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Neo-Assyrian Metaphors through the Telescope: Linguistic Patterns involving Body Part Constructions in the State Archives Letter Corpus

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Abstract. We present findings from a semi-automated linguistic analysis of the letter corpus of the online State Archives of Assyria project (SAAo), focusing on a specific grammatical configuration we dub a Body Part Construction (BPC). Based on a verb with a compound prepositional phrase involving a simple human body part (e.g., *alāku ina muhhi*), the BPC is a basic construction for extending the semantic range of prepositional expressions in first millennium Akkadian, particularly metaphors. While specific instances of this construction have been documented in the literature, no large scale survey of them has been conducted until now. Here we present basic distributional facts about BPCs in the SAAo letter corpus, and discuss certain features of a linguistic nature and their role in constructing metaphors. We observe that most BPCs express directed motion or metaphorical variants thereof, and that such BPCs also exhibit a minor dialectal difference depending on whether they appear in Neo-Assyrian or Neo-Babylonian texts. This paper should be of interest not only for its specific findings about BPCs, but also because of the semi-automated methods used to generate its survey data that benefit from a new machine learning based computational approach.

Keywords: Akkadian metaphors, Neo-Assyrian letters, body parts, computational linguistics.

1. INTRODUCTION

In first millennium Akkadian there is a tendency for phrases that in older phases of the language would be expressed with simple prepositions, such as *ina āli* ('in the city'), to be replaced with compound prepositional phrases involving terms for basic body parts, such as *ina muhhi āli* (lit. 'in the skull of the city').[1] This phenomenon is especially observable in let-

[1] In this article, 'compound preposition' will always refer to a combination of basic preposition plus a noun in construct, not two basic prepositions. A basic (or base) prep-

ters, which are overall indicative of vernacular language patterns. Reflecting the grammaticalization of what were once completely independent words (Rubin 2005: 47), compound prepositions become the primary way of expressing oblique arguments of Akkadian verb phrases such as *alāku ina muhhi* X ('to go to X').[2] Previously, such phrases would have used simple prepositions or just case marking on the noun to indicate grammatical function.

At the same time, these compound prepositional phrases and the verb phrases based on them facilitate a large degree of metaphorical extension, highly dependent on the literal meaning of the lexical components. The lexically dependent nature of this process is especially evident in the Neo-Assyrian letter corpus. In such letters, for example, *alāku ina muhhi* X is the usual way to say 'to go to X', but one does not find phrases like *alāku ina rēš* X or *alāku ina qaqqad* X to express a similar meaning, even as the body part terms they involve refer to the same general region. Likewise, while *paqādu* X *ina muhhi* Y means 'to appoint X in charge of Y', the phrase *paqādu* X *ina pān* Y (lit. 'to appoint X in the face of Y') means 'to appoint X in service of Y'. Even though a plausible etymology for these metaphorical expressions can sometimes be given, it is harder to explain why a given expression uses a particular body part term or basic preposition.

In this paper we present a study of some of these compound prepositional phrases where they are most frequent, namely the Neo-Assyrian letters. Our interest is, on the one hand, to count these phrases across the letter corpus as well as elucidate some of their basic distributional properties. But on the other hand, we are particularly interested in the capacity of these phrases to serve as productive sites of metaphors. For instance, *šapāru* X *ina qāt* Y (lit. 'to send X in the hand of Y') usually means 'to send X via Y', whereas the phrase *šûlû* X *ina qāt* Y (lit. 'to lift X from the hand of Y') usually means 'to make X fall out of favor of / be forgotten by Y (usually the king)'. While *amāru* X means 'to see/look at X', the phrase *amāru ina muhhi* X usually means 'to be loyal to X'. These examples indicate how compound prepositions involving basic body parts can serve as interesting bearers of metaphorical meaning beyond their basic components.

Beyond this, our study demonstrates the utility of machine learning techniques in facilitating our survey of the letter corpus. These techniques allow us to query the corpus for our desired linguistic structures with greater complexity and precision than is currently offered by existing online repositories of Akkadian texts. Furthermore, an individual researcher can adapt the code we created to their own queries on another (digitized) corpus. In this sense, our paper should be of interest to other corpus researchers not just for its survey results, but also for how those results were obtained.

The structure of this paper is as follows: In Section 2 we define our objects of study in greater detail and motivate the use of conceptual metaphor theory in studying them. Section 3 discusses existing background literature. Section 4 describes the significant innovation of our paper, outlining step by step how we prepared our annotated corpus, how we surveyed it using semi-automated methods, and what additional manual annotations we made to those search results to enrich our analysis. Section 5 discusses various patterns in the data we found and why they are significant from a linguistic perspective. Finally, Section 6 summarizes the findings.

2. TECHNICAL TERMS AND THEORIES

We define a *Body Part Construction* (BPC) to be an Akkadian verb phrase of the form V (X) PP BP (Y): V is a verb; PP belongs to a closed class of basic prepositions in Akkadian; BP is a noun belonging to a set of basic body part terms that appear in compound prepositions; X is an optional direct object of V; and Y is an optional genitive object of BP (and also the oblique object of V). The entire prepositional phrase modifies the verb V and not, say, one of the nominal arguments X or Y.

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osition, in turn, is a single word or particle that functions as a preposition.

[2] Throughout this paper, citation of Akkadian verbal patterns with the verb first is a formal convention only. No comment is being made about attested word order.

Table 1 shows the values for PP and BP we consider in our survey. Note that the list of items considered leaves out base propositions like *adi* 'up to', *akī/kī* 'like' and *basi* 'in order for', which do not tend to appear with body part terms when modifying verbs. It also excludes more abstract terms like *birit* 'between' and *dātu* 'side' on semantic grounds, although one could also argue for their inclusion.

Note that the above definition is meant to indicate only syntactic dependencies and not word order. In addition, we take a BPC to be associated with a given meaning. Thus the expression *alāku ina pān* X can mean, depending on context, either 'to go before X' (e.g., to appear before the king) or 'to lead X'. There are thus two BPCs associated with the phrase *alāku ina pān* X, one for each of the meanings above.

In studying the metaphor properties of BPCs we are relying on the theory of conceptual metaphor as developed by George Lakoff and his followers (e.g., Lakoff 1987; Lakoff, Johnson 1999; Dancygier, Sweetser 2014). This approach to metaphor and related phenomena has seen frequent use in modern linguistic studies and is expanding to ancient near eastern languages (Pallavidini, Portuese 2020; Jindo 2018; Manasterska 2019; Harris 2022). Its value here comes from its ability to provide fine-grained analyses of linguistic expressions and to motivate those analyses in terms of basic embodied experience. In conceptual metaphor theory, a metaphor is a mapping from a *Gestalt* concept or integral scene A to another such scene B that preserves structural relations. A is called the source domain for the metaphor, and typically involves a scene that is more concrete or fundamentally rooted in basic physical experiences compared to B, which is called the target domain. A simple example of a conceptual metaphor is GOOD IS UP ('he's at the top of his class', 'he's down in the dumps'), where the source domain up reflects the basic concept of upwards direction relative to a stable ground, and the target domain good reflects more abstract notions of power, social standing, and value. Furthermore, to say that a concept B is a metaphorical extension of another concept A is to say there is a metaphor mapping from A to B, with A being more concrete. Using the above example, we can say that with respect to the metaphor GOOD IS UP, the concept GOOD is a metaphorical extension of UP.

The basic tenets of conceptual metaphor theory motivate restricting our study to BPCs as we have defined them. The literal meaning of the compound prepositions involving the four basic prepositions and basic body parts of Table 1 are fairly transparent, allowing for a clear understanding of the mappings defining more abstract or figurative meanings. At the same time, verb phrases with prepositional modifiers involving body parts often reflect basic physical experiences and are the most widely attested class of compound prepositional phrases in the letter corpus. They are hence likely to exhibit metaphorically (and metonymically) extended meanings based on those body parts. In contrast, while phrases involving terms not transparently derived from body parts, like *ana mahar* 'to/towards' and *ina kūm* 'in-stead of' do occur in the letter corpus, they are comparatively rare, or their etymologies are uncertain.

Conceptual metaphor theory also gives us a more refined schema within which to classify the metaphor properties of BPCs. According to conceptual metaphor theory, metaphorical expressions need not be regarded as innovative or literary by the people who use them.

Conventional metaphors in English such as 'the prices rose' or 'I see what you mean' are not usually regarded as metaphorical by native English speakers even though they are clearly metaphorical in Lakoff's sense of a mapping between distinct conceptual domains. Our analysis of BPC metaphors acknowledges this fact for Akkadian, recognizing the contribution to metaphor provided by high frequency terms such as *muhhu* and *pānu*.

Finally, focusing on body part terms also allows us to limit the size of our data set to something manageable for partial manual evaluation, as we avoid the large number of prepositional phrases which have not become gram-

Table 1. Basic prepositions and body part terms considered in our survey of BPCs.

Basic prepositions	Body part terms
ina,ana,ištu,itti	*ahu,idu,irtu,kišādu,lētu,libbu,muhhu,pagru, pānu, pānātu,pērtu,pû,pūtu,qablu,qātu,rēšu, šārtu,šēpu,šīru,uznu*

maticalized into actual compound prepositions (such as *ina bīt* 'in the house of', *ina ēkalli* 'in the palace of', and *ina šiddi* 'on the side').

3. BACKGROUND

Previous literature relevant to BPCs usually focuses on compound prepositions. In his fundamental study of Akkadian grammar, von Soden offers a concise diachronic survey of about a dozen frequent compound prepositional phrases, including their distribution in Neo-Assyrian and Neo-Babylonian (GAG, 115 d-t.). The discussion, however, is largely divorced from considering verbs that the prepositional phrase may modify.

Comprehensive surveys of the Neo-Assyrian letter corpus are another place one finds comments relevant to BPCs (Parpola 1983; Hämeen-Anttila 2000; Luukko 2004). These studies focus heavily on orthographic, phonological, and morphological aspects of the letter corpus, even as various syntactic and semantic issues are also considered. However, beyond cataloguing frequently occurring compound prepositions, the syntactic and semantic issues treated by these studies are largely irrelevant for BPCs. The closest relevant discussion involves the interchangeability of *ina* and *ana* in certain contexts. Parpola argues that by Neo-Assyrian times *ina* and *ana* had largely merged semantically even if they still remained distinct phonologically (Parpola 1983: 48). He lists numerous examples of prepositional phrases where *ana* is used in place of the expected *ina*, and includes a few examples from Middle and Old Assyrian of the same phenomenon. Yet most of these examples have a temporal or locative meaning and involve only the basic preposition rather than compound prepositions. Three examples involve compound prepositions (specifically, *ana muhhi* and *ina libbi*). However, they all come from letters dating to the reign of Sargon II (r. 721-705 BC), a period for which our own analysis shows irregularities involving BPCs. Luukko (2004: 173) agrees with Parpola's conclusion, adding new examples of the interchangeability and observing again that it seems to occur mainly with phrases expressing temporality or spatiality. He notes, though, that interchangeability does not happen when *ana* marks an accusative object of a verb (*nota accusativi*). For his part, Hämeen-Anttila (2000: 70) concludes that despite the numerous examples of merging, *ina* and *ana* likely maintained a semantic distinction which perhaps was in the process of disappearing. In summary, with respect to all three surveys above, the great majority of *ina/ana* interchanges cited are not compound prepositions and those few cases that do involve compound prepositions date either to Sargon II or are undated.

One may also find scattered information relevant to BPCs in studies concerned with Neo-Assyrian or Neo-Babylonian dialectal patterns as well as philological studies of specific basic prepositions. Thus, Worthington (2006: 82) identifies as Assyrianisms the compound prepositions *ina muhhi* and *ana muhhi*. The examples of these phrases that Worthington cites largely signal topicalization or clausal subordination and are not associated with a specific verb. In a study of the relation between the Neo-Assyrian prepositions *issu* 'from' and *isse* 'with', Vinnichenko (2016) observes that the former readily forms compound prepositions such as *issu pān* 'from, because of' while the latter does not. Woodington (1983) catalogues compound prepositions appearing in Neo-Babylonian letters from the royal Assyrian archive (many of which are BPCs), whereas Hess (2021) and Hackl (2021) provide brief, up-to-date discussions of compound prepositions appearing in Neo-Babylonian and Late Babylonian, respectively. Once again, however, in all cases the discussion revolves around the compound prepositions alone without any verbs they may modify.

Looking further afield, comparative semitic studies also tend to give brief surveys of cognate compound prepositions and their historical processes of formation. Rubin (2005: 46-48) discusses reconstructed proto-semitic compound prepositions in the context of grammaticalization. Lipiński (1997: 469) briefly discusses certain cognate constructions involving prepositional phrases, but does not extend the discussion to verbal phrases. On the other hand, some studies of specific (ancient) semitic languages go somewhat further in their survey of compound prepositions, such as Hardy II (2022) for Biblical Hebrew, but so far none exist for Akkadian.

The above information illustrates that previous literature has largely not considered Akkadian compound prepositions in their relation to various verbs, or their capacity for metaphorical extension of meaning. This paper

thus offers an initial, but novel, study of the subject involving a specific subclass of compound prepositions, namely BPCs.

4. METHOD

Our method for searching and extracting BPCs in the SAAo letter corpus involves the following three steps of data preparation:

1. Providing morpho-syntactic annotations for all SAAo letters.[3]
2. Converting these annotations to linked open data and retrieving all BPCs from it via appropriate knowledge graph queries.
3. Incorporating text metadata into the search results as well as a manual evaluation of metaphor-relevant features of BPCs.

A full technical description of these steps can be found in a Zenodo repository containing data files associated with this article.[4] Here, we present only abbreviated points of the entire process.

Step 1: Generating the morpho-syntactic annotations

We first produced morpho-syntactic annotations of the entire SAAo letter corpus that followed the Universal Dependencies framework for linguistic annotation.[5] These annotations provided a full morphological analysis of each meaningful token in the corpus as well as syntactic dependencies among tokens.

We generated these annotations using a bootstrapping method described in Ong, Gordin (2024b). Essentially, we first annotated a small set of texts manually and then trained a spaCy language model on those annotations capable of automatically annotating new texts with a certain degree of accuracy.[6] We applied this model to a new set of texts and manually corrected the resulting automatically generated annotations. Then we retrained the language model on the combined set of new and old annotations so that it could produce more accurate annotations on new texts. We repeated this process many times until six of the SAAo letter volumes had been completely annotated to gold standard. Finally, the language model was applied one more time to the remaining SAAo letter volumes to yield automatically generated annotations sufficiently accurate for facilitating a search for BPCs (Fig. 1).

Step 2: Converting annotations to linked open data

The annotations from Step 1 were converted to linked open data format to facilitate searching for morpho-syntactic structures like BPCs.[7] Fig. 2 illustrates what this conversion process looks like. After converting the annota-

[3] The specific SAAo volumes annotated were SAAo 1,5,10,13,15-18,19, and 21.

[4] See https://zenodo.org/doi/10.5281/zenodo.8289986.

[5] See https://universaldependencies.org/.

[6] By language model, we simply mean a computational algorithm capable of taking input strings from a given language and parsing them according to specific demands (e.g., identifying parts of speech of all words, morphological analysis, or syntactic dependencies). Language models are often obtained by training a neural network on sample data provided by humans. Humanists seeking an introduction to spaCy language models and their uses in the humanities may consider chapters 11 and 12 of Mattingly (2023) as well as an online course for beginners by the same author, found at spacy.pythonhumanities.com (accessed October 15, 2023). For examples of spaCy applied to ancient and low-resource languages, scholars may consult recent projects archived at the Center for Digital Humanities at Princeton (https://newnlp.princeton.edu/languages/). Finally, scholars interested in looking at current spaCy models for languages other than English may visit https://spacy.io/models.

[7] Linked open data is an approach to data representation in which data points are machine-readable units of information containing pointers to other data points as part of their basic structure. Such data is usually publicly accessible on the internet so that it can be integrated into larger linked open data projects. See Bizer, Vidal, Skaf-Molli (2018).

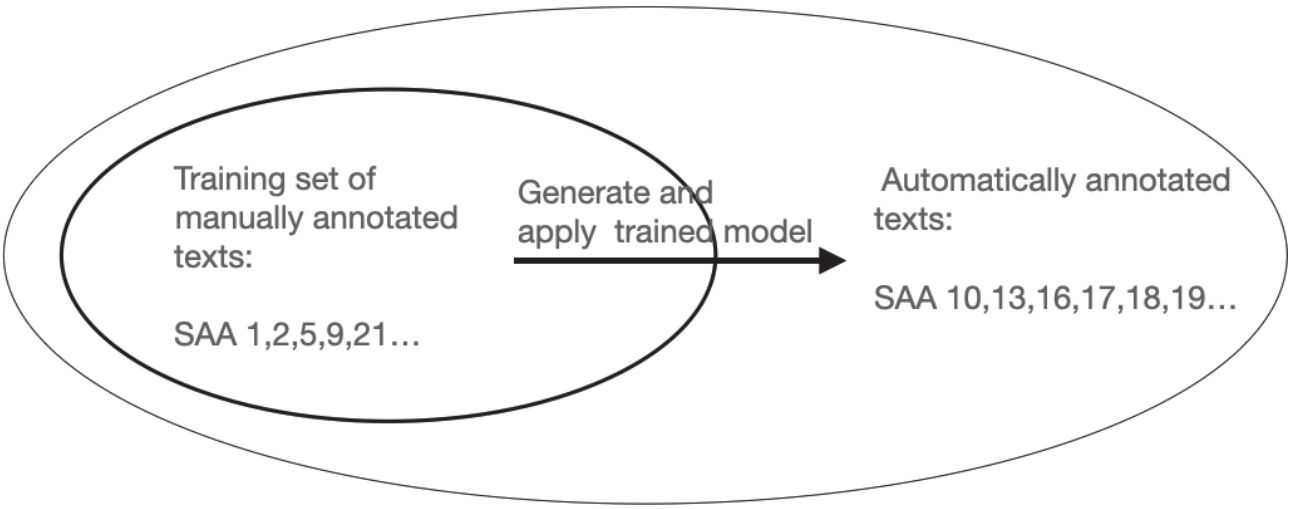

Fig. 1. Using the language model to generate the full set of morpho-syntactic annotations from a manually annotated training set.

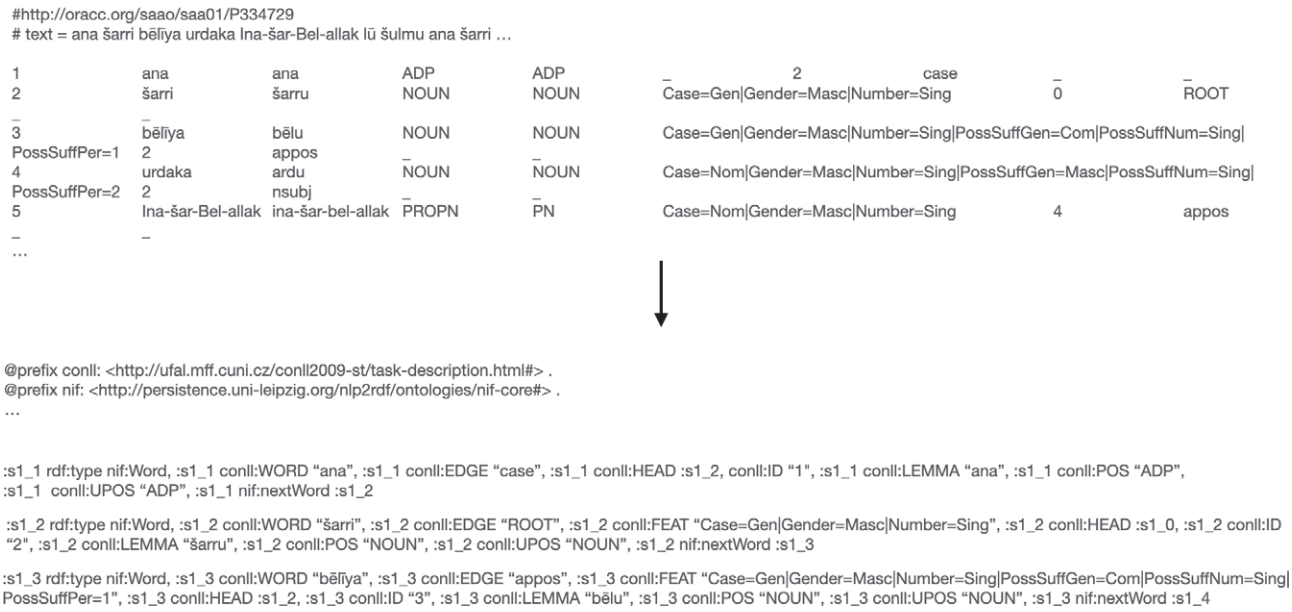

Fig. 2. Example of converting morpho-syntactic annotations to linked open data format.

tions to linked open data, we used a SPARQL query to retrieve all instances of BPCs in the SAAo letter corpus that involved body part nouns and basic prepositions in Table 1.

Step 3: Adding text metadata and metaphor evaluations

The SPARQL query from Step 2 yielded approximately 2400 likely BPC examples from the SAAo letter corpus. We augmented these results with two additional forms of data for enhanced analysis. The first is Oracc metadata that allowed us to associate to each BPC within a given letter the dialect of Akkadian, script type, likely date and ruler under which that letter was written in, as well as the letter's sender and receiver, provenience, and send-

tlemma	rlemma	slemma	date	dialect	oolemma	dolemma	ruler	tword	sword	Bad_analysis	etype
našû	ina	muhhu	731-730	Neo-Assyrian	marduk-apla-iddina		Tiglath-pileser III	naṣūni	muhhi		iobj
našû	ina	muhhu	731-730	Neo-Assyrian	marduk-apla-iddina		Tiglath-pileser III	naṣūninni	muhhi		obl
našû	ištu	muhhu	721-705	Neo-Assyrian		sisû	Sargon II	lišši u	muhhīya		obl
našû	ina	pānu	671				Esarhaddon	anašši	pānīšunu		obl
našû	ištu	pānu	652-VII-3	Neo-Assyrian			Ashurbanipal	inaššia	pān		obl
našû	ištu	pānu	672-669	Neo-Assyrian	ilumma-le'i	manû	Esarhaddon	ittiši	pān		obl
našû	ana	pû		Neo-Babylonian		šarrūtu	Tiglath-pileser III	iši	pīya		obl
našû	ina	pūtu	731-730	Neo-Assyrian	nippur	unqu	Tiglath-pileser III	naṣūni	pūt		obl
našû	ina	qātu	680-631				Esarhaddon or A	lišši	qātēšunu		obl
natāku	ina	libbu	672-669				Esarhaddon	lunattiku	libbi		obl
nazāru	ina	pānu	672-669	Neo-Assyrian			Esarhaddon	ussanziranni	pānīšu		obl
pahāru	ina	libbu	671-670	Neo-Babylonian			Esarhaddon	uptahharū	libbi		obl
pahāru	ana	muhhu	681-669	Neo-Babylonian			Esarhaddon	liphurū	muhhīka		obl
pahāru	ana	muhhu	710-709	Neo-Babylonian			Sargon II	liphurūma	muhhīšu		obl
pahāru	ana	muhhu	710-709	Neo-Babylonian			Sargon II	liphurū	muhhīšu		obl
pahāru	ana	muhhu	710	Neo-Babylonian			Sargon II	iptahrū	muhhišunu		obl
palāhu	ina	ahu	670				Esarhaddon	laplah	ahīya		obl
palāhu	ina	libbu	672	Neo-Assyrian			Esarhaddon	laplah	libbi		obl

Fig. 3. Section of CSV file with metadata associated with each BPC example found in our data set.

er's location (provided such things were known). These augmented search results were assembled into a big table (saved in a typical CSV file) illustrated in Fig. 3.[8]

In addition to this, the primary author made a manual survey of the search results, noting for each possible BPC a number of features difficult to classify automatically.[9] Because our investigation targeted verb phrases with a specific class of prepositional modifiers (namely those involving body parts), it seemed possible to us that what we call the 'verbal component' of the BPCs (i.e., the verb itself plus any direct object) might behave differently than the 'prepositional component' (the prepositional modifier including any external argument). Thus, some of these manually-recorded features are specific to the verbal or prepositional component. They include:

1. Whether the putative BPC was actually a BPC.
2. Whether the verbal and prepositional components of the BPC expressed a metaphor, a metonym, or both.
3. Whether the prepositional component of the BPC expressed an external argument of the verbal component, or was simply an adverbial modifier.
4. The degree of metaphorical extension of the verbal and prepositional components of the BPC in its context. This evaluation followed a four-tiered scale of **Literal**, **Basic**, **Basic+**, and **Literary**. **Literal** means the component had essentially no metaphorical meaning whatsoever. **Basic** means the component had, in the judgement of the primary author, a metaphor which is highly conventional both in Akkadian and its most direct, literal translation to English. **Basic+** means the metaphor is highly conventional in Akkadian but not in English. **Literary** means the metaphor was somewhat unusual, elaborate, or creative in Akkadian relative to its communicative context. Examples of these evaluations are given in Table 2.
5. The 'rhetorical mode' and 'communicative intensity' of the BPC. The first feature aimed to classify the communicative purpose of the BPC in context. This could include a factual statement, wish, information seeking question, rhetorical question, or order. Communicative intensity measured the degree of emotional expression that the speaker seemed to put into the BPC. This was measured according to a three-tier scale, where the lowest level reflected formulaic or neutral use of the BPC, and the highest level signaled significant emotional investment. Examples of these evaluations are given in Table 3.

[8] This table and its data is described in Ong, Gordin (2024a), and is freely available with Zenodo DOI: https://zenodo.org/doi/10.5281/zenodo.8289986.

[9] For the most common BPC types whose exemplars numbered in the dozen or more, certain features were not exhaustively checked.

Table 2. Verbal and prepositional components of BPCs exemplifying the four levels of metaphorical extension.

Verbal component		
Level	Example	Source
Literal	*ša ina* IGI LUGAL EN-[*ia*] ⌜***aq***¬***-bu-u-ni***	SAA 16 134, o. 6-7
	about whom I **spoke** in the presence of the king	
Basic	^{m}GIN—NUMU ANŠE.KUR.RA-MEŠ *ša*$_2$ KA$_2$—BAR$_2$.SIPA.KI *a-na* UGU TIN.TIR.KI *ki-i* ⌜***u***$_2$¬***-še-***⌜***lu***¬***-u***$_2$	SAA 19 133, o. 12'-13'
	Mukin-zeri **moved up** horses of the Borsippa gate against Babylon	
Basic+	KASKAL.2 *a-na* GIR$_3$.2-*šu*$_2$ ⌜*ki*¬ ***aš***$_2$***-ku-nu***	SAA 18 150, o. 13-14
	When I **set** the path at his feet (i.e., prepared him for his journey)	
Literary	*ša* TA *ku-tal-*[*li-šu*$_2$] ⌜***ma***¬***-ḫi-iṣ-ṣu-***⌜***ni***¬	SAA 10 294, r. 11-12
	He who has been **struck** in the back...	
Prepositional component		
Level	Example	Source
Literal	GIŠ.*ṣal-lu-ma-a-ni* NA$_4$*ki-ša*$_2$-⌜*du*¬ SAG.DU—*pa-zu-za-a-ni* ***ina*** **SAG-*šu*$_2$** *i-ba-aš*$_2$*-ši u*$_2$*-šar-qu-up*	SAA 16 065, r. 3'-4'
	They are even 'planting' black amulets, a neck-stone, and Pazuzu heads **on his head**	
Basic	*ša* ***ina*** **IGI LUGAL EN-[*ia*]** ⌜*aq*¬*-bu-u-ni*	SAA 16 134, o. 6-7
	about whom I spoke **in front of** the king	
Basic+	KASKAL.2 ***a-na*** **GIR$_3$.2-*šu*$_2$** ⌜**ki**¬***aš***$_2$***-ku-nu***	SAA 18 150, o. 13-14
	When I set the path **at his feet**	
Literary	**TA ŠA$_3$** ***ki-qil-li-ti*** *in-ta-at-ḫa-an-ni*	SAA 10 294, o. 1
	He lifted me **from the dung heap**	

5. RESULTS

General distribution

Approximately 2400 BPCs were found in the letter corpus using our semi-automated search and retrieve method. Table 4 shows the twenty most frequent verbs appearing in the results, expressed as a percentage of all BPCs. Table 5 shows the top sixteen of the compound prepositions, also by percentage.[10]

These tables reveal a few facts about the distribution of BPCs within the Neo-Assyrian letter corpus. Table 4 shows that BPCs predominantly occur with verbs involving directed motion (whether self-caused or acting upon an object). About 25% of BPCs involve the common verbs *alāku* and *šapāru* (15% and 11%, respectively), and all together verbs of direct motion account for about 44% of BPCs in the corpus. These facts are unlikely to be simple reflections of the more general distribution of said verbs in the letter corpus, since for instance *alāku* and *šapāru* each represent about 9% of all occurrences of verbs in the corpus. On the other hand, the compound prepositions demonstrate a strongly asymmetric distribution relative to their basic preposition component. For instance, *ina muhhi* is the most common compound preposition, occurring in 29% of BPCs even as *ana muhhi* occurs in 4.1% of them and *ištu muhhi* 1.1%. The theoretical possibility of *itti muhhi* does not even occur. Similar asymmetry is seen with *ina/ana/ištu/itti pāni*, which occur in 19%, 6.3%, 3.9%, and 0% of BPCs respectively. *ina/ana/ištu/itti libbi* occur 17.2%, 3.9%, 1%, and 0% of the time, respectively. Finally, *ina/ana/ištu/itti qāti* occur 5.3%, 0.3%, 0%, and 0% of the time.

[10] The tabulations account for dialectal variation in forms (e.g., Neo-Assyrian *ultu* or *issu* for *ištu*, *tadānu* for *nadānu*).

Table 3. Table of rhetorical types used to classify BPCs in the Neo-Assyrian letter corpus. The three levels of affective intensity for each category are not shown.

Rethorical type	Example	Source
Statement	*ša ina* IGI LUGAL EN-[*ia*] ⌜*aq*⌝-*bu-u-ni* about whom I spoke in the presence of the king	SAA 16 134, o. 6-7
Order	*ina* UGU ⌜LU$_2$.⌝*gi-mir-ra-a.a am-mu-te qi$_2$-ba-aš$_2$- šu$_2$* Speak to him about the Cimmerians	SAA 16 015, o. 7-8
Question	NUMUN-*u$_2$-ti-ia$_2$* LUGAL *liš-ʾa-al ana* UGU *mi-ni-i i-bu-kaš-šu$_2$-nu-ti* Let the king ask Zerutiya why he brought them in	SAA 18 054, r. 9-10
Wish	[*la*]-*as-ḫu-ra* [*ina*] ⌜UGU⌝*dul-li-ia* [*la*]-⌜*al*⌝*-li- ka* Let me come back to my work	SAA 16 037, o. 7'-9'
Rethorical Question	*kit-tu-u$_2$* [x] ⌜*ṣi*?⌝*ša$_2$ ma-la* LU$_2$.MU *ša$_2$* LUGAL *be-li$_2$-ia$_2$* ⌜*ma-ṣu*⌝*-u$_2$ a-na* UGU LUGAL-*u$_2$-tu i-dab-bu-ub-*⌜*ma*⌝ Is it really true that one as important as the cook of the king, my lord, is conspiring against the kingship?	SAA 19 147, o. 14-16

The asymmetries involving *itti* likely stem from two facts. First, when it occurs just as a basic preposition, *itti* does not have an instrumental meaning (using something as a tool) but only a comitative one (engaging in an activity alongside something else). The instrumental meaning is covered by *ina*. Second, most of the body part terms appearing in BPCs do not lend themselves to comitative expressions in Akkadian (whether literal or metaphorical). This is perhaps because they are not traditionally seen as seats of thought or general sentience, a typical requirement for an animate entity participating in an activity alongside an animate subject.[11] Indeed, the only BPCs involving *itti* in our survey were a handful of examples of the form *dabābu itti libbi* 'to speak with one's heart', i.e., to think to oneself.

Other asymmetries among the compound prepositions can be explained at least superficially in terms of discourse patterns. For instance, *ana qāti* appears much less frequently than *ina qāti* simply because the types of situations requiring the use of *ana qāti* are discussed less frequently in the letters. This includes placing something in the custody of someone else (*šakānu* X *ana qāt* Y), abandoning someone to the enemy (*wuššuru* X *ana qāt* Y), and the stock phrase from the royal inscriptions of the gods placing universal dominion in the hands of the king (*mullû* X *ana qāt* Y). Conversely, *ina qāti* is frequently used to describe the sending of a person or object to their destination via an agent (*šapāru/šūbulu* X *ina qāt* Y) as well as a servant describing or wishing to avoid being alienated from the king (*elû/šûlû* X *ina qāt šarri*). There is a comparative rarity of compound prepositions expressing where something comes from (*ištu libbi*, *ištu muhhi*) compared to where something is going to (*ina/ana libbi*, *ina/ana muhhi*) likely because most cases in the letters where there is a transfer of things, the sender is sending something from his present location to the letter's recipient (for whom there is no need to specify the source).

The conclusion we draw from these general facts is that most BPCs in the letter corpus at a literal level seem to involve directed motion, or less frequently location. Most of the verbs they use involve basic forms of motion (*alāku, šapāru*) or static position (*izzuzu, ašābu*), along with whatever metaphorical meanings are derived from those. Most BPCs tend to involve one of only three body part terms (*muhhu, libbu, pānu*), each of which refer to fairly broad, frequently accessed portions of space with respect to an object (top, interior, front). Finally, most BPCs use either *ina* or *ana*, basic prepositions expressing static position in something, motion to or from, and (per-

[11] While *pû* 'mouth' is the instrument through which speech is created, it is not a bearer of intelligence. Similarly, while *uznu* 'ear' is a traditional metonym for knowledge or wisdom in Akkadian, it itself is not the bearer of the ego or its thoughts. Cf. Steinert (2012: 219 fn. 1).

Table 4. Twenty most frequent verbs appearing in BPCs measured by percentage (out of 2400).

Verb		Verb	
alāku	15.9	*paqādu*	1.4
šapāru	10.6	*elû*	1.5
wabālu	5.5	*aṣû*	1.4
šakānu	5.0	*ṣabātu*	1.2
erēbu	4.2	*qerēbu*	1.1
epēšu	3.2	*etēqu*	1.1
qabû	3.0	*tadānu*	1.0
izuzzu	2.5	*ašābu*	1.0
dabābu	2.3	*maqātu*	1.0
našû	2.1	*sahāru*	1.0

Table 5. Sixteen most frequent compound prepositions appearing in BPC's measured by percentage (out of 2400).

PP			PP		
ina	*muhhi*	29.0	*ina*	*pî*	1.3
ina	*pāni*	19.0	*ištu*	*muhhi*	1.1
ina	*libbi*	17.2	*ina*	*pānāti*	1.1
ana	*pāni*	6.3	*ana*	*libbi*	1.0
ina	*qāti*	5.3	*ana*	*ahi*	0.7
ana	*muhhi*	4.1	*ina*	*šēpi*	0.6
ištu	*libbi*	3.9	*ana*	*šēpi*	0.5
ištu	*pāni*	3.9	*ana*	*qāti*	0.3

haps by polysemy) instrumentality. The prominence of *ina* and *ana* in BPCs motivates a closer look at these two prepositions.

ina *versus* ana *in BPCs*

A manual evaluation of the survey data yields an interesting fact about the overall use of *ina* versus *ana* in BPCs, something which is relevant to the statement in the Assyriological literature that the AŠ sign in Neo-Assyrian is sometimes to be read ana_3 when expressing a preposition.[12] Within the letter corpus, it appears that the Sargonid era Neo-Assyrian texts use AŠ to express BPCs describing directed motion (or metaphorical extensions thereof), whereas the Neo-Babylonian ones use *ana* (whether spelled via the logogram DIŠ or written syllabically). By 'Neo-Assyrian texts' or 'Neo-Babylonian texts', we mean texts either written in the Neo-Assyrian (resp. Neo-Babylonian) script or reflecting Neo-Assyrian (resp. Neo-Babylonian) Akkadian. Overall, in the letter corpus the presence of one of these features in a text implies the other. However, there are some exceptions in scholarly letters to the king (Worthington 2006).

Table 6 shows several examples of this phenomenon. Note that because the Neo-Assyrian texts spell the basic prepositional component of the BPC using the logogram AŠ rather than spelling it syllabically (as the Neo-Babylonian ones do), we cannot be sure the orthographic difference reflects a linguistic, i.e., spoken, distinction. Thus, when speaking of a 'dialectal split' with respect to the use of *ina/ana* (or AŠ/DIŠ), we mean either in terms of the script or the underlying form of Akkadian.

Table 6 lists various directed motion BPCs in the letter corpus demonstrating the dialectal split. BPCs in the left column provide strong evidence for the claim in the sense that there are many attestations in the data both for the Neo-Assyrian and Neo-Babylonian forms. BPCs in the right column are suggestive, but not conclusive, in that they either have all or almost all their examples expressed in only one of the two dialects, there are a few counter-examples, or there are only a few examples in total. Table 6 indicates that the split mainly occurs with some basic verbs of directed motion involving *ina/ana muhhi*, *ina/ana libbi*, and *ina/ana pāni*. Directed motion BPCs using other compound prepositions, such as *ina/ana šēpe* or *ina/ana panāti*, or ones using less common verbs, are consistent with the dialectal split though the data does not permit definitive conclusions.

[12] See AHw, 47a and Syllabar, p. 1. Note however the contrary opinion in MZL, p. 469.

Table 6. Examples of BPCs involving directed motion that illustrate the dialectal split.

BPC	Meaning	Example	Source	Dialect
alāku ina muhhi	to go to	*it-tal-ku-nu ina* UGU-*ḫi-ia* They have come to me	SAA 16 49, r. 4	NA
alāku ana muhhi	to go to	*min*$_4$*-de-e-ma* KUR.NIM.MA.KI *a-na* UGU-*ḫi-ni il-la-ku-ni* Perhaps the Elamites will move against us	SAA 18 87, r. 15-16	NB
arādu ina libbi	to go down into	*a-nu-tu*$_2$ *ša* ^{m}*um-ba-ki-di-ni ša* $^{m\Gamma}$*ri*$^{\neg}$*-ši*—DINGIRLU$_2$.03.U$_5$ *ina* ŠA$_3$ ^{GIŠ}MA$_2$ *u*$_2$*-še-ri-du- u-ni...* The objects of Umban-kidinni, which Riši-ilu the 'third man' brought down on a boat...	SAA 16 139, o. 6-9	NA
arādu ana libbi	to go down into	*en-na mi-nam-ma ša*$_2$ *la pi-ia a-na* ŠA$_3$*-bi tu-ri-id* Now why did you go down into it without my permission?	SAA 21 45, o. 11-13	NB
qerēbu ina muhhi	to be close to	UD 02-KAM$_2$ LU$_2$.EN.NAM *ša* $^{KUR\Gamma}$*ḫa*$^{\neg}$*-ban ina* $^{\Gamma}$UGU$^{\neg}$ID$_2$ *iq-ṭar-*$^{\Gamma}$*ba*$^{\neg\Gamma}$*uq*$^{\neg}$*-tar-ri-bu* On the second day, the governor of Hamban approached the river	SAA 19 103, o. 5-7	NA
qerēbu ana muhhi	to be close to	^{m}*na-*[x x] [x] x *a-na* UGU-*ḫi-šu*$_2$ -[*nu*] $^{\Gamma}$*uq*$^{\neg}$*-tar-ri-bu* They presented Mr. Na- to them	SAA 18 092, o. 17-19	NB

We qualified the above claim about a dialectal split by saying that it holds for BPCs that: (1) are dated to the Sargonids,[13] and (2) signal directed motion, or metaphorical extensions thereof. Each of these qualifications will be discussed in turn.

First, the dialectal split is not as strictly observed for older Neo-Assyrian letters from the royal archives, specifically those written under Tiglath-pileser III (r. 744-727 BC) and Sargon II (r. 721-705 BC). Most of the exceptions in the survey data date exactly to these rulers. At the same time, even within these rulers the number of exceptions is still quite small. While the low number of exceptions for Tiglath-pileser could be argued to be an artifact of the overall low percentage of letters in the corpus dating to his reign (about 6% of the total), the letters dating to Sargon II account for about 45% of the total, yet still show a fairly low exception rate.[14]

Secondly, the dialectal split seems to apply only to BPCs meaning directed motion or metaphorical extensions thereof. An example involving metaphorical extension is *šûlû ina qāti* 'to make someone fall from favor (of the king, lord)', which is an extension of the literal meaning 'to lift something up from the hand of someone' via the metaphor INTIMACY IS PHYSICAL PROXIMITY. The literal meaning of the BPC involves directed motion, and so the metaphorical extension obeys the split. Likewise, *maqātu ina pāni* 'to defect to the side of' is derived by metaphorical extension of an expression that involves literal motion, although the nature of the mapping is not quite clear.[15] Note that BPCs using *ina muhhi* in the locative sense do not observe the split.[16]

All this suggests that the dialectal split is conditioned on the overall meaning of the BPC and not just its prepositional component apart from the verb. Even when there are two BPCs composed of the same lexical items, with one BPC expressing directed motion and the other not, only the BPC expressing directed motion will demonstrate the dialectal split. For instance, while *alāku ina pāni* usually means 'to go into the presence of (a king or lord)' and

[13] A small number of BPCs were found in letters dating to Sîn-šarru-iškun (r. after 627 to 612 BC).

[14] Recognizing that the letter archives for Sennacherib have largely not been recovered (see Frahm 2017: 186), so we cannot say anything definite about their exception rate.

[15] Perhaps 'to fall before someone' in the sense of showing one's military loyalty to them, which by both metonymy and metaphor is extended to general defection to an opposing side.

[16] For example, SAA 18 28, r. 5-6: *i-na* UGU BARAG [x x x] *lu-ši-bu* 'may they sit on the dais',
as well as the metaphorical example in SAA 18 86, r. 2: *i-na* UGU-*hi-i-ni ul i-rab-bu* 'he will not be our superior'. Both are Neo-Babylonian letters dated to Esarhaddon.

Table 7. Directed motion BPCs exhibiting dialectal split. Discussion of specific cases given in the footnotes.

Likely		Possible	
alāku ina muhhi	to go to	*abāku ina muhhi*	to take to
alāku ina libbi	to go into	*alāku ina pāni*	to go before
arādu ina libbi	to go down into	*erēbu ina muhhi*	to enter
elû ina libbi	to go up into	*ebēru ana muhhi*	to cross over into
erēbu ina libbi	to enter into	*elû ana muhhi*	to go up to
etēqu ina muhhi	to cross over to	*alāku ina panāti*	to go before
qerēbu ina muhhi	to come near to	*halāqu ina muhhi*	to flee to
qerēbu ina pāni	to arrive into the presence of	*halāqu ana pāni*	to flee into the presence of
šapāru ina pāni	to send someone before (king, lord)	*maqātu ina pāni*	to defect to the side of
		pahāru ana muhhi	to gather to/against
		emēdu ina muhhi	to lean/press on
		kašādu ina libbi	to arrive in
		kašādu ina pāni	to arrive before
		ṣabātu ina šēpē	to grasp at the feet of (the king, lord)
		šapāru ina muhhi	to send/write to
		tebû ana muhhi	to rise up and attack
		surkubu ina libbi	to load onto (boat, mule)
		pahāru ina pāni	to gather before
		rummû ina muhhi	to release into
		târu ina muhhi	to return to
		wabālu ina muhhi	to bring to
		wabālu ina pāni	to bring before
		etēqu ana pāni	to cross over before
		zaqāpu ina muhhi	to attack

does show the split, the phrase can also mean 'to lead' (lit. walk before). In this latter case, the dialectal split is not respected.[17]

It even appears that BPCs related by deeper forms of metaphorical extension of directed motion follow the dialectal split. For instance, one of the common meanings of the phrase *dabābu ana muhhi* is 'to speak against (someone)'. This is an expression based on the metaphor IDEAS ARE OBJECTS, wherein verbally harming someone is analogized to throwing objects at them. Since this last idea is an instance of directed motion, we expect *dabābu ina/ana muhhi* with the meaning 'to speak against (someone)' to show dialectal variation in the Neo-Assyrian and Neo-Babylonian letters, and this is largely what we find.[18] Similarly, when *dabābu ina/ana muhhi* takes a verb V in the infinitive as the object of the prepositional phrase, the expression has the meaning 'to plot to do V'. This meaning is obtained by the metaphor PURPOSES ARE DESTINATIONS, whereby the effort to realize an action is analogized to traveling along a path with beginning and end. Because traveling along a finite path is directed motion, we expect *dabābu ina/ana muhhi* in the sense of 'to plot to do V' to follow the dialectal split. This, too, is supported by the data. However, the common phrase *dabābu ina muhhi* (lit. 'to speak in the skull of') also has the meaning 'to speak about (a topic)'. The colloquial meaning is ultimately based on the metaphor

[17] For instance, SAA 18 86 is a letter written in Neo-Babylonian and features the phrase *i-na pa-ni-ku-nu lil-lik* 'let him lead you' (o. 14).

[18] Of the five letters in the Neo-Babylonian dialect which feature *dabābu ina/ana muhhi* in the meaning 'to speak against', two use *dabābu ina muhhi* (SAA 21 3, o. 7-11 and SAA 18 125, o. 8'-9'). However, the example from SAA 18, 125 appears inside a passage quoting words by the Assyrian king Esarhaddon, and might be discounted as an exact quote of Assyrian. The other example (SAA 21 3) is from Assurbanipal to the Babylonians and is written in the Neo-Assyrian script but Neo-Babylonian dialect. It is possible the king is reverting to his own dialect. There are no examples of *dabābu ana muhhi* meaning 'to speak against' in letters written in Neo-Assyrian dialect.

STATES ARE LOCATIONS, whereby the state of explaining a topic is envisioned as being (statically) located within a bounded space. The source domain does not involve directed motion, and indeed, this BPC does not show dialectal variation in the letters.[19]

In addition, it is interesting that there are a few BPCs following the dialectal split whose verbal components are not clearly based on directed motion. They include *rahāṣu ina muhhi* 'to trust in' and *ša'ālu ina muhhi* 'to ask about'. While the semantic contribution of the prepositional phrase in both BPCs seems to involve metaphorical extension of location or motion into a location, neither of the verbs *rahāṣu* or *ša'ālu* has an established etymology in basic physical experiences such as those correlating physical power with height or happiness with bright environments. This does not mean that the verbs do not have a basic connection with directed motion, only that we cannot prove it is so.

Finally, note that there is slight evidence that the dialectal split is not just orthographic but actually linguistic. There are examples of the syllabic spelling of *ina* within directed motion BPCs in certain older Neo-Assyrian letters. For instance SAA 5 84, r. 1: *i-na* UGU *ta-hu-˹me˺-ša* KUR.*man-a.a i-tal-ku* '(they) have gone to the border of Mannea' (a Sargon II letter), and likely SAA 19 126, o. 3'-4': *an-nu-rig i-na* UGU LUGAL [u_2]- *se -bi-la-šu*$_2$ 'now I have sent him to the king' (a Tiglath-pileser III letter). It would be more natural that this linguistic feature of a slightly earlier stage of Neo-Assyrian (namely speaking *ina muhhi* in directed motion BPCs) continue to exist in the Sargonid period but now be written in the letters with the logogram AŠ, rather than having a change in pronunciation to *ana muhhi* while also insisting on using a logogram that predominantly expresses *ina*. At the same time, however, these examples date to the earlier part of the letter corpus (Sargon II (r. 721-705 BC) and Tiglath-pileser III (r. 744-727 BC)) – the period in which most of the exceptions to the dialectal split occur.

The above discussion has relevance to our general observation that BPCs tend to be narrowly based around expressions for directed motion or static position (or metaphorical extensions thereof), and rely on a small set of basic prepositions and body part terms to fill out their meaning (namely *ina/ana* and *muhhu/libbu/pānu*). The shift in the letter corpus from various older expressions using basic prepositions to ones using compound prepositions seems to have led to different effects depending on which body part term was used. In the letters, the terms *libbu* and *pānu* semantically compose with *ina/ana* in fairly transparent ways. *libbu* by itself refers to the interior of objects and *ina/ana libbi*, when combined with verbs of directed motion or position, still typically refer to movement or states to or within the object.[20] Similarly, *pānu* refers to the front part of an object or area directly before it, and *ina/ana pānu* combine with verbs of directed motion or position to reflect actions or states centered on the front area of an object (e.g., *ana pān šarri illak* 'he will go before the king'). On the other hand, the semantic composition of *muhhu* with *ina/ana* is not transparent. While *muhhu* could be argued to behave similarly to *libbu/pānu* with respect to situations involving placing an object on something or moving/being on it (e.g., *ina muhhīšu ašakkan* 'I will place it on him'), *ina/ana muhhi* is the main way in the letters to express simple translational motion to a destination or into a bounded space (e.g., *ina muhhi āli allak* 'I will go to the city', *ana muhhi bīti errub* 'I will enter the house'). The basic meaning of *muhhu* seems to play no role in such cases.

It is, therefore, possible that within the letter corpus, *muhhu* came to stand as the nominal component in the compound prepositions signaling simple translational motion. This did not happen because the original basic prepositions *ina/ana* needed it on semantic grounds, but because the general shift to compound prepositions required some basic body part term to be there on syntactic grounds. Note how in 1st millennium Akkadian one can interpret *muhhu* as a dummy element which is used to combine pronominal suffixes with *ina* and *ana* (Cf. CAD M/II, s.v. *muhhu* c.). Thus *ina/ana muhhi* effectively still functions like *ina/ana*. However, the use of the other compound prepositions would have induced a further semantic shift in that *ina/ana libbi* would come to express the notion of translational motion into or location within a bounded region (which was originally *ina*'s role). Thus, *ina/ana muhhi* was left to express only translational motion to a simple point-like destination (*ana*'s role). Within the let-

[19] This fact may or may not be related to the fact that the phrase *dabābu ana muhhi* does not have the meaning 'to speak about (a topic)' in either letters written in the Neo-Assyrian or the Neo-Babylonian dialect.

[20] Cases in the letters where *ina libbi* can signal motion out of an object (or have a quasi-instrumental sense) seem to be relatively rare.

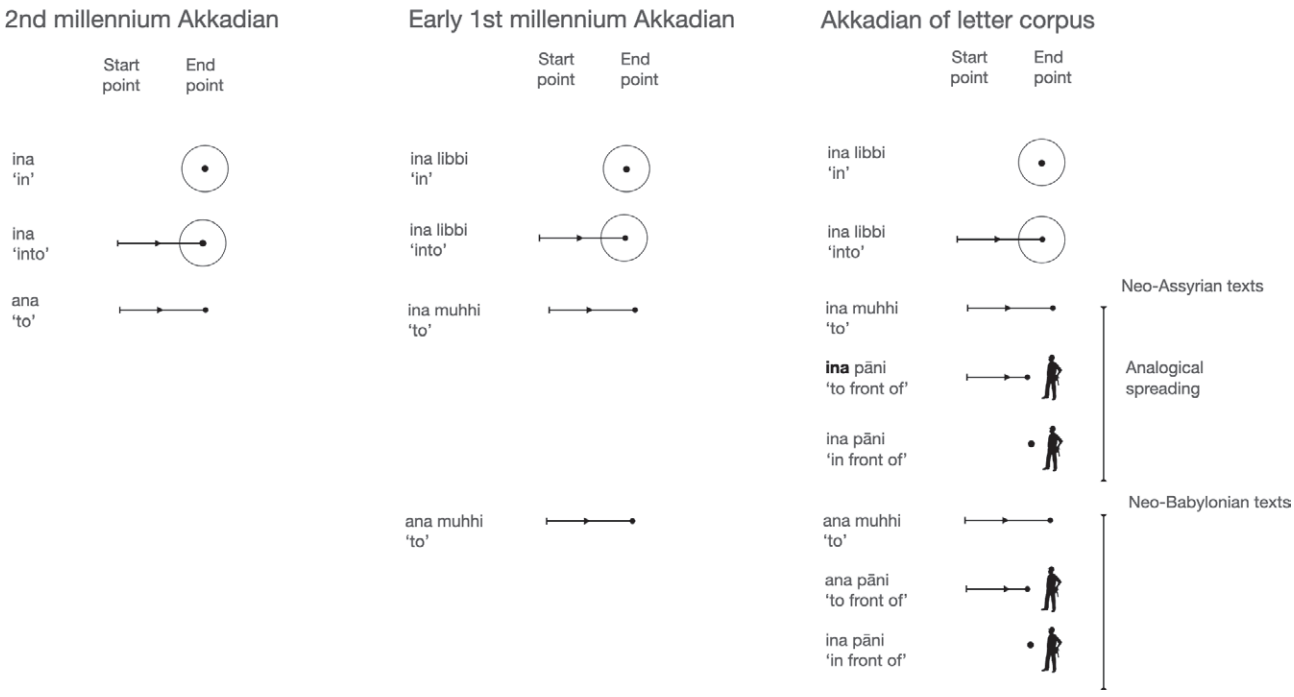

Fig. 4. Proposed path of development of the *ina/ana* dialectal split (not all possible compound prepositions are shown).

ters written in Neo-Assyrian, *ina muhhi* became the preferred way to express this notion while in the letters written in Neo-Babylonian it was *ana muhhi*. Finally, analogical spreading led to other directed motion BPCs in Neo-Assyrian using *ina muhhi*. This hypothetical process is modelled in Fig. 4.

Whether one finds this argument convincing depends, among other things, on accepting that what we have called the dialectal split is a linguistic fact and not simply an orthographic convention. As discussed above, there is slight but not overwhelming evidence for this claim. Moreover, the conclusions from the survey data would be stronger if it included other first millennium texts (both Assyrian and Babylonian) from outside the Neo-Assyrian royal archives, as well as texts from slightly earlier stages of the Neo-Assyrian dialect. As it is, our claim remains somewhat speculative.

Degree of metaphor extension

The manual survey of metaphor properties among BPCs that was conducted in Step 3 of Section 4 also reveals uneven distributions in terms of how much metaphorical extension BPCs exhibit, whether in their verbal component or their prepositional component.[21] These distributions are shown in Figs 5 and 6. One notices immediately how rare literary BPCs are. Of the approximately 1370 BPCs annotated for degree of metaphorical extension, only 12 were judged to be highly metaphorical in either component. Examples of these are given in Table 8.[22] The classification of these examples as 'literary' rests partly on the rarity of their occurrence in the letter corpus as well as their usage context (for example, SAA 10, 294 r. 11-12 is invoked as a saying or maxim).

Fig. 5 shows that about two thirds of BPCs have a literal meaning in their verbal component. This reflects our general observation that in the letter corpus, BPCs tend to deal with directed motion or static location. Such meaning is easily captured by the literal meaning of common verbs like *alāku* and *wabālu* (cf. Table 4). At the

[21] According to manual inspection, rhetorical context did not seem to play a strong role in degree of metaphorical extension.

[22] A fair number of these come from SAA 10 294, a poetic entreaty written by the forlorn scholar Urad-Gula to Esarhaddon.

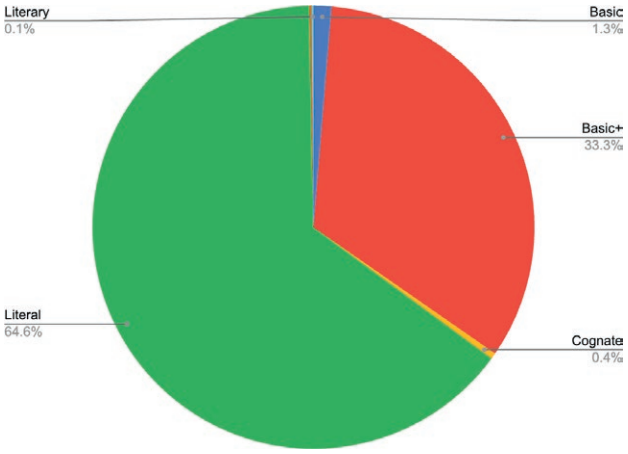

Fig. 5. Distribution of BPCs in survey data according to degree of metaphorical extension in their verbal component. Cognate = verb has cognate accusative object.

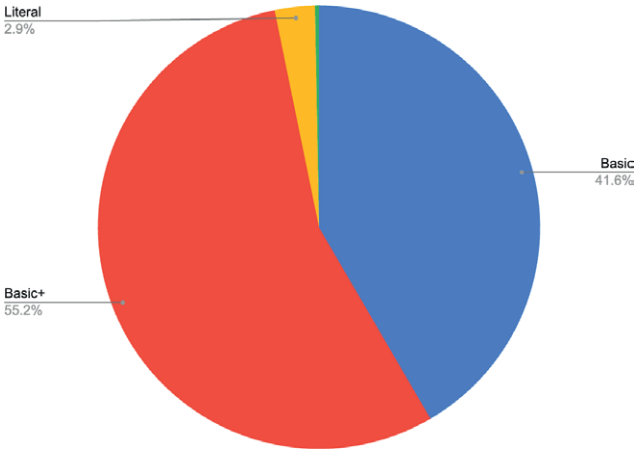

Fig. 6. Distribution of BPCs in survey data according to degree of metaphorical extension in their prepositional component.

same time, about a third of BPCs use a verb in a somewhat extended metaphorical sense (Basic+). A good example of this is *šūlû* X *ina qāt Y* 'to lift X from the hand of Y' = 'to alienate X from Y'. Here the verb realizes the metaphor intimacy is physical proximity. While most of the Basic+ verbs involve some degree of motion, there are a certain number based on distinct source domains. These include OWNERSHIP IS POSSESSION, DEGREE OF EMOTIONAL INTENSITY IS PHYSICAL STABILITY, and PERSISTENCE OF ILLNESS IS PHYSICAL RESTRAINT. For BPCs realizing these metaphors, the prepositional components express a locative sense only.

On the other hand, Fig. 6 indicates that a slight majority (55%) of BPCs have prepositional components with a fairly extended metaphorical sense. This can often happen when the overall meaning of a BPC is a metaphorical extension of directed motion and the prepositional phrase shares in that sense (e.g., *šūlû* X *ina qāt Y*). However, it also arises when the prepositional component expresses a highly abstract oblique argument or adjunct expression. One typical example is *ina muhhi X* in the meaning 'concerning/about X'. This prepositional phrase can combine with a wide variety of verbs, particularly ones of communication (e.g., *šapāru, qabû, dabābu*). Overall, the high proportion of Basic+ prepositional phrases among BPCs reflects the generic contribution of the body part term to the BPCs overall meaning. It is often the case that BPCs involving *muhhu* 'skull/top of head' use that term only in a very generic capacity. A clear example is *alāku ina muhhi* X, 'to go to X', a BPC that involves only translational motion without a transparent sense of going to the top of something. BPCs involving other translational motion verbs like *erēbu, waṣû*, and *elû* similarly use *muhhu* only in a generic way. Abstract BPCs involving *libbu* 'heart' often find that the semantic contribution of the body part term is already covered by the basic preposition. Thus in *alāku ina libbi X* "to go into X', the basic preposition *ina* already conveys the notion of 'into'. Even the preposition *pānu* can find itself semantically bleached in certain BPCs (although these cases may also simply reflect our lack of understanding of the prepositional phrase). For instance, in *nasāhu* X *ištu pān* Y 'to tear out X from the face of Y' = 'to extract X (e.g., taxes) from Y', it is unclear what semantic contribution *pānu* makes to the overall meaning.

It should be said that while most of the BPCs from the survey data involved prepositional phrases expressing a core argument of the verb (the external argument), some had prepositional phrases functioning as an adjunct or were essentially an adverbial modifier, and express notions of manner, benefit, location, and temporality. We termed these examples 'accidental' BPCs. Thus, in SAA 21 109 r. 17-18: [^{d}EN] *u* ^{d}rAG¬[x x x] rKUR¬.NIM.MA.KI [*ina*] rUGU¬-*ka uḫ-tal-li-qu* '[Bel] and [Na]bu have destroyed Elam [on beh]alf of you', the prepositional phrase *ina muhhīka* is an optional modifier of the verb *uhtalliqu*. But in SAA 18 202 o. 13: LU$_2$.*kal-di ina* ŠU.2 KUR—*aš-šur*.KI *ni-kim* 'let us remove Chaldea from Assyria's control', the prepositional phrase *ina qātē Aššur*

Table 8. Highly metaphorical or literary BPCs.

Example	Source
TA ŠA$_3$ *ki-qil-li-ti in-ta-at-ḫa-an-ni* He lifted me up from the dung heap	SAA 10, 294 o. 15
ša TA *ku-tal-*[*li-šu$_2$*] ⌜*ma*⌝*-ḫi-iṣ-ṣu-* ⌜*ni* KA-*šu*⌝*lid-bu-ub* He who has been stabbed in the back has still got a mouth to speak	SAA 10, 294 r. 11-12
a-ke-e LUGAL *be-li ina* ŠA$_3$ IGI.2 *ša* ^{d}INNIN *i-ma-qut* How will the king, my lord, fall within the gaze of Ištar?	SAA 13, 149 r. 3-4
zi-i-qu da-[*an-nu ša$_2$* LUGAL] *a-na* UGU-*ḫi-ni* ⌜*li*⌝-[*zi-qam-ma*] May the st[rong] breeze [of the king waft] over us	SAA 21, 122 r. 3-4’
a-na-ku ina ŠA$_3$ *a-ḫi-ia* GIR$_3$.2-*ia* *a-na* DUMU—LUGAL EN-*ia la-ap- laḫ$_3$* May I revere the crown prince, my lord, with my arms and feet!	SAA 16, 34 r. 4-5

supplies a required argument to the verb to make sense of the scene. About one fourth of the BPCs in the survey data were accidental, with the remaining three fourths having prepositional phrases expressing core arguments.

In terms of their metaphorical content, a certain number of BPCs belong to more idiosyncratic categories. These include:

1. Those based on cognate objects, e.g. SAA 18 145 r. 3: *di-ik-ti* [*ina* ŠA$_3$]-⌜*bi*-šu$_2$*⌝*-nu* ⌜*ad**⌝*-duk** ‘I inflicted a defeat on them’ and SAA 17 158 o. 4: *ni-ka-si a-na* ŠA$_3$*-bi* URU *ki-i u$_2$-nak-ki-su* ‘they cut their way into the city’. Here, the direct object of the verb is not the patient but a verbal noun whose meaning is duplicated by the verb itself. The metaphorical elaboration of the BPC is thus based largely on the meaning of the verb.
2. Those where the metaphorical mapping assumes a perspective opposite to what one finds in English. The clearest example is *šakānu harrānī ina/ana šēpē* X ‘to prepare X for their journey’. The expression literally means ‘to set the path at the feet of X’, the opposite order to what one finds in English. Given that the Akkadian expression is somewhat parallel to the English ‘to set the path before someone’, the meaning of the former may emphasize the agent making the path more easily traversable for the traveler rather than seeing the traveler on their way. Another example is *mullû* Y *ana qāt* X ‘to place Y in the hand of X’. The expression appears only a few times in the letter corpus even as it is more common in royal inscriptions. Since *mullû* literally means to fill a container-like object, one would expect the above BPC to have *qātu* be the direct object of the verb and the thing placed in the hand as the object of the prepositional phrase.
3. Those whose verbal component cannot currently be etymologized in terms of basic physical scenes, such as *ša’ālu* ‘to ask’ or *rahāṣu* ‘to trust’. BPCs based on these verbs, such as *ša’ālu ina muhhi* ‘to ask about’ and *rahāṣu ana muhhi* ‘to trust in’ may be said to be metaphorical only in their prepositional component.
4. Those with uncertain analysis, such as SAA 21 4 r. 18-19: *u$_3$* URU *ša* ram-ni-*⌜*šu*⌝ [0] ⌜*ina*⌝[ŠU].⌜2⌝LU$_2$.KUR$_2$ *la u$_2$-maš* -⌜*šar*⌝ ‘But let the city by itself(?) not surrender(?) to the enemy’.

The bulk of the BPCs in the survey data are ‘near literal’ in the sense that they involve various common verbs used in a literal sense along with prepositional phrases, which largely reflect straightforward notions of location, direction, and instrument. One may say that these BPCs are the most literal kind of conventional metaphors. Examples include *alāku ina pāni* ‘to go before’, *sahāru ištu pāni* ‘to turn from’, *šapāru ina qāti* ‘to send/write via X’,

našû ina muhhi 'to bring to', and *epēšu ina pî* 'to do according to the order of'. Similarly, *erēbu ina libbi* 'to enter into' simply abstracts the body part *libbu* 'heart, core of the body' to a related spatial location.

On the one hand, the predominance of the near literal BPCs in the letter corpus is arguably related to the fact that correspondence in the royal archives frequently deals with the transfer or location of individuals and items. Messengers send letters to people, individuals come to and go from the palace, etc. BPCs are the standard way these ideas are expressed. The slightly more complex notions expressed by some of the conventional metaphors, such as buying and selling, attacking, subservience, and loyalty, are also frequent topics in the letters. Only in the dozen or so 'literary' BPCs does one find individuals or groups making requests to the king whose ornamentation does not completely reside in expansive salutations or other stock phrases (see Table 8). Note that the judgment of whether an Akkadian expression is highly metaphorical, or actually conventional, involves not just the complexity of the conceptual mapping underlying it, but also its perceived use.

CONCLUSION

This article surveyed 2400 metaphor constructions alluding to body parts in the Neo-Assyrian letter corpus (i.e., BPCs). The survey data indicates how most of the BPCs in this corpus tend to reflect notions of directed motion along with metaphorical extensions thereof. In addition, BPCs reflecting static location or metaphorical extensions thereof form a smaller group. One factor contributing to this result is likely a lexical one, i.e., the limited set of basic prepositions that can define a BPC (*ina/ana/itti/ištu*). While other basic prepositions in Neo-Assyrian such *adi* do combine with another element to form compound structures, the number of instances where this involves a basic body part as part of a compound preposition is quite small. Most BPCs involve either *ina* or *ana*, with a smaller number involving *ištu* and *itti* not occurring for semantic reasons. This automatically biases most BPCs to involve directed motion (or less likely static location) simply because this is built into the meaning of *ina*, *ana*, and *ištu*.

At the same time, in combining basic prepositions with body part terms such as *libbu*, *pānu*, and *muhhu*, it appears that certain semantic redundancies are created among the resulting combinations. We proposed that the robustly attested *ina/ana* 'dialectal split' for directed motion BPCs in Sargonid-era texts was a result of different regional choices in addressing this ambiguity. Though this is only one possible explanation for the data, our observations do inform the debate about the use of the AŠ sign to represent *ina/ana muhhi* in Neo-Assyrian texts.

On the other hand, we recognize that the content of the letter corpus also contributes to this strong asymmetry in distribution of BPCs. Beyond the reliance on various stock phrases in expressing greetings, wishes, suggestions, and the like which can involve BPCs, the correspondence in the royal archives overall generally deals with the transfer or location of individuals and items from one place to another. It is thus possible, that body part terms other than *libbu*, *pānu*, and *muhhu* are more frequently used in BPCs in other discourse contexts. However, given the fundamental contribution of the basic preposition to a BPCs meaning, we would still expect directed motion, or metaphorical extensions thereof, to be the most frequent meaning found in those contexts.

Nevertheless, while the functional nature of the letter corpus heavily biases it against conscious literary expression, non-trivial conceptual metaphors are still present in non-trivial numbers. The fact that about 11% of the BPCs in the corpus fit this category indicates that BPCs are a meaningful structure for metaphor generation.

Finally, the fact that our survey data was generated by semi-automated methods points to the utility of morphosyntactic language models in future Akkadian corpus research. The methods can be replicated by individual researchers interested in searching other corpora for complex grammatical structures.

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