

New Perspectives in Biblical and Rabbinic Hebrew

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POLYSEMIOUS ADVERBIAL CONJUNCTIONS IN BIBLICAL HEBREW: AN APPLICATION OF DIACHRONIC SEMANTIC MAPS¹

Christian Locatell

1.0. Introduction

The topic of this article is adverbial conjunctions in the Hebrew Bible. As used here, the term ‘adverbial conjunction’ refers to single- or multi-word expressions used to communicate an adverbial relationship between finite clauses (including so-called verbless clauses).² Adverbial conjunctions are an especially

¹ I would like to thank the Golda Meir Fellowship at the Hebrew University of Jerusalem for funding this research. I would also like to thank the editors, Prof. Eitan Grossman, and two anonymous reviewers for their helpful comments on an earlier version of this paper. In addition to the those listed in the References section below, the following abbreviations are used: Syr. = Syriac Peshitta; Tg. Ket. = Targum of the Writings; Tg. Neb. = Targum of the Prophets; Tg. Onq. = Targum Onqelos.

² Cf. Hetterle (2015, 201). For a discussion of the characteristics of this word class, and one set of criteria for grouping them, see Kortmann (1997, 56–77, esp. 71–73). For a more recent discussion, see Thompson

interesting type of linguistic item, not least because they are often polysemous. That is, they are frequently used to communicate a variety of interclausal relationships. For example, אַחֲרַי אֲשֶׁר may communicate anteriority ‘after *p*, *q*’, or causation ‘because *p*, *q*’.³ The adverbial conjunction כִּי may communicate contingency ‘whenever *p*, *q*’, condition ‘if *p*, *q*’, concessive condition ‘even if *p*, *q*’, or concession ‘although *p*, *q*’. In Biblical Hebrew, the conjunctions כִּי and אֲשֶׁר are especially notorious for their polysemy. This raises the question of whether there is an organising principle according to which their associated meanings are conceptually arranged and may be diachronically ordered. If so, what is the relationship between these different meanings and what is their relative order of emergence in diachronic development? This word class has been treated to some extent in several studies in the Semitic languages, e.g.,

et al. (2007, 237–43). However, the degree of clause embedding is characterised by a continuum (Schmidtke-Bode and Diessel 2019), so the delimitation of categories is always somewhat arbitrary. Also note that Kortmann restricts the definition of adverbial conjunctions to those that connect clauses with an inflected verb. However, this appears to be due to the fact that he deals with European languages, which generally lack verbless clauses. As Miller (1999, 3) observes, verbless clauses “...are commonly represented among the world’s languages, even though they are absent in most Indo-European languages...” and “...are an important syntactic feature of Biblical Hebrew.” For different terms that have been used to designate this word class in linguistic literature, see Kortmann (1997, 62) and references there.

³ Note that in these schematic representations of interclausal relations, ‘*q*’ stands for the main (or ‘matrix’) clause and ‘*p*’ stands for the adverbial clause.

Aartun (1974) on Ugaritic, Hackl (2007) on Late Babylonian, and Esseesy (2010) on Arabic. However, adverbial conjunctions in Biblical Hebrew have not received similar attention. By and large, descriptive grammars of Hebrew simply offer a taxonomy of various uses. Furthermore, in linguistics more broadly, quantitative typological data on this word class has only become available relatively recently (esp. Kortmann 1997; 1998; 2001) and mostly for Indo-European languages.

The purpose of this paper is to provide a first step toward addressing this lacuna by proposing paths of development connecting the various uses of polysemous adverbial conjunctions in Biblical Hebrew. This will proceed in the following manner. In §2.0, I provide an overview of semantic maps, focusing on Kortmann's (1997) typological study of adverbial subordinators. In §3.0, I present representative examples of the usage profile of the polysemous adverbial conjunctions I have identified in Biblical Hebrew. In §4.0, I heuristically employ known diachronic semantic maps of adverbial conjunctions in order to generate hypotheses on their relationships to one another in diachronic development, whether as a source or goal of semantic extension. In §5.0, I test these hypotheses by examining potential bridging contexts in corpus data, as well as considering supporting cognate data. Finally, in §6.0, I offer concluding remarks.

2.0. The Semantic Map of Adverbial Conjunctions: An Overview and Methodology

The use of diachronic semantic maps and grammaticalisation theory is not new to Semitic studies.⁴ However, it has not been systematically applied to adverbial conjunctions in Hebrew. Thus, for the sake of those unfamiliar with such work, and in order to lay the foundation for the application of diachronic semantic maps to adverbial conjunctions in particular, the following is offered by way of overview. As defined by van der Auwera (2013, 154), “Semantic maps are essentially representations of the polyfunctionality of words or, more generally, constructions.” The organisation of different functions on the map represents synchronic polyfunctionality and diachronic development (even if only by implication). The basic idea of this can be seen in Figure 1, a schematic example of a classic semantic map.⁵

Figure 1: Schematic synchronic and diachronic semantic map (van der Auwera 2013, 154)



⁴ See Hardy (2014, 49–53), for a survey of past studies of grammaticalisation in Semitic. Also see Christo H. J. van der Merwe in this volume.

⁵ While many variations of semantics maps have been proposed, this is sufficient to illustrate the basic idea for the purposes of this paper. For an overview of different types of semantic maps, see van der Auwera (2013).

Such maps can be constructed by observing polysemy patterns across languages.⁶ Two or more senses are connected in a semantic map if they are both part of the functional profile of a single linguistic item in at least one language. Conversely, distinct uses are only delineated if they are lexically distinguished in at least one language. For example, Hebrew עֵץ does not lexically distinguish between ‘trees’ (e.g., Josh. 10.26; Judg. 9.8) and ‘wood’ (e.g., Exod. 17.9; Zech. 12.16).⁷ But English employs different lexemes for these concepts. While synchronic data can be sufficient to construct such maps, the connections and their directionality are strengthened if they are confirmed by historical data showing the clear emergence of one use from another.

Semantic maps constructed on the basis of a large number of languages (especially areally and genetically distinct languages) with historical corroboration posit implicational universals and grammaticalisation paths that characterise the typical developmental trajectories of the linguistic forms in question.⁸ For example, looking at the map in Figure 1, a form with Use 1 and Use 3 is predicted to have Use 2 as well. In other words, when heuristically employed, the map generates the

⁶ For a detailed discussion of how semantic maps can be constructed, see Georgakopoulos and Polis (2018).

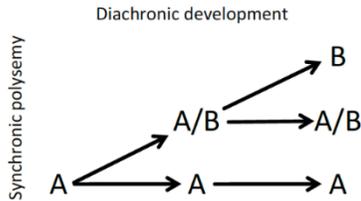
⁷ It may be noted that Rabbinic Hebrew developed this distinction by using Aramaic ܥܝܢ for ‘tree’.

⁸ Grammaticalisation is defined as the process whereby lexical forms develop grammatical functions and whereby grammatical forms develop additional grammatical functions (Hopper and Traugott 2003, 1).

hypothesis that a given form's usage profile will fill a contiguous portion of the semantic map. Additionally, if the synchronic usage of a given form A consists of Uses 2 and 3, this semantic map generates the hypothesis that the emergence of uses in the form's developmental history would have proceeded from 2 to 3. Furthermore, it generates the hypothesis that these uses originally developed from Use 1 sometime in its earlier history. However, it must be emphasised that representations like Figure 1 are not meant to imply that a form communicates only one sense at a time. Rather, multiple uses may persist side-by-side for long periods of time in a phenomenon called 'layering' (Hopper and Traugott 2003, 124). This means that especially in a corpus with a complex textual history, like the Hebrew Bible, uses will typically appear alongside others without necessarily revealing any diachronic distribution, especially for those forms whose developmental histories precede the earliest extant texts.

This makes such diachronic semantic maps all the more valuable, since they can suggest the developmental trajectories of polysemy patterns, even from synchronic data. To visualise this, consider Figure 2.

Figure 2: Layering in diachronic development



Here, 'A' represents a source usage and 'B' some extension. Such extensions are facilitated by 'A/B' bridging contexts where uses 'A' and 'B' are conceptually and structurally similar, making it possible to reanalyse 'A' as 'B'. Crucially, these bridging contexts often persist side-by-side in a form's synchronic profile, even if no unambiguous diachronic data is available. Therefore, diachronic semantic maps can generate hypotheses to determine which uses served as sources and goals of semantic development. Additionally, these hypotheses can be tested by examining potential bridging contexts connecting these uses. If a robust diachronic semantic map predicts a certain $A > B$ development, and the synchronic data of the form being analysed shows many 'A/B' contexts which could facilitate such an extension, this strengthens the plausibility of such a reconstruction of the form's diachronic development. Such reconstructions can be further strengthened when there is corroborating data from cognate forms.

Among the advantages of semantic maps is the fact that they are falsifiable, since they can be tested against and modified in light of new data (Georgakopoulos and Polis 2018). The semantic map model is also neutral vis-à-vis monosemy versus polysemy (Haspelmath 2003). This is especially significant in the

discussion of forms functioning as adverbial conjunctions in Biblical Hebrew, since there is often debate as to whether various functions constitute genuine polysemy or merely different uses of a form which in reality has a more general core meaning. This question can be deferred to allow for the analysis of synchronic usage, diachronic development, and crosslinguistic comparison. Thus, semantic maps facilitate crosslinguistic comparison, because they allow the researcher to compare any set of uses or repertoire of linguistic forms, and are theory neutral regarding monosemy versus polysemy.

The specific semantic maps used here are based mainly on Kortmann's (1997) foundational study of adverbial conjunctions.⁹ This study drew data from 53 languages representing half a dozen language families (Indo-European, Uralic, Altaic, Caucasian, Semitic, and one isolate). The linguistic items analysed included 2,043 different adverbial conjunctions. There was also a significant historical component to this study, as the time-depth of languages analysed was up to 2,500 years. This means that the semantic map of adverbial relations is not only based on synchronic patterns of polysemy, but also

⁹ Two other large crosslinguistic studies of adverbial conjunctions followed Kortmann (1997). One is Martowicz (2011), a world-wide sample of anteriority, cause, condition, and purpose relations from 84 languages that takes a close look at the sources of such forms from other word classes. The next is Hetterle (2015), which looks at 756 adverbial conjunctions across 45 languages. Both expanded the language sample beyond Kortmann's and also approached the topic with different research questions, but, in the main, are compatible with the analysis presented here.

supported by observable change in historical corpora where the emergence of uses can be directly seen. From this data, Kortmann presented a compelling case that interclausal relations can be placed into four sets of semantic spaces: locative, temporal, modal, and what has been termed CCC (i.e., cause, condition, and concession) relations.¹⁰ Examples of Biblical Hebrew conjunctions expressing these relations are given in the following section. The reason for identifying these as the basic semantic groupings of interclausal relationships is based on converging evidence, such as frequency of use (i.e., the most commonly used words belong to the most fundamental semantic domains) and degree of lexicalisation (i.e., the domains with the largest lexical inventory are the most central). Additionally, the strongest semantic affinities of a given adverbial conjunction are consistently found within one of these semantic domains.¹¹ These diagnostics support the delineation and cognitive basicness of these semantic domains across languages.

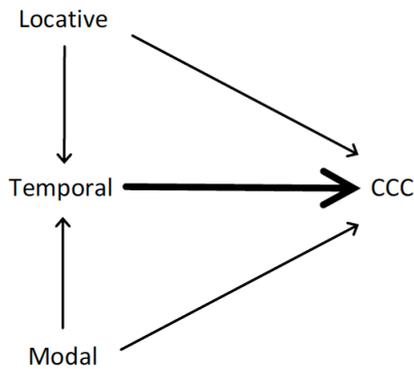
While relatively distinguishable, certain interclausal relationships within these semantic spaces are likely to develop into uses that extend into different semantic spaces. Thus, these groupings of interclausal relations have conceptually similar uses at their boundaries. Inferential pressures in communication drive

¹⁰ Definitions of the subsenses within these semantic spaces are given along with Figure 5.

¹¹ To give a representative example of this from English, the usage profiles of *as*, *when*, and *where* traverse the internally complex networks of the modal, temporal, and locative semantic spaces, respectively. See further Kortmann (1997, 181–82, 193, 195–96).

semantic extensions from one semantic space into another in a constrained and cognitively motivated way (Hopper and Traugott 2003, 39–98). This is convincingly demonstrated by the observation that adverbial conjunctions in certain source domains persistently develop senses in expected target domains with a remarkable degree of statistical consistency.¹² A coarse-grained representation of the semantic extensions between the four main semantic spaces of adverbial relations is presented in Figure 3 below, based on Kortmann (1997, 178).¹³

Figure 3: Diachronic semantic map of adverbial conjunctions



The situation represented in Figure 3 is that locative and modal relations are sources for semantic extensions into temporal

¹² For a detailed presentation of this evidence, see Kortmann (1997, 137–211). Cf. Deutscher (2000, 37–41).

¹³ Each of the four major networks of interclausal relations is simplified and presented as a unit (i.e., locative, temporal, modal, CCC) in order to highlight the relationships between them. However, each has its own internally complex network of relations within that semantic space (especially the time and CCC semantic spaces). This internal complexity is seen in §4.0 below.

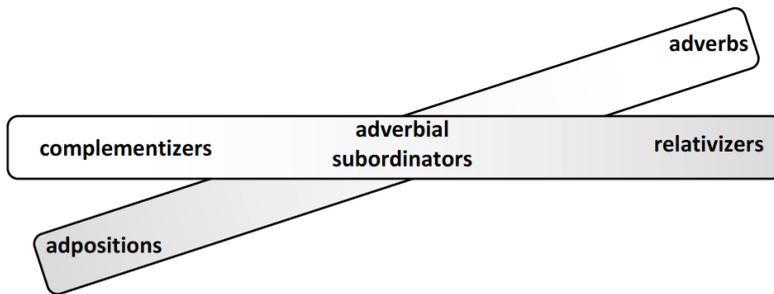
and CCC relations. The temporal semantic space is the most common source of extensions into the CCC domain, as indicated by the bold arrow. There is a general push for all other uses to develop toward CCC relations. The arrows represent the fact that these paths of semantic extension are unidirectional (Kortmann 2001, 846–47; cf. Hopper and Traugott 2003, 99–139).¹⁴

This unidirectionality of change results from the direction of informativeness. That is, speakers invite and hearers infer the most informative interpretation of an utterance, based on the communicative maxim that communication should be as informative as possible (Traugott and König 1991, 190). Therefore, more concrete interclausal relations are pushed toward richer logical inferences as more informative interpretations. For example, it is perceived as more relevant and informative to interpret the temporal relation ‘*q* happened when/after *p* happened’ as a causal relation ‘*q* happened because *p* happened’. Through frequency of use and entrenchment, these enriched interpretations may become conventionalised, at times even displacing earlier meanings (Divjak and Caldwell-Harris 2015).¹⁵

¹⁴ As elaborated in Kortmann (1997, 178): “It is crucial to stress that for none of these links does the reverse hold, i.e., neither are CCC subordinators found to develop temporal, locative or modal readings, nor do temporal subordinators come to serve as locative or modal markers.”

¹⁵ For example, the cognates English *while* and German *weil* both developed from a noun meaning ‘time’ into temporal conjunctions. However, whereas English *while* added contrastive and concessive meanings alongside its earlier temporal meaning, German *weil* is used as a causal conjunction (Hopper and Traugott 2003, 90–2).

Finally, it should be noted that the use of semantic maps can also be applied to multifunctionality across word classes (termed ‘heterosemy’). Such a perspective can help illuminate the common sources of adverbial conjunctions. This can be quite complex, since, as noted by Meillet (1915, 21), “Les origines des conjonctions sont d’une diversité infinie, on le sait. Il n’y a pas d’espèce de mot qui ne puisse livrer des conjonctions.” While an exploration of these typical sources is beyond the scope of this



paper, Kortmann does observe several category continua that intersect at the adverbial subordinator word class. This is represented in Figure 4, adapted from Kortmann (1997, 59).

Figure 4: Category continua

As Kortmann (1997, 64) explains, “recategorization or the acquisition of additional category membership happens both within and between the various continua.” Unsurprisingly, this is also the case in Biblical Hebrew. As pointed out in BHRG² (§40.1.1), word classes such as adverb and conjunction often blend together. This is helpful to keep in mind when considering words like relative אֲשֶׁר and complementiser כִּי, or prepositional אַחֲרַי and עַל. Such heterosemy is crosslinguistically pervasive (Kortmann 1997, 108–12; cf. Sasse 2001, 495–96). It is therefore

not surprising that many of the words discussed below intersect at several points along these continua.

The structure of this article follows a methodological order derived from the above discussion that can be replicated in other studies of this word class or any linguistic form. Hebraists often find themselves analysing linguistic phenomena the historical development of which is not directly observable over a long and voluminous textual history. When typologically robust diachronic semantic maps are available for such phenomena, these can help bridge the gap in data by employing the following methodology. First, the usage profile for the linguistic phenomenon in question can be outlined from available data. Next, this usage profile can be mapped onto diachronic semantic maps based on known polysemy patterns and historical developments. This mapping will then generate plausible hypotheses about the diachronic relationship between uses. The more robust the typological patterns are, the stronger the generated hypotheses will be. For example, TIME > CAUSE is universally unidirectional so that if a form has both temporal and causal uses, it is virtually certain that the causal use developed from the temporal and not vice-versa, even if no diachronic data is available for the relevant form. However, while extremely robust diachronic paths can be reasonably posited from a synchronic usage profile alone, such hypotheses (especially those based on less-well-attested developmental paths) can be further corroborated by examining bridging (A/B) contexts in synchronic usage that are 'left over' from past development. When cognate

evidence is available, this can also be leveraged to test the hypotheses generated via diachronic semantic maps.

In the end, one is left with a variety of plausible hypotheses about the order of development for uses of a polyfunctional form. The relative strength of these hypotheses will be proportional to the typological robustness of the diachronic path(s) heuristically employed, the clarity and pervasiveness of the bridging contexts available for the form(s) being studied, and the clarity and pervasiveness of corroborating observations in cognate data.

3.0. Polysemous Adverbial Conjunctions in Biblical Hebrew: A Usage Profile

The following presents a usage profile for polysemous adverbial conjunctions in the Hebrew Bible. This includes all the adverbial conjunctions which I have found to have a relatively clear polysemous profile in the Hebrew Bible.¹⁶ That is, they are found to communicate more than one adverbial relationship between

¹⁶ When I use the term ‘polysemous’, it refers to these forms’ ability to mark semantically distinct interclausal relations within the class of adverbial conjunctions. Alternatively, the terms ‘polyfunctional’ and ‘multifunctional’ may refer to the situation just described, as well as cases where a single form has multiple uses across word classes. In this regard, diachronic semantic maps would also be useful in analysing the development of polyfunctionality. However, the present discussion focuses on the different senses of these words within their function as adverbial conjunctions. Functions in other word classes (e.g., relative אֲשֶׁר , complementiser כִּי) are not discussed.

two or more finite clauses.¹⁷ There are many more adverbial conjunctions in Biblical Hebrew which are found to communicate only a single interclausal relationship. However, since the purpose of this article is to discuss the paths of semantic extension among adverbial conjunctions, polysemous forms are better suited for this goal. I present them in the following order: (1) אַחֲרֵי אֲשֶׁר, (2) אַם, (3) אֲשֶׁר, (4) בְּאֲשֶׁר, (5) בְּאֲשֶׁר, (6) כִּשְׁ-בְּשֵׁ, (7) כִּי, and (8) עַל אֲשֶׁר.¹⁸ While several of these include אֲשֶׁר/-שֵׁ, the combination with particular prepositions has resulted in different polysemy patterns, suggesting divergent developmental paths.¹⁹

While some comments are offered about the most typical use of a particular form, the examples for each of the uses cited below are meant to be representative and illustrative, rather than

¹⁷ Due to the crosslinguistic cognitive motivation of the semantic extensions discussed in the previous section, it is hypothesised that the same sorts of grammaticalisation paths would be observed when considering forms connecting non-finite clauses. However, a separate study looking into this would be needed.

¹⁸ The uses listed here are not novel proposals and can be found in standard grammars and lexica, as well as in various other works touching on these forms, though they are sometimes referred to with different terminology (e.g., IBHS, JM, BHRG, BDB, DCH, HALOT). However, examples are given here for illustration, which is especially helpful in the case of the crosslinguistically based categorisation of senses adopted here.

¹⁹ Hendel and Joosten (2018, 29–30) suggest that the development of the various combinations with אֲשֶׁר and -שֵׁ occurred on analogy with Aramaic compounds with כִּי.

exhaustive.²⁰ Therefore, the uses identified below are not precisely ranked in terms of the typical usage for each form. The focus, rather, will be on considering the conceptual and diachronic relationship between uses, regardless of their relative frequency at a given time. Thus, marginal uses are included, since these result from semantic extension, which is the very focus of the analysis. The usage profiles that emerge for each adverbial conjunction in turn provide the data for constructing the order of their development.

Again, it is important to reiterate that, while certain uses may be debated in terms of whether they are genuinely semanticised or merely contextual uses, the more basic question here is how these uses are organised conceptually and the diachronic implications this arrangement has for their emergence relative to each other. Nevertheless, I have attempted to include only uses for which examples fulfill the criterion of semantic uniqueness (Kortmann 1997, 91–92). These are cases in which the particular interclausal relationship identified is not merely inferred from another simultaneously communicated sense. For example, *מֵעַתָּה* in Jer. 44.18 has both the temporal sense ‘since’ (i.e., from the time that) and simultaneously the causal inference ‘because’. However, since I find no example of *מֵעַתָּה* with only a causal reading, i.e., without a simultaneous temporal reading

²⁰ While statistical figures for each use would certainly be helpful in determining the relative centrality of senses within synchronic usage, frequency of use is less useful for diachronic organisation, which is the goal of this study. For example, earlier uses of a form often decrease in frequency and may be lost altogether in the course of language change.

serving as its inferential springboard, I exclude it here. By contrast, considering *כִּי*, there are clearly cases where the most natural reading is causal, e.g., (24), conditional, e.g., (26), and several other uses independent of a simultaneous reading serving as an inferential springboard.²¹ This does remove the possibility of liminal cases which fall between senses. Indeed, this is expected in light of the conceptual relationship between uses and diachronic emergence of one from another (often reflected in the different renderings seen in ancient and modern translations). However, in order to focus on the most robust semantic extensions, I have tried to include only uses which in at least some cases fulfill the requirement of semantic uniqueness with relative clarity. Bridging contexts, where a use falls ‘between’ senses, are discussed in §5.0.

3.1. אַחֲרֵי אֲשֶׁר

Cases of אַחֲרֵי אֲשֶׁר as an adverbial conjunction include uses in the temporal and CCC semantic spaces, though the temporal use is the more common. In (1) it is used to communicate anteriority

²¹ Preference for different syntactic structures is another means of distinguishing between semantic polysemy vis-à-vis pragmatic polysemy. See, for instance, example (39) below, which notes the preference for temporal *כִּי* clauses to precede the main clause, but for causal *כִּי* clauses to follow the main clause. In addition to the criterion of semantic uniqueness, such divergent syntactic profiles strengthen the case that the proper analysis is one of semantic polysemy rather than merely pragmatic polysemy.

‘after *p*, *q*’. In (2) it is used to communicate causation ‘because *p*, *q*’.²²

- (1) וַיְהִי מִקְצֵה שְׁלֹשֶׁת יָמִים אַחֲרֵי אֲשֶׁר-כָּרְתוּ לָהֶם בְּרִית וַיִּשְׁמְעוּ בִּי-קִרְבָּיִם הֵם
אֵלָיו וּבְקִרְבּוֹ הֵם יֹשְׁבִים:

‘And it was at the end of three days, **after** they cut a covenant with them, they heard that they were close to them and they dwelt in their midst.’ (Josh. 9.16; LXX μετὰ τὸ + infinitive; Tg. Neb. בְּתֵר)²³

- (2) וַיֹּאמֶר מִפִּיבֹשֶׁת אֶל-הַמֶּלֶךְ גַּם אֶת-הַכֶּלֶל יִקַּח אַחֲרַי אֲשֶׁר-בָּא אֲדָנִי הַמֶּלֶךְ
בְּשָׁלוֹם אֶל-בֵּיתוֹ:

‘Then Mephiboshet said to the king, “Let him also take everything, **since** my lord has come in peace to his house.”’

(2 Sam. 19.31; Tg. Neb. -ד בְּתֵר)

- (3) אַחֲרַי נִמְכַר גְּאֻלָּה תְּהִיָּה-לִּי

²² For other examples of this expressing **anteriority**, see Deut. 24.4, Josh. 7.8; 23.1–2; 24.20. For uses expressing **cause**, see Judg. 11.36; 19.23. Josh. 2.7 has the unusual combination of כְּאֲשֶׁר אַחֲרַי heading a temporal clause.

²³ All Hebrew citations are from the BHS. I sometimes list the renderings in ancient versions, especially when they are examples discussed. However, this is not to say that a particular reading is determined by counting versional support or that the versions always transparently reflect the linguistic structure of an underlying Hebrew vorlage. Rather, the Hebrew examples presented should stand on their own merits and the occasional citation of versional data simply illustrates an ancient interpretive tradition along the same lines. When versional witnesses are not cited, this is often because their renderings are compatible with multiple readings and therefore non-adjudicating. In other cases, they change the structure of the text substantially, making any close syntactic or semantic equivalence impossible to discern.

‘After he has been sold, he will have redemption.’ (Lev. 25.48; Tg. Onq. בְּתַר)²⁴

The use of אֲחֵרִי as a locative/temporal preposition appears to have been licensed to head finite clauses by the addition of אֲשֶׁר, as seen in the above examples. This fits the more general observation that the construction preposition + relative is a bridging context allowing for the extension from preposition to adverbial conjunction.²⁵ This is also seen in the other adverbial conjunctions discussed below.

Through repeated use of such a construction, the preposition took on the function of an adverbial conjunction heading finite clauses by itself, in some cases without the help of the relative.²⁶ This is seen in example (3), where it heads a finite

²⁴ Cf. 1 Sam. 5.9.

²⁵ Cf. BDB (473), Lipiński (1997, 475, 527); Esseezy (2010, 270–71); Hardy (2014, 111–12). This strategy is also productive in Modern Hebrew (Glinert 1989, 351). For a crosslinguistic perspective on this as a unidirectional development, see Genetti (1991).

²⁶ There are also some cases where the clause headed by אֲחֵרִי has a verb that is morphologically ambiguous between finite or infinitive. These are Gen. 41.39; 46.30; Lev. 13.55, 56. In these cases, אֲחֵרִי marks a causal relation. The ability to head a finite clause without the relative is also found with the form אָחַר (e.g., Gen. 18.5; Lev. 14.43; Jer. 41.16; Job 19.26; 42.7). It is used once with אֲשֶׁר. These are exclusively temporal. This is unexpected vis-à-vis the multiple senses marked by אֲחֵרִי אֲשֶׁר in light of the Zipfian inverse relation hypothesis, which states that there is an inverse relation between morphological complexity and polyfunctionality (Zipf 1949, 121; Kortmann 1997, 123).

temporal clause expressing an anterior relationship between the clauses.

3.2. אם

The usage of אם also spans the temporal and CCC semantic spaces of interclausal relations, as seen in the following examples, though its most common use is as a conditional conjunction. In (4) it is used to communicate an interclausal relation of indefinite time (contingency) ‘whenever p , q ’. In (5) it is used to communicate the condition ‘if p , q ’. This use is by far the most common, especially in casuistic texts found in the Pentateuch. In (6) it is used to communicate concessive condition ‘even if p , q ’. In (7) it is used to communicate concession ‘although p , q ’.²⁷

(4) וְהָיָה אִם-זָרַע יִשְׂרָאֵל וְעָלָה מִדְיָן וְעַמְלֵק וּבְנֵי-קֶדֶם וְעָלוּ עֲלֵיוּ:

‘Now, it happened that **whenever** Israel would plant seed, then the Midianites and Amalekites and the sons of the East would come up against them.’ (Judg. 6.3; LXX ὅταν; Tg. Neb. כִּד)

(5) וַיֹּאמֶר אֱלֹהֵי אֱמֹן אִם-אֵין פְּנִיָּהּ הַלְכִים אֶל-תַּעֲלֶנּוּ מִזֶּה:

²⁷ For further examples, see the following. **Contingency**: Gen. 38.9 (LXX ὅταν; Tg. Onq. כִּד); Isa. 24.13 (LXX ἐὰν; Tg. Neb. בְּתַר); Ps. 78.34 (LXX ὅταν; Tg. Ket. -בזמן ד-). In at least one case, אם seems possibly to communicate immediate anteriority (Amos 7.2; LXX ἐὰν). **Condition**: there are too many examples to list here; see HALOT. **Concessive condition**: Amos 9.2–4 (5x); Eccl. 8.17; cf. Segert (1976, 262). **Concession**: Jer. 15.1; Job 9.15; Ps. 27.3; 138.7 (cf. Ps. 23.4); Prov. 27.22; cf. Friedrich and Röllig (1999, 229).

‘And he said to him, “**If** your presence is not going, do not bring us up from this place.”’ (Exod. 33.15)

- (6) וַיַּעַן בַּלְעָם וַיֹּאמֶר אֶל-עֲבָדָי בְּלֶק אִם-יִתְּנֶנּוּ לִי בָלַק מְלֵא בֵיתוֹ כֶּסֶף וְזָהָב לֹא אוֹכַל לַעֲבֹר אֶת-פִּי יְהוָה אֱלֹהֵי לַעֲשׂוֹת קִטְוָה אִו גְּדוּלָה:

‘Then Balaam answered and said to the servants of Balak, “**Even if** Balak gives me his house full of silver and gold, I would not be able to transgress the word of the LORD my God to do small or great.”’ (Num. 22.18)

- (7) לְכוּנָא וְנוֹכַחְהּ יֹאמֵר יְהוָה אִם-יְהִיוּ חַטָּאֵיכֶם כְּשָׁנִים כְּשֶׁלֶג יִלְבִּינוּ אִם- יֵאָדְמוּ כְתוּלַע כְּצֶמֶר יְהִיוּ:

“Come and let us reason together” says the LORD. **Although** your sins are as scarlet, they will become white as snow. **Although** they are red as crimson, they will be as wool.” (Isa. 1.18)

3.3. אֲשֶׁר

The particle אֲשֶׁר has been treated most extensively by Holmstedt (2016). He argues that in most cases אֲשֶׁר can be analysed as a relative or complementiser, even if “less natural” in some cases (Holmstedt 2016, 232–35). The appeal of positing a singular function for the sake of parsimony can certainly be appreciated. However, as mentioned at the end of §2.0 above, it is the norm for relativisers to fall along several category continua intersecting at the word class of adverbial conjunctions. Indeed, in light of this pervasive tendency, it is arguably more parsimonious (at least as a starting point) to expect uses of אֲשֶׁר beyond its function

as a relativiser and complementiser,²⁸ even though the relativiser function is by far the most common. Furthermore, as pointed out in §2.0, semantic maps do not require a commitment to polysemy versus monosemy. Therefore, even if these non-relative, non-complementiser readings are considered mere implicatures, they can still be organised via a semantic map. Thus, putative uses of אֲשֶׁר as an adverbial conjunction are included here. Uses span the modal, temporal, and CCC semantic spaces. These include modal ‘*q*, as *p*’ (8), temporal ‘when *p*, *q*’ (9), causal ‘because *p*, *q*’ (10), purpose ‘*q*, in order that *p*’ (11), result ‘*q*, so that *p*’ (12), and conditional ‘if *p*, *q*’ (13) uses.²⁹

(8) אֲשֶׁר לֹא־יִסְפֹּר צָבָא הַשָּׁמַיִם וְלֹא יִמְדוּ חוֹל הַיָּם בְּכֹן אַרְבָּה אֶת־זֶרַע דָּנָד עַבְדֵּי
וְאֶת־הַלְוִיִּם מִשְׁרַתִּי אֶתִּי:

²⁸ Cf. Hendry (2012, 48–132), where she discusses the various sources and developments of relativisers in crosslinguistic perspective.

²⁹ Other putative examples include the following. **Modal:** Exod. 10.6; 14.13 (LXX ὃν τροπον; Tg. Onq. -ד כמא); 34.18 (LXX καθάπερ); Deut. 15.14 (LXX καθὰ); Isa. 7.17; Jer. 48.8 (LXX 31.8 καθὼς); Mic. 7.20 (LXX καθότι); Ps. 106.34. See further fn. 29. **Temporal:** Gen. 6.4; 40.13; Num. 33.1; Deut. 1.46; 1 Sam. 20.31; 2 Sam. 19.25; 1 Kgs 8.9; 11.42; Jer. 29.19; 2 Chron. 35.20. **Causal:** Gen. 30.18; 31.49; 34.13, 27; 42.21; Num. 20.13; Deut. 3.24; Josh. 4.7, 23; Judg. 9.17; 1 Sam. 2.23; 15.15; 20.42; 26.23; 2 Sam. 2.5; 14.22; 1 Kgs 8.33; 15.5; 2 Kgs 12.3; 17.4; 23.26; Isa. 19.24–25; Jer. 16.13; Hos. 14.4; Hab. 3.16; Zech. 1.15; Job 34.27; Eccl. 4.9; 6.12; 8.11, 12; Dan. 1.10; 2 Chron. 6.24. Some ancient and modern versions skilfully render אֲשֶׁר causally via the causal use of a relative construction in the target language. See, for example, Gen. 30.18 (LXX ἀνθ’ οὗ); 34.27 (LXX ἐν ᾧ = ὅτι in v. 13); 42.21 (ESV ‘in that’; LXX ὅτι). This highlights the crosslinguistic use of relatives with a causal meaning. **Purpose:** Gen 11.7; 24.3; Exod. 20.26; Deut. 4.10, 40; 6.3 (2 ×);

‘As the host of the heavens cannot be numbered and the sand of the sea cannot be measured, in this way I will multiply the seed of David my servant and the Levites who minister to me.’ (Jer. 33.22; Tg. Neb. כמא ד-7)³⁰

32.46; Josh. 3.7; 1 Kgs 22.16; Jer. 42.14; Ruth 3.11; Eccl. 7.21; Neh. 2.7, 8; 8.14; 2 Chron. 1.11. **Result:** Gen. 13.16; Deut. 28.27, 35; 1 Kgs 3.8, 12, 13; 2 Kgs 9.37; Isa. 65.16; Jer. 19.11; Mal. 3.19; Ps. 95.11; Est. 9.1. **Condition:** Exod. 21.13; Lev. 4.22; 25.33; Num. 5.29; 9.21; Deut. 18.22; Josh. 4.21; 1 Sam. 16.7; 1 Kgs 8.31, 33; Isa. 31.4.

These examples together with alternative analyses as relative clauses are helpfully collected and discussed in Holmstedt (2016, 232–35), along with nonbiblical texts as well. Holmstedt (2016, 233) also helpfully compiles all the cases cited for each of these uses in GKC, IBHS, BHGR¹, and JM. Here, Holmstedt makes the important observation that all the non-relative and non-complement cases cited in GKC, IBHS, BHGR¹, JM, BDB, DCH, and HALOT add up to only 97 cases. This means that even if these identifications are correct, they are not typical.

³⁰ The modal semantic space has several subsenses, including different nuances of comparison, such as comparing various measures of extent (e.g., temporal duration or quantity) and comparison of manner. In the usage of אַשְׁרֵי, I have identified comment/accord and similitive subsenses. Comment/accord can be represented schematically as ‘*q*, as *p*’, where clause *q* accords with some statement in *p*. As described by Kortmann (1997, 87–8), “*p* expresses the speaker’s comment on the content of the matrix clause, typically with the aim of affirming the truth (and thus reliability) of *q*.” See possibly, for example, Gen. 42.14. While Kortmann’s description focuses on this relation in the realm of epistemic modality (e.g., “As you said, this analysis is probably correct”), אַשְׁרֵי typically marks this relationship within the realm of deontic modality, as in Jer. 48.8 (LXX 31.8 καθὼς); Mic. 7.20 (LXX καθότι); Ps. 106.34. A similitive interclausal relationship can be schematically represented as ‘*q*, (in the same way) as *p*’. For examples of this with אַשְׁרֵי, see Exod.

(9) וַיֹּאמֶר מִיכָיִהוּ הַנֶּגֶד רֹאֵה בַיּוֹם הַהוּא אֲשֶׁר תָּבֹא קֶדֶר בְּחֶדֶר לְהִתְבַּהֵּ:

‘Then Micaiah said, “Behold, you will see in that day **when** you go into an inner room to hide.” (1 Kgs 22.25; LXX ὅταν)

Interpretation as a temporal conjunction seems to be especially facilitated in contexts where it would otherwise function as a relative in relation to יום ‘day’ or other temporal nouns, even if only by implicature. IBHS (334) notes that this function is facilitated in contexts without a resumptive pronoun, as in this example (cf. JM, 562).³¹

(10) הַיּוֹם | יִדְעֻנּוּ כִּי־בִתּוֹכֵנוּ יִהְיֶה אֲשֶׁר לֹא־מַעֲלֵתֶם בֵּיהוָה הַמַּעַל הַזֶּה

10.6; 14.13 (LXX ὃν τρόπον; Tar. Onq. -כמא ד-); Deut. 15.14 (LXX καθά). For more on these categories and the subsenses of the modal semantic space, see Kortmann (1997, 87–88, 195–96); Haspelmath and Buchholz (1998, 277–334); as well as the contributions in Treis and Vanhove (2017).

³¹ Note that for adverbial conjunctions which span multiple subsenses within the temporal semantic domain, I provide only one example for the sake of space. In example (9), the temporal subsense communicated is simultaneity overlap (SIOVER) which may be represented as ‘when *p*, *q*’, where the conjunction signals that clause *p* overlaps with clause *q* in time (also Gen. 40.13; Num. 33.1; Deut. 1.46; 2 Sam. 19.25; 1 Kgs 8.9; 11.42; Jer. 29.19). אֲשֶׁר is also used to mark simultaneous duration (SIDUR) between clauses, defined as ‘while *p*, *q*’, where the conjunction signals that clause *p* opens up a time interval for the whole or part(s) of which clause *q* is true (e.g., Josh. 14.10; 1 Sam. 20.31). For a discussion of the subsenses of temporal interclausal relations, see Locatelli (2020). For a crosslinguistic perspective and evidence for the categorial reality of these subsenses, see Kortmann (1997, 84–5, 181–93).

‘Today we know that the LORD is in our midst, **in that** you have not committed this unfaithfulness against the LORD.’

(Josh. 22.31; LXX $\delta\iota\acute{o}\tau\iota$)

- (11) הָבֵה נִרְדָּה וְנִבְלָה שָׁם שְׂפָתֵם אֲשֶׁר לֹא יִשְׁמְעוּ אִישׁ שְׂפַת רֵעֵהוּ:

‘Come, let us go down and confuse their language, **that** they will not understand one another’s language.’ (Gen.

11.7; LXX $\acute{\iota}\nu\alpha$)

- (12) וְהָיְתָ נְבִלַת אֵיזָבֵל כְּדָמִן עַל־פְּנֵי הַשָּׂדֶה בְּחֶלֶק יִזְרְעֵאל אֲשֶׁר לֹא־יֵאמְרוּ זֹאת אֵיזָבֵל:

‘And the corpse of Jezebel will be as dung on the face of the field in the portion of Jezreel **so that** they will not say

“This is Jezebel.”’ (2 Kgs 9.37; LXX $\acute{\omega}\sigma\tau\epsilon$)

- (13) רְאֵה אֲנֹכִי נֹתֵן לְפָנֶיכֶם הַיּוֹם בְּרָכָה וּקְלָלָה: אֶת־הַבְּרָכָה אֲשֶׁר תִּשְׁמְעוּ אֵלַי־מִצֹּאת יְהוָה אֱלֹהֵיכֶם אֲשֶׁר אֲנֹכִי מְצַוֶּה אֶתְכֶם הַיּוֹם: וְהַקְּלָלָה אִם־לֹא תִשְׁמְעוּ אֵלַי־מִצֹּאת יְהוָה אֱלֹהֵיכֶם...

‘See, I am setting before you today blessing and curse. The blessing, **if** you listen to the commandments of the LORD your God which I am commanding you today. And the curse, if you do not listen to the commandments of the LORD your God...’ (Deut. 11.26–28)³²

³² Notable here is the use of conditional אִם parallel to אֲשֶׁר. It is also worth noting that Tg. Onq. renders אֲשֶׁר here with אִם (הוּ), despite the fact that Tg. Onq. and Tg. Neb. usually render these putative non-relative אֲשֶׁר clauses with -ד. The LXX renders this with $\acute{\epsilon}\acute{\alpha}\nu$, which is also commonly used to head conditional clauses.

3.4. בְּאֶשֶׁר

The usage of בְּאֶשֶׁר spans the locative and CCC semantic spaces of interclausal relations, the most common being the locative use. These uses include place ‘where(ever) *p*, *q*’ (14) and cause ‘because *p*, *q*’ (15).³³

- (14) וַתֹּאמֶר רוּת אֶל-תִּפְגַּעִי-בִי לְעֹבֵד לְשׁוֹב מֵאַחֲרַיִךְ כִּי אֶל-אֲשֶׁר תֵּלְכִי אֵלַיִךְ
וּבְאֶשֶׁר תֵּלִינִי אֵלָיִן עִמָּךְ עַמִּי וְאֱלֹהֶיךָ אֱלֹהֵי:

‘Then Ruth said, “Do not implore me to abandon you, to return from following after you. For wherever you go I will go and **wherever** you lodge I will lodge. Your people are my people and your God is my God.”’ (Ruth 1.16; LXX *ὅπου ἐλθῶ*)

- (15) אֵינְנוּ גָדוֹל בְּבַיִת הַזֶּה מִמְּנִי וְלֹא-חָשַׁד מִמְּנִי מְאוּמָה כִּי אִם-אוֹתָךְ בְּאֶשֶׁר אַתָּה-
אֲשֶׁתּוֹ

‘There is no one in this house greater than me and he has not withheld anything from me except you, **because** you are his wife.’ (Gen. 39.9; LXX *ὅτι τὸ + infinitive*; Tg. Onq. בדיל -ד)

3.5. כְּאֶשֶׁר

The usage of כְּאֶשֶׁר spans the modal, temporal, and CCC semantic spaces, with modal and temporal uses predominating. These

³³ For additional examples, see the following. **Locative**: Gen. 21.17 (with a nominal clause); Judg. 5.27; 17.8, 9; 1 Sam. 23.13; 2 Kgs 8.1; Ruth 1.17; Job 39.30. **Causal**: with nominal clauses, Gen. 39.23; Eccl. 8.4; with nominal and finite clause in parallel, Eccl. 7.2. We may also note this use in 4Q504 f4.5 = 4Q506 f131–32.11. The unusual, but ostensibly related, כְּשֶׁנָּם in Gen. 6.3 may also be mentioned.

include modal ‘*q*, as *p*’ (16)–(17), temporal ‘when *p*, *q*’ (18), causal ‘because *p*, *q*’ (19), and conditional ‘if *p*, *q*’ (20) uses.³⁴

(16) ויעש הרע בעיני יהוה כַּאֲשֶׁר עָשָׂה מְנַשֶּׁה אָבִיו

‘And he did evil in the sight of the LORD **as** his father Manasseh did.’ (2 Chron. 33.22)

(17) ויִצְוֶה אֶת־אֲשֶׁר עַל־בֵּיתוֹ לֵאמֹר מְלֵא אֶת־אֲמָתֹתַי הָאֲנָשִׁים אֶכֶל כַּאֲשֶׁר יוּכְלוּן
שָׂאת

‘And he commanded the one who was over his house, “Fill the men’s sacks with food, **as much as** they are able to carry.”’ (Gen. 44.1; LXX ὅσα ἐὰν; Tg. Onq. דְּ כַּמָּא דְּ)³⁵

³⁴ For additional examples, see the following. **Modal:** again, the interclausal relationship of ‘comparison’ in the modal semantic space can be broken up into various overlapping subsenses, including COMACC ‘*q*, as *p*’, Gen. 7.9, 16; 12.14; 40.22; 41.13; Exod. 12.28; Deut. 2.14; 11.25; 12.20; 26.19; Judg. 6.36, 37; 1 Sam 24.13; 1 Kgs 9.5; Jer. 26.11; Joel 2.32; Ps. 48.9; Comparison (COMPAR) ‘*q*, as (if) *p*’, where the comparison is usually, though not necessarily, hypothetical (Kortmann 1997, 88), 2 Sam. 16.23; Zech. 10.6; Job. 10.19; SIMIL ‘*q*, (in the same way) as *p*’, Gen. 8.21; 34.22; Exod. 2.14; 33.11; Lev. 4.21; 24.19, 20; Num. 11.12; Deut. 1.44; Judg. 1.7; 1 Sam. 15.33; 1 Kgs 9.2; 2 Kgs 21.13; Eccl. 5.14; Isa. 9.2; 20.3–4; Equative (EQUAT) ‘*q*, (to the same extent) as *p*’, Gen 44.1; Josh. 14.11; 1 Sam. 2.16; Ezek. 46.7; Zech. 8.13. See references in fn. 30 for more on these categories. **Temporal:** Gen. 18.33; 32.3; 40.14; 43.2; Exod. 17.11; Deut. 2.16; Josh. 2.7; Josh. 4.1, 11; 5.8; Judg. 3.18; 6.22; 1 Sam. 1.24; 6.6; 8.1, 6; 12.8; 24.1; 2 Sam. 12.21; Ps. 56.7; Neh. 5.6; 6.3; 7.1; Eccl. 4.17. **Causal:** Judg. 6.27; 2 Kgs 17.26; Mic. 3.4. 1 Sam. 28.18 seems at least to have a strong causal implicature. See (37) below. **Conditional:** Exod. 10.10; Est. 4.16 (LXX ἐὰν).

³⁵ Notable in this example (and other cases of כַּאֲשֶׁר marking an equative interclausal relationship listed above) is that it employs only a standard

- (18) וַיֹּאמֶר יַעֲקֹב כְּאֲשֶׁר רָאָם מַחֲנֵה אֱלֹהִים זֶה וַיִּקְרָא שְׁם־הַמָּקוֹם הַהוּא מַחֲנֵיִם:
 ‘And Jacob said **when** he saw them, “This is the camp of God.” And he called the name of the place Mahanaim.’
 (Gen. 32.3)
- (19) וּרְאִיתָהּ אַתָּה וְנִאֲסַפְתָּ אֶל־עַמִּידָה גַם־אַתָּה כְּאֲשֶׁר נִאֲסַף אֶהְרֹן אָחִידִי: כְּאֲשֶׁר
 מְרִיתֶם פִּי בַמִּדְבָּר־צִוֹן...
 ‘And you will see it and you will be gathered to your people, also you, as your brother Aaron was gathered, **because** you rebelled against my word in the wilderness of Zin...’ (Num. 27.13–14; LXX *διότι*)
- (20) וְאֵל שְׂדֵי יִתְּן לְכֶם רַחֲמִים לִפְנֵי הָאִישׁ וְשִׁלַּח לְכֶם אֶת־אֲחֵיכֶם אַחֵר וְאַת־
 בְּנִימִין וְאַנִּי כְּאֲשֶׁר שָׂכַלְתִּי שָׂכַלְתִּי:
 ‘And may God Almighty give you mercy before the man so that he will send to you your other brother, Benjamin. As for me, **if** I am bereaved, I am bereaved.’ (Gen. 43.14)

3.6. כִּשְׁ-

The profile of כִּשְׁ- includes modal ‘*q*, as *p*’ (21) and temporal ‘when *p*, *q*’ (22) uses. I have found only six cases of this form in

marker. Equative constructions often employ a standard and a parameter marker, e.g., ‘You drive as well as I speak Chinese’, where ‘as well’ is the parameter and ‘as I speak Chinese’ is the standard. Haspelmath and Buchholz (1998, 295–97) note several languages that express such equative constructions with only a standard marker. This is typical of head-final, non-finite Eastern European languages. An exception is head-initial Balkan languages, which employ only a standard marker derived from a manner relative pronoun. This is similar to the situation with Hebrew כְּאֲשֶׁר.

Classical Hebrew, making analysis relatively difficult and provisional.³⁶

(21) כְּאִשֶּׁר יֵצֵא מִבֶּטֶן אִמּוֹ עָרוֹם יָשׁוּב לְלֶכֶת כְּשָׁבָא

‘As he came from his mother’s womb, naked he will return as he came.’ (Eccl. 5.14; LXX ὤς)

(22) וְגַם בַּדֶּרֶךְ כְּשֶׁהִסְכֵּל הַלֵּךְ לְבוֹ חָסֵר

‘And even in the road **when** a fool is walking, his sense is lacking.’ (Eccl. 10.3; LXX ὄταν)

3.7. כִּי

The most polysemous adverbial conjunction in the Hebrew Bible is כִּי. Its profile includes uses spanning many subsenses of the temporal and CCC semantic spaces, with the causal sense being by far its most common use as an adverbial conjunction. These uses include temporal ‘when *p*, *q*’ (23), causal ‘because *p*, *q*’ (24), contingent (i.e., indefinite time) ‘whenever *p*, *q*’ (25), conditional ‘if *p*, *q*’ (26), concessive conditional ‘even if *p*, *q*’ (27), concessive ‘although *p*, *q*’ (28), result ‘*q*, so that *p*’ (29), purpose ‘*q*, in order that *p*’ (30), and contrastive ‘*q*, but *p*’ (31) uses.³⁷

(23) וְכָל־יִשְׂרָאֵל כִּי לֹא־שָׁמַע הַמֶּלֶךְ לָהֶם וַיֵּשִׁיבוּ הָעַם אֶת־הַמֶּלֶךְ | לֵאמֹר מִה־לָּנוּ
חֶלֶק בַּדָּוִד וְלֹא־נִחַלָה בְּבֹן־יִשְׂי אִישׁ לְאֹהֲלֵיךְ יִשְׂרָאֵל עֲתָה רָאָה בֵּיתְךָ דָּוִד
וַיֵּלֶךְ כָּל־יִשְׂרָאֵל לְאֹהֲלָיו:

³⁶ Also see **similative**: Eccl. 12.7; **comment/accord**: 4Q397 f6–13.12; **temporal**: Eccl. 9.12; Sir. 30.12 (MS B 3r.3; Beentjes 1997, 54).

³⁷ For additional examples, see the following: **Temporal**: Gen. 24.41; 31.49; Lev. 14.34–35; 19.33; Deut. 4.25–26; 18.9; Ps. 32.3; 1 Chron. 7:21. **Causal**: Gen. 50.19; Lev. 22.7; Ezek. 3.4–5; Ps. 3.8; 1 Chron.

‘And all Israel, **when** the king did not listen to them, the people replied to the king saying, “What share do we have in David?” and “We do not have an inheritance in the son of Jesse. Each man to his tent, O Israel. Now see to your own house, David.” Then all Israel went to their tents.’ (2 Chron. 10.16)³⁸

11.19. This is the most common use of כִּי and citations could be multiplied. **Contingent:** Gen. 4.12; Lev. 1.2; 2.1, 4; 4.2; 15.2, 16, 19; Lev. 19.5, 23; 22.21, 27, 29; 23.10; Ezek. 46.12; 2 Chron. 6.36. **Conditional:** Gen. 4.24; Lev. 13.51–54; 15.8, 25 (2x); Ezek. 3.19; Ps. 11.3; 2 Chron. 6.28 (4x). **Concessive conditional:** Isa. 1.15; Hos. 8.10; 9.16; Ps. 37.24; Lam. 3.8. **Concessive:** Gen. 31.37; 48.14; Jer. 51.53 (2x); Ezek. 2.6; 3.9; 11.16 (2x); 12.3; 32.25, 26, 27, 32; Ps. 21.12; 1 Chron. 5.2; 24.24. **Result:** Gen. 20.9; 40.15; Ps. 8.5 (2x); 1 Chron. 17.16; 29.14; 2 Chron. 32.14. This use also appears in epigraphic Hebrew at Lachish 2.4; 5.4; 6.3. **Purpose:** Gen. 29.32 (3x); Job. 3.12. **Contrastive:** Gen. 18.15; 21.7; 24.4; Exod. 4.10; 34.13; Deut. 4.26; 1 Kgs 21.15; Ezek. 10.11; 1 Chron. 29.1; 2 Chron. 8.9. Note again that while temporal כִּי spans many subsenses in the temporal semantic space, I provide only one example here for the sake of space. These subsenses, however, are represented in the semantic map provided below in Figure 5. As noted above, these subsenses are discussed in detail in Locatell (2020).

³⁸ Note that there is a possible textual issue here when compared with the synoptic text in 1 Kgs 12.16, which has וַיִּרְא כָּל־יִשְׂרָאֵל כִּי לֹא־שָׁמַע הַמֶּלֶךְ אֶל־אֲלֵיהֶם. Here, the clause clearly functions as a complement clause. However, whatever the source of the text in 2 Chron. 10.16, it still constitutes a valid use of language, even if not ‘original’. Additionally, the LXX supports this reading, as well as the causal implicature of the temporal clause, by rendering it with ὅτι (on which see the discussion of example (39) in §5.2 below). These readings are actually switched in Tg. Neb. and Tg. Ket. The Syr. of 2 Chron. 10.16 is identical to that of

- (24) עֲתָהּ חִכְמָה וּמִדָּעַתְךָ לִי וְאַצְאָהּ לִפְנֵי הָעַם־הַזֶּה וְאִבּוֹאָהּ כִּי־מִי יִשְׁפֹּט אֶת־
עַמְּךָ הַזֶּה הַגָּדוֹל:
‘Now, grant me wisdom and knowledge so that I may go out before this people and enter in. **For** who can rule this great people?’ (2 Chron. 1.10; LXX ὅτι)
- (25) כִּי יַחֲטְאוּ־לְךָ כִּי אִין אָדָם אֲשֶׁר לֹא־יַחֲטֵא וְאַנְפַּתְךָ בָּם וּנְתַתֶּם לִפְנֵי אוֹיֵב
וְשָׁבוּם שׁוֹבֵיהֶם אֶל־אֶרֶץ רְחוֹקָה אִו קְרוֹבָה
‘**Whenever** they sin against you (for there is no one who does not sin) and you are angry with them and give them up before an enemy, and they take the captive to a land far or near . . .’ (2 Chron. 6.36; Tg. Ket. כד)
- (26) אִו כִּי יִשׁוּב הַבָּשָׂר הַחַי וְנִהְפָּד לְלָבָן וּבָא אֶל־הַכֹּהֵן:
‘Or **if** the raw flesh turns and changes to white, he will go to the priest.’ (Lev. 13.16, LXX ἐὰν)
- (27) גַּם כִּי־אֵלֶּךְ בְּגִיא צִלְמוֹת לֹא־אִירָא רַע כִּי־אַתָּה עִמָּדִי
‘**Even if** I walk through the valley of the shadow of death, I will not fear evil, for you are with me.’ (Ps. 23.4)³⁹
- (28) כִּי־נָטוּ עֲלֶיךָ רַעַה חֲשָׁבוּ מְזִמָּה בְּלִי־וֹכְלוֹ:
‘**Although** they have ventured evil against you, have devised a plot, they will not succeed.’ (Ps. 21.12)
- (29) וַיֹּאמֶר אֲבִימֶלֶךְ אֶל־אַבְרָהָם מָה רְאִיתָ כִּי עָשִׂיתָ אֶת־הַדָּבָר הַזֶּה:

1 Kgs 12.16 (אִם אֵלֶּיךָ אֵלֶּיךָ אֵלֶּיךָ). However, this could perhaps be understood as the result of the translator’s known penchant to draw on parallel passages in earlier books (Weitzman 1999, 79, 118).

³⁹ The use of a focus particle like *גַּם* with a conditional is a typologically pervasive bridging context facilitating the development of concessive conditionals (Haspelmath and König 1998, 620). Note that this collocation does not necessarily result in a concessive conditional meaning (e.g., Rut. 2.21, Prov. 22.6).

‘Then Abimelech said to Abraham, “What did you see **so that** you did this thing?”’ (Gen. 20.10)

(30) וַתֹּאמֶר מֵה־תִּתְּנֵנִי לִי כִי תָבוֹא אֵלַי:

‘And she said, “What will you give me **in order that** you may come in to me?”’ (Gen. 38.16)

(31) וַיֹּאמֶר אֱלֹהִים אֶל־אַבְרָהָם שְׂרֵי אִשְׁתְּךָ לֹא־תִקְרָא אֶת־שְׁמָהּ שְׂרֵי כִי שָׂרָה שְׁמָהּ:

‘And God said to Abraham, “As for Sarai your wife, you will not call here name Sarai, **but** Sarah will be her name.”’ (Gen. 17.15)

3.8. על אֲשֶׁר

The usage of על אֲשֶׁר spans the locative and CCC semantic spaces, with the causal use being most common. It is used to mark interclausal relations of place ‘where(ever) *p*, *q*’ (32) and cause ‘because *p*, *q*’ (33).⁴⁰

(32) תָּמוּל | בּוֹאֵד וְהַיּוֹם אֲנִי עֹמֵד עִמָּנוּ לְלֶכֶת וְאֲנִי הוֹלֵךְ עַל אֲשֶׁר־אֲנִי הוֹלֵךְ

‘You arrived yesterday and today will I make you go wander with us while I go **wherever** I go?’ (2 Sam. 15.20; LXX οὐδὲν; Tg. Neb. -לְאֶתֶר דְּ-)

(33) וַיִּחַר־אַף יְהוָה בְּעִזָּא וַיִּכְהוּ עַל אֲשֶׁר־שָׁלַח יָדוֹ עַל־הָאָרוֹן

⁴⁰ For additional examples, see the following: **Locative**: 1 Kgs 18.12; Ezek. 1.20. **Causal**: Exod. 32.35; Num. 20.24; Deut. 29.24; 32.51 (2x); 1 Sam. 24.6; 2 Sam. 3.30; 6.8; 8.10; 1 Kgs 9.9; Jer. 16.11; 22.9; Ezek. 23.30; 35.15; Job 32.3; Est. 1.15; 8.7; 1 Chron. 13.10; 2 Chron. 7.22. However, as with the other multi-word forms discussed, it is important to note that על and אֲשֶׁר do not always function together as a unit.

‘And the wrath of the LORD burned against Uzzah and he struck him **because** he reached out his hand on the Ark.’
(1 Chron. 13.10; LXX $\delta\iota\alpha\ \tau\acute{o}$ + infinitive; Tg. Ket. - מטור ה)

The above examples illustrate the usage profile of those adverbial conjunctions in Biblical Hebrew with relatively clear polysemy. They all span two or more of the basic semantic spaces of adverbial relationships, in overlapping but usually different ways. The question raised in this study is how these various uses may be organised conceptually and arranged diachronically in a semantic map. This is discussed in the next section, with some select examples illustrating the heuristic and predictive value of such an approach.

4.0. Generating Hypotheses with Diachronic Semantic Maps

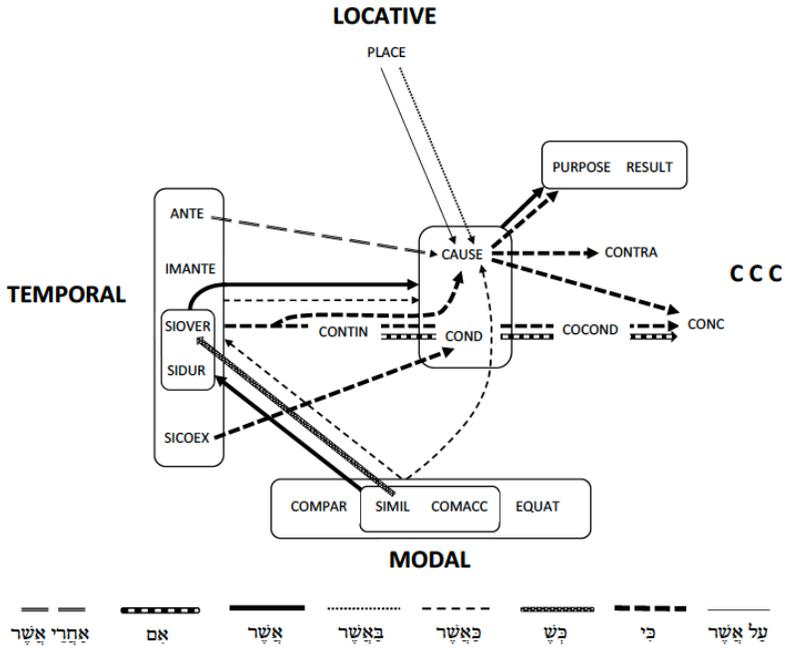
The semantic map below organises the usage profiles of each adverbial conjunction treated above according to cross-linguistically pervasive polysemy patterns and paths of change as explained in §2.0 above.⁴¹ As discussed in §2.0, the heuristic

⁴¹ Cf. the typological map presented in Kortmann (1997, 210). Note that the typological data does not necessarily predict a direct extension from the modal use of כִּי to its causal use, though this is certainly compatible with the typological data. Rather, this direct line was drawn because a plausible bridging context was identified that may suggest such a path. This is discussed in §5.0 below. Alternatively, there may be bridging contexts connecting modal כִּי with the CCC domain. However, none were clearly identified in the course of this study, so the only path shown is modal > temporal > CCC.

value of such maps is to generate hypotheses about the possible conceptual relationships between uses, and which uses have served as sources and goals in language change. Here, I describe how the usage profiles of polysemous adverbial conjunctions in Biblical Hebrew map onto such semantic maps and the diachronic hypotheses this generates. In the following section, I will look at ways of corroborating these hypotheses by examining bridging contexts and cognate data.

The usage profile of each adverbial conjunction above is represented by different, (usually) directional arrows indicating direction of development. An enclosing box indicates when a usage profile includes all the subsenses in a given space or cluster (e.g., temporal space or cause and condition in the CCC space). In some cases, this somewhat defers the question of which subsenses served as the specific loci of extension into other spaces. Alternatively, a line extending into an enclosing box indicates usage of only the subsense with which it connects.

Figure 5: Semantic map of polysemous adverbial conjunctions in Biblical Hebrew



The benefit of this representation is that one can see paths between the four major semantic spaces as well as the similarities and differences between the profiles of each adverbial conjunction.⁴² However, in order to compensate for the lack of

⁴² The following definitions are from Kortmann (1997, 79–87). Terms and definitions for modal relations also draw upon Haspelmath and Buchholz (1998) and Treis and Vanhove (2017). **ANTE**: Anteriority, ‘after *p*, *q*’, where clause *p* simply precedes clause *q* in time; **CAUSE**: Cause, ‘because *p*, *q*’, where clause *p* identifies a cause, reason, or motivation for clause *q*; **COCON**: Concessive condition, ‘even if *p*, *q*’, where *q* is true or will materialise for any value of a variable in *p*; **COMACC**: ‘*q*, as *p*’, where clause *q* accords with some statement in *p*; **COMPAR**: ‘*q*, as

transparency, the table below is provided, which lists the various paths for each adverbial conjunction.

(if) *p*', where the comparison is usually, though not necessarily, hypothetical; **CONC**: Concession, 'although *p*, *q*', where the general incompatibility of *p* and *q* are assumed background knowledge; **COND**: Condition, 'if *p*, *q*', where clause *p* identifies the condition upon which clause *q* is, would be, or would have been true; **CONTIN**: Contingency, 'in cases when *p*, *q*' or 'whenever *p*, *q*', where at all times when clause *p* is true, clause *q* is also true; **CONTRA**: Contrast, '*q*, whereas/but *p*', where clauses *q* and *p* may be used as arguments for different conclusions, though not necessarily inherently incompatible, as with concession; **EQUAT**: Equative, '*q*, (to the same extent) as *p*', where the extent of *q* is equated to that of *p*; **IMANTE**: Immediate anteriority, 'as soon as *p*, *q*', where clause *p* immediately precedes clause *q*; **PLACE**: Place, 'where(ever) *p*, *q*', where *p* identifies a location (definite or indefinite) in which *q* takes place; **PURPOSE**: Purpose, '*q*, in order that *p*', where *p* is an intended result or consequence of *q* that is yet to be achieved; **RESULT**: Result, '*q*, so that *p*', where *p* expresses a (mostly factual and typically non-intended) result or consequence of *q*; **SICOEX**: Simultaneity co-extensiveness, 'as long as *p*, *q*', where clause *p* opens up a time interval for the whole of which clause *q* is true; **SIDUR**: Simultaneity duration, 'while *p*, *q*', where clause *p* opens up a time interval for the whole or part(s) of which clause *q* is true; **SIMIL**: Similative, '*q*, (in the same way) as *p*', where some aspect of situation *q* is described by comparing it to situation *p*; **SIOVER**: Simultaneity overlap, 'when *p*, *q*', where clause *p* overlaps with clause *q* in time. Note that these different semantic spaces include other subsenses excluded here because they have not been found used in these adverbial conjunctions.

Table 1: Grammaticalisation paths for each polysemous adverbial conjunction in Biblical Hebrew⁴³

Form	Hypothesized Paths
אַחֲרֵי אֲשֶׁר	ANTE > CAUSE
אִם	CONTIN > COND > COCOND > CONC
אֲשֶׁר	MODAL > TEMPORAL > CAUSE, COND, PURPOSE/RESULT
בְּאֲשֶׁר	PLACE > CAUSE
כְּאֲשֶׁר	MODAL > TEMPORAL > CAUSE; TEMPORAL > COND; MODAL > CAUSE
כִּשְׁ	SIMIL > SIOVER
כִּי	TEMPORAL > CCC; SIOVER > CONTIN > COND > COCOND > CONC; CAUSE > PURPOSE/RESULT; CAUSE > CONTRA; CAUSE > COND
עַל אֲשֶׁר	PLACE > CAUSE

Considering Figure 5, we note the following broader observations. Certain semantic spaces in this map are ‘cut up’ to different degrees. For example, *עַל אֲשֶׁר* and *בְּאֲשֶׁר* both mark definite and indefinite place in the locative semantic space.⁴⁴ By contrast, the temporal and CCC semantic spaces are ‘cut up’ quite

⁴³ Note that in some cases, a broader semantic domain is listed in a path rather than a specific subsense (e.g., TEMPORAL > CAUSE, COND). In this case, it means some subsense(s) in the temporal semantic space developed both causal and conditional extensions. There is likely a more specific subsense of the temporal semantic space that is more likely to have developed into causal and conditional uses, respectively. However, which subsenses this may have involved is left unspecified. A larger study would pursue these details at a more fine-grained level.

⁴⁴ There are, however, a variety of other locative relations, such as direction goal ‘whither’ (*אֶל אֲשֶׁר*, e.g., Num. 33.54; Ezek. 1.12; Ruth 1.16) and direction source ‘whence’ (*מִשָּׁם... אֲשֶׁר*, e.g., Gen. 3.23; 24.5), which are not marked by *עַל אֲשֶׁר* and *בְּאֲשֶׁר*. For more on these other types of locative relations, see Kortmann (1997, 88–89, 193–94).

differently by the various other adverbial conjunctions. For example, *אֲשֶׁר*, *בְּאֲשֶׁר*, and *כִּי* uses span several subsenses in the temporal space, while *אֲחֵרֵי אֲשֶׁר*, and *כִּשְׁ-* are only seen to communicate a single subsense. Likewise, *אֲשֶׁר*, *בְּאֲשֶׁר*, and *כִּי* have both conditional and causal uses. However, *אִם* intersects with only condition, while *אֲחֵרֵי אֲשֶׁר*, *בְּאֲשֶׁר*, and *עַל אֲשֶׁר* intersect with only causation.

There are also multiple paths attested between the basic semantic spaces. The usage profiles of *כִּי* and *אִם* both connect the temporal and CCC semantic spaces (particularly condition) via contingency (indefinite time), which is, of course, a typologically common bridge. However, *אֲשֶׁר* and *בְּאֲשֶׁר* extend from the temporal to the CCC semantic space without the use of indefinite time. Likewise, the profile of *אֲחֵרֵי אֲשֶׁר* suggests the extension from anteriority directly to causation. Both would be examples of the typologically pervasive tendency for temporal relations to invite causal inferences, leading to semantic extensions via the *post hoc ergo propter hoc* ('after this, therefore because of this') line of reasoning in which a causal relationship is inferred from sequence or overlap in time (Traugott and König 1991, 194–99). Thus, multiple developmental paths are available from the temporal to CCC semantic spaces.⁴⁵ In accordance with the

⁴⁵ As Givón (1991, 298) observes

...our old reductionist habits, of seeking single causes to complex linguistic events, single explanations to linguistic phenomena, or—in diachrony—single pathways for linguistic change, are inadequate and often misleading... contrary to old reductionist propensities, diachronic grammatical change is often complex, multi-causal and interactive.

typological picture presented in §2.0, this semantic map postulates diachronic development with CCC relations as the prototypical goal network. The only polysemous adverbial subordinator which does not have a use in the CCC space is $\text{-}\psi\text{ך}$.⁴⁶

5.0. Testing Hypotheses of the Semantic Map

In terms of heuristic value, the space between adjacent uses as they are arranged along this semantic map point to typologically plausible bridging contexts where semantic extension would have occurred. As discussed in §3.0 above, intermediate examples between these adjacent uses can then be examined to corroborate the prediction of the semantic map. Note that the goal here is not to find the very instances in which an extension originally took place. Rather, in the development of uses in the form 'A > A/B > B', all uses including the 'A/B' use in bridging contexts often persist side-by-side in layering, as presented in Figure 2 above. Uses in such bridging contexts will communicate sense 'A', but the context will also motivate an inference to sense 'B'. Thus, identifying persistent 'A/B' uses can reveal the loci which initially facilitated a particular change, as well as the inferential processes which may have motivated it, even after the

Thus, this representation should not be seen as ruling out possible extensions from the modal directly to the CCC space. To be sure, the usage profiles suggest that the strongest affinities for extension would proceed MODAL > TEMPORAL > CCC. However, multiple sources are also likely. Recall Figure 3 above.

⁴⁶ Of course, with only six cases to consider, this may simply be due to its rarity.

change had already occurred, and possibly even after its ‘A’ source use had already died out. The following discussion presents representative examples of grammaticalisation paths between each major semantic space. I will consider possible bridging contexts for extensions from the modal, temporal, and locative semantic spaces, as well as bridging contexts for extensions within the CCC semantic space.

5.1. Extension from the Modal Semantic Space

The profile of כְּאֲשֶׁר illustrates plausible bridging contexts in the paths of semantic extension from the modal semantic space to the temporal and CCC spaces, as seen in the following examples.

(34) SIMIL > SIOVER (‘as *p*, *q*’ > ‘when *p*, *q*’)

יְגֹרְרוּ | יִצְפִּינֵנוּ הַמָּה עֲקֵבֵי יִשְׁמְרוּ כְּאֲשֶׁר קִוּוּ נַפְשֵׁי:

‘They attack, they lurk, they watch my steps **as/while** they seek to take my life.’ (Ps. 56.7; LXX *καθάπερ*; Tg. Ket. היכמה -ד)⁴⁷

Here, the action in the main clause ‘they watch my steps’ is compared to that in the adverbial clause ‘they seek to take my life’. The aspect of the verbal ideas being compared seems to be their temporal frame of reference. The picture painted by the psalmist is that of the attentive gaze of his enemies continually on the lookout for an opportunity to take his life (cf. Tate 1998, 70). The LXX and Targum renderings of כְּאֲשֶׁר here employ typically comparative conjunctions. However, there is clearly a

⁴⁷ For other possible bridging contexts along these lines with כְּאֲשֶׁר, see Eccl. 4.17; Neh. 5.6; 6.3.

temporal implicature. In such contexts, a similative (i.e., comparative) conjunction can be reinterpreted as a temporal conjunction when it is comparing the timeframe, point in time, or temporal duration of the verb in the adverbial clause with that of the verb in the main clause.⁴⁸

Perhaps an even clearer case of this bridging context can be seen in the following example.

(35) SIMIL > SIOVER ('as *p*, *q*' > 'when *p*, *q*')

וַיִּזְרַח-לּוֹ הַשֶּׁמֶשׁ כַּאֲשֶׁר עָבַר אֶת-פְּנוּאֵל וְהוּא צֹלַע עַל-יָרְכוּ:

'And the sun rose **as/while** he passed Penuel (and he was limping because of his hip).' (Gen. 32.32; LXX ἡνίκα; Tg.

Onq. כד; Syr. ܕܘܢܝܢ)

Here, the durative process of the sun rising is compared to the durative process of Jacob physically traversing a particular location. This comparison of duration or temporal overlap invites the inference of a temporal relation between the main and adverbial clause. Such uses are bridges between distinctly modal uses, like example (16) above, and temporal uses, like example (18) above. Deutscher (2000, 39) notes the following example illustrating such a bridging context in the history of English *as*.

⁴⁸ Depending on the temporal idea being compared, this can be reinterpreted as a number of different temporal subsenses. For example, comparing temporal duration can facilitate an interpretation of simultaneous coextensiveness, while comparing points in time can facilitate an interpretation of simultaneous overlap. These temporal interpretations, in turn, can have varying propensities for developing subsequent extensions in the CCC domain (see further Locatell 2020).

(36) ‘Thus pleyneþ John as he gooth by the way’ (Canterbury Tales I.4114)

In this example, the temporal duration of John ‘complaining’ is compared with the temporal duration of him ‘going by the way’. This comparison invites a temporal inference that John complained ‘while’ he went by the way. In fact, this is one of the stages in the development of English *as*, which today has comparative, temporal, and also causal meanings.⁴⁹ Such contexts invite a richer semantic interpretation. Such strengthening of informativeness is a type of metonymic extension from MODAL > TEMPORAL (cf. Traugott and König 1991, 207–12).⁵⁰

Another plausible bridging context is from the modal to the CCC semantic space. This can be seen in the following example.

⁴⁹ For example, it has been widely observed that English *as* originally came from the relative pronoun *swá*. This was later reinforced with *all* as *all swá*. Through unitisation and phonological reduction (hallmarks of grammaticalisation), this gradually progressed as follows: *all swá* > *also* > *alse* > *als* > *as*. See Kortmann (1997, 315–19) and Haspelmath and Buchholz (1998, 292–93). In fact, the polysemy pattern of English *as* has considerable overlap with that of כַּאֲשֶׁר (e.g., as comparative, temporal, and causal). Examples from many other languages can be multiplied. In all, the study of Haspelmath and Buchholz is based on 47 different languages. For other cases of this polysemy pattern and pathway of development, see Heberlein (2011, 235–371), and Treis (2017, 133).

⁵⁰ Hetterle (2015, 260–61) also notes the crosslinguistically pervasive occurrence of this polysemy pattern, though she proposes no mechanism for the semantic extension other than citing their “cognitive relatedness.”

(37) SIMIL > CAUSE ('as *p*, *q*' > 'because *p*, *q*')⁵¹

כַּאֲשֶׁר לֹא־שָׁמַעְתָּ בְּקוֹל יְהוָה וְלֹא־עָשִׂיתָ חֲרוֹן־אָפוֹ בְּעַמְלֶק עַל־כֵּן הִדְבַּר
הַיְהוָה עָשָׂה־לְךָ יְהוָה הַיּוֹם הַזֶּה:

'As/because you did not obey the voice of the LORD and did not execute his fierce wrath upon Amalek, therefore the LORD did this thing to you today.' (1 Sam. 28.18; LXX *διότι*; Tg. Neb. -כמא ד-)⁵¹

Here, the disobedience of Saul is compared to, and shown to be commensurate with, the judgment of the LORD. Since disobedience is also presented as the reason for judgment, this invites a richer causal interpretation. In such a context, similative כַּאֲשֶׁר can be reanalysed as a causal conjunction.⁵² The use of עַל־כֵּן reinforces this causal interpretation, since it is commonly used anaphorically to refer back to the causal grounds of the clause it heads (BHRG², §40.38). The LXX clearly reflects this causal reading with the use of *διότι*, whereas the Targum uses the more direct rendering -כמא ד-

5.2. Extension from the Temporal Semantic Space

The major path from the temporal semantic space to the CCC semantic space can also be seen in plausible bridging contexts in

⁵¹ Cf. Num. 27.13–14 and Mic. 3.4. Also see Judg. 1.7; 15.11; 1 Sam. 15.33; Jer. 5.9; Zech. 7.3, in which the sense of כַּאֲשֶׁר is more clearly modal (with כֵּן rather than עַל־כֵּן) and the causal implicature is not quite as strong, but still present.

⁵² For other examples of the relationship between these senses, see Kortmann (1997, 317–18) and Baños (2011, 212–14).

the data of Biblical Hebrew. I will consider by way of illustration the cases of אָשֶׁר, בִּי, and כְּאֲשֶׁר.

(38) ANTE > CAUSE ('q, after p' > 'q, because p')

לֹא יִוָּכַל בְּעֵלְהָ הָרִאשׁוֹן אֲשֶׁר שְׁלַחָהּ לָשׁוּב לְקַחְתָּהּ לְהִיּוֹת לָּוּ לְאִשָּׁה אַחֲרָי
 אֲשֶׁר הַטְּמְאַהּ בִּי־תוֹעֵבָה הוּא לִפְנֵי יְהוָה...

'Her first husband who sent her away will not be able to take her again to be for him a wife, **after/since** she was defiled, for this is an abomination before the LORD...' (Deut. 24.4)⁵³

Here, the temporal relation between the main and adverbial clauses implies a causal relation. That is, 'q, after p' implies 'q, because p'. This is facilitated by the *post hoc ergo propter hoc* inferential process mentioned in the previous section.⁵⁴ This causal implicature is reinforced by the fact that the adverbial clause follows a volitive main clause, which constrains a reading in which the adverbial clause can be construed as the grounds for the main clause volitive. This is further reinforced by the following explicit causal clause. So, there are clear uses of אַחֲרָי אֲשֶׁר with a temporal meaning without a causal implicature, as in example (1); uses with a causal meaning in which a temporal reading is unnatural, as in example (2); and plausible bridging contexts where a temporal use has a causal implicature, as in (38).

A causal implicature can also be seen in the temporal uses of בִּי as in example (23) above, repeated here for convenience.

⁵³ Cf. Josh. 7.8 (LXX ἐπεὶ; Tg. Onq. -בִּתְרֵי ד-).

⁵⁴ See Traugott and König (1991, 194–99).

(39) SIOVER > CAUSE ('when p , q ' > 'because p , q ')⁵⁵

וְכָל־יִשְׂרָאֵל כִּי לֹא־שָׁמַע הַמֶּלֶךְ לָהֶם וַיִּשְׁיבוּ הָעָם אֶת־הַמֶּלֶךְ | לֵאמֹר מַה־לָּנוּ
חֵלֶק בְּדָוִד וְלֹא־נַחֲלָה בְּבִן־יִשִׁי אִישׁ לְאֹהֲלֵיךְ יִשְׂרָאֵל עֲתָה רֵאהּ בֵּיתְךָ דָּוִד
וַיֵּלֶךְ כָּל־יִשְׂרָאֵל לְאֹהֲלָיו:

'And all Israel, **when/because** the king did not listen to them, the people replied to the king saying, "What share do we have in David?" and "We do not have an inheritance in the son of Jesse. Each man to his tent, O Israel. Now see to your own house, David." Then all Israel went to their tents.'
(2 Chron. 10.16; LXX ὄτι)

Here, 'when the king did not listen' implies 'because the king did not listen'. In other words, temporal overlap of the king's action and the people's response clearly implies a causal relationship between them. The king's action is the cause of the people's response. In this case the precise inferential relationship is not *post hoc ergo propter hoc*, as with the anterior sense of אַחֲרֵי אֲשֶׁר above, but rather 'state₁ relevant to state₂' (Traugott and König 1991, 197), which is to say temporal overlap > cause.

In addition to the semantic affinity between time and cause motivating a causal implicature from a temporal meaning, this example also illustrates bridging syntactic features which would facilitate semantic extension. Specifically, the position of the כִּי clause before the main clause fits the preference of temporal uses,⁵⁵ but the use of the *qatal* conjugation, atypical of temporal

⁵⁵ Locatell (2017, 235); Diessel (2001, 466; 2013, 349); Hetterle (2015, 121–27).

כי clauses,⁵⁶ facilitates the invited implicature of causation.⁵⁷ The connection between temporal and causal כי was indeed recognised by Hebraists, such as Schoors (1981, 267), but was thought to be from causal to temporal, apparently based on intuition. This further highlights the heuristic value of semantic maps in predicting bridging contexts and their directionality.⁵⁸

This same sort of bridging context as in example (39) can also be seen within the usage of כְּאֲשֶׁר. Consider the following example.

(40) SIOVER > CAUSE ('when *p*, *q*' > 'because *p*, *q*')

וַיְהִי כְּאֲשֶׁר יָרָא אֶת-בֵּית אָבִיו וְאֶת-אֲנָשֵׁי הָעִיר מַעֲשׂוֹת יוֹמָם וַיַּעַשׂ לַיְלָה:
 'And it came about, **when/because** he feared his father's
 house and the men of the city to do it by day, he did it at
 night.' (Judg. 6.27b; LXX ὥς; Tg. Neb. -מד; Syr. -ג. ܟܥܪܘܢ)⁵⁹

Here, again, the temporal overlap between Gideon's fear of going against the prevailing customs and carrying out his counter-cultural activities by night has a clear causal implicature. This is

⁵⁶ Bandstra (1982, 121; cf. Aejmelaeus 1993, 171–72).

⁵⁷ Causal כי clauses show a clear preference for position after the main clause, but do not show a strong preference for certain conjugations (cf. Bandstra 1982, 415).

⁵⁸ See further Locatell (2020) for a discussion of the following paths of development for temporal כי: anteriority > causation; immediate anteriority > causation; simultaneous overlap > causation; simultaneous overlap > contingency > condition; simultaneous coextensiveness > condition.

⁵⁹ Cf. Neh. 4.1; 5.6; 6.16.

reflected in various ancient versions, which render כַּאֲשֶׁר with forms that are also compatible with a causal reading.⁶⁰

The following example with אֲשֶׁר provides a final illustration of semantic extension from the temporal to the CCC semantic spaces among polysemous adverbial conjunctions in BH.

(41) SIOVER > CONTIN > COND ('when *p*, *q*' > 'in cases when *p*, *q*' > 'if *p*, *q*')
 אֲשֶׁר נָשִׂיא יַחֲטֵא וְעָשָׂה אֶת־אֶת־מִצְוֹת יְהוָה אֱלֹהָיו אֲשֶׁר לֹא־תַעֲשֶׂינָהּ

בְּשִׁגְגָה וְאָשָׁם: אִוְהוֹדֶעַ אֵלָיו חֲטָאתוֹ אֲשֶׁר חָטָא בָּהּ וְהָבִיא אֶת־קָרְבָּנוֹ
 שְׁעִיר עִזִּים זָכָר תָּמִים:

'**When(ever)/if** a leader sins and commits one of the things from all the commands of the LORD his God which ought not to be done, by accident, and is guilty, or his sin in which he sinned is made known to him, then he will bring for his offering a goat, a spotless male.' (Lev. 4.22–23; LXX Ἐὰν; Tg. Onq. אַם;⁶¹ Syr. ܐܝܢ)⁶²

This example illustrates the typologically pervasive mid-point between time and condition—contingency. Here, no specific circumstance in particular is envisioned, but rather a general contingency. In such contexts, a temporal clause in definite time is construed as indefinite time. When this is certain to occur at

⁶⁰ On the causal use of ὡς, see Muraoka (1964) and Cristofaro (1998). In fact, the usage profile of ὡς is very similar to that of כַּאֲשֶׁר and plausibly involves very similar paths of development (Locatell 2021).

⁶¹ A variant reading has דִּי.

⁶² For other possible bridging contexts along these lines, cf. Lev. 6.20; Num. 5.29; Deut. 18.22; Josh. 4.21.

some point, as it seems to be in this case law, it yields a conditional sense. Note the statements in Lev. 4.2 (כִּי), 13 (אם), and 27 (אם) all employ clearly conditional conjunctions parallel with this use of אֲשֶׁר. The casuistic genre of the text reinforces this reading.

5.3. Extension from the Locative Semantic Space

Moving now to the locative semantic space, there was only one semantic extension observed—from place to cause. This was one of the more difficult extensions for which to find plausible bridging contexts, due to the fact that the locative space has the fewest polysemous adverbial conjunctions and to the fact that those it has are relatively rare. Consider the following example, repeated here from (15) for convenience, as an illustration of a possible bridging context.

(42) PLACE > CAUSE ('where p , q ' > 'because p , q ')

אִין שָׂר בֵּית־הַסֵּהר רָאָה אֶת־כָּל־מְאוּמָהּ בְּיָדוֹ בְּאֶשֶׁר יְהוָה אִתּוֹ וְאֲשֶׁר־הוּא
עֲשָׂה יְהוָה מִצְלִיחַ:

'The captain of the prison did not pay attention to anything in his charge, **in that/because** the LORD was with him.'

(Gen. 39.23; LXX δὲ τὸ + infinitive; Tg. Onq. -בד-; Syr. ܐܘܪܘܘܢܐ)⁶³

Here, the extension from place to cause seems to have been facilitated by the metaphor CONTAINMENT > CAUSATION, where being 'within' the situation, as expressed by the adverbial

⁶³ Cf. Eccl. 7.2; 8.3–4; 4Q504 f4.5 = 4Q506 f131–32.11.

clause, is construed as being caused by that situation.⁶⁴ However, here any locative meaning is completely metaphorical rather than concrete, as in the clear case of the locative use of this form in example (14) above. While there is very strong typological evidence for the unidirectionality of extension from place to cause (which has never been observed in the opposite direction),⁶⁵ more and clearer examples would be needed to strengthen the case for this path of change in this particular instance. In light of this, it may be preferable to see the causal use of בְּאַשֶׁר not as an extension of the locative use of בְּאַשֶׁר , but rather as the combination of אַשֶׁר with the causal use of prepositional -בְּ , allowing it to head finite clauses,⁶⁶ a common path of development from preposition to adverbial conjunction.⁶⁷

In the case of the other polysemous locative conjunction, עַל אֲשֶׁר , there is a lack of plausible bridging contexts linking from a locative to causal sense. Additionally, it seems more likely (and simpler) that the causal use developed by licensing עַל as a causal

⁶⁴ A LOCATIVE > CAUSAL path is noted in Kortmann (1997, 193–94) and Heine and Kuteva (2002, 200), but along different lines. Kortmann notes the path: place ‘where p , q ’ > indefinite place ‘wherever p , q ’ > contingency ‘whenever p , q ’, which can then develop into condition ‘if p , q ’. He also notes the path indefinite place ‘wherever p , q ’ > concessive condition ‘even if p , q ’. Heine and Kuteva note the path LOCATIVE > CAUSE with prepositions.

⁶⁵ Kortmann (1997, 178).

⁶⁶ But note the observation by Givón on multiple sources for semantic extension cited above in fn. 45.

⁶⁷ See references cited in fn. 25. For examples of -בְּ as a causal preposition, see Gen. 18.28; Zech. 9.11; Dan. 10.12. See further HALOT (105).

preposition to head finite clauses with the addition of אָשַׁר.⁶⁸ As mentioned above, the polysemy pattern of adverbial conjunctions involving locative and causal senses is universally attested to proceed from the former to the latter. However, in this case the causal sense of the collocation does not seem to have developed from the locative use of the collocation, but from its use as a causal preposition.⁶⁹ Nevertheless, it is important to note that this is still compatible with the observation of unidirectionality from 'locative' to 'causal'. In this case, it simply seems to have occurred at another location on the category continuum presented above in Figure 4.⁷⁰

5.4. Extension within the CCC (Cause, Condition, Concession, etc.) Semantic Space

Coming now to the prototypical goal network in the development of interclausal relations, the CCC semantic space is the most internally complex, with several paths of development between its members. The following examples of אִם and כִּי illustrate several plausible bridging contexts within the CCC semantic

⁶⁸ The fuller construction אָשַׁר עַל-דִּבְרֵי אִשָּׁר was perhaps part of this development (e.g., Deut. 22.24; 23.5; 2 Sam. 13.2).

⁶⁹ This does not seem to have been the case with אִתְּרִי and כִּי, since their prepositional forms do not show a causal sense like that of prepositional עַל. However, as noted above, this may also have been the case with כִּי.

⁷⁰ Additionally, as mentioned with above, עַל has also developed the ability to head finite clauses as a causal conjunction by itself without the help of אָשַׁר. See for example, Gen. 31.20; Ps. 119.136, cited in HALOT (827).

space which accord with the diachronic hypotheses generated using the semantic map presented in §4.0 above.

(43) CONTIN > COND ('whenever p , q ' > 'if p , q ')

וְהָיָה אִם-זָרַע יִשְׂרָאֵל וְעָלָה מִדְיָן וְעַמְלֵק וּבְנֵי-קְדָם וְעָלוּ עֲלֵיו:

'Now, it happened that **whenever/if** Israel would plant seed, then the Midianites and Amalekites and the sons of the East would come up against them.' (Judg. 6.3; LXX ὄταν; Tg. Neb. כַּד; Syr. ܟܕ)

(44) COND > COCOND > CON ('if p , q ' > 'even if p , q ' > 'although p , q ')

וְרָאִיתִי אֶת-כָּל-מַעֲשֵׂה הָאֱלֹהִים כִּי לֹא יוּכַל הָאָדָם לְמַצּוֹא אֶת-הַמַּעֲשֵׂה אֲשֶׁר נַעֲשֶׂה תַּחַת-הַשֶּׁמֶשׁ בְּשׂוֹל אֲשֶׁר יַעֲמַל הָאָדָם לְבַקֵּשׁ וְלֹא יִמְצָא וְגַם אִם-יֹאמֵר הַחֲכָם לְדַעַת לֹא יוּכַל לְמַצּוֹ:

'And I saw every work of God, that man is not able to discover the work which is wrought under the sun. Although man toils to seek it, he will not discover it. And **even if/although** a wise man says he knows, he will not be able to find it.' (Eccl. 8.17)

These examples illustrate typologically common bridging contexts that facilitate the path: contingency > condition > concessive condition > concessive. Beginning with contingency in example (43), the interclausal relationship does not simply state a hypothetical condition. Rather, it presents as actual events an ongoing situation in which Israel's agricultural activity temporally coincided with Midianite campaigns against Israel in a contingent way, such that whenever Israel attempted planting, this would be disrupted. Indefinite time is closely related to condition and crosslinguistically is a common source for it. Thus,

intermediate uses between these senses invite a conditional implicature and are not always easily distinguishable.

Example (44) illustrates the development from conditional to concessive via concessive conditional. Here, conditional ׀ invites the implicature ‘although’. The reason for the semantic affinity between these senses is due to the following elements of conceptual overlap. Conditional relations essentially involve hypothetical causation and thus do not typically entail the reality or certainty of the conditional clause, as in (45). Concessive relations are essentially unrealised or negated causal relations that would otherwise be typically expected and typically do assume the reality of the clauses, as in (46). Thus, in order for a conditional to develop a concessive meaning, it must acquire the implicatures that both clauses are factual and generally incompatible. Therefore, when a conditional conjunction is used in a context where the main clause is explicitly negated or the clauses are thought to be generally incompatible, this yields a concessive conditional interpretation, as in (47). When a concessive conditional relation is used in a context where the clauses are assumed to be factual, this yields a concessive reading, as in (48).⁷¹

(45) If I could easily afford it, I would buy a mansion.

(46) Although I can easily afford it, I would not buy a mansion.

(47) (Even) if I could easily afford it, I would not buy a mansion.

(48) Even if/although I cannot afford it, I would buy a mansion.

⁷¹ See Traugott and König (1991, 202); Kortmann (1997, 160, 199–201); Haspelmath and König (1998); König and Siemund (2000, 343); Hilpert (2005, 69).

These same elements are precisely what is seen with אם in (44). Generally speaking, when a wise man says he knows something, this is expected to be the case. However, this expected causal relation is negated in the main clause, yielding a concessive conditional. This is reinforced by the use of גם . The use of such scalar focus particles is common with concessive conditionals. If this situation is construed as not merely potential, but actual, it yields a concessive interpretation.

(49) COND > COCOND > CON ('if p , q ' > 'even if p , q ' > 'although p , q ')
 'And when you spread your hands, I will hide my eyes from you. **Even if/although** you multiply prayer, I will not listen.' (Isa. 1.15; LXX $\acute{\epsilon}\lambda\alpha$; Syr. ܩܪܝܢ)⁷²

וּבְפָרְשֵׁיכֶם כִּפְיֶיךָ אֶעְלֶימ׃
 כִּי־תִרְבּוּ תַפְלָה אֵינְנִי שֹׁמֵעַ יְדֵיכֶם
 דְּמִים מְלֵאוּ׃

'And when you spread your hands, I will hide my eyes from you. **Even if/although** you multiply prayer, I will not listen.' (Isa. 1.15; LXX $\acute{\epsilon}\lambda\alpha$; Syr. ܩܪܝܢ)⁷²

This same bridging context of concessive condition between condition and concession is also seen in uses of כִּי , illustrated here with example (49). The hypothetical causal relation (i.e., the condition) that prayer will result in favour from God is negated, yielding a concessive conditional reading reinforced by גם . If these statements are construed as true, and not simply hypothetical, then it invites a purely concessive reading, which would be the case especially when the adverbial clause is past-oriented and looking back on actual events. Thus, examples like (49) serve as a mid-point between completely conditional cases, like example (26) above, and completely

⁷² Cf. Hos. 8.10; 9.16; Lam. 3.8.

concessive cases, like (28), where כִּי communicates a concessive meaning by itself without וְגַם.

Less common among the developments within the CCC semantic space is the path from cause to concession, as seen in the following example with כִּי.

- (50) CAUSE > CONCESSION ('because p , q ' > 'although p , q ')
 לֹא-תִירָא אוֹתָם וְלֹא-תִתַּח מִפְּנֵיהֶם כִּי בַיִת-מְרִי הֵמָּה:
 'Do not fear them or be dismayed before them,
because/although they are a rebellious house.' (Ezek.
 3.9b)⁷³

Here, a causal interclausal relation with broad-scope negation can be reinterpreted as a concessive interclausal relation with narrow-scope negation. König and Siemund (2000, 344) provide the following examples showing the mechanism for this reanalysis.⁷⁴

- (51) / The house is no less comfortable because it dispenses with
 AIR-conditioning. /
 (52) / The house is no LESS comfortable / although it dispenses
 with AIR-conditioning. /

In the first utterance, both clauses are spoken as a single tone group with the nuclear accent on 'air'. In this case, the scope of the negator in the main clause extends over the adverbial clause as well. This results in negated causation, which again is conceptually identical to concession. In such contexts, the

⁷³ Cf. Gen. 8.21.

⁷⁴ Cf. Hilpert (2005). Capitalisation indicates the nuclear accent of the tone group delimited by the forward slashes.

adverbial clause is equivalent to a concessive clause, where the scope of negation is confined to the main clause and where each clause is a separate tone group with its own nuclear accent, as in the second utterance. This same bridging context in Ezek. 3.9 provides the means for causal ׀ to invite such a concessive implicature.⁷⁵

5.5. Comparative Support

When available, comparative data on cognate forms in related languages can help confirm and modify (as well as falsify) the hypotheses generated by semantic maps like that presented in §4.0. For example, some of the developmental paths of ׀ and ׀׀ presented above can be considered by way of illustration. So far, only attested uses have been discussed. However, diachronic semantic maps can also generate hypotheses of the sources of attested senses, even when those putatively original uses are themselves unattested in the available data. Consider again the portion of the map filled by ׀. Comparing ׀ to adverbial conjunctions with similar profiles suggests that its temporal use, while arguably the oldest attested use (both on typological and textual grounds⁷⁶), initially arose from an earlier comparative

⁷⁵ For a discussion of the following paths of development for ׀ within the CCC semantic space not treated here, see Locatell (2017, 243–63): COND > COCOND > CONC; CAUSE > PURPOSE/RESULT; CAUSE > CONTRA.

⁷⁶ For example, temporal ׀ is found in the earliest strata of the language in the Archaic Hebrew of Deut. 32.36, which is dated as early as the pre-monarchal period of Israel, ca. eleventh century B.C.E. (Sanders 1996).

use. Indeed, the fact that its cognate in earlier Semitic languages can function as a modal adverbial conjunction (e.g., communicating similarity and manner), such as Akkadian *kī* (CAD K, 319b–20a; Ahw, 469b; GAG, 211) and Ugaritic *k(y)* (DULAT, 418–19), suggests that this is the correct diachronic reconstruction.⁷⁷

A similar observation can be made about כִּי . The fact that it is found marking contingent (i.e., ‘whenever *p*, *q*’) interclausal relations, the prototypical bridge between temporal and conditional uses in the semantic map, suggests that it may have had an earlier use within the definite time senses of the temporal semantic space. Comparative evidence supports this hypothesis. For example, Phoenician כִּי is used in the sense of ‘when’ (Krahmalkov 2001, 266)⁷⁸ and Ugaritic *hn* is used to communicate immediate anteriority ‘as soon as *p*, *q*’ (DULAT 335–36), e.g., KTU 2.87:20. As for the bridge between condition and concession via concessive condition reinforced with a focus particle—this is also seen with Phoenician כִּי כִּי (see Segert 1976, 262).

Semantic maps also have strong implications in the opposite direction, that is in terms of subsequent development. For example, as Kortmann (2001, 849) observes, “The CCC network is always a goal domain of semantic change, with Concession as the absolute endpoint.” That is, concession is consistently a late and terminal point in the development of

⁷⁷ Also see the modal uses of *kī*, alone and with various affixes, in so-called Amarna Canaanite (Rainey 1996, 137–43).

⁷⁸ This sense, however, is not mentioned in Friedrich and Röllig (1999).

interclausal relations (cf. König 1985, 263–64; Haspelmath and König 1998, 620). Therefore, as portrayed in the above semantic map, the concessive use of כִּי is expected to have been a late development relative to the other interclausal relations it is found to communicate. Evidence that this reconstruction is correct comes from the fact that while Akkadian *kī* developed comparative, temporal, causal, and conditional adverbial uses, it did not develop a concessive use (Bandstra 1982, 402–5). A similar situation holds for Ugaritic *k(y)* (DULAT, 417). This all makes typological sense in light of the fact that concession is the endpoint of semantic development within the CCC semantic space. Thus, it is expected to develop late, if at all.

In fact, evidence from Akkadian *kī* is instructive for the whole development from the modal semantic space to the temporal and then CCC, since modal and temporal *kī* already appeared in Old Akkadian, while causal *kī* only appeared in Middle and Late Babylonian (Lipiński 1997, 527; cf. Gelb 1957, 136–37; Hasselbach 2005, 173). Similarly, conditional *kī* only appeared in Late Babylonian (Miller and Ship 1996, 36). This is summarised in the following table.

Table 2: Emergence of adverbial *kī* in Akkadian

Old Akkadian	Middle/Late Babylonian	Late Babylonian
Comparative	Comparative	Comparative
Temporal	Temporal	Temporal
	Causal	Causal
		Conditional

As mentioned above, *kī* in Akkadian never developed a concessive use. This also supports the hypothesis suggested by the diachronic semantic map in Figure 3 that concessive ִּכַּ was the last of its adverbial senses to develop. Cases where such comparative evidence exists to corroborate reconstruction based on diachronic semantic maps suggests that they are relatively reliable, at least for making plausible hypotheses, even when only synchronic data is available. The more robustly attested the grammaticalisation path in a diachronic semantic map, the more plausible the hypotheses it generates. In the case of universally attested and uncontroversially unidirectional grammaticalisation paths, the hypotheses generated by diachronic semantic maps involving such paths constitute strong evidence in their own right.

6.0. Conclusion

This article has attempted to shed some light on adverbial conjunctions in the Hebrew Bible, a relatively understudied word class. The focus has been on polysemous adverbial conjunctions—the conceptual relationship between their different senses, the diachronic organisation of their uses as sources and goals of semantic extension relative to one another, and the inferential processes that facilitated their development. As such, this study has employed diachronic semantic maps in order to generate hypotheses along these lines and test them against corpus data and comparative evidence where available. This has proceeded with the following methodological steps: (1) construct a usage profile of the form(s) in question, (2)

heuristically employ diachronic semantic maps to generate hypotheses about the conceptual and diachronic organisation of uses, (3) test these hypotheses by examining corpus data for plausible bridging contexts, (4) compare these results to comparative data where available.⁷⁹ With this procedure, this study has shown that the usage profile of polysemous adverbial conjunctions in the Hebrew Bible indeed fill a contiguous portion of diachronic semantic maps based on well-documented polysemy patterns and historical developments across many languages, as visualised in Figures 3 and 5 and discussed in §4.0. This hypothesised diachronic organisation was tested in §5.0 by examining the corpus data for bridging contexts of selected paths and analysing them for possible inferential processes responsible for the semantic extensions. In the majority of cases, the hypothesised diachronic developments found strong support in corpus data. Examples of available cognate data were also shown to aid in this analysis, and in this case support the proposed reconstruction. In the case of *בְּאִשֶּׁר*, the hypothesised path was found to be plausible. However, due to relatively sparse data, a mutually compatible (and perhaps more likely) alternate explanation was also offered. In the case of *עַל אֲשֶׁר*, the data did not yield plausible bridging contexts between its locative and causal senses as an adverbial conjunction. Rather, the extension seemed to have already taken place within its function as a preposition.

⁷⁹ There should, of course, be occasional returns to previous steps as hypotheses become refined in the process.

More broadly, the picture that emerges from this study is that diachronic semantic maps, when based on robust cross-linguistic polysemy patterns and directly observable historical developments, generate plausible hypotheses about the conceptual relation and diachronic organisation of the different uses of linguistic forms, in this case adverbial conjunctions in the Hebrew Bible. Even when only relatively synchronic material is available, typologically robust diachronic semantic maps can point to plausible reconstructions of a form's developmental history from earliest use to most recently developed and suggest where to look for the most likely bridging contexts and inferential processes that facilitated semantic extension.

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