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SEMANTIC INTERNALISM AND EXTERNALISM IN PALEOLINGUISTICS: MIND YOUR LANGUAGE ABOUT PROTO-INDO-EUROPEAN MIND AND LANGUAGE!

Abstract: Paleolinguistics (or linguistic paleontology) is a scientific discipline that combines the methodology of historical linguistics with archaeological insights. Specifically, paleolinguists aim to reconstruct the linguistic expression of a particular archeological culture. In this paper I deal with the methodology of paleolinguistics since this has recently come under the scrutiny of philosophers—for instance, Mallory (2020) has argued that tools of the philosophy of language can be employed for charting the space of legitimate use of paleolinguistics, most notably the position of semantic internalism. Specifically, in his view, linguistic reconstructions of the Proto-Indo-European lexicon express Sinn or sense, whereas the proto-lexicon is best understood as a model of conceptual capabilities of a particular historical community. I want to show that one can consider semantic externalism as a more fruitful alternative. In other words, I propose to see the proto lexicon as a model that shows a feedback loop between speakers' conceptual capabilities and scaffolding of these capabilities through speakers' interaction with the environment. I show that the process of scaffolding can be mediated by cognitive fossils which, in turn, forges a tighter methodological link between paleolinguistics, archaeology, and the study of human cognition.

Keywords: archeological artifacts, cognitive fossils, paleolinguistics, Proto-Indo-European, semantic internalism, semantic externalism.

1 Introduction

Somewhere between 6000–2500 BC[1] on Eurasian soil, our ancestors roamed and reshaped their environment as well as their lives. They conversed, prayed, and had a sense of belonging to their families, clans, and tribes. They named objects surrounding them, thereby leaving traces—both linguistic and material ones. Thanks to these traces, we know a thing or two about them, such as that they were Proto-Indo-Europeans, living in the Proto-Indo-European homeland and speaking the Proto-Indo-European language from which many living language families originate.[2] This is pretty much it—every other detail about them is blurry and open for debate. Luckily, a vast array of experts are disclosing and discussing these details: *archeologists*, *historical linguists*, *paleolinguists*, and *archeolinguists*. This is, in fact, where our story begins.

Paleolinguistics (or linguistic paleontology) is a scientific discipline that combines the methodology of historical linguistics with archaeological insights. Specifically, paleolinguists aim to reconstruct the linguistic expression of a particular archeological culture, i.e., the material and social culture of speakers inhabiting a particular location in a particular historical period (Pereltsvaig & Lewis 2015: 182). Unlike historical linguistics, paleolinguistics is not focused either on the genetic relatedness of different languages and language families or etymology, although it does indeed draw heavily on the comparative method and results of historical linguistics. Rather, paleolinguists, or "long rangers" as Don Ringe labeled them (see Sidwell 1995: 23), try to extend the comparative method to the Neolithic period so that they could trace objects of reference for linguistic reconstructions of PIE. In other words, ideally, the proto-lexicon of PIE, i.e., reconstructed lexical items, should name artifacts that archeologists uncover. Archeolinguistics, on the other hand, mostly deals with the archeological decipherment of ancient scripts and strives to complement archeological records with insights stemming from linguistic anthropology instead of historical linguistics (Chrisomalis 2009). Paleolinguists are not so lucky—we have no written record of PIE.

If you ask archaeologists, paleolinguistics is notorious for far-fetched conclusions regarding the social and cultural organization of PIE speakers or their cognitive and linguistic capabilities (see, e.g. Renfrew 1987). It seems odd to infer from the proto lexicon that specific rituals,

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1   Remember the numbers since they will figure prominently in the rest of the text.
2   Henceforth the term "Proto-Indo-European" will be abbreviated as PIE.

beliefs, and political institutions were instantiated in the Neolithic period without any additional, independent evidence, such as material records. If you ask paleolinguists, however, they will probably tell you not only that archeologists are often guilty of *ignoratio elenchi* when they discard paleolinguistics but also that archeology *per se* cannot uncover relevant details about PIE society without taking into account (later) linguistic records (see, e.g. Pereltsvaig & Lewis 2015: Ch. 9).

In this paper, I will be dealing with the methodology of paleolinguistics since this has recently come under the scrutiny of philosophers—for instance, Mallory (2020) has opened exciting new vistas for the philosophy of language and linguistics with his take on paleolinguistics. In a nutshell, Mallory argues that tools of the philosophy of language can be employed for charting the space of legitimate use of paleolinguistics, most notably the position of *semantic internalism*. Roughly, semantic internalists hold that to know the meaning of a word (its sense or *Sinn*—in Frege's (1892/1952) terminology), one must associate some descriptions with it in order to fix the reference of such word, i.e., to ensure that the word applies to a particular object it names. Once this has been settled, there is nothing *in principle* unscientific about paleolinguistics, and archaeologists have no methodological reason to consider paleolinguistic claims illegitimate. Simply enough, linguistic reconstructions of the PIE lexicon express *Sinn* or sense, whereas the PIE lexicon is best understood as a model of conceptual capabilities of a particular historical community (Mallory 2020). I aim to build on and further expand Mallory's work. The structure of the rest of the paper thus goes as follows. In Sect. **2**, I rehearse the debate between proponents of the two most prominent hypotheses regarding the PIE homeland to give a crude sketch of what paleolinguists do as well as to depict general features of PIE society, and *ipso facto*, PIE *qua* proto lexicon. In Sect. **3**, I present and discuss Mallory's position, whereas, in Sect. **4** & **5**, I present and defend mine.

I want to show that one can consider *semantic externalism* as a more fruitful alternative to semantic internalism when it comes to the methodology of paleolinguistics. Semantic externalists (most notably Putnam (1975) and Kripke (1972)), as opposed to semantic internalists, hold that lexical meaning extends beyond our heads, i.e., we use words to refer to particular objects thanks to causal chains that link us to our environment. I will, thus, argue that we should understand linguistic reconstructions of the PIE lexicon in a broader interdisciplinary context, namely that of cognitive archeology besides archeology *sensu lato*. In other words, instead of picturing the PIE lexicon as a

model of conceptual capabilities of a particular historical community, I will propose to see it rather as a model that shows a feedback loop between speakers' conceptual capabilities and scaffolding of these capabilities through speakers' interaction with the environment. For proper names and natural kind terms, we do reasonably expect that reconstructions refer to artifacts that archeologists uncover and will continue to uncover, whereas, for fictional names and social kind terms, these expectations are scarcely met. Nonetheless, instead of overly relying on paleolinguistics on the one hand or considering it altogether unscientific in comparison to archeology, by using the idea of *cognitive fossils* (Baumard et al. 2024) as a testbed for tenants of paleolinguists, one could have an additional tool for charting the space of legitimate use of paleolinguistics, which would be in line with semantic externalism, i.e., the contribution of the philosophy of language that Mallory has already emphasized, albeit in favor of the different position.

2 Sweet Home Anatolia? Evaluating Competing Hypotheses about the PIE Homeland

Locating the PIE homeland and formulating a proto lexicon does not necessitate an assertion of a homogeneous PIE culture or PIE nation. Paleolinguists start with the implicit premise of historical linguistics that the very existence of PIE reconstructions implies that there were some speakers of that proto language. This is reflected in the words of one of the leading authorities in that field, Martin West (2007: 2):

> If our language is a descendant of theirs, that does not make them 'our ancestors', any more than the ancient Romans are the ancestors of the French, the Romanians, and the Brazilians. The Indo-Europeans were a people in the sense of a linguistic community. We should probably think of them as a loose network of clans and tribes, inhabiting a coherent territory of limited size.

Nonetheless, the quest for a "coherent territory of limited size" spurred much controversy over the years and produced competing hypotheses that were to be tested against archaeological and genetic evidence. It was believed that once we find the PIE homeland, all reconstructions will get their objects of reference, and we will end up with a clear, substantiated image of the PIE community. The scientific reality is, alas, much messier, and more inconclusive than paleolin-

guists and historical linguists would want mostly because legitimate scholars and odd racist fellows alike took an interest in this puzzle (see Pereltsvaig & Lewis 2015: Ch. 1). At the beginning, the only evidence for narrowing down the quest for the PIE homeland was linguistic, based on the comparative method, and scarce. Over the years, a couple of clues for localization have been gathered (Day 2005: 9):

- the territory included plant species like *beech* and animal species like *salmon* given that these terms have been reconstructed;
- agricultural and cereal cultivation as well as trading across water must take place on the territory due to the reconstructions related to *plow*, *wheel*, and *horse*;
- pottery was widely used and made;
- some sort of gods were worshipped;
- there was a patrilineal kinship system.

With additional and interdisciplinary methods from the 1970s, the quest for a PIE homeland became boosted with the analysis of genetic material and archaeological records. This gave rise to several rivalrous hypotheses about the exact location of the homeland like the most famous Anatolian and Pontic-Caspian Steppe.[3] The Anatolian hypothesis was advanced by the archaeologist Collin Renfrew (1987), who claimed that PIE speakers inhabited Neolithic Anatolia (or Asia Minor) around 7000 BC and were farmers, given the archaeological evidence of the gradual spread of agriculture into Neolithic Europe. This spread was an unexceptional event: each time agricultural cultivation was introduced in some part of the world, the process replicated. Farmers dominated non-agricultural societies, who could either adapt to new technologies and interbreed, or isolate. This hypothesis offered an elegant explanation of the expansion of PIE across the European continent. We ended up with multiple descendant languages of PIE because farmers tend to have higher birth rates due to the stable food supply, so they occupied particular territories with higher population density. However, Renfrew was opposed to the idea of large-scale migration from the PIE homeland to the rest of Europe, the spread was a peaceful instance of demic diffusion, i.e., a diffusion over unpopulated or scarcely populated areas (Renfrew 1987: 129). Renfrew was

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3   The Armenian highlands or Near Eastern hypothesis is also among the top three most popular hypotheses of PIE homeland. However, I will not be discussing it at all given that I use the search for PIE homeland only for introducing the friction between archaeologists and paleolinguists.

also one of the archaeologists with a severe disdain for paleolinguistics (1987: 98):

> The main reason for the failure to locate such a homeland arises, I think, first from an unwise reliance on linguistic paleontology in a rather uncritical way. Secondly, it is a migrationist view. And thirdly it springs from a tendency not to consider with sufficient care the processes at work.

Nonetheless, other scholars opposed the Anatolian hypothesis on several accounts, most notably because it places the resurgence of PIE too early, whereas the later Neolithic period looks like a more likely candidate (Anthony & Ringe 1995). Additionally, some of the recent studies in ancient DNA analysis pertaining to the massive migrations in Neolithic Europe are disproving the Anatolian hypothesis and cleaving closer to the other rivalrous hypothesis, namely the Pontic-Caspian Steppe hypothesis (Kloekhorst et al. 2023). I will not delve into the details pertaining to the falsification of the Anatolian hypothesis but use the rest of the Sect. to introduce the Pontic-Caspian Steppe hypothesis with respect to the role of paleolinguistics in advancing it.

Marija Gimbutas (1956) and David Anthony (2007) claimed that PIE speakers inhabited the steppe north of the Black Sea. Gimbutas analyzed specific burial mounds or kurgans and hypothesized that PIE originated from such a Kurgan archaeological culture. Gimbutas then proposed four stages of development of Kurgan culture from the Copper Age to the Early Bronze Age (5000 BC–3000 BC). The spread of PIE corresponds to what Gimbutas calls the "kurganization" of neighbors, which was essentially a military imposition of the patriarchal system onto the matrilineal and egalitarian system of the inhabitants of Old Europe. Anthony, on the other hand, maintained that there was a cultural and ecological frontier between sedentary farmers and early PIE speakers that was reflected in divergent artifacts and fossils found in different ecotones. PIE *qua* proto lexicon breached this frontier due to the specific social organization of PIE speakers. Unlike Gimbutas, Anthony did not portray the sedentary farmers of Old Europe as passive and peaceful people who were easily overrun by war-frenzied chieftains. Instead, Anthony canvassed the following picture (2007: 118):

> Out-migrating Indo-European chiefs probably carried with them an ideology of political clientage [...], becoming patrons of their new clients among the local population; and they introduced a new ritual system in which they [...] provided the animals for public sacrifices and feasts, and were in turn rewarded with the recitation of praise poetryall solidly reconstructed for proto-Indo-European culture.

Anthony also fervently defended paleolinguistics as a legitimate method despite Renfrew's dismissal and despite sharing the area of expertise with Renfrew, namely archaeology. Paleolinguistics bridges the communication gap between elitist linguists and cynical archaeologists who usually find each other naïve and offer too simplistic claims. Anthony proposed that the implicit bias provoking this communication gap amounts to the conviction that it is virtually impossible to link language and material culture (2007: 103-104):

> *Almost any object could have been used to signal linguistic identity, or not. Archaeologists have therefore rejected the possibility that language and material culture are correlated in any predictable or recognizable way. But it seems that language and material culture are related in at least two ways. One is that tribal languages are generally more numerous in any long-settled region than tribal material cultures. [...] The second regularity is more important: language is correlated with material culture at very long-lasting, distinct material-culture borders.*

This implicit bias is juxtaposed to the very methodology of paleolinguistics, namely establishing inferences about the implications of linguistic reconstructions. It seems that the Steppe hypothesis, being more open-minded to the prospects of marrying the comparative method of historical linguistics and material evidence, clears the name of paleolinguistics to a certain extent. This, in turn, means that each piece of material evidence could bring us one step closer to how PIE speakers lived and how our mother tongues came to be (provided that they belong to one of numerous PIE families) once we located their homeland in the Pontic-Caspian Steppe.

3 Mallory's Semantic Internalism

Fintan Mallory, in his 2020 paper, makes a useful distinction between the two types of inferences paleolinguists make. They are committed to one of the following views:

(I_1) linguistic reconstructions imply objects of reference,
(I_2) linguistic reconstructions imply concepts.

When it comes to inference *(I_1)*, it is based on the *ontological assumption* that objects of reference must exist as long as linguistic reconstructions are developed per the comparative method. This type of inference would be in line with both *realism* and *Platonism* in the philosophy of linguistics. Realists would consider PIE a natural language,

whereas the individual reconstructions would be deemed as historical interpretations of customs and objects that PIE speakers used. Platonists would go even further and claim that PIE is a set of linguistic types that exist independently of PIE speakers, and linguistic reconstructions are instances of these types. If a paleolinguist opted for realism or Platonism, she would be committed to something like (I_1) since she would have to bite the bullet and admit that linguistic reconstructions do imply the existence of objects they were designed to name.

Even though this may seem like a viable type of inference for proper names or natural kind terms, i.e., reconstructions having to do with everyday objects, animals, and plants, fictional names used for labeling deities, rituals, and customs seem to function a bit differently than ontological assumption suggests since it would be odd to suppose that these entities *really* exist. Moreover, stumbling upon artifacts does not tell us anything about the real existence of such entities but rather about the system of beliefs of PIE speakers. Moreover, this type of inference has another implicit assumption—that the comparative method is reliable on the semantic level inasmuch as it is on the morphophonological. This is, unfortunately, far from the truth. We do not have anything similar to sound laws at the semantic level since we do not have semantic laws at all. We learn how word meaning changes over time through different means, i.e., by studying semantic shifts such as metaphor, metonymy, generalization, specialization, etc. Besides, more than one meaning can be reconstructed from the same morphophonological form, which means that the object of reference cannot be fixed via sound laws alone—i.e., without the ontological assumption. Thus, a paleolinguist who would commit to (I_1) would be in trouble: without the ontological assumption that the existence of a particular reconstruction implies the existence of the object of reference, there seems to be no way to fix the reference, but this assumption seems odd when reconstructions have to do with names of deities, rituals, and customs.

Maybe a paleolinguist who would commit to (I_2) would fare better. This type of inference is based on the epistemological assumption that if we are able to reconstruct morphemes of the PIE, then we can concur that speakers of PIE had some sort of knowledge about concepts designated by linguistic reconstructions. In a nutshell, they were competent speakers in the sense that they were *semantically competent*—the comparative method is, once again, deemed equally applicable to the level of semantics as it is to the level of sounds and morphemes. As we have seen above, more than one meaning can

be reconstructed from a single linguistic structure which means that paleolinguists must choose between multiple hypotheses. Indeed, we cannot decide between hypothetical meanings objectively (that is, we cannot attribute objective probabilities to hypotheses) since we have discarded the ontological assumption, but luckily, the epistemological assumption saves the day. Paleolinguists *qua* experts are familiar with the PIE inasmuch speakers of PIE were familiar with their mother tongue, so the experts' subjective judgments (that is, statements of credence) are to be believed as legitimate. Each paleolinguist has a particular level of confidence when hypothesizing about the concept designated via linguistic reconstruction, and in due time, we will opt for the one with the highest level of confidence which amounts to choosing the currently best explanation. Naturally, this means that paleolinguists committed to *(I_2)* reason *abductively* (Mallory 2020: 281).

Mallory refines *(I_2)* to advance his arguments in favor of semantic internalism as a useful theoretical framework for understanding and honing the methodology of paleolinguistics. Thus, paleolinguists have at their disposal something besides *(I_1)* and *(I_2)*; that is, they can commit to the view that

(I_3) linguistic reconstructions imply Fregean sense.

Frege (1892/1952) introduced the distinction between *sense* (ger. *Sinn*) and *reference* (ger. *Bedeutung*) to explain how words get their meanings, i.e., how names refer to objects. Sense gives cognitive significance to particular linguistic expressions thereby making out of them meaningful and informative expressions instead of a mere sequence of sounds through the mode of presentation. The mode of presentation is how a particular object of reference is thought of or conceptualized. It encapsulates the cognitive aspect of how a reference is given to the mind through sets of descriptions. Most importantly, sense is intersubjective, i.e., shared among speakers. This means that speakers will share at least some of the most salient descriptions. Now, a plethora of papers have been written since the introduction of the *Sinn/Bedeutung* distinction to analyze what sense really amounts to. For the time being, these details can only muddy the waters, so I will focus solely on what Frege had to say about *Sinn* instead of discussing Neo-Fregeans.

Recall that, sometimes, words may not have objects of reference, as in the case of fictional names used for designating gods in PIE society. This, however, does not mean that fictional names do not have sense since they are intelligible—PIE speakers had a mythological or

metaphysical framework[4] in which different gods had their specific roles. Thus, PIE speakers could have different modes of presentation related to fictional names, or sets of descriptions linked to a particular deity.[5] Thus, in Iranian/Avestan, the adjective *spənta–* (from the root *spən–* designating "sacred") along with *amərəta–* (designating "immortal") forms aməša-spənta which is a label for the group of seven guardian deities. The deities——although labeled with abstract fictional names——were embodied in natural "elements" like water, fire, metal, air, etc., and grouped around the supreme deity Ahura Mazda (Benveniste 2016: 455). Sets of descriptions inside the minds of PIE speakers, in this case, grounded in natural "elements", were used to fix the reference of the particular deity within the "Immortal Saints" cohort. Now, it is easy to see why Mallory thinks that semantic internalism can be used to make paleolinguistics more methodologically legitimate. The subjective expert judgments are enhanced by the assumption that *Sinn* and related modes of presentation fix the reference by conveying the idea that there is some kind of conceptual apparatus of PIE speakers that mirrors the world they were inhabiting. This is also what makes them similar enough to us and, therefore, allows for further judgments about the minds of members of this historical community. Both modern and Neolithic minds are Fregean in terms of their semantic competence and the main task of paleolinguists is to reconstruct *sense* through the comparative method rather than simply objects of reference as in *(I_1)* or concepts as in *(I_2)*. Case closed?

4 Vivat Semantic Externalism! Meanings are Not in the Head but in the Artifacts?

I will rehearse my last point from the previous Sect. here so that I could start by elaborating on why I think that semantic externalism is a better fit than semantic internalism. The claim that paleolinguists

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4   Arguably, it would be wrong to call these spiritual inclinations of PIE speakers "religion" because this term implies the existence of the institutional instead of merely metaphysical framework (Benveniste 2016: 526). For PIE speakers there was no clear demarcation line between the natural and supernatural, but rather everything was imbued with spiritual meaning.

5   According to Meillet (1921: 313), the comparative method can provide us with general terms (such as "deity") but focusing on a particular community sheds light on the mythological/metaphysical framework of PIE speakers. Thus, it makes sense to claim that if semantic internalism were considered an adequate methodology, then the modes of presentation could be used to discern particular forms of deity.

reconstruct sense, which then fixes the reference, presupposes that their formal work is sufficient to secure the inference from reconstruction to material evidence. This is, however, sufficient only if an *idealized* PIE speaker is posited, whose knowledge of language is the same as the knowledge of paleolinguists *qua* experts. In Joseph's words (1992: 140):

> [I]f one adheres to the view that grammars ought to mirror speakers' actual capabilities and not a somewhat idealized construction of them, then (…) the typical types of evaluation metrics that linguists use to argue for the proper formulation of a fragment of grammar cannot (always) be maintained.

Thus, in line with Joseph (1992), I will argue in the rest of this Sect. that PIE was used by actual speakers who interacted with the environment which scaffolded their conceptual capabilities. This is where semantic externalism enters the scene with its core idea that reference is fixed by an initial "baptism" and maintained through a causal chain of communication, whereas the meaning of a word is partly determined by external factors, including the speaker's environment and the term's usage history (Kripke 1972). In other words, word meanings are not in the head but are constituted by a particular social community, environment, and similar factors "outside" the skull (Putnam 1975). This constitution is mediated by causal chains between the speaker and its surroundings. In other words, there is a feedback loop between the surroundings and the speaker's semantic knowledge. Semantic knowledge encompasses semantic or mental content prompted and shaped by the causal chains of communication.[6]

Applying semantic externalism to paleolinguistics brings about the view that the proto lexicon was once shaped within the PIE community, so the meaning of a particular reconstruction cannot be separated from the causal relationship with the object of reference. Artifacts provide a bridge between reconstructions and the PIE community: they either support or falsify the presumed causal relationship. In this way, it is also possible to derive the legitimacy of the paleolinguistic method by making it inextricably linked to the archaeological method (probably to the horror of some archaeologists). In other words, as

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6   I have already investigated the viability of semantic externalism in the context of linguistic usage and linguistic intuitions of expert and ordinary speakers in Subotić (*forthcoming*) and (2021) and argued that—in synchronic perspective—this framework is much more attuned to our linguistic usage than (Neo-)Fregean. What follows in this, as well as next Sect., can also be read as a diachronic argument in favor of semantic externalism.

opposed to semantic internalism that somehow vindicates the paleo-linguistic method from within, by arguably making PIE speakers' minds transparent to the keen eye of contemporary scientists, semantic externalism grounds this method in material evidence (which is in accordance with the desideratum for historical linguistics in **Sect. 2**). Semantic externalism, provided it is accepted as a useful framework for paleolinguistics, implies that PIE represents a model of linguistic causal chains between historical PIE community and its environment for which we gather material evidence. Thus, I can now introduce a competing view to *(I₁)*, *(I₂)*, and *(I₃)* above, namely

> *(I₄) linguistic reconstructions imply semantic or mental content scaffolded by the environment.*

Now, let's see how *(I₄)* plays out in paleolinguistic practice. To converge on reconstruction, paleolinguists would be better off relying on external factors that helped shape semantic content and fix the reference. Take, for instance, Ligorio's (2016) reconstruction of the Old Phrygian noun *totin* from PIE **dh₃tim,* which is the accusative form of **dh₃tis* ("gift"). The noun was observed within the inscription M-01f[7] on the central wall of the Midas Monument (700 BC) in Anatolia. This was a hard nut to crack for historical linguistics. Ligorio offers a survey of the past unsuccessful attempts at reconstructing the meaning of *totin* thereby introducing the method of elimination: some adhered to the wrong transcription, others to the wrong stipulation of genetic relationship to word roots found in Ancient Greek and Vedic Sanskrit. Ligorio then argues in favor of his reconstruction as being a more elegant and simpler hypothesis and encompassing a larger number of PIE sound laws. Given the context of the whole niche where *totin* was observed, Ligorio infers that his reconstruction is the best guess due to the following: "'X-as has put (sc. this niche) as a gift *tuav.e|niy ae esuryoyoy*' where *totin* 'as a gift' is understood as an apposition to the implicit object of .d.a̲[s] 'has put'" (2016: 36). Semantic internalism would back up Ligorio's inference by the notion of intersubjective sense which amounts to the associated descriptions with *totin*. This semantic knowledge of speakers of Old Phrygian maps one-to-one to the semantic knowledge of the speakers of PIE, as well as to Ligorio's inasmuch he is capable of solving the puzzle of reconstruction. Furthermore, the speaker of PIE is cognitively so similar to Ligorio, that their minds share the same mode of presentation of **dh₃tim.*

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7   I rely on the standard numeration of Phrygian inscriptions as per Brixhe & Lejeune (1984).

However, semantic externalists would not be satisfied with the presumed reconstruction of *totin* unless external factors are specified to trace causal chains of communication that scaffolded the semantic content of *totin* or *dh3tim*, respectively. In other words, we are looking for independent archaeological evidence or a wider social context. Thus, Grace (2019) shows that inscriptions M-01a and M-01d on the Midas Monument are votive dedications containing personal names like Midas and Baba and bring forth additional evidence that the monument contains religious insignia. Both Midas and Baba were probably members of the Phrygian royal family thereby suggesting that Midas monument was essentially a place of elite pilgrimage. In her words (2019: 62):

> By etching official inscriptions on [...] monuments, the Phrygian elite would have characterized their power as protected and sanctioned by the pre-eminent goddess. Midas' involvement in this possible tradition could thus reveal the Phrygian king's active role in cult and suggest that he used this cultic role to his political advantage.

The upshot is, therefore, to always probe the suggested reconstruction against the available data and see how word meaning and mental content of PIE speakers are scaffolded. Of course, one could say that here we have only the evidence of scaffolding of the mental content of Phrygian speakers, but for PIE we have no written records, and, *ipso facto*, no way of obtaining reliable archaeological evidence to appease wild guesses. Without reliable evidence really anything goes. Maybe we are better off with the idealized PIE speakers than with such wild guesses.

Relying on archaeology as some kind of a "control mechanism" for the inferences of paleolinguists has its downsides: unlike the comparative method of historical linguists, archaeologists face a notorious lack of evidence or have to handle evidence in poor condition. However, recall **Sect. 2** and the story about the PIE homeland. Despite the lack of written records, we have something akin to relevant evidence. For example, there are no horse remains from the presumed time of the PIE settlements in the Balkan and Italian peninsulas, but there are some in the Caspian-Ural steppe region. This supports the Steppe Hypothesis. Nonetheless, the evidence we gathered is about tamed horses, but we are not sure if the reconstruction *$h_1\acute{e}\acute{k}wos$ refers to wild or tamed horses. For the time being, the additional archaeological evidence is nonexistent. In such cases, Wallach (2019: 8) suggests that:

When the question of interest is quite general and refers to a wide swath of time and/or geography, it may be reasonable, following an appropriate search, to consider the absence of evidence as (tentative) evidence of absence.

This point—which runs against the traditional philosophy of science—shows the growing need for unorthodox methodological insights in order to understand the deep past and humans from the deep past since it seems that our orthodox methodological tools and principles have little use.[8] For this reason, I believe that something less destructive than Wallach's suggestion can be put forward.

Reconstructions can be understood as mini counterfactual models used to explore alternatives in the form of different linguistic causal chains between the community and artifacts that are missing/that we might find/that we expect to find. Historical sources, archaeological insights into the development of cognitive capacities, and geological insights into environmental conditions of that period would serve as constraints on the domain of counterfactual reasoning through reconstructions as well as a preferred hypothesis about the PIE homeland. Let's return to *h₁éḱwos. If we think about a "what if" scenario in this case, we could explore the following alternatives: if the horses hadn't been tamed, would we find particular artifacts or later sources about horse rituals in specific locations? We could fix the reference of this reconstruction by looking at historical communities and their communication causal chains. In Latin, *Equus October,* and aśvamedha in Sanskrit both refer to a ritual where horses are bathed in blood (West 2007: 417-419). Hence, we could investigate what sort of consequences (cognitive, social, etc.) the ritual would have on the community members.

5 From Artifacts to Minds and Back Again

Note that virtually all examples so far included proper names ("Midas" and "Baba") or natural kind terms ("horse"), with a pinch of fictional names ("immortal saints"). I haven't yet touched upon social kind terms. Semantic externalism is a natural ally of proper names and natural kind terms since these have a more natural link to the surroundings, thereby making the process of scaffolding the mental con-

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8   The same point about the need for the unorthodox methodological means for understanding the past apply for the case of future-oriented scientific fields, see the development of this analogy in Subotić (2024).

tent much more intuitive. On the other hand, fictional names and social kind terms may still seem hard to picture within such a framework because they seem less dependent on the surroundings and more on some kind of PIE mentality.

One could, therefore, still maintain that paleolinguists have much more serious ambitions that semantic externalism doesn't fully address. In the words of Day (2005: 65):

> *For one thing, because scholars can reconstruct a good deal of the Proto-Indo-Europeans' language—and, by similar comparative methods, their customs and mythology—we moderns can glimpse a prehistoric mentality. No longer restricted to such humdrum archaeological finds as stone tools and charred seeds, we can get inside the minds of the distant Proto-Indo-Europeans and understand their outlook on life.*

In other words, the paleolinguists (may) believe that they are entitled to inferences about PIE speakers' minds regardless of the stone tools, charred seeds, monuments, or horse remains.[9] Archaeological records in the form of artifacts are too coarse for the refined inferences of paleolinguists. Nonetheless, artifacts can unravel the very aspects of the mind that paleolinguists aspire to understand.

Recently, Baumard et al. (2024) have put forward an idea that all cultural artifacts can be understood as *cognitive fossils* given that cultural products usually reflect particular cognitive signatures of individual preferences and personality traits. These cognitive signatures suggest that there is a shared underlying psychological mechanism in a given society that can be searched for and compared to another society. The idea can further be used to back up the project of reconstructing psychological changes throughout history, including the dis-

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9   Interestingly, cognitive archaeologists believe they are entitled to the same type of inferences albeit thanks to the stone tools, charred seeds, monuments, or horse remains. Renfrew (2005), Malafouris (2013), and Wynn (2016) are among the leading cognitive archaeologists who aspire to study the making of the mind of Paleolithic hominins. PIE speakers likely lived during the Late Neolithic period (although Middle and Early Neolith are also speculated on), which means that the models of minimal cognitive functions should apply to them as well. However, given that the most radical among paleolinguists are skeptical of material evidence generally, I turn to idea of cognitive fossils to forge a tighter link between material and cognitive artifacts. In other words, I want to establish that digging out specific artifacts and considering them as potential objects of reference of proto lexicon is not a random thing to do, but could be further justified by following cognitive signatures underlying the creation of such artifacts. In a way, it is less ambitions point than the whole endeavor of cognitive archaeology, although I leave the project of linking cognitive fossils with minimal cognitive functions for the future.

tant past. The researchers were inspired by behavioral ecology where the working hypothesis is that material conditions, i.e., the environment, predict the preferences of individuals (see e.g., Boon-Falleur et al. 2022). This working hypothesis also aligns with the core claim of semantic externalism—that there is a feedback loop between the environment and one's semantic content. Baumard et al. (2024) point out that the main contribution of behavioral ecology is the evidence-based view that better quality of living conditions go hand in hand with preferences becoming more sophisticated, i.e., beyond mere physiological needs, but including parental investment, social trust, rudimentary social institutions, establishing and bonding through customs and rituals, etc. In this sense, the formation and development of communication chains is dependent on the living conditions as well: word meanings begin to reflect the social needs of the particular linguistic community. From this perspective, it is not surprising that semantic externalism better captures proper names and natural kind terms of PIE than social kind terms and fictional names given the level of development of PIE society (recall **Sect. 2**).

Nonetheless, the idea of cognitive fossils can further sharpen the image of the conceptual capacities of PIE speakers. Baumard et al. (2024) use, *inter alia*, the example of baby schema to explain cognitive fossils. Several studies showed that baby schema, or the human preference for the combo of round face, high forehead, big eyes, small nose, and mouth, correlates with a positive attitude towards parenthood, and, as it turns out, this schema has been employed within baby portraits through art history. Ariès (1975) argued that the evolution of baby portraits corresponds to the evolution in parental attitude in the Early Modern period as opposed to the Middle Ages: people had invested more time and care into child rearing and developing emotional bonds, so the children's portraits became more prominent in art. Here cultural artifacts such as baby portraits reflect the cognitive signature of baby schema, i.e., our preference to gaze longer at such portraits if we are fond of children or already have children. Such cognitive signature functions as a cognitive fossil that could be traced in different episodes of the history of humankind.

Historical psychology, as Baumard et al. (2024) advance it, has a grave issue with the survivorship bias, i.e., the fact that many cultural artifacts end up destroyed or in a bad condition (much like the absence of material evidence and its deterioration worry archaeologists), so the ones that remain may overall skew the overall historical image of psychological change. Luckily, however, paleolinguists may

be in a better position than previously thought. Their linguistic reconstructions may be independent evidence that could be further corroborated by cultural artifacts, and *vice versa*, linguistic reconstructions may help mitigate the survivorship bias. The assumptions of conceptual capacities of PIE speakers could be at the other end of the spectrum of historical episodes, where linguistic reconstructions reveal cognitive signatures scaffolded by the environment.

For instance, the Pontic-Caspian Steppe hypothesis stated that the demographic bloom of PIE speakers is linked to the spread of PIE languages and domination over sedentary farmers. However, Renfrew also rightly remarked that the sedentary lifestyle is favorable for forming families due to the increase in fertility rates. The arguably first trace of baby schema and positive attitude to parenting could already be present at the level of old Europe and could be something that PIE speakers picked up from those sedentary farmers whom they overruled. Considering linguistic reconstructions as mini counterfactual models would be beneficial here for establishing both the relation of reference between artifacts and reconstructions and for grounding cognitive signatures even earlier in history than we previously thought it was possible. Albeit, with a healthy grain of salt.

6 Conclusion

Let me summarize the key points I have made throughout the paper and respective takeaway messages:

- Mallory convincingly demonstrates that extreme views on the scientific legitimacy of paleolinguistics have no basis in reality—neither is it a useless discipline nor can the proto lexicon of PIE have a superior epistemic status compared to material evidence.
- Mallory is right that the positions in the philosophy of language and philosophy of linguistics as well as their conceptual apparatus can be used to yield a better understanding of the methodological prospects of paleolinguistics.
- Mallory is wrong to endorse semantic internalism since this boils down to picturing speakers of PIE as idealized and having the knowledge of PIE as paleolinguists **qua** experts have.
- I propose that semantic externalism is, in fact, a better alternative since it allows us for an integrative interdisciplinary view

of the conceptual capacities of PIE speakers without the far-fetched claims about peeking into their minds.

- I propose a novel account of reconstructions that is compatible with the previous point. I see reconstructions as counterfactual models.

- I introduce cognitive fossils to forge a tighter link between paleolinguistics, archaeology, and the study of human cognition through time. Through this notion, I unify all theoretical advantages of semantic externalism over internalism.

Of course, paleolinguists could still find both Mallory's and mine account of their methodology too abstract to be relevant and they will just do what they do without philosophers telling them what they *should* do. This is the self-fulfilling curse of philosophers of science—striving to be of help to scientists but being met with either indifference or dirty looks. Paleolinguists may be long rangers, but philosophers are known to be lone rangers. The arrogance that comes from a more than 2000-year-old legacy of theoretical contributions is something we philosophers can neither deny nor resist. Nonetheless, there is something to be gained from the interdisciplinary discussion, especially in cases where we are dealing with research questions not easily tackled by our current methodological tools. Sometimes, wild guesses are all we have in historical sciences dealing with origins. However, as philosophers, we have plenty of experience in taming wild guesses—just go ask the physicists.

Acknowledgments

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