what scientists say will not settle our ontology. That is because scientists almost invariably present their findings in a mixture of ordinary and formal language (say, English augmented with mathematical symbols), and this mixture often infects their discourse with all the vagueness, ambiguities, and other imprecisions that pervade ordinary language. There is thus a need to *regiment* their discourse into a framework especially designed to make its structure perspicuous, a task that falls to the philosopher. This framework, which one could

⁶Thanks to the third anonymous reviewer for pressing me on this distinction.

⁷I discuss Quine's criteria for ontological commitment, with the concomitant division of labor between ontology and ideology, in Nagase ([forthcoming\[a\]](#)).

⁸This puts Quine on the side of Carnap and against certain trends in current metaphysics. Cf. Kemp (2023b) for discussion and Cohen and Marschall (2023) for an interpretation of Carnap that is congenial to the naturalist.

consider the “official language” of science, is precisely what Quine calls a *canonical notation*. That is why Quine can say that to search for the best language in which to formulate our current scientific theories *is* to search for our general ontological categories: “The quest of a simplest, clearest overall pattern of canonical notation is not to be distinguished from a quest of ultimate categories, a limning of the most general traits of reality” (Quine, 1960/2013, p. 147).⁹

Importantly, regimentation, the translation of our scientific theories into a canonical notation, is not an algorithmic procedure. As Quine puts it, the philosopher’s task is one “of making explicit what had been tacit, and precise what had been vague; of exposing and resolving paradoxes, smoothing kinks, lopping off vestigial growths, clearing ontological slums” (ibid., p. 254). It should be clear that, in accomplishing this task, there will be various decisions to be made: where to draw the line in “making precise what had been vague”, which of an expression’s ambiguous meanings to choose (in the sense of which inferential connections to preserve), how best to resolve a particular paradox, and so on. In the course of doing so, the philosopher has recourse to the same tools as the scientist, namely considerations of coherence and simplicity, semantic ascent, and the connection to “surface irritations” (Quine, 1960/2013, p. 254), but these will not in general dictate a unique answer to a problem.¹⁰ That is particularly so because, when regimenting a theory, one needs to pay special attention to the *function and purpose* of each of its various terms.

This brings us to our topic, since not every item in our canonical notation’s vocabulary will serve the same purpose. The primary purpose of a canonical notation is to represent in a perspicuous manner the logical structure of a theory. This structure may reveal differences among the regimented terms of a theory. Indeed, Quine talks here of a *bifurcation in canonical notation*, according to the purpose we assign to it:

Not that I would forswear daily use of intentional idioms, or maintain that they are practically dispensable. But they call, I think, for bifurcation in canonical notation. Which turning to take depends on which of the various purposes of a canonical notation happens to be motivating us at the time. If we are limning the true and ultimate structure of reality, the canonical scheme for us is the austere scheme that knows no quotation but direct quotation and no propositional attitudes but only the physical constitution and behavior of organisms. (It would be pointless to exempt from this ban even those favored sentences of propositional attitude that can be explained in terms of stimulus synonymy; for when they can be thus paraphrased they are certainly dispensable.) If we are venturing to formulate the fundamental laws of a branch of science, however tentatively, this austere idiom is again likely to be the one that suits. But if our use of canonical notation is meant only to dissolve verbal perplexities or facilitate logical deductions, we are often well advised to tolerate the idioms of

⁹ On the need for regimentation and the adoption of first-order logic as a canonical notation, cf. Kemp (forthcoming) and Morris (forthcoming).

¹⁰ Note that considerations of *meaning* are not viewed by Quine as restrictive. Regimentation does not preserve meaning, but rather function and purpose as determined by the person doing the regimentation and the research community of which she is a part; that is why it is so open-ended. Cf. Ebbs (2014/2017, p. 165ff) for a nice discussion.

propositional attitude. Our purposes may then be well served by admitting the apparatus of propositional attitudes as of the end of §44—hence minus the right to quantify over the attitudinal objects. (ibid., pp. 202–3)

Why this bifurcation, though? Why not merely employ the more austere idiom, and let the other vocabulary be explained away? The problem is that, as Quine makes clear in the first sentence of the above quotation, the larger vocabulary may be *practically indispensable*. Quine's point is that such vocabulary is like "a promissory note for an eventual description in mechanical terms" (Quine, 1973, p. 14). He is here discussing dispositions, but it is clear that the point generalizes: the larger vocabulary is practically indispensable because it marks phenomena of interest for which we have no explanation yet, but its role is to give way to more theoretically robust explanations. In other words, we need the idiom of dispositions, counterfactuals, and even mental predicates in order to demarcate the explanatory targets of our theory, even if, in the end, this vocabulary may give way to a theoretical vocabulary that makes no reference to this original idiom. Indeed, as Quine makes clear in his reply to Ian Hacking, there may be no unified explanation or mechanism underlying the target phenomena picked out by the original term, so that what we thought was a unified state or mechanism is dissolved into a *disjunction* of theoretically interesting states or mechanisms (Quine, 1990, p. 142).¹¹ Quine summarizes this point thus:

So, if I were trying to devise an ideal language for a finished theory of reality, or of any part of it, I would make no place in it for the general dispositional idiom. In developing a theory, on the other hand, the idiom is indispensable. Just as in writing an essay one commonly sketches various ulterior paragraphs before completing the front ones, so in developing a theory one sketches in a few key traits of what is meant ultimately to emerge as a satisfactorily explanatory mechanism. Such is the role of the general dispositional idiom. And since scientific theory is always developing, the idiom is here to stay. (Quine, 1973, pp. 11–12)

This, then, is the end result for our canonical notation. Some of its vocabulary will be used only to highlight the phenomena to be explained, while another part of it will actually figure in the *explanations* that the theory provides for such phenomena. Let us call the former class of terms the *heuristic vocabulary* and the latter class of terms the *explanatory vocabulary* of the theory.¹² As Quine makes clear above, the two classes of vocabulary are practically indispensable for our current scientific practice: without the former class, we cannot specify the target phenomena of the theory, and without the latter class, we cannot specify the explanations that the theory provides for the target phenomena. So we have:

¹¹ Note that Quine (1969a) still spoke of dispositional *states*. He switched to talking of dispositional *terms* only in Quine (1973). The move from states to terms allows him the necessary room for holding that the terms may cover many underlying states. Cf. Hacking (1990) and Quine's reply (Quine, 1990).

¹² This nomenclature is mine; as far as I know, Quine never dignified this division with a formal title.

Bifurcation of Canonical Notation: Our canonical notation bifurcates into two vocabulary classes. The *heuristic vocabulary* is used to delimit the targets for explanation, while the *explanatory vocabulary* comprises the terms used in the explanations themselves.¹³

It is crucial to note that although the two classes of vocabulary are pragmatically indispensable, this does not mean that they are ontologically on a par. That is because, as we saw, the purpose of the heuristic vocabulary is to give way to the explanatory vocabulary: it issues promissory notes that will eventually be (we hope) cashed in, and as such it is not part of the real currency of science. This is why Quine says, in the above quotation, that in an ideal language there would be no heuristic vocabulary. Since its role is to be eliminated, it does not ontologically commit us, practically indispensable as it is. That is why Quine often remarks that *explication is elimination*: once we have an explication of a term, the term itself is thereby rendered superfluous and can be eliminated from our theory.¹⁴

Confusion on this point is bound to generate philosophical quandaries. If we take what is heuristic as explanatory, we will posit entities where none are needed. Because the posited entities follow the heuristic characterization, they are bound merely to *duplicate* this characterization without really explaining it.¹⁵ We will see instances of this philosophical quandary in Sects. 5 and 6. For now, let us dwell a bit more on the mechanics of this illusion, for it reveals how essential the heuristic vocabulary is for our scientific practice.

3 Philosophical illusion

In the last section, we analyzed how Quine distinguishes the *heuristic* vocabulary from the *explanatory* vocabulary of science. Notice that, since the heuristic vocabulary is descriptive of what are often ordinary phenomena, its terms will be drawn from common sense. As we saw, however, Quine's notion of explication does not require the scientific explanation of these commonsense terms to preserve any of their core features. We *start* from commonsense notions, but, once science takes hold, it may lead us to abandon these notions if they prove ineffectual. Although this may be jarring for the uninitiated, if we follow the step-by-step elimination of the initial notions, we may come to understand why they need to be jettisoned. This gives rise to a peculiar situation, in which our phenomenon may be partially defined in terms of a

¹³ Similar distinctions were drawn by Levine (1987, p. 262) (between “soft facts” and “hard facts”), Hylton (2007, pp. 101ff), Kemp (2014, p. 80) (“Grade B” vocabulary), and Verhaegh (2019a, p. 173) (“shallow” and deep explanations). As far as I know, none has quite drawn it in the way I do here, emphasizing the asymmetry of ontological commitment between levels, though Kemp's discussion comes the closest. I discuss how the distinction emerged in Quine's drafts for *Word and Object* in Nagase (forthcoming[b]), though the discussion there is more critical than here. I also connect the distinction with a mismatch between the ideology and ontology of a theory in Nagase (forthcoming[a]).

¹⁴ As Quine famously claims: “A similar view [viz., to the ordered pair paradigm] can be taken of every case of explication: *explication is elimination*” (Quine, 1960/2013, p. 239, original emphasis). Cf. Gustafsson (2006) and Raab (2024) for more on explication as elimination.

¹⁵ If I am right (Nagase forthcoming[b]), then Quine himself once fell prey to this temptation, reifying sensory qualities as the denizens of our quality spaces.

commonsense paradigm that is then *rejected* or, at least, *replaced* by a more scientific surrogate, one that may be completely different from what we first expected. Quine himself draws attention to this feature of explication in his reply to J. J. C. Smart:

A misunderstanding seems to emerge at the middle of his paper, where he finds me ambivalent on the paradigm-case argument. In fact my attitude toward the paradigm case is univalent but intermediate. What I meant in the misunderstood pages (W. & O., pp. 3f) was that the paradigm case is not a permanent stopping place, but a point of departure. The expressions ‘real’, ‘exist’, ‘there is’, first come to make sense to us through our observing their commonest uses. So do pronouns, the prototypes of bound variables. The paradigmatic objects of reference of all these devices are, I suggest, visible, tangible bodies. If certain speakers have learned these expressions only from such applications, and then someone proceeds forthwith to deny the reality or existence of bodies, those speakers will find the denial puzzling or absurd. Someone can, on the other hand, intelligibly shift his attributions of existence a little at a time. First he adds some bodies which are invisible and intangible only because absent; then some more which are invisible and intangible only because we are not sensitive enough. At length a systematic usage of the existential idioms thus develops which we find manageable by dint more of system and analogy than of visibility and tangibility. When we have reached that point, we can begin even to understand the denial of existence of visible, tangible things. We understand it as a systematic extrusion of such objects from the range of reference of pronouns, or of values of variables, in some proposed regimentation of scientific theory. (Quine, 1969c, p. 292)

Because our heuristic vocabulary will inevitably draw its terms from practically indispensable common sense, these terms will often figure in commonsense explanations. If we take such explanations at face value, we may think we are not able to shed them without also shedding the explanations. That is exactly where Quine’s method of explication comes in, to assure us that we may arrive at new, better explanations once we submit the commonsense notions to the strictures of science. We may find deeper patterns, or even find that what appears as a unified phenomenon dissolves under scrutiny, as things soluble in water were found to form a continuum of cases from electrolytes to non-electrolytes (Hacking, 1990, pp. 131–2). Nevertheless, because our heuristic vocabulary is typically *first* made intelligible by the paradigm commonsense observations, we may be drawn into believing that it can *only* be made intelligible against this background. This is to ignore that the explanations of common sense serve only as the *starting point* of inquiry, not as its destination, and that the context of inquiry is sufficient to bestow intelligibility on the scientific replacements of the common notions:

In the beginning we needed the paradigmatic bodies, in order to begin to get the knack of the pronouns themselves and of kindred terms and devices. Paradigm cases confer intelligibility, but continuity of change suffices to preserve intel-

ligibility. Paradigm cases launch our ship, but afterward, in Neurath's figure, we can stay afloat while we rebuild it plank by plank. (Quine, 1969c, p. 292)

This gives a precise form to the philosophical illusion mentioned in the introduction. It is at once epistemological, phenomenological, and ontological.¹⁶ As Quine's account starts with *paradigm cases*, it makes clear that he is dealing with terms that are generally drawn from common sense, especially mentalistic items. When embedded in our commonsense practice, these terms *appear* to be explanatory, as is clear from our explanations in terms of belief-desire psychology. Because we take the *phenomenology* of common sense at face value, we may think that, from an *epistemological* point of view, these explanations are insulated from science, so that their status as explanations cannot be questioned by further inquiry; in other words, we take them to be deeply explanatory when they are not. This *epistemological* point, when uncritically relied upon, leads us to the philosophical mistake of *positing* a kind of duplicate entity underlying the commonsense explanation, as if the *practice* needed an ontological guarantee to be sustained. To revert to Neurath's boat simile, it is as if we clung to the old planks of our boat, thinking that they were the ones keeping us afloat, not realizing that they have long since been replaced in the overall structure of our inquiry.¹⁷

Here we see how important it is to delimit the heuristic vocabulary. In the last section, we saw how the heuristic vocabulary is taken by Quine to be a kind of promissory note en route to a full explanation. That could be taken to mean that the heuristic vocabulary is to be relegated to the dustbin of science, and that anything heuristic is thereby devoid of value. This would be a premature conclusion, however. The heuristic vocabulary is not an afterthought; care with it may be indispensable to a proper framing of what we want to explain, so that a considerable part of our scientific effort may be geared toward crafting this heuristic so as to capture a precisely delimited phenomenon. Moreover, proper care with the heuristic vocabulary may be the key to avoiding the philosophical trap examined here. If we strip the heuristic vocabulary of its apparent explanatory value, if we reframe its description in more neutral terms, we may block the temptation to take what is heuristic as explanatory. For Quine, this is exactly the case with mental phenomena and behavioristic vocabulary: as we will see in the next section, according to Quine, behaviorism is not meant as an explanatory doctrine, but rather as a peculiar discipline that studiously avoids the appearance of explanation. That is why Quine spent so much ink on the discipline of behaviorism; he thought a behavioristic vocabulary lent itself to better heuristics, and thus to better science. Indeed, a substantial portion of Quine's own output, including his main monographs, *consists of essentially heuristic descriptions* of our practice and our behavior, in the hope of clearing the ground for a better science. The next section will analyze this in more detail.

¹⁶ Many thanks to the third anonymous reviewer for pressing me on the nature of this illusion.

¹⁷ This connection to the phenomenology of common sense also gives purchase to the notion of an illusion as employed here. Collins (2014, pp. 42–47) objects to Rey's attribution of an illusion to the speakers on the grounds that it is not clear in what sense a speaker "can be under an illusion that sound waves feature PRO or copies or *who*" (ibid., p. 46). Quine's account, as elaborated here, takes care of this objection by grounding the illusion in the phenomenology of the situation.

4 The discipline of behaviorism

Quine is often considered a card-carrying behaviorist, and his own pronouncements definitely mark him as endorsing this picture. It is, however, paramount to understand the exact import of his behaviorism. For Quine, behavioristic descriptions are not explanatory. On the contrary, the use of behavioral vocabulary in our theories is *also* held to be confined to our heuristic vocabulary. Reflection on the form of behavioristic statements should be enough to guarantee that, as the behavioristic vocabulary is a *dispositional vocabulary* and so, like all dispositional vocabulary, part of the *heuristic vocabulary*, its role is to be eliminated in a more advanced theory. In an interview with Bryan Magee, Quine is explicit about the non-explanatory nature of his behaviorism:

For behaviourism, at its best, is the insistence on external, intersubjective criteria for the control of mentalistic terms. Behaviourism, mine anyway, does not say that the mental states and events *consist* of observable behaviour, nor that they are *explained* by behaviour. They are *manifested* by behaviour. Neurology is the place for the explanations, ultimately. But it is in terms of outward behaviour that we specify what we want explained. (Magee, 1978/2008, p. 10, original emphasis)

As Quine makes clear in the above quotation, in the specific case of psychological dispositions, the fuller explanations in question can only be given in terms of the organism's structure, and particularly its neurophysiological structure. This is not simply a matter of Quine's being blind to cognitive explanation. The point is that only explanations in terms of the organism's structure can be placed within a *causal network*, since only these terms can be integrated into lawlike connections to the rest of *physical science*. That is why Quine insists that any characterization of a state in terms of behavior, or even in terms of dispositions more generally, must eventually give way to neurophysiological explanations. In an exchange with Sellars, Quine is quite clear that it is this connection with causal explanations that renders the neurophysiological level the scientifically explanatory one:¹⁸

The importance of behaviorism is its insistence on shoring up mentalistic terms, where possible, by forging substantial links with observation. For a deep causal explanation of mental states and events, on the other hand, we must look not just to behavior but to neurology. For this reason there is a premium not only on substantial connections between our hidden variables and observation, but also on the amenability of these hidden variables to explanatory hypotheses in neurology. Their value lies in fostering causal explanations. (Quine, 1980, p. 26)

¹⁸Thanks to the third anonymous reviewer for bringing this paper to my attention. Incidentally, there are interesting connections here with Sellars's own view of the predominance of the scientific image over the manifest image, as expressed in his *scientia mensura* remarks (Sellars, 1956/1991, § IX). Cf. Christias (2015) for some commentary on this aspect of Sellars's thinking that has direct relevance for the points discussed here, though he does not mention Quine. Developing this parallel lies well beyond the scope of this article.

We thus see that, for Quine, the language of a psychological science divides into, on the one hand, the heuristic vocabulary of behavioral dispositions and, on the other hand, the explanatory vocabulary of neurophysiology, or, as he puts it in an interview with Borradori, you “need to specify that process in objectively verifiable and recognizable terms, so you need behavioral criteria to set the problem for which you are going to look to neurology for the solution” (Borradori, 1994, p. 35).¹⁹ As the quotation from the interview with Magee clarifies, behaviorism makes this possible by providing “external, intersubjective criteria for the control of mentalistic terms”. Its role is, therefore, to supply the empirical checkpoints for our mentalistic talk, to shape our commonsense discourse on intentional matters into a form suitable for scientific treatment.²⁰

This need for some kind of *control* for our mentalistic terms arises precisely from the pressure we identified in the last section. Because these terms are drawn from our commonsense practices of interpreting one another, they give rise to the *appearance* of explanation: the “easy familiarity of mentalistic talk is not to be trusted” (Quine, 1975, p. 95). Behaviorism earns its central place in Quine’s philosophy primarily as an *antidote* to explanatory illusions, a kind of prophylactic against philosophical reification, as Quine himself is quick to point out: “Its [viz., of description in terms of behavioral dispositions] virtue is not that it affords causal explanations but that it is less likely than the mentalistic level to engender an illusion of being more explanatory than it is” (ibid., p. 95).²¹ Behavioristic discipline is needed to dispel philosophical illusions. Notice that this does not mean that mentalistic terms, or the intentional idiom more generally, are to be banished even from the heuristic vocabulary of our science. Rather, we may use them as long as we are clear that they belong to the heuristic vocabulary, and as long as we subject them to behavioristic control:²²

Mentalism thus has its uses as a stimulant. Like other stimulants, it should be used with caution. Mental entities are unobjectionable if conceived as hypothetical physical mechanisms and posited with a view strictly to the systematizing of physical phenomena. They should be posited in the hope of their submitting someday to a full physical explanation in turn. Any vaguenesses or complexities that might obstruct that objective should be minimized. (Quine, 1973, pp. 33–4)

¹⁹Thanks to the third anonymous reviewer for bringing this valuable quotation to my attention.

²⁰Note that, given the pragmatically indispensable role that Quine assigns to the dispositional and the intentional idioms, he can be seen as a meta-scientific eliminativist in the sense of Collins (2007). Curiously, this means that, if Collins’s interpretation is correct, Quine is closer to Chomsky than to Skinner on this issue. Ironically, this also means that Quine would agree with Chomsky (1959) that behavioristic terminology offers at best a redescription of phenomena to be explained, but disagree with him on the value of this redescription. Whereas Chomsky argues that this redescription produces the appearance of explanation through its scientific undertones, Quine, as we have seen, argues precisely the reverse.

²¹Which is not to say that behaviorism cannot engender explanatory illusions, as the case of Skinner, who did hold that behavioristic explanations were causal explanations, shows. Quine parts company here with Skinner, as argued by Verhaegh (2019a, b).

²²According to Collins (2007, p. 631), Chomsky also conceived of mentalistic vocabulary in heuristic ways, as being “essential to picking out classes of phenomena”, but as not providing any explanation.

This has a powerful consequence for Quine's conception of language. We saw in the introduction how Quine characterized our language as a social art, a practice of mutual adjustment of linguistic behavior. Because this practice is a part of our intentional behavior more generally, it is fraught with mentalistic attributions. The temptation to treat these as explanatory is overwhelming, leading us to the assumption that a science of psychology needs to traffic in *representations* and other mentalistic terms as *explanatory posits*. According to Quine, we may use theories with a representational vocabulary in order to track the structure of the underlying mechanisms. But it does not follow that the mechanisms whose structures are tracked by this vocabulary are themselves representational.²³ That would be precisely to fall into the illusion discussed above. From a Quinean point of view, it is therefore imperative that we exercise our behavioristic discipline when *describing* this practice, both in order to avoid the illusion of an explanation where there is none and in order to provide the "external, intersubjective criteria for control" of this description.

Consider the case of linguistics, where our theory may employ representational vocabulary such as traces, phonemes, and other such items. Here we see the importance of Quine's insistence that differences between psychological theories be behaviorally detectable. As long as this requirement is met, the theory is describing a *competence* of the subject, and so the grammatical machinery is just a way of keeping track of the structure of this competence. From a Quinean perspective, this means that the description of a grammatical pattern in linguistic theory is a heuristic description that is indispensable for homing in on the precise shape of the phenomenon we want to explain. But precisely because its point is *descriptive*, it is not explanatory; what truly explains the behavior or the competence is the as-yet-unknown mechanism underlying the competence. Of course, without a worked-out neurophysiological explanation, such a stance may seem eschatological, deferring the redemption of the promissory notes we issued to an unknown future, possibly forever on the horizon. Yet the reverse position, to embrace the heuristic fully as explanatory, seems, to Quine, to settle for less than what we are properly owed. It is not my place here to decide this difficult dispute, though I do note that, if Collins (2004, 2007, 2010) is right, then Chomsky's "meta-scientific eliminativism" sides here with Quine.²⁴

A standard thought experiment will help to bring into relief the exact import of the Quinean position I am urging. Consider a Martian who came to Earth and started speaking English with us.²⁵ It would be easy, indeed all too easy, simply to explain this remarkable situation by appealing to the internalization of a shared linguistic

²³ This slide from the representational vocabulary of the theory to the assumption that the theory is tracking intentional items is also diagnosed by Collins (2014), though he objects to the "illusion" vocabulary deployed here.

²⁴ On the reading developed here, this convergence is not a mere coincidence, for both Quine and Chomsky reject the Language Internalization Thesis in favor of an individualistic direction of explanation. It is therefore unsurprising that they both end up privileging the level of mechanism as the truly explanatory level. I discuss the reasons for Quine's pessimism about a full explication of mental vocabulary in Nagase (forthcoming[a]).

²⁵ The Martian thought-experiment was used by Katz (1981, p. 89) to argue against Chomsky's psychological approach. A similar consideration is brought up by Kemp (2023b, pp. 61), also against Chomsky, but this time using a genetic disease.

standard. Perhaps the Martian watched us long enough to *internalize* the relevant standards in a suitable way, and now he is able to converse with us. This could perhaps be put in the form of the Martian's being able to grasp the *meaning* of our words, so that communication among us would be guaranteed by this shared linguistic standard. Perhaps further, the Martian was able to *determinately translate* our words into his own Martianese. As the last point should make clear, Quine would of course reject this direction of explanation.

Note, however, that nothing in the *behavioral* description of the case forces us in this direction. As Gregory puts it, the fact that a given community speaks a given language is constituted by "the sharing, across a community, of dispositions to linguistic behavior, said dispositions being evidenced by the fluency of discourse within the community" (Gregory, 2008, p. 104). In other words, what the behavioral description emphasizes is merely the *fluency of discourse*, the sharing of dispositions, not the sharing of linguistic standards. One can ask: is this supposed sharing of dispositions the end of the story for Quine, though? Is it not, rather, the *beginning*? In this scenario, we would have a phenomenon that cries out for explanation: *how* is it that the Martian speaks English, that is, how is it that the Martian came to have behavioral dispositions similar enough to ours? Since it is precisely those dispositions that now need to be explained, a brute appeal to the Martian's behavioral dispositions would not do. And the explanation would presumably refer, among other things, to the mechanisms that underwrote the Martian's acquisition of the English language, not to mention the way those mechanisms were realized in his Martian physiology—the latter question being especially intriguing. Indeed, how else would the explanation proceed? An appeal here to underlying mechanisms and their related physiological realizations is pressing.²⁶

The Martian case nicely illustrates how the fluency of communication can be so powerfully felt as to block further inquiry. Here, the behavioristic characterization provides a good antidote by making it clear that the appeal to the practice is not explanatory. For explanation, we must go deeper and inquire into the mechanisms that underwrite the target behavior. Given the probable physiological disparity between us and the Martian, it would not be surprising if there were no *unified* theoretical account that could explain both our dispositions and the Martian's. Thus, in a scientific theory, "speaking English" would give way to a disjunction of physiological mechanisms, so that this locution—and, along with it, the scientific notion of an English language—would be eliminated in favor of more theoretically fertile notions. This point is not restricted to the case of Martians, of course—it applies to our own case too. The following sections will argue that, for the Quinean, this is not just a theoretical possibility but the most plausible answer. Surprisingly for a stereotypical Quinean, the argument shows that, for him, the locus of explanation is always the individual, even when we are considering our innate cognitive equipment. In particular, I will argue that two important pieces that explain the illusory status of shared

²⁶ Collins (2018, pp. 175ff) also takes a similar line in his Chomskyan reply to Katz. The case of Kemp cited in the previous note is a bit different. Kemp asks us to consider a genetic disease that altered a person's language-processing mechanisms. But here again, the interesting question is how this person with a different neuroanatomy converged on similar behavioral dispositions.

languages, our innate similarity standards and our capacity for language acquisition, are treated by Quine in a strikingly individualist way. In both cases, we will see how the discipline of behaviorism matters in the framing of the very phenomenon that we must explain.

5 Grammatical projection

We saw in the last section how Quine recommended a behavioristic heuristic vocabulary as a set of “external, intersubjective criteria for the control of mentalistic terms” (Magee, 1978/2008, p. 10, original emphasis). This is readily seen in the case of language acquisition. Indeed, here we must exercise the utmost care, because Quine’s exposition can sometimes lead one to conflate the heuristic and the explanatory. Quine often frames his account of language learning in terms of reinforcement and imitation (Quine, 1975, p. 84), so that one could then think that those are *mechanisms* that drive the explanation. If the previous section is right, they are merely *descriptions of the phenomenon to be explained*, and so could not be the main drivers behind linguistic acquisition. Indeed, a little reflection shows that reinforcement and imitation are the *target* phenomena, not the explanation. For reinforcement and imitation are, precisely, reinforcement and imitation of *patterns of behavior*, and therefore cannot be what *explains* these patterns in the first place. They serve, instead, as the criteria for the control of mentalistic terms, in this case, the “recursive habit of mind” that Quine (1970, p. 387) thinks is trivially related to the acquisition of a language.

Consider, for instance, Quine’s description of how children acquire the ability to utter novel sentences on the basis of “analogy”.²⁷

It is evident how new sentences may be built from old materials and volunteered on appropriate occasions simply by virtue of the analogies. Having been directly conditioned to the appropriate use of ‘Foot’ (or ‘This is my foot’) as a sentence, and ‘Hand’ likewise, and ‘My foot hurts’ as a whole, the child might conceivably utter ‘My hand hurts’ on an appropriate occasion, though unaided by previous experience with that actual sentence. (Quine, 1960/2013, p. 8)²⁸

This “analogy” terminology is a bit obscure, but he seems to have been influenced here by Bloomfield: “A grammatical pattern (sentence-type, construction, or substitution) is often called an *analogy*. A regular analogy permits a speaker to utter speech-forms which he has not heard; we say that he utters them *on the analogy* of similar forms he has heard.” (Bloomfield, 1933/1961, p. 275). This seems to point in the direction of the Language Internalization Thesis: the child *notices* a pattern, internalizes it, and then proceeds to utter novel sentences on the basis of the internalized pattern. This

²⁷ Passages such as this, when not read against the background of Quine’s larger philosophy, may explain why he has often been misrepresented as a typical behaviorist and thus has been made a frequent target in language acquisition studies. Cf. Salazar Orvig (forthcoming) for discussion. Thanks to the second anonymous reviewer for drawing my attention to this misreading.

²⁸ This point is also emphasized in Quine (1973, 1995a, resp. p. 42 and p. 7).

immediately invites the question: how *does* the child notice the grammatical pattern? It is certainly not obvious on the surface, as the by-now-standard linguistic examples of “John is eager to please” and “John is easy to please” show. Framed according to the Language Internalization Thesis, the question becomes an *objection*. If we instead reframe the passage as simply describing what *must be explained*, it becomes rather an invitation for further inquiry. So we see how the reframing of behavioristic descriptions sets the problem for which we will look to neurology for a solution. That is why Quine appeals at this juncture to “as yet unknown structures”:

Learning by ostension is learning by simple induction, and the mechanism of such learning is conditioning. But this method is notoriously incapable of carrying us far in language. This is why, on the translational side, we are soon driven to what I have called analytical hypotheses. The as yet unknown innate structures, additional to mere quality space, that are needed in language-learning, are needed specifically to get the child over this great hump that lies beyond ostension, or induction. (Quine, 1968/1975, pp. 57–8)

Quine is here explicit (i) that conditioning (in terms of reinforcement and imitation) is not a sufficient mechanism to explain language acquisition, (ii) that there must be additional “innate structures” for language acquisition to take place, and (iii) that these mechanisms are “as yet unknown”.²⁹ While these “as yet unknown innate structures” are certainly obscure, we can gain some insight into the job they must do through Quine’s mention of the translator’s analytical hypotheses, for they are closely tied to Quine’s *indeterminacy of translation* arguments.

In *Word and Object*, Quine is clear that the translator’s analytical hypotheses are her hypotheses about how to segment the utterances of the native, so that they encode the translator’s hypothetical grammar for the target language: “[The linguist] segments heard utterances into conveniently short recurrent parts, and thus compiles a list of native ‘words’. (...) Such are his *analytical hypotheses*, as I call them” (Quine, 1960/2013, p. 62). Importantly, the grammatical patterns codified in those hypotheses are *not* to be found in the surface behavior; hence, in devising them, the translator is effectively *projecting* her own linguistic resources: “To project such hypotheses beyond the independently translatable sentences at all is in effect to impute our sense of linguistic analogy unverifiably to the native mind” (ibid., pp. 65–6).

The mention of “linguistic analogy” is the key here, for it brings us back to our discussion of the child’s language acquisition. The child groups words according to similar functions, and those functions correspond to grammatical patterns. Crucially, however, the discussion of radical translation shows that the child cannot have extracted the pattern from the data, *for otherwise so could the translator*. Hence, the grammatical pattern manifested in the analogy must be available *in advance* of her organization of the data: the organization of linguistic data into grammatical patterns must therefore come from the child’s *own*—as yet unknown—mechanisms, so that it

²⁹ Quine only mentions that they are species-specific. They may constitute a dedicated language module or be the product of more general mechanisms. Quine is notoriously cautious on this point.

is *projected* onto the data.³⁰ That is exactly what makes it parallel to the translator's analytical hypotheses. We therefore see the important role the behavioristic heuristics play in Quine's explanation: by carefully circumscribing the data available to the child, the description of the target phenomenon determines the direction of explanation, from the child's mechanisms to the organization of the data.³¹

This grammatical projection has a striking perceptual side-effect, as shown by Thomas Bever and his associates' click experiments. According to these experiments, subjects heard a click sound produced during the pronunciation of a sentence. What Bever and his associates found was that subjects typically located the click not where it had actually occurred, but closer to the phrase boundaries predicted by generative grammars. Quine himself recognized the importance of these experiments once they were mentioned to him by Harman:³² "Bever's click technique is an ingenious way of finding out something about one's tacit rules without studying one's development. It bears out a uniformity among the speakers of a language: they do not have extensionally equivalent but radically unlike tacit grammars" (Quine, 1986b, p. 186). Note that Quine's acknowledgment of their importance concedes the point that such grammars have some kind of neurophysiological reality: "Hence, despite the multiplicity of possible grammars, there is a better than random chance that our grammar will have structural counterparts in [the subject's] neural hookup" (ibid., pp. 185–6).

What these experiments reveal is that subjects are prone to a perceptual illusion. They *seem to perceive* phrase boundaries, and this appearance can be so powerful as to attract, as it were, the perception of the click. Note that there is no direct correlate in the acoustic stream that fully accounts for the segmentation imposed by the speakers.³³ Because there is no such feature responsible for the boundaries, they must come from the subjects' own resources. The subjects are therefore unconsciously *projecting* their *own* organization onto the acoustic stream, and then *mistaking* this projection for some kind of audible feature *in* the stream. Quine himself, when discussing the phoneme, raises this point:

The preestablished harmony is needed to account for our meeting of minds not only on aardvarks, but also on what to call them: on the mellifluous Dutch disyllable "aardvark" itself. The phonetic constancy of a word, from one utterance of it to another, is itself a product of the speakers' subjective standards of perceptual similarity. Thanks to the harmony, communication proceeds apace. Oh, we sound alike. Oh, who says so? Each of us, by his own standards of perceptual similarity, all of which are in harmony. (Quine, 2000a, p. 2)

³⁰ According to Smith (2014), this is exactly what speakers do: they project from their own cases onto the other, and this projection is guaranteed by our sharing non-linguistic resources. Though Smith (ibid., p. 504) apparently countenances more such resources than Quine, I will show in the next section that this is not the case, once the full complexity of the role our similarity standards play in Quine's account is in view.

³¹ If the above is right, we see here a surprising parallel to Chomsky's famous poverty of stimulus argument, now buttressed by the indeterminacy of translation.

³² Harman (1986, p. 179n15) cites Bever et al. (1969), but see also Fodor and Bever (1965) and Merrill et al. (1966).

³³ That is why Georges Rey (2006, 2008, 2020) argues that what he calls "Standard Linguistic Entities", such as the words and morphemes, are "intentional inexistents".

Quine notes here that the “phonetic constancy of a word” is “a product of the speakers’ *subjective* standards of perceptual similarity”. Presumably he would extend this to sentence segmentation, so that the appearance of divisions in the acoustic stream is ultimately a *projection* of the subject’s own *subjective* standards, shaped by the same as-yet-unknown mechanism responsible for grammatical structure. The phenomenology of the perception of the acoustic stream as segmented may thus lead one to mistake the projection for something in the stream. Once this step is taken, we are all but drawn into hypothesizing that the subjects are simply *internalizing* a feature from the stream. That is, if we treat subjects’ commonsense judgments at face value, we will inevitably mistake the projection for an objective feature *out there* that everyone internalizes, thereby explaining the uniformity of responses as the internalization of identical features—exactly the philosophical illusion analyzed in Sect. 3. Going back to Quine’s use of Neurath’s boat in his reply to Smart, we cling to the old planks—the perception of sentence boundaries—as permanent fixtures, not noticing that the boat has been rebuilt by science. According to Quine, the source of the harmony among judgments is not any acoustic property of the stream, but our own individual mechanisms that organize the input in such a way that it appears to us that we are perceiving something there.

The connection with the phenomenology of our perception makes clear that the real source of the philosophical illusion, and the concomitant temptation to reify, lies in the perceptual case. As the above quotation reveals, in order to deal with this case, Quine introduces the important notion of a preestablished harmony of perceptual standards. The next section will show how Quine’s account of this harmony at once dispels the illusion and restores our social practice to its rightful place.

6 Quine’s preestablished harmony and the illusion of a shared language

The last section discussed how, for Quine, speakers *project* the organization of the acoustic stream from their own resources. As we saw, this was importantly connected to the indeterminacy of translation thesis, for part of the translator’s analytical hypotheses concerns sentence segmentation, which in turn has a counterpart in a person’s acquisition of grammar. We will see that the same connection arises in another dimension of language acquisition, namely semantics. As I will argue, the Projection Thesis and the indeterminacy of translation are two sides of the same coin: the indeterminacy of translation is the rejection of shared standards, and the Projection Thesis is what drives this rejection.

It will be useful to start with the further component of an analytical hypothesis, namely the projected *meaning* of a word. Consider, for example, how Paul Bloom defines what it is to know the meaning of a word: “Under this view, two things are involved in knowing the meaning of a word—having the concept and mapping the concept onto the right form” (Bloom, 2000, p. 17). If we begin our inquiry by asking how a child acquires word meanings in this sense, we are almost forced into an account of how the child internalizes the right mappings, for how else would she acquire these mappings, if not from others? The very characterization of the phenom-

enon as the acquisition of the right mappings then already creates enormous pressure to adopt the Language Internalization Thesis. By the same token, we can readily see here the illusion we discussed in Sect. 3 beginning to take hold: there is a common-sense account according to which it is just obvious that words have meanings, and so we search for *something* to fulfill the role of being the meaning of a word, in this case, a “mapping”.³⁴

Our discussion from the previous section should already cast suspicion on this picture from a Quinean perspective. There, we saw how sentence segmentation is not extracted from the linguistic data, but projected onto the data by the child’s grammatical mechanism. If Quine is right, learning a language cannot be a matter of simply extracting the right mappings from experience, because at least one of the terms of the mapping, the *word*, is not given in experience. As a consequence, the right characterization of the phenomenon to be explained is not, from a Quinean perspective, the acquisition of word-concept mappings, but rather the *social art* of knowing “what to say and when” (Quine, 1960/2013, p. xxix). “What to say”: the relevant unit is not the word, but the *sentence*, as the minimal unit for *saying* something.³⁵ “When”: what matters is not an internal representation such as a concept, but the *occasion of use*. Such a *behavioristic description* carries less baggage than the word-concept mapping one, and precisely because of this it allows more room for theoretical maneuver. This is exactly what we should expect from our discussion in Sect. 4: the characterization of the target phenomenon in behavioral terms is not explanatory, but is, rather, a prophylactic against explanatory dead-ends.³⁶

Nevertheless, the shift from word-concept mappings towards sentences and their uses would be ineffectual without further specification, since the utterance of a given sentence on a particular occasion is too unconstrained to admit of neat explanations. That is why Quine restricts his attention to what he calls *observation sentences*, which have a tight connection to the circumstances of their utterances. This tight connection is ensured by two characteristics: their truth value varies from occasion to occasion, and the subject immediately assents to them under the proper stimulus.³⁷ To ensure better theoretical tractability, Quine similarly constrains the notion of an occasion of use. Of the multifarious aspects of an occasion, Quine selects the *neural intakes*, “the temporally ordered set of all his neural receptors that were triggered on that occasion” (Quine, 2000b, p. 407), as being what is relevant for the behavior of

³⁴ Harman (1967) and Rorty (1972) had already drawn attention to the illusory character of this reasoning.

³⁵ This is also emphasized by Salazar Orvig (forthcoming). As she also makes clear, Quine is here in agreement with Tomasello (2002) and Nelson (1988) that the mapping metaphor must be dropped in favor of a more careful description of our communicative practices. I owe many of the points in this section to this important article, though I am more optimistic than Salazar Orvig about the prospects of a Quinean account of language acquisition.

³⁶ This same characterization of this social art, incidentally, also carries over to the similar-sounding passage from “Ontological Relativity”: “Language is a social art which we all acquire on the evidence solely of other people’s overt behavior under publicly recognizable circumstances” (Quine, 1969b, p. 36). Notice that Quine is not here saying that language is solely acquired from other people’s behavior, but that the *evidence* we use in adjusting our behavior is *solely* this behavior. I will discuss this more thoroughly below. Thanks to the second anonymous reviewer for pressing me about this quotation.

³⁷ For late definitions and discussion, cf. Quine (1993, 1996). I am much indebted here to Ebbs’s (Ebbs, 2026, forthcoming) important discussion of the evolution of Quine’s notion of observation sentence.

the subject.³⁸ Accordingly, we can say that observation sentences prompt immediate assent under the proper *neural intake*.³⁹ Notice that the fact that observation sentences are so closely tied to neural intakes means that they can also be thought of as classifying such intakes according to which of them elicit immediate assent when a subject is prompted by the corresponding sentence.

This organization of neural intakes by observation sentences is not autonomous, however, but built around a deeper, *perceptual* organization of such intakes. According to Quine, our neural intakes are not given raw, but come *organized* by our standards of what is perceptually similar to what, which classify them into kinds.⁴⁰ This classification of neural intakes as perceptually similar cannot be a mere matter of comparing the number of triggered receptors shared by two or more neural intakes. Such a measure would give us a measure of what Quine calls *receptual* similarity, but this is insufficient for his purposes.⁴¹ That is because this receptual similarity may be totally irrelevant for the *behavior* of the organism, and thus irrelevant for our explanatory target, which was precisely couched in behavioristic terms. To see this, consider a person who sees an aardvark on two different occasions. On the first occasion, she sees the aardvark running in the rain from the back, while, on the second occasion, she sees it sleeping in the sun from the front. Most likely, her neural intakes on the two different occasions were wildly different, yet her behavior in response to such intakes might have been quite similar (say, she might incautiously try to pet the animal).

Quine therefore needs a notion of *perceptual* similarity to be the target of our innate standards. This notion, being perceptual, is more closely tied to the subject's ability to react to the *organization of the scene* before her.⁴² This tie to the *organization* of the scene is not idle; it is what allows Quine to say that perceptual similarity "is the key to salience, stimulus generalization, perception, and learning" (Quine, 1995b, p. 348). In other words, our innate similarity standards classify our neural intakes according to the similarity of the *perceptual organization* of the scenes for

³⁸ As Quine (1995b, pp. 349–350) notes, he had earlier called such neural intakes "stimulation" and the neural intakes associated with observation sentences "positive stimulus meaning". He dropped the two terms because of vagueness (in the case of "stimulation") and unwanted associations with semantics (in the case of "stimulus meaning"): see Quine (1993, p. 114fn1).

³⁹ Gjelsvik (2014, pp. 321–323) claims that, in his late phase, Quine's observation sentences are identified by "reactions to objects and events around us" (p. 323), instead of neural intakes. This is a mistake. Quine, early and late, always maintained that observation sentences, taken holophrastically, are keyed to our neural intakes. See, for instance, Quine (2000c, p. 422). Indeed, Quine is also explicit in his disavowal of "situations" or "occasions": see Quine (1993, p. 114).

⁴⁰ Quine introduces similarity standards, or quality spaces, exactly to ground the intersubjectivity of learning; cf. Quine (1954/1976, pp. 231–2). I discuss this role of quality spaces from a critical historical perspective in (Nagase, forthcoming[b]).

⁴¹ Quine (2000b, p. 407) is very explicit about this insufficiency. For more discussion about this matter, cf. Hylton (2007, pp. 117–18).

⁴² Quine (1973, p. 4) quite explicitly links perceptual similarity with Gestalt properties. He also explicitly ties perceptual similarity to action in his reply to Harold Lee: "When [Lee] wrote that 'conceptual similarity is to be accounted for by a lack of discrimination between differences in stimuli for the purposes of action', he was unwittingly describing what I called perceptual similarity, and describing it in terms of which I approve. We are closer than he thinks" (Quine, 1986c, p. 317).

the subject, what Quine (1995b, p. 348) calls their “perceptual effects”.⁴³ Because they are innate, these standards of similarity are not the internalization of external categories through a social conditioning process, but the projection of the person’s perceptual mechanisms onto the world.

For such projection to avoid the threat of solipsism, it is essential that the similarity standards of two people align, i.e., that they group together their neural intakes along similar lines. As is well known, since we cannot directly compare the neural intakes of different people, this was a hurdle for Quine until he finally settled on the notion of *pre-established harmony* after an exchange with Gary Ebbs.⁴⁴ The idea is relatively simple and was already hinted at in his remarks on natural selection from Quine (1969b, pp. 126ff). Our innate similarity standards are not haphazard; they tend to track features of the environment, for this tracking promotes survival:

There is some encouragement in Darwin. If people’s innate spacing of qualities is a gene-linked trait, then the spacing that has made for the most successful inductions will have tended to predominate through natural selection. Creatures inveterately wrong in their inductions have a pathetic but praiseworthy tendency to die before reproducing their kind. (Quine, 1969b, p. 126, footnote suppressed)

This is crucial. If my similarity standards are tracking features of the environment important for my survival, and your similarity standards are tracking features of the environment important for *your* survival, then, supposing that we share enough traits (that we share a form of life), our similarity standards will track roughly the same features, and will thus be in *harmony*. This is what Quine calls, somewhat tongue in cheek, *preestablished harmony*.⁴⁵

What we have rather is a parallelism, a preestablished harmony, between your standards of perceptual similarity and mine. In general, if external events out there at the third vertex on two occasions produce neural intakes in both of us, and yours are perceptually similar for you, mine are apt to be perceptually similar for me. (Quine, 2000a, p. 2)

Going back to observation sentences, we can now see what allows such sentences to get an intersubjective foothold. I hear you uttering “Aardvark!” upon seeing an aardvark. Now, because my similarity standards are attuned to features of the envi-

⁴³ What Quine is calling “perceptual similarity standards” is therefore closer to what we would call perceptual *processing*, so that it is doing some quite heavy lifting here for something that he effectively black-boxes. Development of this point lies beyond the scope of this paper, but, fortunately, it does not affect my central contention.

⁴⁴ See Quine (1995/2016a, b, 1996). Ebbs himself recounts the matter and the attendant problems in a series of articles. Cf. Ebbs (2022, 2026, forthcoming).

⁴⁵ For the name, see Quine’s “Progress on two fronts”: “Natural selection is Darwin’s solvent of metaphysics. It dissolved Aristotle’s final cause, teleology, into efficient cause, and now Leibniz’s preestablished harmony as well” (Quine, 1996, p. 161). Thanks to the second anonymous reviewer for calling my attention to the strangeness of this nomenclature.

ronment, I will group together my neural intakes into a bundle caused by an aardvark, and so will you. This is what allows me to treat your utterance of “Aardvark!” as a *reaction* to aardvarks, and thus to adjust my practice of uttering “Aardvark!” to follow yours. In order, then, for us to utter the observation sentence “Aardvark!” in similar circumstances, there needs to be a *previous* harmony at the perceptual level. In other words, the perceptual harmony in question is *presupposed* by our being able to influence one another, and hence cannot be a *result* of this influence. Since this harmony cannot be a result of the influence we exert on each other, neither can it be a result of the internalization of a shared resource. Rather, as the skeletal explanation sketched by Quine shows, it is the result of a convergence of individual mechanisms that were there before the practice itself. As Quine puts it: “Harmony without interaction: that was the subtlety” (Quine, 1996, p. 161).

The very fact that this harmony is the result of innate standards also points to its limitations. Quine anchors this preestablished harmony of perceptual standards in our “sharing an ancestral gene pool” (ibid., p. 161), so that our biological makeup plays a large role in such an explanation. This means that this explanation is restricted at best to our *innate* similarity standards, as the reference to our genes makes clear.⁴⁶ But, as Quine is also at pains to emphasize, our perceptual similarity standards are *dynamic*, undergoing continual evolution. This is clear from the fact that Quine (2000a, p. 4) allows “There goes a hyperthyroid” to count as an observation sentence, for this implies that my perceptual similarity standards group together neural intakes caused by people with hyperthyroidism, and quite obviously this could only be learned through medical training. However, our shared biological makeup can only get us so far; beyond this, there are no *guarantees* that our perceptual similarity standards will align. The more our similarity standards evolve, the more likely they are to diverge—and the less plausible the picture of us sharing a “mapping” becomes.

These considerations will add considerable complexity to the account of observation sentences, as we can see by examining again the observation sentence, “Aardvark!”. I hear you uttering “Aardvark!”. I then implicitly and unreflectively *project onto you* the same similarity standards that govern my neural intakes, and *assume* that you must be reacting to what is salient to me, namely the aardvark, and thus become disposed to assent to “Aardvark!” when undergoing the neural intakes of that perceptual similarity class. As we saw, there is no longer any guarantee that this projection will correspond to *your* way of grouping neural intakes, since the guarantee applied only to *innate* similarity standards, and here we may be dealing with individuals whose standards may have been greatly altered throughout their careers. Importantly, however, this may not matter, because the projection may approximate your groupings enough for our dealings to proceed undisturbed. For example, I may group my neural intakes as they are caused by aardvarks, whereas you group yours as they are caused by aardvarks and anteaters, but there are no anteaters nearby to give rise to a misunderstanding. So long as we are still able to negotiate and converse fluently, we will continue to behave *as if* our standards aligned. In other words, what is needed

⁴⁶And Quine himself often qualifies his statements accordingly. For example: “The harmony of *innate* standards of perceptual similarity is accounted for by natural selection” (Quine, 1995/2016a, p. 31, my emphasis).

is not *shared* linguistic dispositions, but only approximations that are close enough not to cause disturbances. As Quine puts it in his reply to Alston: “Who is to say to what degree we talk past one another between [empirical] checkpoints? Or, better, who would there be to say, if there were a fact of the matter?” (Quine, 1986d, p. 75)⁴⁷

Since our linguistic dispositions are ultimately anchored in our perceptual similarity standards, different perceptual standards give rise to different linguistic dispositions. As long as our conversations proceed along smooth enough lines, however, we *are not able to detect subtle differences in our perceptual similarity standards*, and our communicative practice continues undisturbed. Because our basic needs are so similar, because we live in similar cultural environments, our perceptual similarity standards will most likely evolve through similar enough paths. This allows us to negotiate quite effectively on a day-to-day basis, solving our disagreements on the basis of the larger background agreement. This negotiation may be so seamless as to give us the impression that we always agreed, that there is some kind of invisible rail guiding our linguistic evolution. The phenomenology of our seamless practice of communication then leads us to treat our tentative agreements about what to say and when as symptoms of an internalization of a mapping from word to object, or, more generally, symptoms of something *shared* that explains the *uniformity*. Thus we fall prey to the illusion of a shared language, following the same path charted in Sect. 3.

Once we drop the illusion of a shared standard, an important consequence emerges. Because the guaranteed harmony is limited to our innate similarity standards, the differences among our *evolved* similarity standards may become wide enough that communication breaks down. And when it does break down, the illusion shatters and we realize that we never really shared a language. *Here the real social art* may begin, for here the space for *negotiating* with each other opens up. According to the Language Internalization Thesis, what grounds our communicative practices is the reference to a shared standard we all internalize. Hence, when communication breaks down, one of us, perhaps all, is at fault, and we simply defer to the shared standard in order to adjudicate the dispute. If we drop the reference to this shared standard, on the other hand, we must actually *create* the local standard by which we will resolve our dispute. This makes clear the way that the illusion of a shared standard was actively obscuring the practical reality of negotiation. By stepping back from the illusion and examining the mechanism that sustains it, Quine allows us to restore the practice to its proper, central place.

There is a fundamental relation here to the indeterminacy thesis. For to project my standards onto the other is precisely *to treat her utterances as if they were my own*, that is, to *translate* her utterances into my own language. If there were shared standards that could adjudicate this projection, this translation would be determined, and so there would be a *fact of the matter* about whether I am correct in my projection. Indeed, if there were such shared standards, I would not even be *projecting* my standards onto the other person, but merely interpreting her according to something we

⁴⁷ Note that the last quotation comes in the midst of Quine’s reply to William Alston’s discussion of the “fearful consequences of the indeterminacy of translation” (Quine, 1986d, p. 75). As I will argue below, this is not coincidental, for, if I am right, there is a tight connection between projection and translation. Incidentally, Alston (1986) provides an extremely clear example of the Language Internalization Thesis. He also recognizes the threat Quine poses to this picture.

both subscribed to. It is not by accident, then, that Quine repeatedly links this projection, under the guise of *empathy*, to the enterprise of the radical translator: “Empathy guides the linguist still as he rises above observation sentences through his analytical hypotheses (...), though here he is trying to project into the native’s associations and grammatical trends rather than his perceptions. And much the same is true of the growing child” (Quine, 1992, p. 43).⁴⁸

Since there is no fact of the matter about who is right and who is wrong, there emerges a key difference between the projection of similarity standards in organizing my neural intake and the projection of similarity standards onto the other. In the case of my perceptual standards, there is some kind of anchorage in the objective features of the situation that provide a standard as to whether I am right or wrong in relating *this* particular to *that* particular. At a minimum, for Quine, survival provides such a standard, for the grouping of the wrong features together may carry evolutionary costs. In the case of the projection of my own standards onto the other, we have a fundamentally different situation, for now there is no *antecedent* standard to measure the correctness of my projection—no standard, save for the *other person herself*. That is why negotiation suddenly becomes important, and that is why the Cavellian notion of responsibility to the other becomes crucial: the lack of shared standards leaves us with nothing but each other to be responsive to. Quine, of course, never explicitly theorized this negotiation practice, though his characterization of language as a social art already hinted at it. Nevertheless, we can see how, instead of closing the door to our intersubjectivity, Quine’s individualistic emphasis on behaviorism and our neurophysiological mechanisms actually shows how much space there is for negotiation once the straitjacket of a shared language is dropped. Strikingly, Quine’s own analysis of the *empathy* involved in understanding the other already points in the Cavellian direction, as I will argue in the conclusion.

7 Conclusion: our attunement to each other

Quine argues that the preestablished harmony among our perceptual standards ensures sufficient initial agreement for our conversations to proceed smoothly. Nevertheless, as we saw in the last section, since such perceptual standards are always evolving, it is also plausible to assume that they will develop into idiosyncratic forms in each individual. This creates a gap, for there is no guarantee that these idiosyncratic forms will overlap enough to ensure mutual understanding. It is this gap that makes shared linguistic resources so appealing, as they would at once guarantee that, however these standards evolve, there would always be something that we could appeal to in resolving our linguistic disputes, generating the pressure toward the reification we analyzed in Sect. 3. Quine forces us to confront this gap and realize that

⁴⁸ Cf. Martí and Ramírez-Ludeña (forthcoming) for a similar perspective, in which semantic indeterminacy opens space for negotiation. The importance of negotiation in language acquisition is also emphasized by Nelson: “How do we avoid Quine’s dilemma of indeterminacy? In brief, the answer seems to be that both child and parent assume intersubjective agreement on meaning, ignoring the true indeterminacy that exists between them, or negotiating toward a better understanding, just as adults do when they converse in words. Children, like adults, do not seek certainty of reference but only communicability” (Nelson, 1988, p. 240).

nothing can really close it. The best we can hope for is that we share enough interests, that we share enough of a sensibility, that we can stay *attuned* to each other in spite of our divergences. In the absence of shared standards, we need what Cavell calls *harmony* or *attunement*:

The idea of agreement here is not that of coming to or arriving at an agreement on a given occasion, but of being in agreement throughout, being in harmony, like pitches or tones, or clocks, or weighing scales, or columns of figures. That a group of human beings *stimmen* in their language *überein* says, so to speak, that they are mutually voiced with respect to it, mutually *attuned* top to bottom. (Cavell, 1979, p. 32)

This attunement to each other is at once more and less than shared linguistic standards. It is less, since it is never sufficiently widespread to guarantee full convergence of linguistic usage, and so is not a shared *linguistic* resource. It is more, because it transcends the linguistic by including “our sharing routes of interest and fulfillment, of what is outrageous, of what is similar to what else, what a rebuke, what forgiveness, of when an utterance is an assertion, when an appeal, when an explanation—all the whirl of organism Wittgenstein calls ‘forms of life’” (Cavell, 1962/2002, p. 48). The need for this attunement is once again brought out by the Martian thought experiment. When we first analyzed this thought experiment in Sect. 4, our question was about the proper characterization of the linguistic phenomenon as a ground for our investigation. Here, we see that the precise characterization of the phenomenon uncovers further perplexities. For how much should the Martian share with us in order to truly understand English? Should the Martian understand our jokes? Our rhetorical questions? Our ironies and our fears? Should the Martian know when we are rebuking, when we are forgiving, when we are asserting, appealing, or explaining? The more we probe into the Martian’s understanding of English, the more the Martian starts to seem like us—and the more he must behave like *one of us* in order to truly count as competent. Linguistic competence is not an isolated phenomenon, but is completely intertwined with our own form of life. To count as a competent speaker of English is not just to parrot sentences; it is to share enough in a life to be able to communicate using these sounds. Paradoxically, the removal of shared linguistic standards shows how much we must share in order to truly communicate.

Conversely, the fact that we must share so much in order to communicate effectively also reveals why it is so unsettling to be unable to communicate properly. If seamless communication is the mark of a community, the failure to communicate may reveal how fragile that community is. If we need so much to maintain it, then there are so many weak points that can yield under pressure. Our interests may diverge. Our senses of humor may misalign. What you find outrageous may be pedestrian to me. Our values may be so different as to lead us to see the same situation in entirely different lights. Without rails to sustain us, we are thrown back upon ourselves:

Our ability to communicate with him depends upon his “natural understanding”, his “natural reaction”, to our directions and our gestures. It depends upon our mutual attunement in judgments. It is astonishing how far this takes us in

understanding one another, but it has its limits; and these are not merely, one may say, the limits of knowledge but the limits of experience. And when these limits are reached, when our attunements are dissonant, I cannot get below them to firmer ground. The power I felt in my breath as my words flew to their effect now vanishes into thin air. For not only does he not receive me, because his natural reactions are not mine; but my own understanding is found to go no further than my own natural reactions bear it. I am thrown back upon myself; I as it were turn my palms outward, as if to exhibit the kind of creature I am, and declare my ground occupied, only mine, ceding yours. (Cavell, 1979, p. 115)

That is not the end of the story, however. Despite all our differences, we are still able to *empathize* with others, to project ourselves into their places and try to assess the situation from *their* perspective.⁴⁹ If empathy is needed to overcome such divergences and negotiate our differences successfully, it is unsurprising that, in a remarkable manuscript, Quine describes the act of empathy as “the sovereign solvent, the life blood of language” (Quine, 1986a, p. 4). In *Word and Object*, Quine called attention to how powerful our ability to empathize was:

Casting our real selves thus in unreal roles, we do not generally know how much reality to hold constant. Quandaries arise. But despite them we find ourselves attributing beliefs, wishes, and strivings even to creatures lacking the power of speech, such is our dramatic virtuosity. We project ourselves even into what from his behavior we imagine a mouse’s state of mind to have been, and dramatize it as a belief, wish, or striving, verbalized as seems relevant and natural to us in the state thus feigned. (Quine, 1960/2013, pp. 200–201)

Since communication rests not on shared standards, but on our *attunement* to and our *harmony* with each other, by *what* standards do we judge such attunement? When is communication successful? In *Word and Object*, Quine noted that empathetic projection can only be rated “as better or worse, *more or less faithful*, and we cannot even hope for a strict standard of more and less” (Quine, 1960/2013, p. 200, my emphasis). More or less faithful—to what, or to whom? As Cavell notes, this dramatic act is evaluated *by the other*, by how faithfully *she* thinks we have captured her. Projection is thus always risky, and the possibility of misunderstanding, even deep misunderstanding, always looms large. Quine sometimes talks of the other’s “bizarre” reaction to our speech—perhaps he could also have added “puzzled”, “indignant”, and so forth? This would show that, in the end, there are no assurances or guarantees—only a call to exercise the *social art* of being *responsive* and *responsible* to the other, that is, the art of *empathy*.

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⁴⁹ Quine (1997/2008, p. 254) is clear that this act of empathy is the essential dramatic act of projection.

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Declarations

Conflict of interest None declared.

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