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A Phase-Theoretic Approach to Serial Verb Constructions in Semitic

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ABSTRACT

In this paper, we examine Serial Verb Constructions (SVCs) in Semitic from a phase-theoretic perspective. SVCs are constructions where two verbs appear in series and form a single predicate. In Semitic, SVCs are asymmetrical (i.e., one verb is lighter than the other), contiguous (i.e., nothing can come between the two verbs), and exhibit concordant marking (i.e., both verbs share the same inflection). The question we set out to address is what principles predict the emergence of contiguity, cohesion, and concordant marking? To account for these properties from a phase-theoretic perspective, we then examine two derivations. In the first, SVCs have two CPs, one for each serial verb, and a single pro to be shared between them. We demonstrate that this is likely a pre-canonical derivation in that it is still bi-clausal and has a residual position for a coordinator. In the second derivation, there is only one CP. This solution provides an account for asymmetry (i.e., clausal division of labor) and by upholding the monoclausal criterion is canonical. To support our analysis, we draw on illustrative examples from Arabic, Hebrew, and Aramaic, each fully glossed and structurally analyzed. Finally, we argue that each derivation reflects a stage in the development of SVCs; two CPs for pre-canonical SVCs, one CP for canonical ones. We then show that this clause fusion is the reanalysis of dual-CP into single-CP, which by reducing the number of phases per derivation, is a consequence of the principle of economy.

Keywords: Serial Verb Constructions (SVCs); Semitic; Syntax; Economy Principle; Diachrony

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1. Introduction

Serial Verb Constructions SVCs are a diverse set of constructions found in many of the world's languages. They are made up of two or more verbs appearing in series and they supposedly instantiate one event. Serial Verb Constructions (SVCs) are classified along several parameters: symmetry (limitations on verb classes), contiguity (absence of intervening elements), cohesion (unified event interpretation), canonicity (proximity to a prototype), and concordant marking (whether inflection appears on one or both verbs). As we look at Semitic SVCs, our focus will be on asymmetrical, contiguous, concordant marking SVCs as in the following example. Asymmetrical because the first verb *raḥ* is a member of a closed class of verbs while the second verb is a member of an open class of verbs. We know that the following example is asymmetrical also because the first verb contributes only tense-aspectual properties to the event created by the SVC. The following example is also contiguous because nothing intervenes between the two verbs, like negation or an argument. Finally, this example exhibits concordant marking, meaning that both verbs are inflected identically, in this case as perfects.

(1) *samī* *rāḥ* *fataḥ* *l-bab* Saudi Najdi Arabic
sami go.PERF open.PERF the-door
'Sami went (and) opened the door'

Constructions like this are interesting because they involve some of the most basic mechanisms of the Language Faculty FL, namely AGREE and phases (i.e., locality, minimizing computation, and cyclicity). That is, how does AGREE account for concordant marking? How do phases frame the derivation? The purpose of this paper is to examine SVCs in Semitic from a Minimalist perspective in order to formulate and address questions like these.

This study advances ongoing discussions in Semitic syntax by providing a formal derivational analysis of the under-researched typological aspect of serial verb constructions. While previous work has described these for subject behaviour[1,2] or more functional approaches to SVCs, a more formal analysis of SVCs as syntactic structures has not addressed the more formal syntactic architecture of these constructions with frameworks such as phase theory and Multiple Agree. By comparing dual-CP to single-CP derivations and considering potential diachronic evolution, this study proposes a derivational pathway to account for something like *clause fusion*, where this term refers to the structural integration of two verbal predicates into a single clause lacking coordination or subordination in Semitic. This is consistent with a minimalist perspective and can yield specific predictions for how serialization patterns may emerge or fade away across speakers of Semitic. In that sense, it connects formal theory to typological and diachronic interactions.

1.1. Glossing Conventions

In this paper, we adhere to the SBL Academic Transcription. We chose this transcription method over IPA for example for several reasons. First, it is a norm in the literature of Semitic linguistics. That is because it allows for a more phonemic transcription strategy which can set aside phonological phenomena such as bəgadkəpat spirantization to focus on morphology, syntax and semantics. Second, by relying on a more etymological transcription strategy, the SBL method more accurately reflects the phonology of the ancient language where applicable. Third, we rely on the SBL system in order to avoid having to support IPA decisions with phonological arguments. **Table 1** below summarizes the abbreviations used in the gloss lines. These labels are applied consistently across all examples to indicate case, person, number, gender, aspect, tense, and polarity, among other features.

Table 1. Glossing Abbreviations.

ACC	**Accusative**	**NEG**	**Negation**
PERF	Perfective	M	Masculine
IMPF	Imperfective	IND	Indicative
S	Singular	F	Feminine
PST	Past	P	Plural
APRT	Active Participle	IMPV	Imperative

1.2. Data Sources and Selection Criteria

In this study, we utilize a theory-driven approach by using data from published sources, specifically descriptive grammars, annotated corpora, and peer-reviewed studies of Semitic languages. The languages included in this study are Saudi Najdi Arabic, Jordanian Arabic, Biblical Hebrew, Biblical Aramaic, Old Aramaic, and Canaanite Akkadian. The examples were chosen because they represented the most basic properties describing SVCs: asymmetry, verb contiguity, and finally concordant inflection. Our intent was not to create a statistically exhaustive corpus, but instead to describe and analyze SVCs that exhibit the same patterns in use within the Semitic family. The data is drawn from accessible sources, including but not limited to the Hebrew Bible and Peshitta, as well as studies on modern dialects and papers reflecting typological considerations [1–3]. There was no fieldwork or elicitation; we did not design any new original datasets for this study.

In this section, we introduce the paper. Section 2 discusses our cross-linguistic approach to SVCs, including diagnostic criteria and prototypes, how we situate our study among other constructions involving more than one verb, and introduces some key concepts like cohesion and symmetry. In Section 3, we look more closely at SVCs in Semitic, providing examples from a variety of Semitic languages to demonstrate general patterns. Next, we introduce a Minimalist perspective in Section 4 in order to formulate questions on the nature of SVCs in Semitic. In Section 5, we address the questions from the previous section. Finally, we conclude in Section 6.

2. Methodology

This research utilizes a comparative and corpus-based approach to discover and study SVCs in Semitic languages. This encompasses naturally occurring verb sequences marked by multiple verbs that meet the criteria for an SVC. The data for this study includes sources from conversational corpora, historical texts, and descriptive studies, which affords this study an empirical aspect. We list what languages we surveyed, what data we sampled, and how we glossed the data.

2.1. SVCs Cross-Linguistically

Aikhenvald and Dixon [4] view verb serialization as a linguistic phenomenon in which multiple verbs or verb phrases occur as a single entity. That is, the most salient feature of an SVC is that its constituent verbs express causally-related events, representing closely connected actions interpreted as a single complex event [5,6]. Whether or not the SVC can be interpreted as a single event is known as cohesion, and this is an important variable along which SVCs vary. For example, in (2), the SVC is interpreted as two sub-events in one complex event, resulting in a less cohesive structure. That is compared with (1) where the two verbs are interpreted as forming a single predicate.

(2) *Bọ́lá sè ẹran tà* — Baker [7]; Lord [8]
Bola cook meat sell — Yoruba
'Bola cooked some meat and sold it.'

2.2. Diagnostic Criteria

Aikhenvald and Dixon [4] list the following characteristics as SVC diagnostic criteria. For the purposes of this paper, we will adopt Aikhenvald and Dixon's criteria as our central set which we supplement with Muysken et al. [9] and Durie [10]. The examples in this study are drawn from a combination of primary texts, descriptive grammars, and published corpora: Biblical Hebrew data is taken from the Hebrew Bible, based on the Masoretic Text and glossing conventions from Waltke and O'Connor [11]; Aramaic data comes from standard sources such as Greenspahn [12] and Fassberg [13]; Syriac examples are pulled from the Peshitta [4], the standard Syriac version of the Old and New Testaments; Canaano-Akkadian structures are adapted from Rainey [14]; and Najdi Arabic examples derive from naturally occurring spoken data recorded by the authors and supported by Ingham [15] and Prochazka [16]. For this reason, we name each of these criteria for ease of reference and exposition.

(a) SVCs consist of two or more verbs in series each of which could function as the sole verb. We can call this the multi-verb criterion.

(b) In SVCs, there is no linking of any kind (e.g. coordination, subordination) between the two verbs; the prohibition on linking criterion.
(c) SVCs comprise a single predicate, i.e., they are monoclausal; the monoclausal criterion.
(d) The whole SVC has a single transitive value; the single transitivity criterion.
(e) The two verbs share an argument; the argument sharing criterion.
(f) The SVC instantiates a single event; the cohesiveness criterion.

2.3. Prototypes and Canonicity

The diagnostic criteria discussed previously created a foundation to make comparisons between SVCs on the basis of canonicity. We categorize SVCs according to proximity to a prototypical pattern. A prototypical (or canonical) SVC is one that satisfies all the diagnostic criteria for SVCs, while a less prototypical (or non-canonical) SVC violates one or more of the criteria. Since we use the idea of prototype based on variation of SVCs fitting these diagnostic criteria the more criteria, including, an SVC satisfies, the more canonical it is. Based on our developing criteria, constructions that satisfy some of the criteria are positioned more peripherally or are considered a non-canonical example of an SVC.

It is important to note that we believe synchronic variation in canonicity has diachronic significance. Non-canonical SVCs can signify either a new stage emerging or a stage eroding from the prototype. Following the dynamic interpretation of synchrony [1,17], we treat a pre-canonical SVC as a structure moving towards the fully canonical prototype, while post-canonical SVCs recede from the prototype. This notion ties in neatly with Andrason's [1,17] assertion that synchronic variants of SVCs may often correspond to different levels of historical recency (i.e., dynamization of the prototype). For instance, English imperatives, such as *Come eat*! or infinitival sequences, such as *I'll go eat* are sometimes described as serial-like constructions. However, as these sequences are necessarily embedded syntactically only in very specific contexts (e.g., commands or purposive infinitives) and naturally allow for residual coordination *Come and eat* at best, we classify them as non-canonical SVCs. Prototype SVCs, on the opposite side of the continuum, are fully monoclausal generalization across all contexts [5]. What follows starts to address some of the differences that set canonical SVCs apart from multi-verb constructions but also focuses on core properties regarding canonical SVCs found cross-linguistically.

2.4. Symmetry and Asymmetry

A further important parameter in SVC typology is symmetry. Cross-linguistic surveys have found that if a language contains SVCs, it will have asymmetrical SVCs (and possibly symmetrical SVCs as well). Asymmetrical and symmetrical SVCs refer to the relative semantic and syntactic weight of the verbs comprising the construction. With an asymmetrical SVC, the two verbs in the SVC are from different lexical classes, and one of the verbs, the one so-called the minor verb, is from a semantically limited or *light* class (e.g. motion verbs, postural verbs, aspect verbs, etc.), while the second verb, a major verb, in the SVC is from an open class and has full lexical meaning. The minor verb tends to contribute grammatical or aspectual information to the verb phrase (e.g. encoding direction or inception), while the major verb contributes the main event content. Symmetrical SVCs refer to cases in which both verbs in the SVC are from an open lexical class, with significant lexical meaning. In a symmetrical SVC, the two verbs are sufficiently equal in status, if both verbs are classified as open lexical class members, while neither is called a "light" verb from a closed class.

Typologically, asymmetrical SVCs are much more common; many languages that have SVC constructions do not even have the symmetrical type. This generalization is exemplified in Semitic; as discussed in Section 3 Semitic SVCs are overwhelmingly asymmetrical. Generally, Semitic SVCs include a minor verb, derived from a small set of verbs (e.g. verbs meaning *go*, *rise*, *begin*, etc.) followed by a major verb derived from the general verbal lexicon. This asymmetry that characterizes Semitic SVCs may align with a division of labor in which the first verb in the SVC encodes tense, aspect, or aktionsart, while the second verb carries the primary lexical semantics. The symmetry/asymmetry distinction offers another means to characterize SVCs besides the prototype-based canonicity scale in the previous section.

2.5. Distinction from Compound Verbs and Multi-Verb Constructions

Now that we have laid out internal properties of SVCs, we now turn to clarify how SVCs are understood as distinct from other multi-verb constructions—either in Semitic or in the typological literature. By definition, an SVC is a sequence of verbs that behaves like a single clause. That is, the verbs occur in sequence without any overt linking (no conjunctions, no subordination) and together express a single event. A consequence of this definition is that several other types of multi-verb combinations—compound verbs, auxiliary constructions, or coordinated verbs—do not meet the criteria of an SVC. We will utilize Multi-Verb Construction (MVC) as an umbrella term referring to any construction that contains more than one verb in a clause. SVCs form a distinct subtype of MVC, marked by strict structural and interpretive restrictions.

One clear distinction relates to contiguity and the linking of clauses. In SVCs, each verb must be linear (appear next to one another) with no grammatical material intervening (e.g., no subjects or objects between the verbs), and no overt linker/complementizer linking them. In other (MVC) constructions, such as verb-verb compounds or periphrastic constructions, may allow for additional grammatical elements to interrupt the verb sequence or linkers.

(3) *ʿaḥada* *ʾalī* *ya-drus-u* MSA
start.PERF.3MS Ali 3MS-study.IMPF-IND Altakhaineh and Zibin [2]
'Ali started studying'

In this instance, an intervening *ʾAlī* occurs between the two verbs, which violates the contiguity condition that characterizes SVCs. According to Altakhaineh and Zibin, this sequence is more appropriately parsed as a compound predicate rather than serial, given that the verb *ʿaḥada* is acting as a light verb or auxiliary. In contrast, genuine serial constructions in Jordanian Arabic do not permit an intervening NP or any intervening grammatical element between the two verbs, only fully contiguous sequences are allowed. This insistence on surface contiguity resonates with earlier typological claims [5,10] that serial verbs are formed as a single predicate string, without any coordinating or subordinating elements.

2.6. Key Properties: Contiguity and Concordant Marking

Two interconnected properties—contiguity and concordant marking—form the basis of canonical serial verbs. We will now take a closer look at each of these characteristics of SVCs one at a time and think about how they play out in the Semitic context.

Contiguity, as the name suggests, refers to the requirement for verbs in an SVC to occur at an absolute minimum next to each other without any words or morphemes separating them. Typically SVCs are an unbroken string or sequence of verbs that occur together as a single predicate. That is, there can be no intervening subjects, objects, or even negations in the middle of V1–V2. Contiguity is the hallmark of SVCs: serial verbs are sequentially predicated without some explicit connector, a fact underscored in both general and Semitic studies. In other words, SVCs do not have coordinating conjunctions linking the verbs together (as you would find in a conjunction) and nothing can come between the verbs, or it will no longer be a serial verb construction. Durie and Aikhenvald both state that in their studies, contiguity is a symmetry criterion for establishing whether the construction is a serial verb construction. Contiguity also serves an important semantic function, as it reinforces the interpretation of the verbs as comprising one event: the sequence of events reflects an event structure of one. The example from Saudi Najdi Arabic, in (1), *samī rāḥ fataḥ l-bāb* 'Sami went and opened the door', illustrates contiguity since there is no intervening element between the verbs *rāḥ* and *fataḥ*, which further underscores their integration as a single clause.

Concordant marking, which is also referred to as concordant inflection, represents the second main feature of canonical SVCs. Concordant marking means that the verbs in the serial construction of canonical SVCs have the same inflectional properties, which means that all of the verbs in canonical SVCs will inflect to show the same tense, aspect, mood, polarity, and person/number marking. In an perfect example of a SVC that is canonical, each verb would be inflected in identical ways, meaning the serial verbs are com-

pletely congruent in terms of grammatical categories. This congruence is informative to the reader or listener because it emphasizes the unitary nature of the construction itself: the verbs share one tense-aspect setting, and the verbs share one agreement domain. So, if the first verb in the SVC is inflected for perfective aspect, or for the past tense, the following verb(s) in the SVC will also be found in the form of perfective/past. In the Najdi Arabic example (1) above, both *rāḥ 'went/walked'* and *fataḥ 'opened'* are inflected in the perfective aspect (third masculine singular), demonstrating concordant marking, for instance. We see similar sets of inflection in the other Semitic examples of SVCs provided above; for instance, in the Jordanian Arabic SVC *ali gām waggaf* 'Ali rose and stood up' in example (4), we see parallel inflection in *gām* 'rise' and *waggaf* 'stand (stop)' where both verbs appear in the perfective inflection.

(4) *ali* *gām* *waggaf* Jordanian Arabic
Ali arise.PERF stand.PERF Altakhaineh and Zibin [2]
'Ali rose (and) stood up'

Even in Biblical Hebrew or Old Aramaic, verbs in a serial-construct type of construction usually are in the same mood and inflection; for example, two imperatives (as in Biblical Hebrew *lek-rēd* "go (IMPV)-descend (IMPV)") function as deictic instruction. This case shows how concordant marking works across languages. When verbs are mixed inflectional forms, as in (3) above perfect and imperfect). Therefore, concordant marking is strong evidence for true serialization since it makes two verbs which resemble two verbs syntactically and semantically a single unit, framed by the same inflection. In a sense, **contiguity** and **concordant marking** contrive to further explain that SVCs are monoclausal: the verbs are glued together with no internal boundary, housed in the same matrix of inflection. We will return to these traits in Section 5 when we analyze how the phase-theoretic syntax derives contiguity and concordant inflection in Semitic SVCs.

3. SVCs in Semitic

Of the wide variety of SVCs attested in natural language, Semitic exhibits a relatively small subset. In general, Semitic SVCs are asymmetrical, contiguous, and exhibit concordant marking. Being asymmetrical, Semitic SVCs consist of a minor verb and a major verb; the minor verb is drawn from a restricted class and the major verb from an open (or at least less restricted) class. The following is a sample of Semitic languages and the minor verbs available. These minor verbs can be classified into several types: motion, posture, state, activity, giving-taking, and opening/starting, as shown in **Table 2**.

Table 2. Class of verbs used in first position [1].

Canaano-Akkadian	***alāku* 'go'**
Ugaritic	hlk 'go', ndd 'hurry', ṯwb 'return', ytb 'sit down', qwm/nšʿ 'rise, stand up, go up', w/ydʿ 'know, be able', ḫws 'hasten', bky 'cry, weep'
Biblical Hebrew	*hlk* 'go', *qwm* 'rise', *šwb* 'return', *ysp* 'add/increase' *mhr* 'hurry', *nśʿ* 'rise, stand up, go up', *ntn* 'give', *rwm* 'lift up', *rbh* 'be many', *yʾl* 'be willing' *sbb* 'surround, turn', *ḥll* 'open, start' and *ykl* 'be able'
Biblical Aramaic	th 'come', qrb 'approach', ʿll 'enter', ʿzl 'go' npq 'go/come out', qwm 'rise, stand up', npl 'fall', nšʿ 'lift, take', twb 'bring back', šlḥ 'send' bns 'to be angry', rbh 'to be(come) big(ger)'

In the remainder of this section, we examine several subsets of SVCs in Semitic. The first subset we examine has *gām* as the minor verb. These constructions seem to uphold many of the SVC diagnostic criteria. In the following examples (5–8), the minor verb *gām* is drawn from a restricted class of posture verbs making the following asymmetrical SVCs.

(5) ʿomar *gām* *waggaf* Jordanian Arabic
Omar arise.PERF stand.PERF Altakhaineh and Zibin [2]
'Omar rose (and) stood up'

(6) *ali gām ḥaka fi l-lēl* Jordanian Arabic
Ali arise.PERF talk.PERF in the-night Altakhaineh and Zibin [2]
'Ali rose (and) talked in the night'

(7) *l-walad gām lʾab kurah* Saudi Najdi Arabic
the-boy arise.PERF play.PERF soccer
'The boy rose (and) played soccer'

(8) *l-ṭālib gām ktəb ʾala es-sbūra* Saudi Najdi Arabic
the-student. arise.PERF write.PERF on the-board
'The student rose (and) wrote on the board'

There are multiple verbs in series, there is no linking, each SVC has a single transitive value, shares arguments, instantiates a single event, and is all contiguous. In the next subset, SVCs are built with the verb 'go' as in the following examples (9–12).

(9) *wafa raḥ-at ktəb-at al-waǧib* Saudi Najdi Arabic
wafa go.PERF-FS write.PERF-FS the-homework
Wafa went (and) wrote the assignment'

(10) *way-yōʾmer ʾ ēlāy-w YHWH lek-rēd* Biblical Hebrew
and-said to-him YHWH go.IMPV-descend.IMPV Ex. 19:24
'So the Lord said to him, "Go down..." ' JPS

(11) *a-lik-mi i-zi-iz a-na URU Šu-mu-ur* Canaano-Akkadian
'Go and stay in Šumur...'

(12) *w-lk-w rʿ-w pʿlt ʿlhn* Old Aramaic
and-go.IMPV-2MP see.IMPV-2MP works (of) the gods KAI 312:5
'Now come see the works of the gods' Locatell [3]

Like the examples with gām, these SVCs exhibit concordant marking, i.e., both verbs are marked identically. That is, either PERF PERF in Example (8) or IMPV IMPV for the others. The question emerges however how concordant marking is derived so that the SVC remains monoclausal. If inflection is in or around the CP domain, how can one CP domain value two targets, and how or why must the values be identical? We will look into this in Section 5. In that vein, the following example challenges the monoclausal criterion because there are two waw-consecutive markers, each necessarily occupying a C head. This must be the case because each waw-consecutive occupies a & head within its own CP domain.

(13) *wat-tēlek wat-təmallēʾ ʻet-ha-ḥēmet mayim* Biblical Hebre
WAW-3FS.go.PST WAW-3FS.fill.PST ACC-the-skin water Gen. 21:19
'She went and filled the skin with water' JPS

Here it is unclear whether the *prohibition on linking criterion* is violated or not, or if the *waw-consecutive* has any coordinative features. For that reason, the uncertainty implies this example is non-canonical. More precisely, as Andrason [1] points out, SVCs in Semitic tend to develop out of pseudo-coordinative structures like this one.

Another minor verb used in Semitic is *qdm* 'go before'. SVCs with this minor verb are interesting because, as expected of asymmetrical SVCs, the minor verb later grammaticalizes into Neo-Aramaic *qam*, a tense-aspectual marker used to model the perfective. In (15), upholding the *single negator criterion*, negation has scope over the entire SVC.

(14) *wa-b-ṣapr-ā* *qaddem* *qām* *ṭāb* Peshitta Syriac
and-in-morning-the go.before.PERF arise.PERF well Mark 1:35a
'and in the morning he arose long before (day)...' Etheridge [18]

(15) *qaddem-n* *ʾemmar-n* *lə-kon* Peshitta Syriac
go.before.PERF-1CP say.PERF-1CP to-you 1 Thess. 3:4
'We told you before...' Etheridge [18]

(16) *lā* *tə-qaddəm-on* *t-īṣp-on* Peshitta Syriac
NEG 2-go.before.IMPF-MP 2-be.anxious.IMPF-MP Mark 13:11b
'be not previously anxious...' Etheridge [18]

From (16) it is also evident that serialization extends into the DP. The diagnostic criteria which previous examples uphold are similarly upheld here, with the exception of the *multi-verb criterion*. That is, in the following example, both elements of the construction are marked as active participles.

(17) *mə-qaddəm-īn* *mə-yaqr-īn* *ḥad lə-ḥad* Peshitta Syriac
APRT-go.before-MP APRT-be.honorable-MP one to-one Romans 12:10
'being forward to honour one another…' Etheridge [18]

4. Minimalist Perspective

While previous research on SVCs has used type or functionalist frameworks (i.e., Construction Grammar or event-structure analysis [5,6], these frameworks simply describe the patterns without offering any direct derivational mechanisms. On the other hand, this study gains the advantage of using a phase-theoretic framework, within Minimalist syntax, to model how the structural properties of SVCs (contiguity, concordant marking, and clause fusion) arise derivationally. We are interested in modelling SVCs in a way that not only accounts for synchronic patterns, but that explains the diachronic push from pseudo-coordination to monoclausal serialization in Semitic. In our data, this raises several questions, and we will account for these questions from a Minimalist perspective. That is, what principles predict the emergence of contiguity, cohesion, and concordant marking?

A Minimalist perspective is founded on the Strong Minimalist Thesis SMT, that "linguistic expressions are the optimal realizations of the interface conditions" [19], p. 171 and [20]. That is, interfaces with other components of the Language Faculty FL; a lexicon, Universal Grammar (i.e., MERGE), a Conceptual-Intentional System (i.e., the semantics) and a Sensorimotor System (i.e., the phonology). To meet interface conditions, syntactic structures must be interpretable to each of the components of the FL [19]. At the interface to the semantics, structures are interpreted in Logical Form, LF and at the interface to the phonology, structures are interpreted in Phonetic Form, PF [19]. This model of the language faculty is schematically represented in the Y-Model (see **Figure 1**).

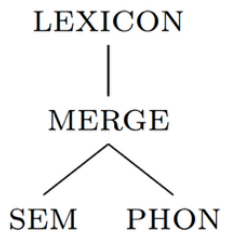

Figure 1. Y-Model of the Language Faculty [19].

In accordance with standard Minimalist assumptions, syntactic structures are derived through External and Internal Merge [21,22], which first create hierarchical relations that are subsequently interpreted at LF and PF [20,22]. When material from the lexicon appears in a tree, it undergoes External MERGE, and when material moves from one position to another, it undergoes Internal MERGE [22].

The structures created by MERGE are characterized by a series of domains, namely CP, TP, and VP. Each domain is responsible for a set of computational tasks, i.e., discourse or clause-level concerns in the CP, grammatical concerns or tense, mood, and aspect in the TP, and argument structure

or agent, theme, causer, experiencer in the VP. These regions ultimately reflect a hierarchy of possibly pre-linguistic semantic categories that span the scales of syntactic construction, i.e., from the fine structure of each region to the clausal spine as a whole.

We adopt the Agree mechanism[21] to account for concordant marking in Semitic SVCs, where T-related features (tense, person, number) are shared across verbs within a single derivational domain (see Section 3, examples 6–9). These relations are defined by the interaction of elements' features in the derivation. Features inherent to the element are interpretable and features that require saturation are uninterpretable until they are valued (saturated) at which point they become essentially interpretable. To establish a relation between two elements in the derivation, a uninterpretable probing feature P searches within its accessible domain for a matching interpretable feature, G. At transfer, G then values P making both probe and goal interpretable. This is AGREE by Probe-Goal[21], et seq. In other words, adopting Zeijlstra's[23], p. 514 proposal, α agrees with β iff: (a) α carries at least one uninterpretable feature and β carries a matching interpretable feature, (b) β c-commands α, and (c) β is the closest goal to α.

As a biological system, there are three factors that enter into the design of the FL[20]: *genetic endowment*, *external stimulus*, and *universal law*. The genetic component is for all intents and purposes identical species-wide; it consists of a Universal Grammar UG, which due to its relatively short period of evolutionary development, is necessarily minimal. External stimulus provides the material assigned an arbitrary linguistic value in the Saussurean sense; it is the origin of language variation. Finally universal law consists of the principles that constrain and determine the design of any system, e.g. *economy* (including minimization and optimization) and *resource restriction* (including locality and inaccessibility conditions). An integral consequence of these third-factor principles within FL, is the *phase*.

Phase

A conspiracy of three linguistic phenomena:

> *Locality*, i.e., "what superficially appear to be long-distance relations decompose into more local ones"[24],
>
> *Minimizing Computation*, the reflexive optimization of the use of resources (a third factor principle), and
>
> *Cyclicity*, i.e., "the properties of larger linguistic units depend on the properties of their parts"[24]

which defines the boundaries of three regions (*phases*) of a syntactic derivation: from the beginning of the derivation to v*, from above v* to C, and whatever remains when the derivation terminates.

As a consequence of resource restriction, once the phase is completed, its complement becomes inaccessible. This is known as the *Phase Impenetrability Condition*:

> *Phase Impenetrability Condition, PIC* "In phase α with head H, the domain of H is not accessible to operations outside α; only H and its edge are accessible to such operations"[21], p. 108.

This discussion of these derivational mechanisms is not for their own sake but to help understand the tightly integrated nature of Semitic SVCs. The phase-based model captures the features of contiguity, concordant inflection, and modal unity that emerge in cross-linguistic data in Section 3. A key mechanism in the derivation of linguistic expressions that helps to define these phasal boundaries is Feature Inheritance, a mechanism "whereby uninterpretable features are passed down from the phase head [v* or C] to its complement"[25]. These theoretical tools—Merge, Agree, and Phase Theory— are not utilized as a mechanism but as a way to explain sequences and features shared between verbs in Semitic SVCs. We return to the data in the next section to show how these conceptualizations allow us to syntactically derive properties of SVCs and model diachronic change from pseudo-coordination into monoclausal serialization.

5. Derivation of SVCs

With a quick primer on the framework, we turn now to the derivation of SVCs. In this section, we present two derivations (dual versus single CP), each representing a stage in the development of SVCs. First, we interpret *concordant marking* to be the result of two CPs and one little *pro* shared between the two. In other words, the little *pro* is base- generated low in the VP, then via successive cyclic movement is merged through both verbal projections to a higher position.

For example, we argue that Example (14) is derived in the following tree. Note that vP is omitted for the sake of space, but should be present—with vP there would in fact be four phases in **Figure 2** below.

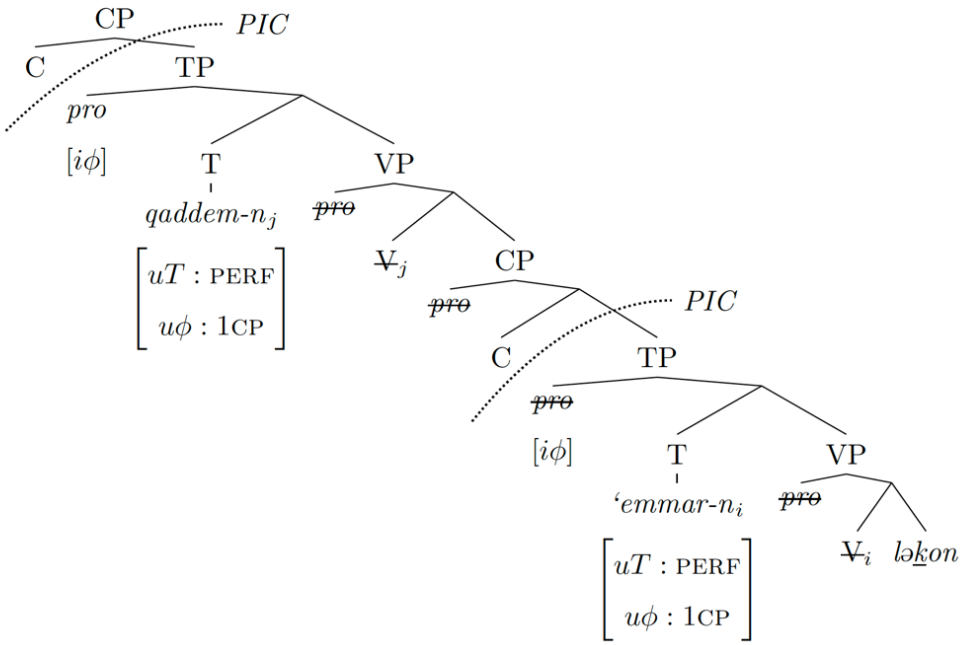

Figure 2. Syriac example—two CPs.

Verbs are base-generated in their own VPs then move to TP to acquire tense features, originally supplied by C. The little *pro* moves up the structure through the specifiers of each projection, passing through the phase head's specifier in order to escape the phasal complement. That is, given that the PIC takes effect as soon as the entire phase is built, the little *pro* first moves to the specifier of TP then to that of CP, the edge of the phase where it escapes the phasal complement, narrowly avoiding becoming inaccessible.

The little *pro* being shared by both CPs ensures that each verb in the SVC is inflected identically. In the diagrams we have outlined, we have not drawn vP for the sake of space, but it should be assumed that these projections do in fact play a role in these derivations. As for contiguity, because little *pro* occupies all the specifiers between the two verbs, the only element that could intervene would be a complementizer. If this is residue from a coordinator, the structure would be pseudo-coordinative. Another indication that there are two CPs can be seen in imperative SVCs. Here, verbs take one more step up the structure to value a clause-level imperative force feature, as illustrated in **Figure 3**.

As mentioned above, another indication that there are two CPs is the attestation of *waw-consecutive* SVCs, i.e., where the SVC constituent verbs are both marked with *waw-consecutive*. As before, little *pro* is shared between the two verbs, moving up the structure through specifier positions. In this case, however, because *waw-consecutive* structures are verb-first, Cowper and DeCaen argue that the verb moves to Force to realize what they call a [THEN] feature [26]. In fact, Hebrew is classified typologically as a VSO language precisely because the abundant *waw-consecutive* structures are V1 (see **Figure 4**).

These derivations address concordant marking and contiguity, but most crucially, the monoclausal criterion is violated, drawing into question the cohesiveness criterion as well. We interpret this to mean that these derivations, being pseudo-coordinative, are pre-canonical.

Next, we examine a single-CP derivation where the minor verb is analyzed as a light verb following Andrason's [1,17] observation that the minor verb is restricted to a closed class of verbs as seen in **Table 1**. Being a light verb which contributes aspectual features to the SVC, we analyze the light verb as being base-generated in an AspP. The light verb in the following example contributes an inchoative feature to the SVC; that is, *qaddem-n* 'we went before' influences the following verb to entail anteriority or incipience. The major

verb on the other hand, is base-generated in VP and then moves up to little vP. Little pro still moves up through the structure from its VP-internal base-generated position to the specifier of TP and C hands down its uninterpretable tense and phi features to T.

Essentially, the SVC transforms from a multiple-CP derivation to a single-CP derivation; from four phases to two, the first verb is initially interpreted as full, projecting its own CP, but is eventually interpreted as a minor, light verb, heading an AspP (see **Figure 5**).

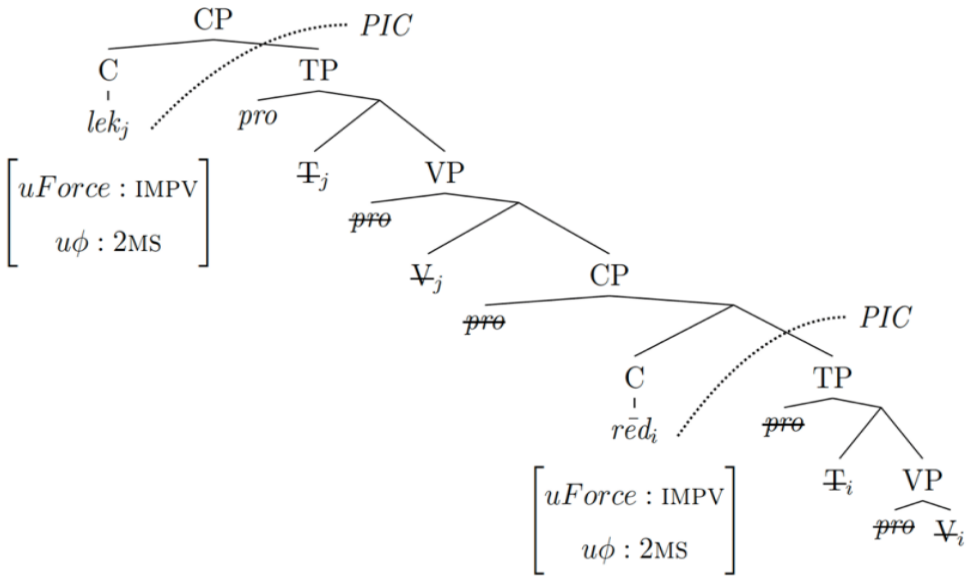

Figure 3. Biblical Hebrew imperative example.

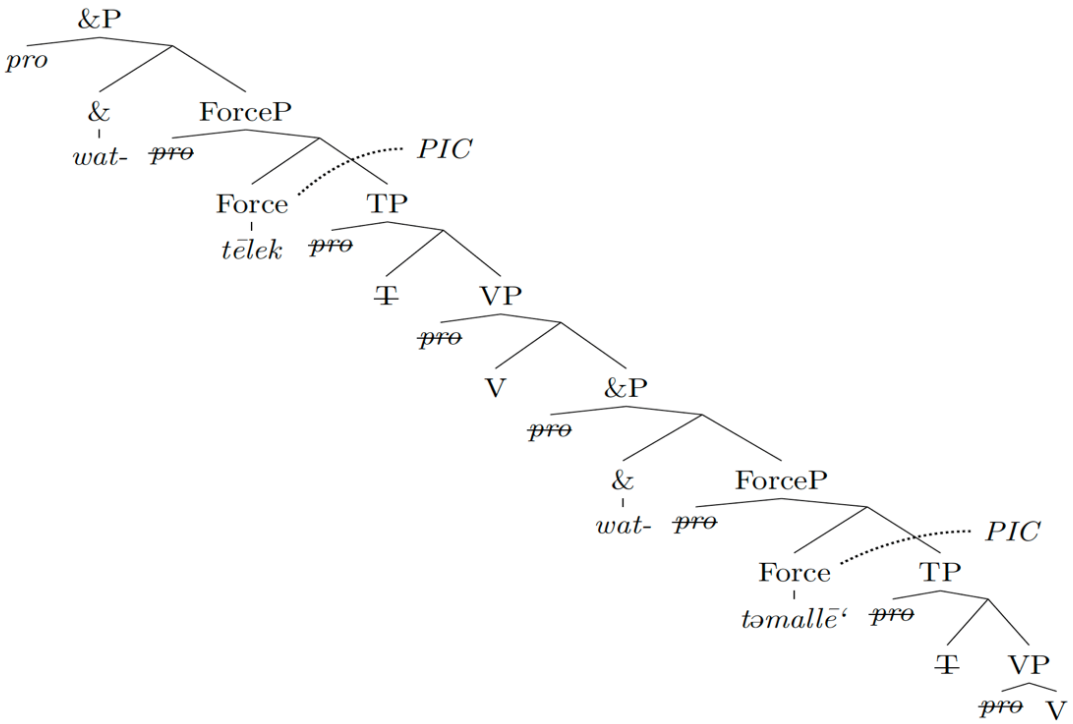

Figure 4. Biblical Hebrew waw-consecutive example.

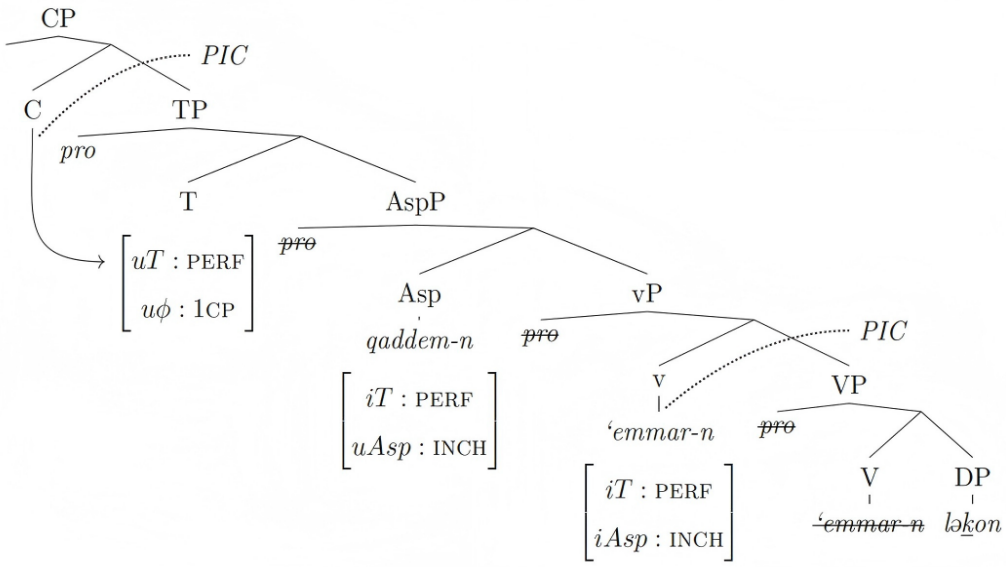

Figure 5. SVC with one CP, two phases.

One problem in this derivation, one which was introduced in Section 1, is how both verbs can be inflected identically. That is, in terms of Agree, the T probe must match and value two goals, *qaddem-n* and *emmar-n*. Furthermore, while both verbs are inflected identically, the minor verb is shown to contribute different features to the complex as a whole. That is, *qaddem-n* contributes an inchoative feature to the complex, casting the SVC further into the past, i.e., 'we told you beforehand,' while *emmar-n*, being the major verb, does not independently contribute aspectual features to the complex. To resolve the first part of this problem, we propose an account following Hiraiwa et al.'s Multiple Agree mechanism[27].

> Multiple Agree (multiple feature checking) with a single probe is a single simultaneous syntactic operation; agree applies to all the matched goals at the same derivational point derivationally simultaneously[27].

As for the second part of the problem, i.e., *qaddem-n* introduces an inchoative feature to the complex, but nevertheless has an uninterpretable aspect feature. Ultimately the question is where the uninterpretable feature is located with respect to the interpretable feature. This remains an open question best suited for future work.

This derivation upholds the monoclausal criterion, and as the construction forms a single predicate, the CP must divide labor between the two serial verbs, thereby accounting for asymmetry. These two derivations, one versus two CPs, can be interpreted as two stages in the development of SVCs. That is, Andrason[1,17] argues from a dynamization of synchrony perspective that SVCs in Semitic follow a predictable path of development. To illustrate this, he points out that the class of verbs from which minor verbs are drawn grows, from one possible minor verb in Canaanite-Akkadian to over a dozen in Biblical Hebrew and Aramaic. He argues that SVCs in Semitic change from pre- to con- to post-canonical, from less cohesive pseudo-coordinative patterns to prototypical ones. Along this path, SVCs undergo what Andrason calls clause fusion, but he does not examine how clause fusion works derivationally. We propose that clause fusion is the result of SVCs being reanalyzed from two CPs to one. With this proposal, the problems of the two CP analyses are expected. That is, while concordant marking is addressed by two CPs, the monoclausal criterion is violated. If dual-CP SVCs are in fact pre-canonical, a pseudo-coordinative structure (i.e., with a residual position available for a coordinator) is expected. Furthermore, because the reanalysis yielding clause fusion reduces the number of phases in the derivation, the change from pre-canonical dual-CP pseudo-coordinative structures to canonical single-CP SVCs is predicted by the third factor principle of economy. This, of course, assumes that economic concerns the phase quantity, not phase size, perhaps two strategies for the same optimal solution to interface conditions.

6. Conclusion

In this paper, we have examined the composition, classification, and derivation of SVCs in Semitic from a Minimalist phase-theoretic perspective. We first outlined three sets of *diagnostic criteria* for identifying SVCs cross-linguistically. These criteria can be summarized as follows: there must be two or more verbs in series, the *multi-verb criterion*, there must not be any form of linking between the SVC constituent verbs, the *prohibition on linking criterion*, there must be a single predicate, the *monoclausal criterion*, the SVC as a whole has a single transitive value, the *single transitivity criterion*, the two serial verbs must share their arguments, the *argument sharing criterion*, SVCs instantiate a single event, the *cohesiveness criterion*, and there must be only one negator for the whole SVC, the *single negator criterion*. Some other SVC properties include symmetry (i.e., the relative restriction on verb classes from which each serial verb may draw), concordant marking (i.e., both serial verbs are inflected identically), and contiguity (i.e., whether or not any element may intervene between serial verbs). We then provided examples of SVCs in Semitic languages and noted that SVCs in Semitic are asymmetrical, contiguous, and exhibit concord marking.

To support this analysis, we expanded the range of examples to include additional Semitic languages and clarified the sources from which they were drawn. We also provided structural representations (**Figures 2–5**) to highlight the derivational contrasts between pseudo-coordination and monoclausal serialization. Moreover, key terms such as "clause fusion," "pseudo-coordination," and "economy principle" were clarified to enhance conceptual clarity and alignment with cross-linguistic typologies.

To account for these properties from a Minimalist phase-theoretic perspective, we then examined two possible derivations. In the first, SVCs have two CPs, one for each serial verb, and a single *pro* to be shared between them. This solution provides an account for how contiguity and concord marking are reflected in the syntax. In the second derivation, there is only one CP, but vP is not counted as a phase, thereby allowing *agreement* between tense features and the two serial verbs. Finally, we propose that these two derivations represent two stages in the development of SVCs in Semitic, pseudo-coordinative and monoclausal. We show that pseudo-coordinative structures undergo clause fusion, i.e., the reanalysis of dual-CP into single-CP, which by reducing the number of phases per derivation, is motivated by the principle of economy. A derivational account of the diachronic development of serial constructions in Semitic may provide insight into the significance of syntactic compression.

Author Contributions

M.A. and J.W. contributed equally to the development and completion of this research. Together, they were responsible for the conceptual design, theoretical framework, data analysis, and interpretation. Both authors participated actively in drafting the manuscript, revising it critically for important intellectual content, and finalizing the submission. The visualization and structural formulation of arguments were jointly handled. Project coordination, sourcing references, and ensuring consistency with the journal's guidelines were also shared. Both authors have reviewed and approved the final version for publication.

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Conflicts of Interest

The authors declare that there are no conflicts of interests regarding the publication of this paper.

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