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Intention, aspect, and argument structure

The morphosyntax and morphosemantics of the Akkadian verb

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*[m]a-a ki LÚ ša šu-me-ri-i[m ḥa-ti-im e-re-ši-im]
a-mu-ur-re-em da-ba-b[a-am at-ta-ma]*

“What!? Instead of asking for a man who knows Sumerian,
You learn how to speak Amorrite!”

(M.7930+M.8157:6-7)

Abstract

This thesis provides a comprehensive analysis of the ROOT-and-template system of the Akkadian (East-Semitic, c. 2600 BCE – 75 CE) verb. It does so in two novel ways for Akkadian, by a) developing grammatical tests for the disambiguation of thirteen derivationally-consequential classes of lexical ROOTS, and b) recontextualising the templatic alternations as different ways of marking either a causal or noncausal alternant in the causative-alternation.

Akkadian has three template patterns, a base G stem, an intensive/factitive D stem, and a causative Š stem. The G stem, assumed here to be the projection of the ROOT, is used to diagnose the ROOT classes. Through the development of three grammatical tests involving the Stative, perfective and imperfective conjugations, as well as the verbal adjectival derivation, distinct argument structural, i.e., syntactic, and aspectual, i.e., semantic features can be determined for different ROOTS, resulting in thirteen distinct ROOT classes.

The D and the Š stem are motivated to be two aspectually distinct causative morphemes: the D stem serves as the direct, atelic causative and introduces an Agent, while the Š stem functions as the indirect, telic causative and introduces a Causer. The choice of which causative could be used for the causative-alternation of a given ROOT is either dependent on the aspectual and argument-structural features of a ROOT (and its class), or on pragmatic choice, i.e., a speaker's intention of communication. This choice for causation-telicity is made at a designated layer of projection, referred to as FocusP (Simpson & Wu 2002), which is only present in D and Š derivations, and is immediately reflected in syntactic restrictions imposed on VoiceP (Kratzer 1996). ROOT (class) and causative must thereby not contradict one another in aspectual features (i.e., telic ROOT derives telic causative), but must not overlap in syntactic features (i.e., Agent-ROOT may not derive Agent-causative). The different feature-combinations in FocusP and VoiceP determine the different template patterns and their syntactic and semantic properties.

By contrast, the two anticausatives, *t-* and *n-*, used to denote reflexives, passives, but also noncausal verbs, are restricted by solely syntactic properties, again derived from the interaction of FocusP and VoiceP. The different features associated with the D and Š stems on FocusP and by consequence VoiceP, determine why *t*-morphemes inserted into G and Š show greater semantic flexibility, while *t*-morphemes inserted into D may only function as passives.

Through the formulation of grammatical tests, the disambiguation of ROOT-classes, and the precise formulation of the causative and anticausative morphemes syntactic and semantic properties, this thesis presents a novel, concise, and comprehensive analysis of the Akkadian verb.

Lay Summary

Akkadian is an extinct language that used to be spoken in the Ancient Near East, in particular in Mesopotamia. Belonging to the branch of Semitic languages, it is related to modern Hebrew, Arabic, Aramaic, Amharic, etc. A commonality across the Semitic languages is found in the mechanism with which these languages form lexical words, that is nouns, adjectives, and verbs: LEXICAL ROOTS consisting of typically three consonants are inserted into what is known as a *template*. On the surface, templates differ in their form by dictating which vowels are inserted into which slots, which affixes are inserted and where; yet they encode not only the form, but also meaning, i.e., semantics.

Templates can be furthermore divided into three general template patterns or stems, traditionally referred to as G (*Grundstamm*, German ‘base stem’), D (*Dopplungsstamm*, German ‘doubling stem’), and Š (Š stem). The patterns are characterised by unifying morphology: the G stem is characterised by having none, the D stem by doubling the second ROOT consonant, and the Š by prefixing a šV- to the ROOT. While the morphology of these patterns is quite well explored and understood, the semantic functions have received less clear-cut definitions in the literature thus far. While the G stem is generally agreed upon not to add anything to the meaning of a ROOT, the D stem is described to feature two functions, known as ‘intensive’ and ‘factitive’, and Š stem is described as the ‘causative’.

As an intensive, one may understand a verb that is either performed with high agentive intensity or force (e.g., *cut off* → *chop off*), or a verb that is performed in repetitive or pluractional manner (e.g., *write* → *write and write and write*). As a factitive one may understand a verb denoting causation (e.g., *white* → *make white*; *collapse* (intransitive) → *collapse* (transitive)). As a causative one may also understand a verb denoting causation (e.g., *eat* → *make/cause to eat*).

The issue with previous descriptions is that they 1) cannot account for the precise distribution of intensive and factitive D derivations, but only note general trends, and 2) that the difference between factitive and causative is not at all defined. Goal of the present thesis is thus the exploration of the semantics of ROOTS and patterns, and in particular also in their interaction. I address both issues with previous analyses of Akkadian verbal patterns by examining the semantic and syntactic behaviour of verbs in all template patterns and defining the rules of interaction between ROOT and pattern semantics and syntax.

The present analysis looks as follows: I define the G stem as the ‘projection’ of the ROOT. This means that the G stem does not add anything to the ROOT, and thus provides us with a pattern that allows for precise testing of the ROOT’s internal properties. The three properties I test for are telicity, eventive structure, and the encoding of arguments.

Under telicity one may understand the property of culmination or completion of an event. If an event is completed (e.g., *I have eaten all the apples in my fridge*), it is referred to as telic; if an event is not completed (e.g., *I am eating all the apples in my fridge*), it is referred to as atelic. Eventive structure can be understood as a property of an abstract ROOT, which tells us whether or not its abstract concept entails an event (e.g., *fall, eat, fight*), as opposed to a state (e.g., *know, love, be scared*), a property (e.g., *large, purple, old*), or an entity (e.g., *man, dog, table*). Finally, an argument is an obligatory object of the verb—different verbs make different requirements for what their arguments should be.

In testing for these properties, I disambiguate thirteen ROOT classes, which are then relevant for the different patterns of D and Š verb formation. I show that D and Š structures are specified for telicity as well as event-structures and arguments just as ROOTS are. When it comes to telicity, a ROOT and a causative pattern (i.e., D or Š) must overlap: telic ROOTS derive telic causatives and atelic ROOTS derive (mostly) atelic causatives. But when it comes to the event-structural specifications in combination with argument-structural specifications, I show that a causative patterns reject ROOTS, which carry identical specifications. The main point of rejection happens between D factitives and certain ROOTS. I show that in these cases, the derivation of a D leads to the derivation of intensive meanings.

Beyond the discussion of the two causatives D and Š, I also discuss the two anticausatives N and *t*-. As an anticausative one may understand a form that is overtly marked to denote middle verbs, that is passives, reflexives/reciprocals, and noncausal events (e.g., *I broke the vase* → ***the vase broke***). Through the system that I build to explain the distributions of D and Š formation, I can also account for the distributions of different middle verb functions: some forms denote more reflexive/reciprocal meanings, while other derive more passive verbs. In these cases, too, I show that a ROOT’s internal property, in particular that of event-structure dictates which meaning is derived.

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E. T. A. Hoffmann. 1820. *Prinzessin Brambilla*, fifth chapter.

The process of ‘creating’ a PhD has oftentimes resembled the metaphor painted by Hoffmann: Every finished product starts out with a distant fantasy of a result, which in order to reach, through stormy waves of felt madness one must ride. And while it is the dissertant who shoulders the majority of the sailing, he or she would be lost, possibly drowned, if not for the navigation and aid of trusted supervisors, mentors, friends, and family.

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Declaration

I declare that this thesis was composed by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or professional qualification except as specified.

Iris Kamil

List of Abbreviations

General abbreviations

CAD	Chicago Assyrian Dictionary
CDA	Concise Dictionary of Akkadian
CoS	Change-of-state
DM	Distributed Morphology
iff	If and only if
LB	Late Babylonian
MA	Middle Assyrian
MB	Middle Babylonian
NA	Neo-Assyrian
NB	Neo-Babylonian
OA	Old Assyrian
OAKk	Old Akkadian
OB	Old Babylonian
SB	Standard Babylonian
UG	Universal Grammar
VA	Verbal Adjective

Glossing abbreviations

\sqrt{XYZ}	Lexical ROOT
1	1 st person
2	2 nd person
3	3 rd person
CAUS	Causative
CONJ	Conjunction
CSTR	Construct state
D	D stem
DAT	Dative
DL	Dual
DN	Deity name

F	Feminine
GN	Geographic name
IMPER	Imperative
IPFV	Imperfective
M	Masculine
MID	Middle
MOD	Modal
NEG	Negation
NOM	Nominative case
OBL	Oblique case
PASS	Passive
PFV	Perfective
PL	Plural
PN	Personal name
PREC	Precative
PROG	Progressive
REL	Relative pronoun
SG	Singular
STAT	Stative
SUBJ	Subjunctive
TN	Temple name
VEN	Ventive

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Introduction

1.1 Templates and template patterns

Akkadian, the oldest attested Semitic language, formed its lexical words, i.e., verbs, adjectives, and nouns, by the pan-Semitic mechanism of the ROOT and template. Typically tri-radical ROOTS with a unique and idiosyncratic lexical meaning are thereby inserted into morphophonological templates, which give the vocalic patterns in and around the ROOT consonants, as well as any potential geminations or reduplications. These templates may encode for instance the word class, as shown in the set of forms in (1) below.

I use the placeholders X – Y – Z for the respective ROOT consonants. For the example ROOT in (1) $\sqrt{\check{s}r\check{q}}$ ‘steal’, this means that \check{s} takes the slot of X , r takes the place of Y , and \check{q} takes the place of Z . (1a) gives the example of a verbal derivation, in this case the infinitive template $XaY\check{a}Zu$, into which the ROOT consonants are inserted to derive the infinitive form ‘to steal’. (1b) gives an example of a nominal derivation, a participle, and finally (1c) gives an adjectival template.

- (1) Akkadian templates by word class by the example ROOT $\sqrt{\check{s}r\check{q}}$ ‘steal’
- a. Verb: $XaY\check{a}Zu$ $\check{s}ar\check{a}qu$ ‘to steal’
 - b. Noun: $XaYY\check{a}Zu$ $\check{s}arr\check{a}qu$ ‘thief’
 - c. Adjective: $XaYYiZu$ $\check{s}arriqu$ ‘thievish’

For verbs, which are the focus of the present thesis, morphophonological templates furthermore may serve as conjugations where they encode tense, aspect, or mood (henceforth TAM). (2) gives four such templatic conjugations in Akkadian: Three aspect-marked forms, *perfective*, *imperfective*, and *Stative*, as well as the *imperative* mood, all forms in the 3rd person singular masculine.

- (2) Akkadian templates by TAM conjugation by the example ROOT $\sqrt{\text{šrq}}$ ‘steal’
- Perfective* i-XYV_RZ- \emptyset i-šriq ‘he has/will have stolen’
 - Imperfective* i-XaYYV_TZ- \emptyset i-šarriq ‘he was/is/will be stealing’
 - Stative* XaYiZ- \emptyset šariq- \emptyset ‘he is (in the state of having been) stolen’
 - Imperative* XV_RYV_RZ- \emptyset širiq ‘steal!’

Templatic morphemes, i.e., morphemes that are secondarily inserted into the morphophonological templates may furthermore encode Voice, such as the *t*-morpheme, which encodes a syncretic middle in Akkadian, i.e., reflexive/reciprocal, passive, and noncausal functions. Examples are again given in (3) for the 3.PL.M *perfective* of the ROOT $\sqrt{\text{šm}'}^1$ ‘hear’.¹ For comparison, I give the *perfective* in (3a) and the *perfective+t* form in (3b).

- (3) Akkadian templatic morpheme *t*- by the example ROOT $\sqrt{\text{šm}'}$ ‘hear’
- Perfective* i-XYV_RZ- \bar{u} i-šem- \bar{u} ‘they have/will have heard’
 - Perfective+t* i-X<ta>YV_TZ- \bar{u} i-l<te>m- \bar{u} ‘they have/will have heard one another’

Across Semitic, the morphophonological templates can be found in one of typically three template *patterns*. Template patterns are characterised by uniform morphological markers, found in *all* morphophonological templates within a given pattern. In other words, typically any verbal morphophonological template can occur in any template pattern, but it will be additionally marked by the pattern’s characterising morpheme.

The three template patterns of Akkadian are termed G for *Grundstamm* (German ‘base stem’), D for *Dopplungsstamm* (German ‘doubling stem’) and Š for *Š Stamm* (German ‘Š stem’). In theoretical linguistic literature the patterns are also known as ‘simple’ (G), ‘intensive’ (D), and ‘causative’ (Š). I give an overview of the conjugations in the patterns in Table 1.1 below. While the base stem G does not appear to be characterised by any one morpheme, the D and Š stems are: the D pattern features throughout its conjugations a doubled middle radical (YY), the Š pattern features a *šV-* prefixed to the ROOT.

Table 1.1: Akkadian templates and template patterns

	G	D	Š
<i>Infinitive</i>	XaYāZu	XuYYuZu	šu-XYuZu
<i>Perfective</i>	i-XYV _R Z- \emptyset	u-XaYYiZ- \emptyset	u-ša-XYiZ- \emptyset
<i>Imperfective</i>	i-XaYYV _T Z- \emptyset	u-XaYYaZ- \emptyset	u-ša-XYiZ- \emptyset
<i>Stative</i>	XaYiZ	XuYYuZ- \emptyset	šu-XYuZ- \emptyset
<i>Imperative</i>	XV _R YV _R Z- \emptyset	XuYYiZ- \emptyset	šu-XYiZ- \emptyset

¹Note a Middle Babylonian and Middle Assyrian sound change of /št/ → /t/.

Crucially, the pattern dictates the morphophonological form of the template. Note that while in the G stem, no unifying morphology may be determined, the D and Š templates mark their *perfectives* by inserting an /i/ between the second and third radical, and their *imperfectives* by inserting an /a/ in the same position. Note also the variety of vowels in the first vocalic slot in the G stem, vis-à-vis the uniform /u/ appearing in the first vocalic slot of all morphophonological templates of the D and Š stems.

I thus terminologically differentiate the morphophonological template, which I will henceforth simply call ‘template’ and the template pattern, which I will henceforth call ‘pattern’.

Focus of the present thesis is the *pattern*, and in particular its morphosemantic and morpho-syntactic makeup. Namely, additionally to a uniform morphology, the patterns also feature uniform semantic characteristics. In previous analyses of the G stem, as for instance those of von Soden (1995), Kouwenberg (1997, 2010) and Huehnergard (2005), the semantic functions of the template patterns are assigned as follows: The G stem is characterised by no unifying function, the D stem may function as either an ‘intensive’ or a ‘factitive’ and the Š stem functions as a ‘causative’. The functions are summarised in Table 1.2 below.

Table 1.2: Overview of pattern functions in traditional analyses

G	D	Š
/	Intensive Factitive	Causative

As an ‘intensive’ one may understand either an action performed with heightened agentivity or intensity of force, or an action performed in repetitive manner, as can be seen in the set of intensive alternations given in (4) below. Examples (4a-b) give ‘intensive’ D forms with heightened intensity in the performance of the event by the subject. Examples (4c-d) give ‘intensive’ D forms with pluractional or repetitive semantics.

(4) Intensive D alternations

- a. \sqrt{prs} ‘separate, cut’ vs. D ‘chop off’
- b. \sqrt{gnh} ‘cough’ vs. D ‘cough and retch, cough violently’
- c. \sqrt{mhs} ‘beat’ vs. D ‘beat repeatedly’
- d. \sqrt{rpd} ‘run’ vs. D ‘run around, wander’

As ‘factitive’ one may understand a type of causative verb, which is found exclusively for non active ROOTS (semantically ‘intransitives’ following Kouwenberg 1997). A set of examples is again given in (5). The ‘make x’ type of factitive as seen in (5a) is typically only found in adjectival ROOTS, (here: Property Concept ROOTS). As can be argued for the remaining examples in (5), the underlying meanings could be construed as ‘make roll’, ‘make fear’, or ‘make understand, learn’, though such translations are less natural than the ones given below.

(5) Factitive D alternations

- | | | | |
|----|----------------------------------|-----|-------------------|
| a. | $\sqrt{d\gamma m}$ ‘dark’ | vs. | D ‘make dark’ |
| b. | \sqrt{kpl} ‘roll (intr.)’ | vs. | D ‘roll (tr.)’ |
| c. | \sqrt{prd} ‘fear’ | vs. | D ‘terrify’ |
| d. | \sqrt{lmd} ‘understand, learn’ | vs. | D ‘inform, teach’ |

Finally, as ‘causatives’ one may understand events, in which the causation of another event is encoded. A set of examples is given in (6). These are the causatives typically formed for active ROOTS.

(6) Causative Š alternations

- | | | | |
|----|--------------------------------------|-----|-------------------------------|
| a. | $\sqrt{\gamma kl}$ ‘eat’ | vs. | Š ‘cause to eat’ |
| b. | $\sqrt{\gamma lk}$ ‘go’ | vs. | Š ‘cause to go’ |
| c. | \sqrt{brq} ‘(strike as) lightning’ | vs. | Š ‘cause lightning to strike’ |
| c. | \sqrt{wbl} ‘bring’ | vs. | Š ‘have brought’ |

The issues with this system are twofold: for one, most works do not make a clear distinction between the factitive and the causative functions of the D and Š stems. While some ROOTS tend to only derive D causatives, others may only derive Š causatives, and yet again others may derive both. But with one given ROOT either deriving an intensive or factitive D stem, it is also thus far not perfectly understood, which ROOTS derive intensive D verbs and which derive factitive ones.

In the present thesis, I will introduce an alternative analysis of this system, which will address and solve the two issues found with the previous one. There, it will account for the different derivational mechanisms of the two causatives and make more accurate predictions for the predicates they may derive. In the present analysis, the D and Š stems encode two aspectually different causatives: a direct and atelic (D) and an indirect and telic (Š) one, respectively. Whether or not a ROOT may derive a D, Š, or both causatives, and whether it derives a factitive, i.e., causative D stem or an intensive one, relies on the ROOT’s internal properties. These properties may be tested for through the G stem, which I analyse here as the simple projection of the ROOT.

A better understanding of the pattern thus necessitates a better understanding of the ROOT, too. To reframe the previously stated focus of the thesis, this thesis thus concerns itself with the morphosemantics and morphosyntax of the ROOT-and-pattern mechanism.

Given the focus I draw on causation here, it is helpful to altogether reframe the alternations of the Akkadian template patterns in terms of the so-called *causative alternation*, which I will now introduce in the next Section.

1.2 The causative alternation

The causative-alternation (Haspelmath 1993, Schäfer 2009, Alexiadou, Anagnostopoulou & Schäfer 2015) encodes either morphologically or syntactically the alternation between an intransitive noncausal event and a (typically) transitive causal event. The intransitive alternant thereby denotes the change-of-state (CoS) event of a PATIENT with no inherent indication as to the source of the event's causation, which may, however, be externally specified. The transitive alternant denotes the (same) CoS event, as well as its causer, which is (typically, except for reflexive or autobenefactive contexts) a different entity (Schäfer 2009: p. 641). An example for English is given in the next example with (7a) giving an example for a noncausal event and (7b) giving a causal one.

(7) Causative-alternation in English

- a. The ship sank.
- b. The pirates sank the ship.

Cross-linguistically, languages differ in terms of how they mark this alternation (see for instance Haspelmath 1993, 2016, Zúñiga & Kittilä 2019, Inglese 2022, among others): languages can either morphologically mark the noncausal *anticausative* alternant, or the causal *causative* alternant, some languages may mark both alternants in a regularly equipollent fashion, and yet again others may mark the alternation syntactically, and not morphologically, as seen for English in (7) above. Akkadian has developed multiple ways of marking the alternation (Kamil Accepted): it may either mark the causative alternant with the D or Š stems, or mark the anticausative alternant with the *t*- and so-called N stems.

To illustrate, the next two examples provide three examples for each of the mechanisms used to mark the alternation. In (8), I give examples of the causative alternation in Akkadian, in which the *causative* alternant is marked, either by inserting a ROOT into the D stem, the Š stem, or both.

(8) Akkadian causative alternation: the *causative* alternant

	ROOT	Noncausal	Causal	
a.	$\sqrt{\text{?dš}}$ 'new'	G 'become new'	D 'make new'	/
b.	$\sqrt{\text{kbt}}$ 'heavy'	G 'become heavy'	D 'make heavy'	Š 'cause to bec. heavy'
c.	$\sqrt{\text{ntk}}$ 'drip'	G 'drip'	D 'drop'	Š 'let dribble'
d.	$\sqrt{\text{nš?}}$ 'lift, carry'	G 'lift, carry'	/	Š 'cause to lift, carry'

In (9), I give examples of the Akkadian causative alternation, wherein the *anticausative* alternant is marked. In (9a-b) the causative alternant is simply the ROOT's projection as the G stem verb. (9c-d), however, constitute mixed cases wherein the causative alternants must be marked, too, as the ROOT itself encodes a noncausal event. These ROOTS may thus mark their noncausal alternants or not.

(9) Akkadian causative alternation: the *anticausative* alternant

	ROOT	Noncausal		Causal
a.	$\sqrt{\text{šb?}}$ 'sate'	/	N 'become sated'	G 'sate (tr.)'
b.	$\sqrt{\text{mš?}}$ 'rob, take'	Gt 'be robbed'	N 'be taken'	G 'rob, take'
c.	$\sqrt{\text{kp}}$ 'bend'	G & Gt 'bend (intr.)'	N 'become bent'	D 'bend, curve (tr.)'
d.	$\sqrt{\text{hbš}}$ 'swell'	G & Gt 'swell (intr.)'	/	Š 'make rejoice'

The difference between the 'factitive' D stem and the 'causative' Š stem is not always clear, and many dictionary entries will in fact give identical translations for the two. As I will argue here, however, these two causatives are distinct from one another and denote two different 'types' of causation, namely direct and indirect causation, respectively.

In brief, I differentiate the two on the basis of the ordering relationship between the causer's causation event and the causee's CoS event. The D stem, serving as the direct causative, entails an overlap of causation and CoS event, while the Š stem, encoding an indirect causative, entails the precedence of the causation event to the CoS event. These differences are also aspectually motivated, as I will show in the next Section.

1.3 Aspect and Intention in communication

A core hypothesis pursued in this thesis is the idea that the two causatives D and Š may be furthermore differentiated based on their aspectual properties; more concretely, based on their telicity-specifications. Telicity is defined as the general property of event culmination, i.e., completion (Dowty 1979, Verkuyl 1993, Krifka 1998). A predicate is telic when it entails culmination and atelic when it does not.

Consider the three examples of telic predicates in (10) below. Each of the verbs entails that the event it denotes is completed. A finding event entails that an entity has been *found*, a dying event entails that an entity eventually *dies*, and finally passing an exam entails that an exam is *passed*. All three predicates thus entail a punctual change of state. They are also accordingly incompatible with adverbial modification that denotes duration (e.g., **She passed an exam for four hours*).

(10) Telic events

- a. Find
- b. Die
- c. Pass an exam

Atelic predicates denote precisely the opposite: events that do not naturally entail a conclusion. An event of existing, shining, or playing the piano entails duration, not completion. Atelic predicates are, in mirrored fashion to telic predicates, incompatible with adverbial modification that denotes culmination (e.g., **They existed in four minutes*).

(11) Atelic events

- a. Exist
- b. Shine
- c. Play the piano

For Akkadian, I show through a number of tests performed on G stem derivations, i.e., the projections of ROOTS, that some Akkadian ROOTS are themselves specified for telicity. Just as ROOTS encode such telicity specifications, I will argue in this thesis that the two causatives D and Š do, too. The direct causative D thereby encodes an atelic causative: it denotes an event

of causation, which intersects with the event of CoS and does not entail a point of completion of either causation or CoS event. The indirect Š causative on the other hand encodes a telic causative: it entails that a CoS event eventuates as a result of the culmination of a causation event.

In Akkadian, this intersection of causation and CoS event, or the lack thereof, manifests in the derivation of two distinct semantic primitive predicates (Dowty 1979, Rappaport Hovav & Levin 1998), which I term DO (see Ross 1972) for the D stem and CAUSE (see Lakoff 1970, McCawley 1968) for the Š stem. The two semantic predicates in turn trigger the syntactic derivation of two distinct types of causers, which I define as an Agent for D causatives and Causer for Š causatives. I summarise this in Table 1.3 below.

Table 1.3: Properties of D and Š causatives

	Causation type	Semantic operator	Syntactic argument	Telicity
D	Direct	DO	Agent	Atelic
Š	Indirect	CAUSE	Cause	Telic

These properties of D and Š causatives account for and restrict the derivational patterns observed across all ROOT types in two ways: through 1) the primitive semantic predicate and 2) the telicity feature.

Agentive ROOTS, i.e., ROOTS, which derive verbs that take Agent-subjects, themselves encode a DO-predicate. For the derivation of a causative, semantic operators cannot overlap: Agentive ROOTS can thus not derive a D causative due to the D stem's encoding of a DO-predicate. The combination of two DO-predicates, i.e., the operator that enforces the derivation of Agents, leads to the derivation of 'intensive' D verbs of heightened agentivity or pluractionality.

As for the telicity feature, ROOTS, which are specified for telicity, are restricted in terms of which causative they may derive in precisely the opposite fashion: a ROOT's telicity feature must overlap with a causative's telicity feature. Telic ROOTS denoting events such as the ones in (10) thereby only derive telic Š causatives, while atelic ROOTS denoting events such the ones in (11) predominantly derive atelic D causatives.

The set of aspectual ROOTS given in (12) demonstrate this phenomenon: Durative aspectual ROOTS, such as the ones in (12a-b) take only D causatives, while the inchoative aspectual ROOTS in (12c-d) exclusively take Š causatives.

(12) Telicity restrictions in alternations

ROOT	Causative
a. \sqrt{dlp} 'stay awake'	D 'keep awake'
b. $\sqrt{nhš}$ 'prosper, thrive'	D 'make prosper, thrive'
c. $\sqrt{bīl}$ 'stop, cease (intr.)'	Š 'interrupt, discontinue'
d. $\sqrt{m?t}$ 'die'	Š 'put to death'

But not all ROOTS are specified for a telicity feature, in fact, most ROOTS lack such specification. ROOTS that do not encode either telicity feature or a DO-predicate may derive either D or Š causative. I hypothesise and argue for Akkadian that in these cases, the choice between an atelic direct D causative or a telic indirect Š causative was pragmatic and subject to a speaker's *intention for communication*. Just as speakers could pragmatically choose to highlight the duration of an event by expressing it through an *imperfective*, speakers who pragmatically wanted to highlight the duration of a causation event opted for the D causative. In mirrored fashion, just as speakers could pragmatically choose to highlight the conclusion and resulting effect of an event by expressing it through a *perfective*, speakers who pragmatically wished to highlight an effect of a causation event opted for the Š causative.

1.4 Goals of this dissertation

The primary goal of this thesis is to account for the derivational mechanisms of two causatives D and Š, which have been briefly outlined above. But along with this principal goal come several smaller ones that complement it.

An understanding of the D and Š stems necessitates an understanding of the entire ROOT-and-pattern system in Akkadian, which includes the G, D, and Š stem, but also the two anticausative *t*- and N stems. One goal of this thesis is to motivate the G stem as the projection of the ROOT and to show its utility in identifying properties of the ROOT, such as the telicity feature. The unique combinations of properties that can be identified for ROOTS then facilitate the grouping of Akkadian ROOTS into thirteen ROOT classes.

It is then my principal goal to account for the different possibilities for derivation of D and Š verbs for each of these thirteen ROOT classes. As briefly hinted at in the introduction above, the general patterns I observe for the compatibility of D and Š structures with ROOTS can be framed in terms of the attraction of certain features (e.g., the telicity feature) and the repulsion of others (e.g., the semantic operators). In order to formalise these observations, I make use of the idea of feature magnetism (van Riemsdijk 1998, D'Alessandro & van Oostendorp 2020):

Features may be positively charged [+F], negatively charged [-F] or of neutral charge [\pm F]. I develop the theory further by assuming 'charge-fields'; within the scope of a charge-field features attract their magnetic opposite and repel their magnetic equivalent. It is through this mechanism that I can account for the derivational behaviour of all but one ROOT class.

Finally, the system of feature magnetism in Akkadian is completed only through the consideration of the anticausatives N and *t*-. It is thus my final goal to account for the different derivational patterns observed for the two stems, which all derive syncretic Middles with passive, reflexive/reciprocal, and anticausative functions. I can account for the distributions of passives vs. reflexives/reciprocals again through the formalism of magnetic charges in derivational features.

I summarise the goals as follows:

1. Provide a comprehensive and coherent system accounting for the mechanisms of Akkadian ROOT-and-pattern derivations,
2. Motivate the G stem as the direct projection of the ROOT and demonstrate its utility for the definition of ROOT properties, and finally
3. Account for the derivational patterns of the thirteen ROOT classes in the causative stems D and Š and the anticausative stems N and *t*-.

1.5 Use for Assyriologists and Semitists

As an addendum to the goals stated in Section 1.4 above, it is imperative to also state what this thesis does *not* seek to accomplish. This work is linguistic in nature. I thus do not seek to provide a full list of every meaning attested for every ROOT as works like Kouwenberg (1997) had done before, which is the domain of philology. Rather, I focus on the theoretical structural aspects of attestation, providing for instance a full list of attested alternations for the Akkadian ROOTS in Appendix A.

Nevertheless, this dissertation is very much intended to be useful to Assyriologists and Semitists alike. Understanding one of the most central mechanisms of Akkadian grammar is imperative to the study of the civilisation of its speakers. A better and more precisely defined understanding of the Akkadian verbal system ultimately produces more precise and accurate translations of Akkadian texts, and in turn a more precise and accurate reconstruction of Ancient Near Eastern history.

As for the Semitic scholar, this work provides a comprehensive analysis of the Akkadian system, which as I will uncommittedly hypothesise will prove crucial to the analyses of and comparison to other Semitic languages, employing cognate ROOT-and-pattern systems. It is important to highlight that despite well over two millennia of Akkadian attestation, the present

analysis is not a diachronic analysis. I claim that the ROOT-and-pattern system observed in Akkadian and analysed here was a diachronically *stable* system. I make no such claims for other Semitic languages, and leave the exploration of diachronic questions regarding the nature of this system in Akkadian and Semitic to future work.

1.6 Outline

This thesis is structured as follows: In Chapter 2, I provide the necessary background for linguists and Assyriologists alike in order to follow the contents of this thesis. After a brief introduction in Section 2.1, I will begin by giving the Assyriological background (Section 2.2), providing an overview over Akkadian (Section 2.2.1), a minimal grammar (Section 2.2.2), and explanations on the notational (and glossing) practices employed in this thesis (Section 2.2.3). I then move on to provide the linguistic background, introducing the generative framework for Assyriologists who may not be familiar with it (Section 2.3.1) as well as central theoretical concepts I employ in my analysis (Section 2.3.2).

In Chapter 3, I then discuss the G stem, which I will argue serves as the projection of the ROOT. After a brief introduction to the present understanding of what ROOTS are (Section 3.1), I then give an overview over the G morphology (Section 3.2), and move on to discuss the intransitive ROOTS (Section 3.3). There, I introduce the general literature on the unaccusative–unergative split and the tests employed in Akkadian in order to disambiguate the ROOT classes (Section 3.3.1). The remainder of this Chapter then goes through each of the thirteen classes and their tests and the therefrom resulting semantic and syntactic generalisations. I begin with unaccusatives (Section 3.3.2), then move on to unergatives (Section 3.3.3), and finally discuss the transitive classes (Section 3.4).

Chapter 4 discusses the D and Š causatives. In the introduction (Section 4.1), I review the two causatives, their functions, and the differences I claim they encode. In order to better follow the notational framework employed in the analysis of the causatives, I then introduce Magnetic Grammar (Section 4.2). The next two Sections are dedicated to provide further evidence for the different telicity (Section 4.3) and syntactic (Section 4.4) features of D and Š. Finally, I synthesise the findings of the Chapter and provide the full analysis of how the features of D and Š interact with the features of ROOTS and derivational syntax (Section 4.5).

With the causatives covered, Chapter 5 will then add the N and *t*-stems into the analysis of the Akkadian ROOT-and-pattern system. After a brief introduction (Section 5.1), I will begin with the discussion of the *t*-stems (Section 5.2), providing a morphological and functional overview (Section 5.2.1), and then discuss its syntactic (feature) encoding, and all the therefrom resulting derivations (Section 5.2.2). I then discuss the N stems (Section 5.3.1), again providing morphological and functional overviews, and finally account for its syntax and derivation (Section 5.3.2).

Finally, I conclude in Chapter 6.

Chapter 2

Background

2.1 Introduction

Given that this dissertation presents a formal linguistic analysis of Akkadian, a language that has thus far received very little attention in theoretical linguistics, but rather more attention in philological traditions less familiar with linguistic frameworks, there are two audiences for which this dissertation may be of interest and whose knowledge base differs quite substantially. This Chapter thus aims at providing the necessary background of this thesis.

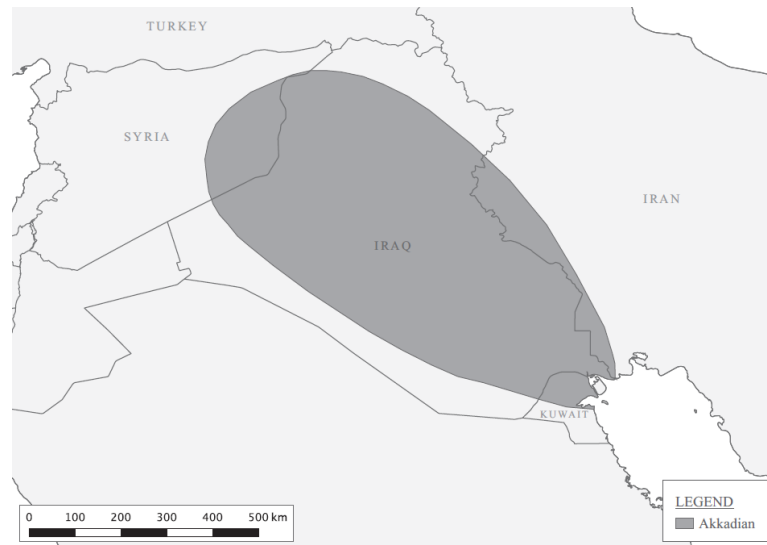
I give the necessary Assyriological background in Section 2.2, giving an introduction to the language (Section 2.2.1), a very basic minimal grammar (Section 2.2.2), and explain the notational practices (Section 2.2.3) and glossing (Section 2.2.3.3). As for the linguistic background in Section 2.3, I give a general introduction to the generative framework (Section 2.3.1) and explain some further theoretical assumptions and principles (Section 2.3.2).

2.2 Assyriological background

2.2.1 Akkadian

Akkadian was a language formerly spoken and attested in the (Ancient) Near East along what is known as the 'fertile crescent', spanning from the Akkadian 'mainland' of Mesopotamia, that is the land between and around the two rivers Tigris and Euphrates in modern day Iraq and northern Syria, all the way to southern Anatolia and down along the Levant. With an attestation depth spanning more than two millennia from about 2,600 BCE with the attestation of the first Akkadian personal names in Sumerian texts (Hasselbach-Andee 2019) to the first Old Akkadian texts surfacing around 2,350 BCE (Buccellati 1997, Hasselbach-Andee 2019), and finally to the last cuneiform tablet dated to 75 AD (Geller 1997), Akkadian is the oldest attested Semitic language, with one of the longest spans of attestation in the family.

Figure 2.1: The Akkadian-speaking mainland in the 2nd and 1st millennia BCE (Hasselbach-Andee 2019: Map 5.1)



The two core dialects differentiated are the Babylonian and Assyrian dialects, with four eras of attestation, as given in Table 2.1. Especially in the second millennium BCE, Akkadian served as the lingua franca in the Ancient Near East and as such attests multiple ‘peripheral’ varieties, such as Hurrian Akkadian or Canaano-Akkadian, among others. These varieties may either be classified as peripheral dialects of Akkadian or as varieties of the local languages, which were written with Akkadian cuneiform (von Dassow 2010)—a classification that is not always easy to make.

Table 2.1: Akkadian periods of attestation

Old Akkadian (2600–2000 BCE)		
Old Assyrian	2000–1500 BCE	Old Babylonian
Middle Assyrian	1500–1000 BCE	Middle Babylonian
Neo-Assyrian	1000–500 BCE	Neo-Babylonian
	500 BCE–75 AD	Late Babylonian

As such, I treat here only the two mainland Akkadian dialects of Babylonian and Assyrian. With the death of Akkadian as a spoken language occurring sometime between 620–480 BCE¹ (Hackl 2021b: p. 1460), I also exclude from consideration the Late Babylonian attestation period, during which scribes were mostly native speakers of Aramaic (Hackl 2021a,b).

¹Historically thus approximately between the establishment of the Neo-Babylonian empire and the beginning of the reign of the Achaemenid king Xerxes I.

2.2.2 Minimal grammar of Akkadian

2.2.2.1 Tense, aspect, and mood

The definition of Akkadian tense/aspect/mood (TAM) features is by no means a matter of consensus, especially when it comes to the distinction between tense and aspect. Some Akkadianists, e.g., Streck (1995, 1999), Metzler (2002) and Brose (2022), i.a., argue for a system of ‘relative tense’, defined by Comrie (1976: p. 2) as a system that marks an event relative to a different reference point, as opposed to absolute tense, which marks an event relative to the point of speech. Others subscribe to a system wherein Akkadian marks solely viewpoint or grammatical aspect, e.g. Voigt (1990, 2004), Bubenik (2017) and Schilling (2019), i.a. Again others, notably Huehnergard (2005) and Kouwenberg (2010), suggest mixed systems.

In the present analysis of Akkadian, I assume a fully aspectual system, i.e., a system, which does not morphologically mark tense. Thereby, the following four conjugations may be differentiated, as given in Table 2.2 for the 3.SG.M of $\sqrt{\text{škn}}$ ‘place’. *Perfective*, *imperfective*, and *Stative* constitute aspect-marking conjugations, while the *imperative* is a modal form.

Table 2.2: Akkadian conjugations

Conjugation		
<i>Perfective</i>	i-XYV _R Z-Ø	
	i-škun-Ø	‘he has/will have placed’
<i>Imperfective</i>	i-XaYYV _T Z-Ø	
	i-šakkan-Ø	‘he is/was/will be placing, separating’
<i>Stative</i>	XaYiZ-Ø	
	šakin-Ø	‘he is (in the state of having been) placed’
<i>Imperative</i>	XV _R YV _R Z-Ø	
	šukun-Ø	‘place!’

The *perfective* marks a culminated, i.e., completed event, the *imperfective* a non-culminated, i.e., an ongoing event. The *Stative* denotes a resultative state, i.e., the state that results from a previously culminated event (Kamil 2023, Forthcoming). Examples for four conjugations are given in (13) for the ROOT $\sqrt{\text{škn}}$ ‘place’.

(13) Conjugations of $\sqrt{\check{s}kn}$ ‘place’a. *Perfective*

rab-ût-i=šū *šerr-ēt-i* ***a-škun=ma***
 $\sqrt{\check{s}kn}$ ‘place’
 high official-PL-OBL=his nose rope-PL-OBL 1.SG-put.PFTV=CONJ

“I put the lead ropes (lit. nose ropes) on his officials” (SAA 3 44:10, NA)

b. *Imperfective*

awīl-ām *ana qāt-i* *bēl-i=ya* ***a-šakkan***
 $\sqrt{\check{s}kn}$ ‘place’
 man-PL.OBL DAT hand-OBL lord-OBL=my 1.SG-put.IMPV

“I will be handing over the men to my lord” (VAS 16 6:22, OB)

c. *Stative*

ana GN₁ *ana nār* *GN₂ sekēr-im* ***šakn-āku***
 \sqrt{skr} ‘block off’ $\sqrt{\check{s}kn}$ ‘place’
 DAT GN DAT river.CSTR GN block off.INF-OBL put-STAT.1.SG

“I am assigned (lit. put) to GN₁ for the damming of the canal GN₂.” (RT 16 189:11, OB)

d. *Imperative*

šāb ... *ana putr-im=ma* *u* *kisimt-im* ***šukun-0***
 $\sqrt{\check{s}kn}$ ‘place’
 troops.CSTR ... DAT dung-OBL=CONJ and greens-OBL put.IMPER-SG.M

“Assign the ... men to the dung and the greens!” (TLB 4 65:13, OB)

I encode the three aspects of Akkadian as follows: all three are marked at AspP (alternatively IP). The *perfective* is characterised by a [+telic] feature, the *imperfective* by a [-telic] feature, and the *Stative* by a neutral [\pm telic] feature. I discuss this choice in Section 4.3.1, but highlight for now that this is a choice made for the system of *Akkadian*. I do not assume that *perfectives* and *imperfectives* are cross-linguistically marked by telicity features on Asp. As will become clearer in the next Chapter, the interaction between radical and Asp-encoded telicity features is crucial to the definition of aspectually-marked ROOT-classes.

Additionally to the four conjugations, Akkadian makes use of two verbal morphemes to derive one more mood and a progressive. The ‘precative’ *lu*-prefix marks an optative, the infix *ta*- marks a progressive (an event in a sequence of events, see Streck 1999, 2003). Both morphemes may only be affixed to *perfectives*.

Finally, a subjunctive marker *-u* may be suffixed to any form that has no other overt suffix intervening between the subjunctive and the ROOT template.

As for declinations of nominal and verbal character, Akkadian ROOTS may decline an *infinitive*, *participle*, and *verbal adjective* (VA) for case, and the participle and VA also for number and gender. The paradigm is given in Table 2.3 with examples again given for the ROOT $\sqrt{škn}$ ‘place’ in (14).

Participles in Akkadian are by default of the active type, but may be passivised through Middle morphology. The VA refers to an adjective that is derived deradically from a verbal ROOT.

Table 2.3: Declinable derivations in the nominative

Form		
<i>Infinitive</i>	XaYāZ-u	
	<i>šakān-u</i>	‘to place’
<i>Participle</i>	XāYiZ-u	
	<i>šākin-u</i>	‘the one who places’
<i>Verbal adjective</i>	XaYZ-u	
	<i>šakn-u</i>	‘placed’

(14) Declinations of $\sqrt{škn}$ ‘place’

a. *Infinitive*

nasāḫ-um *u* ***šakān-um*** *kûmma lštar*
 $\sqrt{nsḫ}$ ‘remove’ $\sqrt{škn}$ ‘place’
 remove.INF-NOM and place.NOM yours DN

“It is in your (power), *lštar*, to take away and put in place” (TIM 9 21:10f., OB)

b. *Participle*

eql-am *u* *kirâm* *ša* *PN ana ēreš-i* *u* **šākin-im**
 $\sqrt{\text{rš}}$ 'cultivate' $\sqrt{\text{škn}}$ 'place'

field-OBL and garden-OBL REL PN DAT cultivate.PCPL-OBL and place.PCPL-OBL

i-ddin-Ø=u

$\sqrt{\text{ndn}}$ 'give'

3-give.PFTV-SG.M=SUBJ

"The field and the orchard, which PN gave to the tenant farmer, and the date contractor" (TCL 1 42 rev. 2, OB)

c. *VA*

ša ana mē **šakn-u**
 $\sqrt{\text{škn}}$ 'place'

REL DAT water.OBL place.VA-NOM

"Which is placed towards the water" (TCL 7 1:11, OB)

2.2.2.2 Nominal morphology

2.2.2.2.1 State

Akkadian differentiates three so-called 'states': the *status rectus*, *status absolutus*, and *status constructus* (Huehnergard 2005: 55ff.). The *status rectus* refers to the 'default' state, in which a nominal item appears with its case and \varnothing (i.e., person, number, gender) Agreement-features. The *status absolutus* refers to a counting state found especially in measurements, and finally the *status constructus* or construct state, refers to the state of a head noun in a genitive construction. The dependent is always marked with the genitive-leaning *-i* case. An example of a construct state construction is given in (15).

(15) Construct state

bēl *immēr-i*
 lord.CSTR sheep-OBL

"The owner of the (sacrificial) sheep" (YOS 10 33 iii 54, OB)

2.2.2.2 Case morphology

Akkadian differentiates three cases, which are overtly marked on nominal elements. They are traditionally called nominative (-*u*), genitive (-*i*), and accusative (-*a*). While the nominative indeed conforms to a nominative, the genitive and accusative both overlap with syntactic dative case marking, which is why I gloss both as ‘oblique’ case, to avoid confusion. I summarise this in Table 2.4 below.

Table 2.4: Akkadian case marking

Case	Form	Function(s)	In glosses
Nominative	XYZ- <i>u</i>	Nominative	-NOM
Genitive	XYZ- <i>i</i>	Genitive & Dative	-OBL
Accusative	XYZ- <i>a</i>	Accusative & Dative	-OBL

Case is gradually lost, especially in the later stages of Akkadian, and as such scribal mistakes become more common in Neo-Assyrian and Neo-Babylonian case-marking. In cases of syntactic and morphological case mismatch or error in these periods, I gloss all cases as oblique.

Note that in older varieties of Akkadian a so-called ‘mimation’ would follow the case morpheme. The mimation refers to a word-final *-m*, the function of which is not clear (Diem 1975). In the linguistic examples of this thesis, nominal elements thus sometimes appear with a word-final *-m* and sometimes without.

2.2.2.3 Word order

Akkadian word order is of the mixed type with DPs patterning as head-initial and VPs patterning as head-final. The general word-order is SOV. I give an example of a head-initial DP in (16), with the DP marked in square brackets.

(16) Head-initial DP

šu [*tupp-am šuāti*] *u-ša-ssak-Ø=šu*
 \sqrt{nsk} ‘throw’

he tablet-OBL this 3-CAUS-throw.IMPV-SG.M=SUBJ

“He (who) discards of this tablet” (RA 9 2:15, Oakk)

2.2.3 Notational practices

2.2.3.1 Phonological representations

Akkadian attests a number of phonemes whose etymological correspondences are known in other Semitic languages, the actual pronunciation of which in Akkadian, however, remains unclear due to its extinct status. I thus refrain from using IPA signs to represent these signs, and instead use the common Assyriological conventions of representation. The signs are given in Table 2.5.

Table 2.5: Akkadian consonant denotation

Sign	Name	Approximate pronunciation
ḥ	Het	/χ/
ṣ	Tsade	/ts/
š	Shin	/ʃ/
t	Tet	/t'/

2.2.3.2 The transliteration of cuneiform

Akkadian was famously written in cuneiform, a logographic and syllabic script originally developed for the unrelated Sumerian language. As a result, Akkadian cuneiform has developed multiple readings for any one given sign. Four ‘types’ of readings may be differentiated, as summarised in (17). A sign is read logographically when it is read as an entire word by itself or in combination with other signs. For instance, the (Sumerian) sign DINGIR, given in Figure 2.2, may be read as either *Anu* ‘An (a god)’ or *ilu* ‘god’ in Akkadian.

Figure 2.2: DINGIR



(17) Four ways of reading cuneiform

- a. Logographic
- b. Syllabic
- c. Determiner
- d. Phonetic complement

Logographic readings can also occur in combination with other signs, for instance KÁ.DINGIR.RA.KI^{KI} is read as *Bābilu* ‘Babylon’ (Sum. lit. gate-god-GEN.^{place}). The logographic sequence is given in Figure 2.3 in Old Babylonian orthography.

Figure 2.3: Logographic spelling of *Bābilim* ‘Babylon’



Syllabic signs function as the name indicates to write words syllabically, for instance verbal forms such as *ašpur* ‘I sent’, which may be written *aš-pu-ur*. Determiners are logographic signs that indicate word classes such as place names (KI), divine names (DINGIR), gender of personal names (DIŠ, MUNUS), elements made of certain materials such as wood (GIŠ) or stone (NA₄), etc. Finally, phonetic complements are syllabic signs that are added after logographic signs to indicate to a scribe or reader how a logographic sign should be read.

For the present purposes of transliteration, the understanding of logographic signs is of relevance: Where a reading remained unclear or obscure to me, I give the logographic sign found on the original document. Determiners are also indicated in the glosses where relevant to the understanding of morphosyntactic glossing.

2.2.3.3 Glossing practices

Due to its nonconcatenative nature, Akkadian features are often difficult to gloss using the Leipzig style. I have thus slightly adapted the Leipzig style sheet to accommodate the present necessity to follow precisely the underlying morphology, syntax, and semantics of a given word.

(18) gives an example of an Akkadian phrase. The first row gives the transliteration of the sentence as well as the morphosyntactic boundaries. A dash ‘-’ indicates a morpheme boundary, an equal sign ‘=’ indicates clitic boundaries. Less and greater signs ‘< >’ indicate infixes. An item in bold script indicates the lexical item of question to the current argument.

The second row gives the ROOT denotations of any verbs, which include the radicals and also the general lexical meaning of the ROOT. ROOTS of the type XaYaY, i.e., with reduplicated consonants in their surface forms, are given as biradical ROOTS, conforming to Obligatory Contour Principle (OCP, Leben 1973, McCarthy 1981, 1986, Faust 2023).²

(18) Glossing example

<i>bīt-am</i>	<i>la</i>	<i>u-dabbab-ū</i>	<i>awas=su</i>	<i>l-i-k<t>appir-Ø</i>
		\sqrt{db} 'speak'		\sqrt{kpr} 'clip'
house-OBL	NEG	3-D.speak.IMPV-PL.M	matter=his	PREC-3-D.clip<MID>PFTV-SG.M

“So that they won’t bother the family (lit. house), let the matter be terminated.” (Kraus AbB 1 67 rev. 13, OB)

The third glossing line then provides the morphosyntactic glossing. The morphological *-i* and *-a* cases are given as OBL for ‘oblique’. Verbs in the D stem are prefaced with a ‘D.’ to indicate D morphology. Periods ‘.’ in between glosses indicate two morphemes blended in a linearly non-distinguishable way.

The final line gives the translation, as well as the attestation. Sometimes, for the sake of readability, translations will slightly digress from the glosses. The actual gloss will be translated in brackets with a prefaced ‘lit.’ for *literally*. As for the attestations, the format is as follows: (Publication Volume: Line, Period of attestation), or alternatively (Publication Volume rev. Line, Period of attestation). The first entry will give the publication,³ followed by the volume of the publication. If the excerpt is taken from the obverse, i.e., the front side of a tablet, the line will be given after a double point. If the excerpt is taken from the reverse, i.e., the back side of a tablet, the line will be given following ‘rev.’ for *reverse*. Finally, the period of attestation is given as an abbreviation for either Old Akkadian (OAKk), Old Babylonian (OB), Middle Babylonian (MB), Neo-Babylonian (NB), Old Assyrian (OA), Middle Assyrian (MA), Neo-Assyrian (NA), or Standard Babylonian (SB). Standard Babylonian refers to the lect of pan-Akkadian literature with multiple attested copies from different periods of time, though usually of NA or NB origin.

²OCP arose from the observation that ROOTS of the type XaYaY surface commonly in Semitic, in strong opposition to ROOTS of the type XaXaY, which are almost non-existent. McCarthy (1981) then suggested that a XaYaY pattern surfaces when a biradical ROOT is mapped onto a triradical template. To satisfy the requirement of three consonants, the final radical spreads to the final templatic consonant slot. The near lack of surface forms with two identical radicals in first and second position, i.e., the XaXaY type, was taken as an indication for the lack of ROOTS with an underlying representation of two identical radicals in sequence (note that initial radicals of biradical ROOTS could not spread ‘backwards’). The *Obligatory Contour Principle*, formulated to account for this observation on Semitic ROOTS, then predicts the ban of two identical items in adjacent position in the underlying representation of ROOTS.

³A comprehensive list of the Abbreviations used can be found here: https://cdli.ox.ac.uk/wiki/doku.php?id=abbreviations_for_assyriology (accessed 05/05/2025).

For official royal inscriptions, I furthermore indicate the name of the king, e.g., *Aššurbanipal*. Bigger tablets and inscriptions at times have multiple columns per side, which are given in italicised Roman numerals, e.g., *ii*. Larger texts at times have multiple *tablets*, which I designate by upper case Roman numerals, e.g. V. Finally, published omens from the Šumma Ālu omen series are given in the format of §Tablet.Paragraph/Line.

As mentioned in the Introduction in Chapter 1 above, the system that I describe here is a system that I believe was productive throughout the attested periods and in both mainland regions. Throughout this thesis, I attempt to give a breadth of attestations from different periods and dialects to further motivate this point.

2.3 Linguistic background

2.3.1 The generative framework

In the following, I will briefly introduce Generative Grammar, its relevant representational framework, as well as the generative *programmes*, i.e., ‘sub-branches’ that I employ in the present analysis of the Akkadian verb. This Section does not seek to provide a comprehensive discussion of the generative framework, its merits vis-à-vis other frameworks of analysis, or its disadvantages.

A(ny) coherent linguistic formalism provides us with testable predictions of linguistic systems. This Section is thus aimed to provide the Assyriologist (or non-generative linguist) with the necessary background of the framework in order to follow the formalism chosen for this analysis, the structural representations provided throughout the thesis, as well as understand which general theoretical assumptions about language (passively and actively) drive my analysis of the Akkadian verbal system.

2.3.1.1 Core ideas

Generative Grammar is a framework of formal linguistic analysis, which was most prominently established by Noam Chomsky (1955, 1956, 1965). Its foundation and theoretical background rests on four key observations of language:

1. Every (healthy) human child may acquire any human language (spoken or signed), regardless of the child’s ethnicity or the native language of its parents,
2. Children acquire their first language through imperfect input from their environment,
3. Humans may produce an infinite amount of new utterances, which they have never heard before, and

4. Human language is recursive.

Two core principles derive from these four observations: Universal Grammar and the generative nature of human language.

Universal Grammar, broadly, refers to the underlying logic of human language (Chomsky 1965, but see also Montague 1970 for the semantic side). The fact that *human* children (as opposed for instance to ape children) may acquire *any* human language implies that there is something distinctly human about it and that furthermore the general structure or logic of human language is a structure or logic that humans inherently follow or conceptualise.

Universal Grammar can be understood as the initial state of the language faculty, which in turn is what allows humans to *generate* language, i.e., to produce an, in theory, endless amount of strings of language, which a speaker needs not have heard before. One may consider for instance early child speech, in which children produce grammatically incorrect forms such as *goed* for *went*; children are thereby thought to apply rules they have learned and overgeneralise them. In other words, they acquire rules or parameters of language (Chomsky & Lasnik 1993) and then use those to *generate* language.

Different linguistic methodologies serve different scientific purposes and questions. The overarching goal of the generative framework is to find a formal representation that can account in a uniform way for the grammatical phenomena of human language. As such, we often make use of typological comparisons to other languages and language families when trying to argue for a given analysis; a line of argumentation also followed throughout this thesis.

2.3.1.2 Syntactic representations

The generative framework has developed several (related) formalisms for the different sub-branches of theoretical linguistics; arguably the best known formalism is that of generative syntax. Syntax can be viewed as the body of rules for the composition of phrases. Thereby, we differentiate between the basic elements, which are assembled, and the syntactic operations with which the elements are linked to derive meaning.

Syntax trees are used to visualise elements, their relations to each other, as well as the syntactic operations. It is important to note that syntax trees are *not* meant to represent actual neurological cognitive processes in language derivation, but rather the logical relations between syntactic components. We thus do not assume that humans ‘think in syntax trees’; rather they represent abstract logical connections of language, which is produced cognitively by humans.

In the following, I will introduce the framework of generative syntax, along with its core concepts and notational practices.

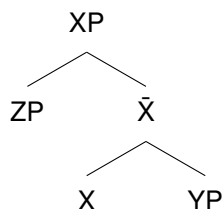
2.3.1.2.1 Syntactic categories and heads

There are two broader types of syntactic categories: lexical and functional categories. Lexical categories comprise nouns, adjectives, verbs, and adverbs. Functional categories comprise determiners (e.g., articles), prepositions, conjunctions, and particles on the word level. On a more abstract level, TAM, Voice, topic and focus, and agreement, among others, also constitute functional categories.

All of these categories may function as *syntactic heads*. A syntactic head determines the category of a phrase. For instance a noun, e.g., *nīnu* ‘fish’, serves as the head of a nominal phrase (NP), a verb, e.g., *šarāqu* ‘steal’, serves the head of a verbal phrase (VP).

Syntactic phrases themselves are made up of multiple elements: a head, a complement, and a specifier. A head, represented by the variable *X* in Figure 2.4, projects its category through \bar{X} (read: X-bar) to the phrasal level *XP*. Any head has, in principle, two ‘docking’ points, one preceding it and one following it. These two docking nodes serve the purpose of allowing for embedding and recursion. The two nodes are called the *complement*, here *YP*, and *specifier*, here *ZP*, themselves phrases with phrase structures equivalent to *XP*. This schema is called X-Bar Theory.

Figure 2.4: Basic syntactic phrase structure

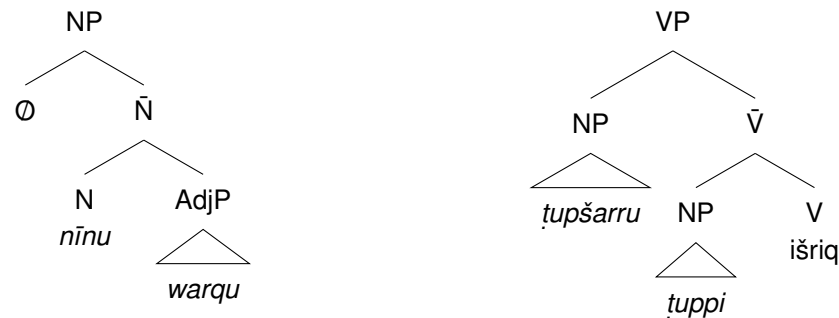


Complements ‘complement’ the head of a phrase, for instance *warqu* ‘green’ complements *nīnu* ‘fish’ in *nīnu warqu* ‘a green fish’, *ṭuppi* ‘tablet.OBL’ complements *šarāqu* ‘steal’ in *ṭuppi šarāqu* ‘steal a tablet’. Complements thus further define the event or property of the head. Specifiers do not modify the head, however, their spot is typically occupied by arguments, at least for VPs (e.g., *ṭupšarru* ‘scribe’ in *ṭupšarru ṭuppi išriq* ‘the scribe stole the tablet’).⁴

Examples of representation are given in Figure 2.5. Triangular roofs indicate abbreviations of longer structures. \emptyset indicates an empty specifier.

⁴I discuss the effect that objects have on predicates in more detail in Section 4.4.1 below.

Figure 2.5: Phrase structure examples



As the head characterises a phrase, it does not stand on ‘equal footing’ with the other components in a phrase structure. In generative syntax, we thus assume *asymmetrical hierarchies* (Kayne 1994) wherein nodes within a phrase ($X, Y(P), Z(P)$) are hierarchically structured, with X for instance hierarchically ‘superior’ to $Y(P)$.

Finally, different languages have different headedness parameters. Japanese patterns as head-final, i.e., its heads are preceded by their complements. French is predominantly head-initial, i.e., its heads are mostly followed by their complements. Akkadian patterns as a mixed language, as illustrated in (19). The i. examples provide NPs, while the ii. examples provide VPs.

(19) Headedness crosslinguistically

a. Japanese

i. *ao-i sakana*
blue-ADJ fish

“a blue fish”

ii. *ringo-o ka-u*
apple-OBJ buy-INF

“buy an apple”

b. French

i. *poisson bleu*
fish blue

“a blue fish”

ii. *acheter des pommes*
buy INDEF apples

“buy apples”

- | | |
|----------------------|------------------------|
| c. Akkadian | |
| i. <i>nīnu warqu</i> | ii. <i>uḫinna mâru</i> |
| fish green | dates.OBL buy |
| “a green fish” | “buy dates” |

2.3.1.2.2 More on functional categories

Lexical categories such as N and V are selected by functional categories. This means that lexical phrases such as NP and VP appear as the complements of functional categories. An NP for instance is headed by a determiner D, which provides information on definiteness (e.g., a definite or indefinite noun). Nominal elements are thus parts of a so-called determiner phrase (DP).

More central to the present purposes of the thesis are the functional categories surrounding verbs. Verbal phrases (i.e., VPs) are themselves also headed by functional categories. The functional categories relevant here in Akkadian are Voice, Aspect, Cause, and Focus.

Voice (Kratzer 1996) is a category that formally introduces external arguments, i.e., arguments that are not inherent to the meaning of a predicate. I discuss Voice in Section 4.4. Aspect is a category that introduces grammatical or viewpoint aspect, i.e., the specifications for *perfective*, *imperfective*, or *Stative* morphology. Two categories that are by no means specific only to Akkadian, but are also not universal for every verbal form are Cause and Focus. I will motivate and explain their precise functions in Chapter 4 of this thesis, but maintain for now that they be understood as functional categories of the verb.

2.3.1.2.3 Semantic content

Syntactic categories can be viewed as ‘slots’, which are filled by some kind of semantic content. Just as with syntactic categories, there are generally two types of semantic content: lexical and functional. Lexical content comes from the lexicon and constitutes what is inserted in lexical heads (e.g., *fish*, *green*, *steal*, etc.). Functional categories are filled by so-called *features*.

Features are more concrete specifications; on the Aspect level for instance, they may specify a verb for [+perfective] aspect or [+imperfective] aspect. On the verbal level, they may specify a verb for a person, e.g., [1] or [2], gender [MASC] or [FEM], or number [+PLURAL] or [+SINGULAR]. Person, number, and gender features are generally known as φ -features.

Through different combinations of lexical items and features, we can derive different words, as illustrated in (20).

- (20) Lexical items and features
- a. actor $\sqrt{ACTOR} + [MASC] + [SINGULAR]$
 - b. actresses $\sqrt{ACTOR} + [FEM] + [PLURAL]$

In this thesis, I adopt a trivalent system of feature marking, wherein features are specified for either a positive charge [+F], a negative charge [-F] or a neutral charge [$\pm F$]. The background for this way of representation is given in Section 4.2.

With that, we have introduced the basic building blocks of syntax: functional categories, features, and lexical entries.

2.3.1.2.4 Syntactic operations

The basic syntactic building blocks must then be ‘put together’ through syntactic operations. We again differentiate two basic operations, called Merge and Move.

Merge refers to the operation of *merging* two building blocks. For instance, in the case of the examples in Figure 2.5 above, *nīnu* ‘fish’ is Merged with *warqu* ‘green’, and *tuppi* is Merged with *išriq* ‘he stole’.

Elements ‘enter’ a derivation solely through the operation Merge. Through this operation, syntax then derives *constituents*, i.e., syntactic units of one or more nodes. A constituent is linearly represented by square brackets [...], and syntactically through a sister relationship (e.g., head and complement or \bar{X} and specifier). Examples for common constituents are NPs headed by DPs (e.g., [_{DP} the [_{NP} fish]]) or verbs and their complements (e.g., [_{VP} steal [_{DP} a [_{NP} tablet]])).

Move describes an operation in which an element that has already been Merged into the derivation is Moved to a different position in the structure. Such operations occur due to requirements that certain heads or features set for the structure. One such example relevant throughout this thesis is introduced in Section 2.3.2.1 below.

Further operations of already Merged elements include Agree and feature-checking. Agree describes an operation between two nodes, which triggers an Agreement relation between them, for instance an Agreement of ϕ -features between nouns and their adjective complements, or between verbs and their respective arguments.

A concept that will become relevant in Chapters 4 and 5 is the idea of feature-checking. In the sense of Adger (2003), feature-checking refers to the idea that some features are 'interpretable' by linguistic interfaces while others are 'uninterpretable' and must be made interpretable by combining with, i.e., being 'checked' by an interpretable counterpart. For instance, a nominal element might be specified for $[N, \mu D]$, i.e., an interpretable nominal feature and an uninterpretable determiner feature. The presence of an uninterpretable feature is what would trigger the Merge of a D, which naturally carries an interpretable $[D]$ feature through its head. $[D]$ would then check the $[\mu D]$ feature of the nominal element N.

2.3.1.3 Arguments and thematic roles

A crucial syntactic concept to the present analysis is that of *arguments*. In the verbal domain, an argument is defined as an object of a verb, which the verb requires in order to be grammatical. This is perhaps best exemplified by transitivity differences. The syntactic definition of transitivity defines an intransitive verb as a verb requiring precisely one syntactic argument; any further object added to such a predicate is classified as an 'adjunct'. (21) gives an example of three intransitive predicates, with the adjuncts given in brackets.

(21) Intransitive verbs

- | | |
|-----------------------------|--------------------------|
| a. I run (up a hill). | (Argument: <i>I</i>) |
| b. You fall (down a shaft). | (Argument: <i>you</i>) |
| c. They sit (on a chair). | (Argument: <i>they</i>) |

A transitive verb is syntactically defined as a verb requiring precisely two syntactic arguments (22a-b). An omission of any of the two necessary arguments would result in a faulty expression. In other words, transitive verbs logically imply and thus require the expression of two arguments, as in (22c-d).

(22) Transitive verbs

- | | |
|------------------------------|---|
| a. I cut the bread. | (Arguments: <i>I, the bread</i>) |
| b. The cat killed the mouse. | (Arguments: <i>the cat, the mouse</i>) |
| c. *I cut. | |
| d. *The cat killed. | |

Finally, ditransitive verbs are syntactically defined as verbs requiring three syntactic arguments. Again, the omission of any argument would result in a faulty or at least odd expression, as illustrated in (23).

(23) Ditransitive verbs

- a. Keren gave Nathalie a book. (Arguments: *Keren, Nathalie, a book*)
- b. *Keren gave Nathalie.
- c. ?Keren gave a book.

Different arguments take different thematic roles, assigned by the verb. One verb may only assign one theta role per one argument, i.e., one argument per one constituent. Common thematic roles, also known as θ -roles (read: theta-roles) are given in (24).

(24) Thematic roles

- a. Agent: the active (causer) argument of an event
E.g., *I run, **the driver** hit the brakes*
- b. Patient: the argument that is affected by the event and undergoes a change-of-state
E.g., *He froze **the meat**, the children painted **the wall***
- c. Theme: the argument that is affected by the event (for instance through motion) but does not undergo a change-of-state
E.g., *They passed **the book** along, I almost missed **the bus***
- d. Experiencer: the argument that experiences the event
E.g., ***The students** hate school, **mice** fear cats*
- e. Goal: the argument to which an event is directed
E.g., *She approached **the train station**, they pointed at **the TV***
- f. Beneficiary: the argument, which receives or benefits from an event
E.g., *I gave **you** a book, he donated money to **the school***

2.3.1.4 The Minimalist programme

Minimalism (Chomsky 1995) is a programme of the generative framework, which reduces the syntactic machinery to the minimal necessary set of operations in order to generate language, with the central operation in Minimalism being Merge.

While in older programmes of generative grammar, X-Bar Theory predicted many ‘empty’ nodes (i.e., unfilled complements and specifiers), Minimalism only assumes the presence of those nodes that can be logically accounted for in the representation of utterances. In other words, the minimalist programme does not represent syntactically or semantically ‘empty’ nodes.

Relevant in order to follow the syntactic representations in this thesis is also the partly different notational practices. NPs are represented as *nP*, VPs as *vP*—changes that are to do with the representation of argument introduction (see Chomsky 1995, Adger 2003, but also Hale & Keyser 1993 for background).

2.3.1.5 Mirror principle and Distributed Morphology

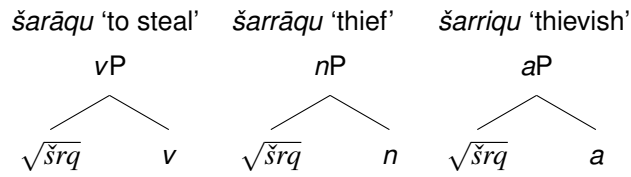
A principle of morphosyntax in generative grammar, known as Mirror Principle (Baker 1985), assumes that morphological derivation is a direct reflection of syntactic derivation. Based on this principle, among others, Halle & Marantz (1993) introduced the framework of Distributed Morphology (DM), which is also the foundational framework employed in the present analysis of Akkadian.

DM makes two central claims:

1. Morphological derivation follows the principles and rules of syntax
2. Word formation is also syntactic, not lexical

Based on these claims, the *morpheme* in DM is understood as the basic building block of language. The basic syntactic building blocks introduced above, i.e., categories, features, and lexical entries, are thus all treated as morphemes. *Morphosyntax* then describes the rule book with which morphemes are put together to derive language.

Lexical word building in DM happens at the most basic level through the Merge of an IDIO-SYNCRATIC LEXICAL ROOT (Section 3.1.1) and a categoriser. This principle is especially well demonstrated for Semitic languages. Consider for instance the ROOT $\sqrt{\text{šr}q}$ ‘steal’, which may derive verbs, nouns, and adjectives. The fundamental structural difference between, say, the structure of the verb *šarāqu* ‘to steal’, the noun *šarrāqu* ‘thief’ and the adjective *šarriqu* ‘thievish’ could be represented as in Figure 2.6.

Figure 2.6: Lexical word derivation

In order to derive a verb, a ROOT must Merge with a verbalising *v* head, in order to derive a noun, it must Merge with a nominalising *n* head, and finally, in order to derive an adjective, it must Merge with an adjectival *a* head.

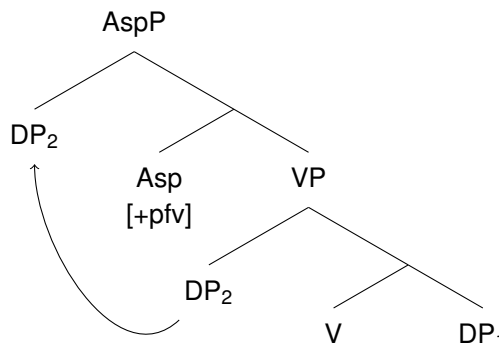
What happens further on in the derivation of verbs in Akkadian is the subject of this present thesis and will be discussed throughout.

2.3.2 Further theoretical assumptions and principles

2.3.2.1 Extended projection principle

Extended projection principle (EPP), introduced by Chomsky (1982), assumes that the subject position of a phrase must be occupied by a nominal element (i.e., a DP containing an NP). In syntactic practice, this means that the specifier of a given phrase XP must be filled by a DP.

In the example tree in Figure 2.7 below, the subject DP₂ is base-generated as the specifier of VP. Once we add the specification of aspect, here in form of a *perfective*, the specifier of the aspect layer is empty and must thus be filled by the subject. DP₂ thus moves to the specifier of Asp to satisfy EPP.

Figure 2.7: EPP

2.3.2.2 Monotonicity

Monotonicity refers to the assumption that the derivation of lexical words (or generally in word derivation), elements are only ever *added*, never *removed* (Kiparsky 1982, Koontz-Garboden 2012, Graf 2020).

The idea of monotonicity is not reconcilable with every operation of syntactic derivation that we know of, for instance with passive Voice derivations, wherein an element, the Agent, could be interpreted as having been removed from the concept of the underlying verb. Such cases are typically explained by what is known as A-Movement (i.e., argument movement): in the derivation of passive constructions, the object, which is derived in the complement of a verbal phrase, is Moved to the subject position before a new argument can be Merged as the subject (Graf 2020: p. 40).

A connection between monotonicity and the insights of Mirror Principle and DM can be typologically observed, too: cross-linguistically, languages are more predisposed for 'additive morphology', rather than reductive morphology, e.g., specifying a causative alternant rather than an anticausative one (Inglese 2021).

2.3.2.3 Markedness

Markedness describes a principle in which linguistic features receive two polar values, which are designated 'marked', i.e., present, or 'unmarked', i.e., neutral or not present; This differentiation can also be viewed as the presence or absence of a given feature (Crystal 2008: p. 295, see also Battistella 1996).

Markedness is oftentimes correlated with phonological or morphological complexity. In other words, morphophonologically more complex lexical elements are treated as more 'marked' than other less complex forms. Thereby, the inherent directionality of marked elements is not universally agreed upon. In cases like plural marking, e.g. *dog* vs. *dog-s*, the markedness of the plural form is more easily motivated. In other word pairs, e.g., *dog* vs. *bitch*, markedness is less clear-cut.

ROOT projections: The G stem

3.1 Introduction

3.1.1 The ROOT

At the root of every derivation lies the ROOT. The LEXICAL IDIOSYNCRATIC ROOT is defined, as the name suggests, by its idiosyncratic lexical content. ROOTS together with EVENT TEMPLATES make up the two components of *events* (see for instance Dowty 1979, Rappaport Hovav & Levin 1998, Beavers & Koontz-Garboden 2020, among others). EVENT TEMPLATES consist “of some universal set of grammatical primitives defining basic event types such as action, causation, and change, taking arguments filling in standard participants in those events to define the event’s broad temporal and causal contours” (Beavers & Koontz-Garboden 2020: p. 9). In other words, EVENT TEMPLATES define the temporal and causal shape of events, thus grouping verbs into ‘types’ (Beavers et al. 2021: p. 2).

The ROOT then distinguishes verbs with identical EVENT TEMPLATES from one another (Beavers & Koontz-Garboden 2020: p. 9). The definition of the LEXICAL IDIOSYNCRATIC ROOT is by no means agreed upon in the literature. In DM, ROOTS principally do not have a category, but rather rely on combination with a categorising head, e.g., *v*, *n*, or *a* for the derivation of verbs, nouns, and adjectives, respectively. Other approaches assume ROOTS are more broadly categorisable, for instance into events, states, and things (e.g., Harley 1999). In her analysis of the Hebrew verb, Arad (2005) differentiates ROOTS of more precise semantic denotations from ROOTS with more general or ‘impoverished’ contents (Acquaviva 2014: p. 54). For Aronoff (1994), ROOTS are the ‘remnants’ of lexical items, after all other morphological material has been separated and identified.

In Semitic, the definition of ROOTS is indeed an interesting one as morphology and semantics overlap in ways in which the logical conceptualisation of ROOTS in other language families does not (Faust & Hever 2010, Faust 2014, Harley 2014). The lexical idiosyncratic content of a Semitic ROOT more regularly overlaps with a set morphophonological representation

of a sequence of typically three consonants. As such, under the present definition of the ROOT, both the morphophonological ROOT, e.g., \sqrt{prs} , $\sqrt{\check{s}kn}$, $\sqrt{\check{l}}$, as well as the LEXICAL IDIOSYNCRATIC ROOT, e.g., ‘separate’, ‘place’, ‘pure’, ‘bright’, respectively, are understood to be the same.

In the present analysis, I make the empirical claim that the derivation of every Akkadian lexical word starts out with a ROOT. This means that G verbs are deradically derived, D verbs are deradically derived, Š verbs are deradically derived and even N and *t*-verbs are deradically derived, and any one given template pattern is not derived from any other.

One of the central claims of this dissertation is that the internal properties of ROOTS affect the semantic output in the derivation of verbs throughout the template patterns. The goal of this Chapter is thus to define which properties are relevant to the derivation and semantic spell-out of verbs and demonstrate how these internal properties may be determined for Akkadian.

3.1.2 The content of ROOTS

In their present understanding, ROOTS consist at least of an abstract conceptual core (Hale & Keyser 1993, 2002, Rappaport Hovav & Levin 1998) and a set of decomposable internal properties (Parsons 1990). By ‘internal properties’ I refer to some semantic specifications that each ROOT makes but which are not overtly ‘visible’. This means that just by looking at the abstract representation of a given ROOT, one could not tell what its internal properties are. These properties must be *tested* for.

One way to test for these properties is to strip the ROOT to its bare minimum and then observe its interactions with structures, which are known to either require particular encodings or encode specific features themselves, which may or may not clash with the encodings of a ROOT. The two features, which are of relevance to us here are 1) the telicity feature, and 2) the encoding of the semantic primitive DO, and whether or not certain ROOTS encode them or not.

The testing ground is provided by the G stem, which I claim here and motivate further on is the direct projection of the ROOT. This is evidenced not only by the G stem’s morphophonology, but also by the ROOTS’ high degree of idiosyncrasies and inflectional restrictions. Through the application of three tests on G stem derivations, one can isolate telicity feature and internal argument encoding, the latter of which is crucial in order to determine the presence of a DO-predicate for intransitives.

Based on the unique combinations of internal properties, that is of a ROOT’s telicity specification and its internal argument encoding, ROOTS can then be classified and grouped into thirteen ROOT classes in Akkadian, which are relevant to account for further derivational patterns. The classes are given (25) below.

(25) ROOT classes in Akkadian

- | | |
|--------------------------------|----------------------------|
| a. Property concept ROOTS | h. Emission ROOTS B |
| b. Eventive unaccusative ROOTS | i. Existence ROOTS |
| c. Emission ROOTS A | j. Unergative ROOTS |
| d. Psych-ROOTS | k. Agent-transitive ROOTS |
| e. Labile motion ROOTS | l. Labile transitive ROOTS |
| f. Durative ROOTS | m. Experiencer ROOTS |
| g. Inchoative ROOTS | |

In the following Section 3.2, I will introduce the basic morphophonology of the G stem, which serves as a crucial argument in favour of the G stem as the direct projection of the ROOT, and will then move on to determine the semantic properties of the Akkadian ROOTS. I thereby split the discussion of the ROOT classes into the discussion of intransitives in Section 3.3 and transitives in Section 3.4. I then summarise this Chapter in Section 3.5.

3.2 No morphology, no semantics

The G stem is morphologically unmarked. Its minimal skeleton is given in (26) below.

(26) Minimal representation of the G template (perfective)

PERSON-**XYV**_RZ-NUMBER.GENDER

The G stem's only characterising morphological feature is the 'root vowel – theme vowel' alternation in the two primary aspects: in the *perfective*, a G verb will take a so-called 'root vowel' between the second and third ROOT radicals, in the *imperfective*, it will take a so-called 'theme-vowel'. This 'ablaut'-alternation is only observed in the G stem, and is not preserved in the D and Š stems. In total, five ablaut classes may be differentiated, typically given in the order of theme vowel – root vowel: (a/u), (u/u) (a/a), (i/i), and (a/i); examples are given in Table 3.1 below. Very little scholarly attention has been given to these ablaut classes, and in turn no definitive functions or semantic patterns may be assigned to either class, though see Kouwenberg (2010: 68ff.) for a very tentative classification attempt.

Table 3.1: Akkadian ablaut classes

Ablaut-class	Imperfective	Perfective
(a/u)	<i>i-parras-Ø</i> 'he was/is/will be separating'	<i>i-prus-Ø</i> 'he has separated'
(u/u)	<i>i-maqqut-Ø</i> 'he was/is/will be falling'	<i>i-mqut-Ø</i> 'he has fallen'
(a/a)	<i>i-lammad-Ø</i> 'he was/is/will be learning'	<i>i-lmad-Ø</i> 'he has learned'
(i/i)	<i>i-paqqid-Ø</i> 'he was/is/will be entrusting'	<i>i-pqid-Ø</i> 'he has entrusted'
(a/i)	<i>urrad-Ø</i> (<*i-warrad-Ø) 'he was/is/will be descending'	<i>urid-Ø</i> (<*i-wrid-Ø) 'he has descended'

I propose here that the G stem does not 'add' any additional material, semantic, syntactic, or morphological, to the ROOTS it is derived with. Due to this morphological unmarkedness and the retention of the cryptic ablaut classes, I thus treat the G stem as the most 'basic' syntactic projection of the LEXICAL IDIOSYNCRATIC ROOT (Borer 1994). With their surfacing only in the G stem and G stem constituting the syntactic projection of a ROOT, I hypothesise that the 'ablaut' vowels are encoded in the ROOT, too.

Looking solely at the morphological form or structure of a G verb, for instance at its consonants or their order, one may not predict which syntactic or semantic 'type' of verb will be derived. For instance, G verbs may be intransitive, transitive, or ditransitive, they may denote all lexical aspects, i.e., states, achievements, activities, and accomplishments (following Vendler 1957's conventions), and even denote some mediopassive verbs. Quite interestingly for Semitic, a notable amount of Akkadian G stems may even undergo the labile alternation (Sections 3.3.2.5 and 3.4.2) as well as the induced causative alternation (e.g., *he jumped the horse*). Nothing about the morphology of the G verb thus tells us anything about a derived verb's syntax and semantics. This syntactic and semantic idiosyncrasy further suggests that there is no intervening syntactic layer between the ROOT and higher layers of projections such as Voice or Asp that could potentially adduce any syntactic or semantic content into the derivation (see for comparison Marantz 2013a, De Belder, Faust & Lampitelli 2014).

The G stem is often regarded as the core foundation of the Akkadian verb. Out of 1274 recorded ROOTS in the present corpus, only 175, i.e., around 13.7%, have *no* G stem attested, leaving almost 86.3% of the ROOTS instantiating their ‘basic’ or foundational meaning through the G stem.¹ For most if not all G–D–Š as well as the respective *t*- and N-alternants, the Akkadian G stem often appears to represent the semantic ‘base’ of any further derivations, as illustrated in Table 3.2 for the G–D–Š alternants of the ROOTS given in Table 3.1 above.

Table 3.2: Basic Akkadian stem-alternations

ROOT	G	D	Š
\sqrt{prs}	‘separate, cut off’	‘chop off’	‘cause to separate’
\sqrt{mqt}	‘fall, collapse (intr.)’	‘collapse (tr.)’	‘cause to fall’
\sqrt{lmd}	‘learn, understand’	‘inform’	‘cause to learn, understand’
\sqrt{pqd}	‘entrust, take care of’	‘entrust, take care of (pl. obj.)’	‘cause to entrust’
$\sqrt{wrđ}$	‘descend’	/	‘bring, send down’

The D verbs in Table 3.2 can be shown to either be intensive (\sqrt{prs} ‘separate’), pluractional (\sqrt{pqd} ‘entrust’), or factitive (\sqrt{mqt} ‘fall’, \sqrt{lmd} ‘learn’) compared to the meaning derived in G. The Š verbs can more uniformly be seen to derive causatives to the meanings derived in G.

That is not to say, however, that the D or Š morphologically or syntactically derive from the G stem; rather, the G stem, serves as a projection of the ROOT. As the projection of the ROOT, the G stem overtly presents the properties of ROOTS—and the ROOT lies at the base of every templatic derivation.²

This chapter serves two entangled purposes: 1) To motivate the interpretation of the G stem as the direct projection of the ROOT of Akkadian verbs, and 2) to present a comprehensive categorisation of these ROOT types and the different G verbs they derive. I claim here that different ROOTS show different derivational patterns across derivational stems, but their different derivational behaviour can be anticipated by the behaviour observed in the respective G stem.

In order to do that, I have developed three tests to classify intransitive and transitive ROOTS respectively. These tests serve two main purposes: a) the identification of ROOT-encoded internal arguments, and b) the identification of ROOT-encoded aspectual properties. By identifying which ROOT classes encode internal arguments, one may disambiguate unaccusatives from unergatives. The identification of aspectual telicity features will become relevant in the next Chapter 4, discussing the causative derivation.

¹Notably, the present corpus presents an attestation breadth of around two millennia. Most verbs that do not attest a G derivation are loans, denominal, or overall rarely attested.

²The motivation for independent deradical derivation for G, D, and Š patterns is supported and backed by evidence from other Semitic languages, see Doron 2003, Arbaoui 2010, Kastner 2020.

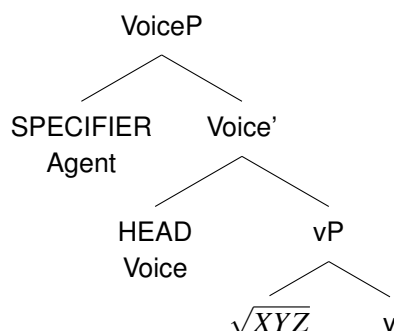
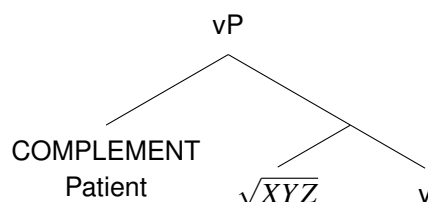
In the following, I will present an overview of the ROOT classes of Akkadian. As the later Chapters will demonstrate, these classes and their syntactic and semantic properties will be crucial to accounting for the different derivational patterns observed for the causative D and Š stems, as well as for the anticausative N and *t*-stems. Beginning with the Intransitives in Section 3.3, I first give an introduction and overview of the relevant tests in Section 3.3.1 and then move on to introduce the different types of intransitives, generally differentiating between unaccusatives in Section 3.3.2 and unergatives in Section 3.3.3. The different types of transitives are given in Section 3.4. Finally, I conclude in Section 3.5.

3.3 Intransitives

Intransitive predicates are understood here as predicates with precisely one syntactic argument, which is assigned one θ -role, e.g., *stand, sit, walk, jump, grow, fall, freeze* (intr.), *begin, last*, etc. To present knowledge, Akkadian attests only one verbal ROOT that does not assign θ -roles, namely *zanānu* ‘to rain’ from \sqrt{zn} ‘rain’, see Kouwenberg 1997: p. 243.

Intransitives can be roughly separated into two groups, traditionally called *unergatives* and *unaccusatives*. The literature pursuing the definition of what constitutes an unaccusative or unergative verb is vast, and usually falls within one of three ‘camps’: the syntactic approach, the semantic approach, and a combinatory approach (argued for, i.a., by Perlmutter 1978, Levin & Rappaport Hovav 1995). In the following, I will very briefly summarise the three approaches to the split. For a more comprehensive overview over the earlier literature in generative grammar, see Cetanrowska (2002), for a typological survey of intransitivity splits, see Dixon (1994).

Following the syntactic definition of the split (argued for by Pesetsky 1982, Rosen 1984, Burzio 1986, Borer 1998, i.a.), the difference between unaccusatives and unergatives is defined, depending on author, primarily to solely based on the syntactic encoding of a given verb’s arguments. Perlmutter (1978) and Levin & Rappaport Hovav (1995) argue that unaccusative verbs take an internal argument, but no external argument (making them syntactically identical to passive verbs), while unergative verbs take an external argument but no internal argument. This syntactic difference, adapted to the present theoretical analysis, may be summarised as in Figures 3.1 and 3.2 below.

Figure 3.1: Unergative base structure**Figure 3.2:** Unaccusative base structure

The semantic approach (argued for, i.a., by van Valin 1990, Dowty 1991, Lieber & Baayen 1997), purports that any differences in behaviour observed between the two classes, including syntactic differences, may be predicted by the semantics of the verbs in question. The approach is most prominently supported by van Valin (1990) who argues for a foundational difference in the encoding of (thematic) roles wherein the argument of an unaccusative takes the role of an ‘undergoer’ (roughly equivalent to a Patient), and the argument of an unergative takes the role of an ‘actor’ (roughly an Agent).

As Levin & Rappaport Hovav (1995: p. 12) note, a crucial argument provided by the semantic camp is the observation that not all verbs patterning as unaccusatives pass all unaccusativity tests, leading to so-called ‘unaccusativity mismatches’, which necessitated recalibration and the incorporation of semantic properties such as telicity (Zaenen 1993) into the theory of unaccusativity (Cetanrowska 2002: p. 22).

This has led to the development of the third, semantic-syntactic approach, most prominently argued for by Levin & Rappaport Hovav (1995) with the so-called ‘linking approach’. There, the differences between unaccusatives and unergatives are primarily defined semantically and then manifest in a syntactically regular manner.

Briefly, Levin & Rappaport Hovav (1995) differentiate different lexical-conceptual structures (LCS) for different types of unaccusatives and unergatives, respectively. The ‘linking rules’ then determine how LCS are mapped onto the syntax.

I adopt the semantic-syntactic approach with slight Akkadian-specific and theory-specific modifications, to be explored throughout this thesis. Generally, I assume uniform syntactic representations within the various types of unaccusatives presented in Section 3.3.2, as well as uniform syntactic representations within the various types of unergatives presented in Section 3.3.3. However, I trace the different derivational and semantic behaviour observed within the classes to semantic factors encoded in the LSC of the IDIOSYNCRATIC ROOT. As the following will show, these semantic factors include the telicity-specifications of a ROOT and any possible event-operator it may encode.

Even within the different approaches, the syntactic and semantic parameters, definitions, and tests used to define either unaccusatives or unergatives are not cross-linguistically uniform (Rosen 1984, Talmy 1985, Levin & Rappaport Hovav 1995), and as such require modification for the present corpus of Akkadian, too. In the following, I will present the Akkadian-specific tests used to disambiguate unaccusatives from unergatives (Section 3.3.1), as well as their respective aspectual subclasses. I will then discuss the two classes separately, beginning with the different types of unaccusatives in Section 3.3.2 and the unergatives in Section 3.3.3.

3.3.1 Unaccusativity tests

The disambiguation of G verbs to determine their derivational properties is not an entirely novel concept in Akkadian linguistics. Goetze (1942) and Rundgren (1959) were early contributors to the debate by formulating their observations on the derivational mechanisms of the D and Š stems, thereby forming intuitions about the nature of the G verbs underlying the different bases of derivation.

A more recent analysis was presented by Kouwenberg (1997, 2010) who differentiates derivational patterns by using the rough metric of ‘transitivity’. Kouwenberg’s understanding of transitivity follows the definition of Hopper & Thompson (1980) wherein, rather than an absolute concept, transitivity is a scalar spectrum with ‘low’ and ‘high’ transitivity on either of its ends. Hopper & Thompson (1980: p. 252) identify ten parameters for the definition of ‘high’ and ‘low’ transitivity, as given in (27) below. This approach to transitivity is generally known as *semantic transitivity* (Creissels 2024: 23f.).

Kouwenberg’s (1997) overall position is that G verbs of higher overall transitivity are more prone to derive intensive D verbs and causative Š verbs, while G verbs of lower overall transitivity are more prone to derive factitive D verbs and sometimes also causative Š verbs. The issue with this system is that Kouwenberg does not make clear how 1) the categories are internally graded, and 2) they are weighed against each other.

(27) Transitivity parameters following Hopper & Thompson (1980: p. 252)

	High transitivity	Low transitivity
a. PARTICIPANTS	≥ 2 participants; A and O	1 participant
b. KINESIS	action	non-action
c. ASPECT	telic	atelic
d. PUNCTUALITY	punctual	non-punctual
e. VOLITIONALITY	volitional	non-volitional
f. AFFIRMATION	affirmative	negative
g. MODE	realis	irrealis
h. AGENCY	A high in potency	A low in potency
i. AFFECTEDNESS OF O	O totally affected	O not affected
j. INDIVIDUATION OF O	O highly individuated	O non-individuated

Regarding the internal grading of categories, for all but (27a,g), it remains unclear on which basis Kouwenberg determines a 'value' for a given verb. The number of participants as well as the mode of an Akkadian verb can be easily determined by the number of arguments marked on the verb or in the syntax and context of an attestation, or by modal particles, respectively. However, categories such as KINESIS (27b), VOLITIONALITY (27e), or AFFIRMATION (27f) are not as definitively identifiable by means of grammatical elements, thus more 'gradient' in nature, and furthermore also highly context-dependent. Categories (27h-j), one may argue, are even entirely context-dependent. Kouwenberg's treatment of the Akkadian verb is not transparent in how these independent categories are determined for individual verbs, and by extension how the interpretation of individual verb attestations contribute to his understanding of the underlying meaning of a ROOT or 'base' verb from which D and Š forms are then derived.

Regarding the second point, i.e., the weight of each category, it does not become clear from Kouwenberg's study if any one the categories, especially categories (27c-j), are weighed more strongly against other categories. An issue raised also by Hopper & Thompson (1980: p. 254) themselves is the observation that an utterance that is lower in transitivity can have more 'higher transitivity' features than an utterance that is higher in transitivity, as exemplified in (28) below. This definition of transitivity thus necessitates a ranking of categories that outweigh others—a ranking that is also missing in Kouwenberg's treatment of Akkadian.

(28) Transitivity features of two utterances following Hopper & Thompson (1980: p. 254)

- | | |
|----------------------------|-----------------------------|
| a. <i>Susan left.</i> | b. <i>Jerry likes beer.</i> |
| KINESIS: action. | PARTICIPANTS: two. |
| ASPECT: telic. | |
| PUNCTUALITY: punctual. | |
| VOLITIONALITY: volitional. | |

These unclaritys in terms of what is considered more or less transitive by the semantic transitivity definition make it difficult for us to accurately predict which ROOT would derive which pattern. That is not to say, however, that the categories introduced for the determination of transitivity in Hopper & Thompson (1980) are not of relevance; but they should not be conflated in the pursuit of defining what determine's a ROOT productivity in derivation.

As an alternative to Kouwenberg's system, I will show throughout this thesis how different domains, particularly those of syntactic transitivity, agency, and aspect (including the concept of punctuality), all contribute to the emergence of different ROOT classes and, in effect, different derivational patterns. Contrary to previous approaches to Akkadian derivational morphology, I will more clearly separate the individual domains at play and then discuss their interactions at the interfaces. I use the term 'transitivity' in its *syntactic* sense, referring to the the number of arguments a verb syntactically encodes: 'intransitive' for verbs requiring precisely one argument, 'transitive' for verbs requiring precisely two arguments, and 'ditransitive' for verbs requiring precisely three.

Seeking separate, potentially new parameters for the disambiguation of ROOT classes, I refer to syntactic and lexical semantic theory. A particular benefit of this very wide body of literature lies in its development of linguistic tests for diagnosing different types of linguistic structures. Linguistic tests are run for instance by isolating a specific feature or form and inserting it into multiple different contexts in order to test for its behaviour in different environments. Certain tests can have 'passing' and 'failing' requirements: For instance, if the derivation of a given form requires the presence of a specific feature on a ROOT, a failed derivation can then imply the absence of said feature. In mirrored fashion, should the derivation of a form require the *absence* of a feature, a failed derivation could imply its presence in a ROOT.

Naturally, the employment of linguistic tests is much easier when applied to living languages with living consultants—but that is not to say that such tests are impossible to develop for extinct languages.

As was mentioned above, the tests presented here primarily serve two purposes: a) to disambiguate ROOTS deriving unaccusatives from ROOTS deriving unergative verbs, and b) to determine the rough aspectual properties of the ROOTS in question. In the following, I will introduce the three tests of initial relevance to the disambiguation of ROOT classes.

3.3.1.1 The *Stative* test

The first unaccusativity test presently developed for Akkadian involves the so-called ‘*Stative*’.³ The *Stative* is a verbal conjugation (following Kouwenberg 2000, Carver 2016, Kamil 2023, Forthcoming, i.a.) denoting a state that follows the completion of a preceding event (Kamil Forthcoming). These states are commonly also referred to as ‘result states’ (Embick 2004, Beavers et al. 2021). As further argued in Kamil (Forthcoming), *Statives* show syntactic parallels to English resultative constructions, e.g., *I **swept** the floor clean*, wherein the underlined expresses the resultative state and the bold verb the event that has led to the acquisition of the state. (see Levin & Rappaport Hovav 1995: chap. 2). I thus refer to their denoted states as ‘resultative states’.⁴ (29) gives an example.

(29) A *Stative* example

kunuk PN₁ ula qurrub=ma ina kunuk PN₂ **barim**
√brm ‘seal’
 seal.CSTR PN NEG presented=CONJ in seal.CSTR PN seal.STAT.3.SG.M

“The seal of PN₁ was not available, so it is now sealed with the seal of PN₂.” (YOS 8 71:16, OB)

Two main arguments present themselves for the resultative reading of *Statives*. The first argument, in relation to Levin & Rappaport Hovav (1995), pertains to the direct object restriction, that is the restriction set upon resultatives to only be derivable for predicates encoding a direct object. Indeed, in Akkadian, *Statives* are only regularly derived for ROOTS encoding a direct object; in the present corpus, the class of unergatives comprised 132 ROOTS, only 19 of which (14.4%) derived *Statives*. This behaviour patterns with English unergatives, too, which fail to form the resultative construction (Levin & Rappaport Hovav 1995: ch. 2)⁵ In the rare cases where they do, they derive durative, instead of resultative states, as illustrated in (30).

³I use an uppercase *Stative* to refer to the conjugation and a lowercase *stative* to refer to the aspectual property of ROOTS/lexical items.

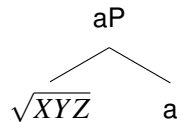
⁴Note that the Akkadian *Stative* is cognate with the West-Semitic *perfect*. Akkadian marks *perfective* and *imperfective* aspects parallel to the *Stative*, and as such the *perfective* assumes the functions that are otherwise displayed in West-Semitic *perfects*. *Statives* are thus related to *perfects*, but are pragmatically more focussed on the resultant state rather than the event that has brought about the state (Kamil Forthcoming).

⁵Note, however, that the inapplicability of unergatives to resultative constructions of any kind is not a universal feature of language. See for instance Huang 2006 for an account of unergative resultatives in Mandarin Chinese.

3.3.1.2 The verbal adjective test

Once we separate unaccusatives from unergatives, the verbal adjective (VA) then provides a syntactic *and* semantic test for subcategorisation of the two general classes. The VA refers to a deradical adjective, i.e., the most productive (unmarked) adjectival derivation. Its core structure is given in Figure 3.3 below.

Figure 3.3: VA base structure



The VA takes the general shape $XaYZ$ -CASE. Here, too, one may roughly differentiate between ROOTS deriving ‘resultative’ VAs (32), i.e., adjectives entailing change, and stative VAs (33), i.e., adjectives not entailing change.⁶

(32) Resultative VA

a. *maḥṣ-u* $\sqrt{\text{mḥṣ}}$

beat.VA.3.SG.M-NOM

“beaten”

b. *ūmam mala amt-im qaqqad-im maḥṣ-im* $\sqrt{\text{mḥṣ}}$ ‘beat’

today as much as slave girl-OBL head-OBL beaten-OBL

“Today, (I have not pleased you) as much as a slave girl beaten on the head”
(Kienast ATHE 44:26, OA)

(33) Non-resultative VA

a. *warq-u* $\sqrt{\text{wrq}}$

green.VA.3.SG.M-NOM

“green”

⁶Typological parallels for this distribution can be found in Indo-European, for instance in Hittite, see Fellner & Grestenberger (2018: 66ff.) and Grestenberger (2020: 241ff).

To illustrate, (34) shows two PC ROOT adjectives for the ROOT $\sqrt{rb\bar{\imath}}$ 'big, great', one derived as VA in the minimal template (34a), the other derived as a VA in the marked Š template (34b). The minimal VA in (34a) denotes a PC, being big, and does not entail that the argument described (i.e., the star) has acquired its attribute by any process of change. The more complex adjective in (34b) on the other hand, while typically translated as a PC, too, *might* have entailed change through the addition of the causative morpheme preceding it.

(34) PC adjectives in use

- a. *lu ištu libbi kakkaban-i rabi-e lu ištu kakkaban-i šīr-i*
 $\sqrt{rb\bar{\imath}}$ 'big' $\sqrt{\bar{s}hr}$ 'small'
 either from within star-OBL big-OBL either from star-OBL small-OBL

"(A shooting star comes) either from a big star or from a small star" (ACh Supp. 54:18, NB)

- b. *ana Ištar šu-rbû-t-im*
 $\sqrt{rb\bar{\imath}}$ 'great, big'
 DAT PN CAUS-exalted.VA-F-OBL

"For the great/exalted (lit. 'made great') Ištar" (RA 22 57 i 1 (Nabonidus), NB)

Contrasted with the PC ROOT not entailing change when derived through the minimal VA template, (35) presents a minimal VA for a transitive RESULT ROOT, \sqrt{mkr} 'flood, irrigate'. As can be seen in the example, this adjective does entail change, i.e., the preceding irrigation of the field.

(35) RESULT ROOT adjective in use

- eql-am makr-am*
 \sqrt{mkr} 'flood, irrigate'
 field-ACC irrigated.VA-ACC

"An irrigated field (in exchange for a field that has not been irrigated)" (TCL 7 18:16, OB)

Syntactically, the VA serves as both a refinement and a complementary test to the *Stative*. The VA forms the morphological basis of the *Stative*, but as is argued in Kamil (Forthcoming), the VA is not the derivational stem from which *Statives* are derived;⁷ rather both are derived deradically, which is evidenced by the case of transitive Experiencer-subject verbs (treated in Section 3.4.3 below). These verbs predicate different arguments in the *Stative* and VA respectively: while the *Stative* will predicate the Experiencer-subject, the VA will predicate the Theme/Patient-object. As such, the VA provides us with a syntactic refinement-test, which may tell us whether a ROOT encodes a Theme/Patient or an Experiencer as its internal argument.

Complementing the *Stative* test, the syntactic restrictions of VAs further help distinguish between agentive and non-agentive intransitives: Just as with the *Stative*, agentive unergatives usually do not form VAs, and if they do, they denote stage-level⁸ and non-resultative states with an expected endpoint, as illustrated in (36) below.

- (36) *lasm-ūt-i* *mūrnisq-ī*
 √*lsm* ‘run’
 running-PL-OBL war horse-PL.my

“My running steeds” (OIP 2 45 / Sennachrib 23 *vi* 3, NA)

Crucially, a ROOT class deriving VAs does not entail it deriving *Statives*, as observed in both classes of emission ROOTS. A *Stative* entailing change also does not imply a VA entailing change, as seen in the class of inchoative ROOTS. This discrepancy in change-entailments thus also provides us with a semantic, event-structural distinction in Akkadian ROOT classes.

Having added the VA test to the repertoire, we may adjust the Table above to the following:

Table 3.5: ROOT disambiguation tests (revised)

Test		
<i>Stative?</i>	Yes	No/non-resultative
VA	Resultative	non-resultative
Class	Unaccusative	Unergative

⁷The diachronic relationship between the VA and the *Stative* remains undisputed, however: the *Stative* must have diachronically derived from a VA base.

⁸Stage-level predicates/adjectives denote situational and temporally-restricted states and thus differ from individual level predicates/adjectives, which denote permanent states, such as the ones denoted by PC ROOT adjectives (Kratzer 1989).

3.3.1.3 The prefixing conjugations test

Finally, the prefixing conjugations, i.e., the *perfective* and *imperfective*, serve as a third test to further determine the semantic specifications of a given ROOT class. The standard usage of a *perfective* is to denote a punctual or completed event, while *imperfectives* denote durative or ongoing events, as given in (37) for the ROOT $\sqrt{s?d}$ ‘melt (intr.)’.

(37) Conjugations of $\sqrt{s?d}$ ‘melt (intr.)’

- a. *kīma kiškit-ê* ***i-šûd-a***
 $\sqrt{s?d}$ ‘melt (intr.)’
 as kiln-PL.OBL 3-melt.PFV-SUBJ

“(Lord of lords, ... at the attack of whose angry weapons all of the lands convulse, writhe, and) melt as though in a furnace” (RIAo Aššurnasirpal II 40:14-15, NA)

- b. 10 GÍN AN.NA 2 GÍN ... ***i-sâd-0*** *i-p-pattiq-0*
 $\sqrt{s?d}$ ‘melt (intr.)’ \sqrt{ptq} ‘cast’
 10 sheqel lead 2 sheqel ... 3-melt.IPFV-SG.M 3-PASS-cast.IPFV-SG.M

“Ten sheqel of lead and two sheqel of ... (broken) are melting and are being cast” (ZA 36 206:19, NA)

Some ROOT classes, however, will feature special semantics in the two aspects: PC ROOTS, for instance, derive mostly inchoative *perfectives* but may also derive inchoative *imperfectives* that do not necessarily denote the completion of an event, but rather its punctual inception, as illustrated in (38). Note how both the *perfective* example in (38a) as well as the *imperfective* example in (38b) denote inceptive events.⁹

(38) Inceptive PC ROOT examples

- a. Perfective
ina elât-i *šum-šu* ***l=i-dmiq-0***
 \sqrt{dmq} ‘good’
 in that which is above-OBL name-his PREC=3-become good.PFV-SG.M

“May his name become illustrious (lit. good) among humanity” (VAS 1 54:16, OB)

⁹As will be illustrated further below in Section 3.3.2.1, both *perfectives* and *imperfectives* of PC ROOTS may also display durative usages.

b. Imperfective

ṣubāt-im awīl-ê ṣatt-am ana ṣatt-im i-dammiq-ū
 \sqrt{dmq} 'good'
 clothes-OBL man-PL.OBL year-OBL DAT year-OBL 3-improve.IPFV-PL.M

"The clothes of the gentlemen improve (lit. become good) every year (but you dress me in worse and worse clothing every year)! (TCL 18 111:9, OB)

Another class, namely that of durative-aspectual ROOTS, derives durative-ongoing *perfectives* and *imperfectives*, as illustrated in the next two examples and (39) below, which both denote atelic events.

(39) Durative-aspectual ROOT

a. Perfective

šumma Sîn supūr-a lamī=ma i-dlip-0
 $\sqrt{lw?}$ 'surround' \sqrt{dlp} 'linger'
 if moon.NOM lunar halo-OBL surrounded.OBL=CONJ 3-linger.PFV-SG.M

"If the moon is surrounded by a lunar halo and (it) lingers" (Thompson Rep. 117:7, NA)

b. Imperfective

ni-dallib ni-ppaš la ni-šīat
 \sqrt{dlp} 'linger' $\sqrt{?pš}$ 'do, make' $\sqrt{šīt}$ 'drag'
 1.PL-lingerIPFV 1.PL-work.IPFV NEG 1.PL-drag.IMPF

"We shall remain working and not drag (it out?)" (ABL 360:8, NA)

The various combinatorial options with different transitivity yield a number of different ROOT classes that can be tested for, and in turn can yield the telicity-specifications of a given ROOT-class. Notationally, I differentiate between the [+telic] feature for telic ROOTS and the [-telic] feature for atelic ROOTS. ROOTS unspecified for telicity carry the neutral feature [\pm telic]. The different features are summarised in Table 3.6 along with three ROOT class examples below.

Table 3.6: *Perfective/imperfective* test combinations by inchoativity

	Perfective		Imperfective		Telicity
	Punctual- completed	durative- ongoing	Punctual- completed	durative- ongoing	
PC ROOTS, unaccusatives	✓	✓	✓	✓	[±telic]
Inchoative-aspectual ROOTS	✓		✓		[+telic]
Durative-aspectual ROOTS		✓		✓	[-telic]

3.3.1.4 Summary

Next to syntactic transitivity, the three tests thus provide us with an additional tool to disambiguate different ROOT classes in Akkadian in a systematic manner. The three tests are summarised in Table 3.7.

Table 3.7: ROOT disambiguation tests (revised, again)

Test	Option 1	Option 2
<i>Stative?</i>	Yes	No/non-resultative
VA	Resultative	Non-resultative
Perfective/imperfective	punctual-completed	durative-ongoing

These tests allow us to determine the basic syntactic and semantic properties of the ROOT classes in question. They yield 10 classes of intransitive ROOT types, as well as three transitive classes, introduced in Section 3.4.

These classes and their syntactic and semantic properties will constitute the foundation of derivation, which will be assumed for the D and Š stems, too, discussed in the next Chapter 4.

As it remains impossible to test for grammaticality judgements, one instead must rely on the assumption that the attested data was synchronically grammatical, not a very innocent assumption. Yet still, the enormous body of texts in various different genres provided within the corpus of Akkadian attestation, offer a relatively reliable overall account of grammaticality-trends across registers, dialects, and periods of attestations. As such, odd forms, especially hapax legomena, may be weighted against a usually solid *standard* of attested usage.

With the disambiguation tests for intransitive ROOTS covered, I now turn to the definition of ROOT classes. Every ROOT in the present corpus was, as far as its respective attestation allowed,¹⁰ run through all three tests and categorised into one of the 13 classes presented below, based on its test-result combinations. For the disambiguation of the the following classes, I furthermore took into consideration their derivational patterns for causative and anticausative morphology, which will be discussed in Chapters 4 and 5, respectively.

3.3.2 Unaccusatives

As briefly discussed in Section 3.3 above, the definition of unaccusative verbs relies on both syntactic and semantic parameters, which ultimately leads to the crystallisation of several subtypes of unaccusatives. Overarchingly, however, I assume all types presented here to feature a Patient/Theme argument (i.e., an ‘undergoer’ in Van Valin’s (1990) terms), which syntactically manifests as the direct object of a predicate and is then promoted to surface subject position.

In his influential paper introducing the unaccusative hypothesis (i.e., split-intransitivity), Perlmutter (1978: 162f.) suggests the classification of unaccusatives given in (40). The distinction between Type I and Type II verbs in (40b) is adopted from Perlmutter, too, who designates type II as ‘inchoatives’, i.e., verbs of ‘becoming’ or ‘beginning’ a change-of-state.

(40) Types of unaccusative verbs following Perlmutter (1978: 162f.)

- a. Predicates expressed by adjectives
E.g., *be old, be fast, be nice*, etc.
- b. Predicates with a Patient subject
E.g., Type I: *burn, fall, flow*, etc., Type II: *redde[n], collapse, wither*, etc.
- c. Predicates of existing, happening
E.g., *exist, happen, result*, etc.
- d. Predicates expressing (non-voluntary) stimuli on the senses
E.g., *glow, clink, stink*, etc.
- e. Aspectual predicates
E.g., *begin, continue, cease*, etc.
- f. Duratives
E.g., *last, remain, survive*, etc.

¹⁰I excluded ROOTS from the present corpus that allowed no tests to be performed. This includes ROOTS listed exclusively in lexical lists, or ROOTS that appeared only in the infinitive or imperative.

Following Levin & Rappaport Hovav (1995: ch. 3-4), but also Meltzer-Asscher (2011) and Potashnik (2012) the class in (40d), also known as verbs of emission, has been shown to behave more like unergatives rather than like unaccusatives. Akkadian evidence only partly supports this classification: it differentiates two types of emission ROOTS, which I term type A (unaccusative-type emission) and type B (unergative-type emission).

Similarly, Akkadian differentiates two types of aspectual predicates (40e), which I separate and term here ‘durative-aspectual’ ROOTS (the unaccusative-patterning type, also including Perlmutter’s *duratives* in 40f) and ‘inchoative-aspectual’ ROOTS (the unergative-patterning type).

The remainder of this Section will now introduce the unaccusative ROOT classes. Each Sub-section is structured as follows: Under ‘*Syntactic and semantic generalisations*’, I begin by giving the argument-structural specifications and the telicity features of the respective ROOT class along with brief justifications for them. The justifications are inferred from the diagnostic tests, which are then provided under ‘*Diagnostics*’. This presentation is kept for the remaining ROOT class types (i.e., unergatives and transitives), too.

3.3.2.1 Property concept ROOTS

3.3.2.1.1 Syntactic and semantic generalisations

Property concept (PC) ROOTS are Perlmutter’s ‘predicates expressed by adjectives’. They are presently understood following the definition of Dixon (1982: p. 50) (but see also Thompson 1988: p. 168, Beavers & Koontz-Garboden 2020, Beavers et al. 2021) to denote ROOTS the semantic base of which describes properties such as age, colour, value, physical property, dimension, and speed. The classes are summarised in (41) below, with respective Akkadian ROOTS and their base (adjectival) meaning.¹¹

(41) Property concept ROOTS in the G stem

- | | |
|--|---|
| a. Age
$\sqrt{s\bar{l}b}$ ‘old’ | d. Physical property
\sqrt{dnn} ‘strong’ |
| b. Colour
\sqrt{wrq} ‘green/yellow’ | e. Dimension
$\sqrt{gp\bar{s}}$ ‘huge’ |
| c. Value
\sqrt{dmq} ‘good’ | f. Speed
\sqrt{hmt} ‘fast’ |

¹¹(41f) is a questionable case. The verb also functions as an unergative.

More rarely, this lack of eventive template manifests in seemingly stative individual-level *Statives*,¹³ as the one in (43).

- (43) *gapš-ā* *têr-ēt-u=ša* *lā* *maḥar* *šina=ma*
 $\sqrt{gpš}$ ‘huge’
 be huge.STAT-3.PL.F decree-PL.F-NOM=her NEG before.CSTR them.F=CONJ

“Her (magic) decrees are weighty, they are irresistible” (Enūma Eliš II 31)

Regardless of the event-templatic specifics, the generalisation holds that PC ROOTS derive resultative *Statives*, and as such satisfy the criterion to qualify as unaccusatives in Akkadian: they derive their primary argument as an internal argument.

The VA test mirrors the lack of eventive structure surfacing in *Statives* by yielding stative and non-resultative VAs, as illustrated in (44) by the VA collection of the same set of ROOTS presented in (41).

(44) Property concept VAs

- | | |
|---|--|
| a. Age
\sqrt{sib} <i>šibu</i> ‘old’ | e. Dimension
$\sqrt{gpš}$ <i>gapšu</i> ‘huge’ |
| b. Colour
\sqrt{wrq} <i>warqu</i> ‘green/yellow’ | f. Speed
\sqrt{hmt} <i>hamtu</i> ‘fast’ |
| c. Value
\sqrt{dmq} <i>damqu</i> ‘good’ | g. Human propensity
\sqrt{hd} <i>hadû</i> ‘happy’ |
| d. Physical property
\sqrt{dn} <i>dannu</i> ‘strong’ | |

The adjectives in (44) do not entail change and thus denote no eventive correlation to the attainment of the state they describe. As was mentioned further above in Section 3.3.1, this is a typologically known property of PC ROOTS (Beavers et al. 2021), and has also been noted before for Akkadian (Huehnergard 1987: p. 225).

¹³Note that these *Statives* differ from the durative stage-level states denoted by unergative-derived *Statives*.

As for the third test, the PC ROOTS derive inchoative/inceptive verbs in the *perfective* and both inchoative and durative/stative verbs in the *imperfective*. In other words, PC ROOTS surface as achievement verbs of the type ‘x BECOME STATE’.¹⁴ An example of a *perfective* is given in (45a), an example of an inchoative *imperfective* in (45b), and an example of the rarer stative *imperfective* in (45c) for the ROOT \sqrt{kbt} ‘heavy’.

(45) Inflectional differences for \sqrt{kbt} ‘heavy’

a. *alp-u igisê ekall-im ... i-k<ta>bit-0=ma*
 \sqrt{kbt} ‘heavy’

ox-NOM gift.CSTR? palace-OBL ... 3-become big<PROG>.PFV-SG.M=CONJ

“The ox, the gift (intended for) the palace, has become fat.” (ARM 2 82:29-30, OB)

b. *pî šarr-im eli māt-i=šu i-kabbit-0*
 \sqrt{kbt} ‘heavy’

mouth.CSTR king-OBL on land-OBL=his 3-become heavy.IPFV-SG.M

“The king’s order will weigh heavily (lit. become heavy) on his land” (YOS 10 22 iv 10, OB)

c. *šub-āt-i ša i-kabbud-ū la u-š-ten-ebbal=ak=kum*
 \sqrt{kbt} ‘heavy’ \sqrt{wbl} ‘bring’

garment-PL.F-OBL REL 3-heavy.IPFV-PL NEG 1.SG-CAUS-PLUR-send.IPFV=VEN=DAT.you

“I have not been in the habit of sending (having brought to) you garments, which are heavy” (CCT 3 23b:5, OA)

On the basis of these tests, we can summarise our first unaccusative subgroup, as in Table 3.9 below. The Table indicates whether or not the *Statives* of a class encode a CoS or not, whether their VAs entail a CoS or not, and whether their *perfectives* and *imperfectives* are inchoative/punctual or durative.

¹⁴I follow Wood & Marantz (2017) in assuming that the BECOME-predicate is adduced into the derivation through the verbalisation of the ROOT with v.

Table 3.9: ROOT classification tests

ROOT type	<i>Stative</i>		VA		<i>Perfective</i>		<i>Imperfective</i>	
	CoS	X-CoS	CoS	X-CoS	inch./ punct.	dur.	inch./ punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓

3.3.2.2 Eventive unaccusatives with a Patient subject

3.3.2.2.1 Syntactic and semantic generalisations

This class of predicates comprises predicates from both types of verbs listed in (40b), i.e., both the non-inchoatives and the overlapping inchoatives. As was mentioned in Section 3.3 above, languages differ in their classifications of (types of) unaccusatives and unergatives. As such, some predicates listed under (40b), such as *redden* (type II following Perlmutter) for instance, belong to the PC ROOT class in Akkadian, and are hence excluded here.

Verbs instantiated by ROOTS of this class encode internal arguments, as evidenced by their productive formation of *Statives* and VAs. The argument's thematic role is that of a Patient, which entails that the argument undergoes a CoS process throughout the duration of the event, and completes the event having changed state. Predicates usually defined as CoS predicates in the literature (McKoon & Macfarland 2000, Rappaport Hovav & Levin 2002, Beavers et al. 2021) are thus listed under this class. Examples of these ROOTS can be found in $\sqrt{b\bar{s}l}$ 'cook, boil, ripen (intr.)' or \sqrt{mqt} 'fall': Their VAs entail change, as illustrated in the next Section.

Aspectually, this class carries no specifications, which means that I assume that ROOTS of this class carry a neutral telicity-feature [\pm telic]. Table 3.10 summarises the features of the unaccusative class:

Table 3.10: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[\pm telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x,e)$	[\pm telic]

3.3.2.2.2 Diagnostics

Once more, the most important test a ROOT of this class must pass in order to classify as an unaccusative is the *Stative* test. Two examples of such unaccusatives are given in (46), with a literal example given in (46a) for $\sqrt{\text{smr}}$ ‘blow (up)’ and a figurative *Stative* formed off $\sqrt{\text{mqt}}$ ‘fall’ in (46b).

- (46) a. *šumma sinništ-u ulid-Ø=ma semr-at u šār-a*
 if woman-NOM 3.bear.PFV-SG.F=CONJ bloated-STAT.3.SG.F and wind-OBL
 $\sqrt{\text{wld}}$ ‘bear’ $\sqrt{\text{smr}}$ ‘blow (up)’
 uddup-at
 $\sqrt{\text{ʔdp}}$ ‘blow’
 blown.D-STAT.3.SG.F

“If a woman has given birth and is then bloated and inflated with wind” (KAR 195 rev. 25, NA)

- b. *maqit bēl mešr-im=ma*
 $\sqrt{\text{mqt}}$ ‘fall, collapse’
 fallen.STAT.3.SG.M lord.CSTR wealth-OBL=CONJ

“(Even) the wealthy is fallen” (Lambert BWL 80:187, SB)

Contrary to the PC ROOTS, the results denoted by the *Statives* in (46) encode within them the event, which has led to the acquisition of the state. In (46a), the bloated state follows an event of of a woman’s insides bloating after she has given birth. In (46b), a figurative ‘fall’ of a social class in society has led to their acquired state of the ‘fallen’.

Similarly, these ROOTS derive adjectives entailing a CoS. Just like their *Statives*, the VAs always imply the event, which has led to the attainment of the state they describe. This is demonstrated in (47) for $\sqrt{\text{mqt}}$ ‘fall’ below, as a parallel to (46b).¹⁵

- (47) VA of eventive unaccusative
 maqtu ‘fallen, deserted’

¹⁵ $\sqrt{\text{smr}}$ ‘blow (up)’ from (46a) above is generally poorly attested, and as such no VAs derived from this ROOT are attested. Note that a lack of attestation, especially of poorly attested ROOTS, is not necessarily an indication of a lack of derivational possibility. I will return to this point in the discussion of unergatives in Section 3.3.3 below.

The prefixing conjugations behave in a ‘standard’ way, wherein *perfectives* denote punctual/-completed events, and *imperfectives* denote durative/ongoing events. An inflectional example of \sqrt{mqt} ‘fall’ is given in (48).

(48) Inflectional differences for \sqrt{mqt} ‘fall, collapse’

- a. *ultu šēr sīsî qaqqar=iš i-mqut-0*
 \sqrt{mqt} ‘fall, collapse’
 from back.CSTR horse.OBL ground=ADV 3-fall.PFV-SG.M

“He fell to the ground from the back of his horse” (OIP 2 156:17, NA)

- b. *lât ekall-im i-maqqut-ā*
 \sqrt{mqt} ‘fall’
 cattle.CSTR palace-OBL 3-falling.IPFV-PL.F

“The cattle of the palace are perishing (falling)” (ARM 1 118:21, OB)

With that, we summarise the eventive unaccusative class as follows: eventive unaccusatives form resultative *Statives*, their VAs entail change, their *perfectives* denote punctual/completed events, and their *imperfectives* denote durative/ongoing events.

Table 3.11: ROOT classification tests

ROOT type	<i>Stative</i>		VA		<i>Perfective</i>		<i>Imperfective</i>	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓

3.3.2.3 Emission ROOTS A

3.3.2.3.1 Syntactic and semantic generalisations

ROOTS deriving predicates, which express (non-voluntary) stimuli to the senses (following Perlmutter’s labelling in (40d) above), are referred to here as emission ROOTS.

Cross-linguistically, verbs of emission appear to pattern with unergatives (see Levin & Rapoport Hovav 1995: ch. 3-4, Rothmayr 2009, Meltzer-Asscher 2011, Potashnik 2012, among others). In Akkadian, the situation appears to be unclear, raising questions regarding their argument structural configurations: Their *Stative* derivation is highly unregular with few ROOTS deriving *Statives* (e.g., $\sqrt{b\bar{\imath}s}$ 'stink'), while most derive none at all (e.g., \sqrt{hl} 'wheeze, pipe'). If these ROOTS derive *Statives*, they do not entail change.

Emission ROOTS do, however, regularly derive VAs, which does imply the encoding of an internal argument¹⁶. Again, these VAs do not entail change, similarly to the PC ROOT class. ROOTS of emission thus seem to lack eventive structure, but they do encode an internal argument that functions as the 'emitter' (see also Gawroska 1994 who finds that emission verbs do entail a semantic argument of emitter). I thus represent them as in Table (3.12) below: Their emission per se is represented as a property P, while their emitter is not a holder of said property, but rather its Theme.

Emission ROOTS must be separated into two subclasses, however, based on their differing aspectual specifications. This first class comprises ROOTS deriving verbs with an atelic (i.e., [-telic]) aspectual specification, as evidenced by their inflectional and (as will become evident in the next Chapter 4 also) their derivational behaviour.

These findings yield the following argument-structural and aspectual features specified for the ROOTS of emission A class:

Table 3.12: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]

3.3.2.3.2 Diagnostics

The vast majority of emission ROOTS in general do not form *Statives*. As with the other classes of unergatives, if they do, the *Statives* denote non-resultative stage-level states. An example for $\sqrt{b\bar{\imath}s}$ 'smell bad, stink' is given in (49).

¹⁶Note that while some unergatives do derive VAs, VA-formation among these classes is highly irregular and yields stage-level VAs, which are only observed for the emission ROOTS B class.

- (49) *šumma uzn-a=šu bī^ṣ š-at*
 $\sqrt{b\dot{\bar{l}}\dot{\bar{s}}}$ 'smell bad, stink'
 if ear-OBL=his stink-STAT.2.SG.F

"If his ears smell bad" (CT 23 36:57-58, NA)

Contrary to other unergatives, however, ROOTS of this class more often derive VAs. The VAs do not entail change, as exemplified in (50), and appear to also denote individual-level states, as exemplified in (51).

- (50) Emission VAs

- a. $\sqrt{b\dot{\bar{l}}\dot{\bar{s}}}$
bīšu 'stink'
- b. \sqrt{ngl}
naglu 'phosphorescent(?)'¹⁷

- (51) VA of $\sqrt{b\dot{\bar{l}}\dot{\bar{s}}}$ 'stink'

dibb-ī=ya bī^ṣ š-ūt-u i-dabbub-Ø u anāku ana muḥḥ-i
 $\sqrt{b\dot{\bar{l}}\dot{\bar{s}}}$ 'stink' $\sqrt{d\dot{\bar{b}}\dot{\bar{b}}}$ 'speak'
 word-PL.OBL=my bad.VA-PL.-OBL 3-speak.IPFV-SG.M and I DAT front-OBL
šarr-i ... takl-āk
 \sqrt{tkl} 'trust'
 king-OBL ... trust-STAT.1.SG

"He is saying bad things about me, but I (still) put my trust in the king" (ABL 498 rev. 9, NA)

As far as the inflections go, emission ROOTS A derive durative *perfectives* and *imperfectives*, which underlines their [-telic] feature.

Some ROOTS derive both prefixing conjugations, as is exemplified for $\sqrt{b\dot{\bar{l}}\dot{\bar{s}}}$ 'smell bad, stink' in (52) below, with (52a) giving an example for a (modal) *perfective*, and (52b) giving an example for an *imperfective*.

¹⁷CAD gives an uncertain translation, though the term is labelled as 'Standard Babylonian'.

(52) Inflectional differences for $\sqrt{b\text{?}\text{š}}$ ‘smell bad, stink’

- a. *kî ša pispis-u bīš=ūni ... nipiš=kunu I-i-bšī-0*
 $\sqrt{b\text{?}\text{š}}$ ‘smell bad, stink’ $\sqrt{b\text{?}\text{š}}$ ‘smell bad, stink’
 as REL urine-NOM malodorous=SBJV ... breath=your.PL.M PREC-3-stink.PFV-SG.M

“As bad smelling as urine is, so may your breath be (to god, king, and man)!”
 (Wiseman Treaties 603, NA)

- b. *ūm=ka urkû alla maḥri i-bjʔʔ iš-0*
 $\sqrt{b\text{?}\text{š}}$ ‘smell bad, stink’
 day=your.SG.M later beyond past 3-stink.IPFV-SG.M

“Your future is even worse than your past” (ABL 1286:10, NB)

In line with the [-telic] specification, other ROOTS of this class, for instance $\sqrt{nb\text{t}}$ ‘shine’, derive solely *imperfectives*. The following translation is adapted from Ebeling’s 1953 translation, which translates the predicate as durative, *contra* the English translation given in CAD, which is given as the punctual ‘flash’.

(53) *Imperfective* of $\sqrt{nb\text{t}}$ ‘shine’

- ina imḥull-u i-nambut-ū kakk-ē=šū*
 $\sqrt{nb\text{t}}$ ‘shine’
 in evil wind-OBL 3-shine.IPFV-PL.M weapon-PL.OBL=his

“His weapons glare in the evil wind” (STC 1 205:15, NA)

With that, I summarise the first class of emission ROOTS as follows in Table 3.13. I discuss the second set of emission ROOTS, which pattern as unergatives in Section 3.3.3.2 further below.

Table 3.13: ROOT classification tests

ROOT type	Stative		VA		Perfective		Imperfective	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓

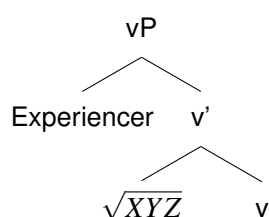
3.3.2.4 Psych-ROOTS

3.3.2.4.1 Syntactic and semantic generalisations

Psych-verbs are in themselves a typologically highly inhomogeneous class of predicates (see Belletti & Rizzi 1988, Franco 1992, Pesetsky 1995, Anagnostopoulou 1999, Landau 1999, Reinhart 2000, Alexiadou & Iordachioaia 2014, Hirsch 2018, among others); as such their unaccusativity or unergativity status has been debated (see Bennis 2004).

An in-depth discussion of psych-verbs of any language would warrant the dedication of an entire dissertation; I thus do not seek to provide a full typology of Akkadian psych-verbs, but instead will limit the discussion in this Subsection to ROOTS deriving intransitive predicates with Experiencer arguments.¹⁸ In other words, the ROOTS treated in this Section derive intransitive verbs, the argument of which experiences a state of being, and as such is a holder of state, in a similar way to PC ROOT arguments. The Experiencer does not undergo a CoS, nor does it actively/agentively participate in the event the predicate denotes. I call these ROOTS psych-ROOTS. Their basic syntactic structure is given in Figure 3.4, with the Experiencer occupying the internal argument position (following Belletti & Rizzi 1988).

Figure 3.4: Psych-ROOT structure



As for their semantic specifications, psych-ROOTS appear to be unspecified for telicity: Their *perfectives* are inchoative, their *imperfectives* both inchoative and durative. Psych-ROOTS derive resultative *Statives*, but their VAs mostly do not entail a CoS, which patterns similarly to PC ROOTS. Other than PC ROOTS, the psych-class derives Experiencer-verbs, wherein the arguments do not necessarily hold a permanent state but rather experience it for a stage in time (Bosse, Bruening & Yamada 2012 for instance differentiate ‘affected experiencers’ from simple ‘Holders’; I assume here an affected Experiencer). This gives the following features, as summarised in Table 3.14.

¹⁸Transitive verbs with Experiencer subjects will be discussed in Section 3.4.3 below.

Statives such as the one in (55) form a bit of an issue for the classification of these *Statives* as denoting ‘properly’ resultative states. As mentioned above, the vast majority of psych-verb *Statives* will only appear in these conditional environments, which pragmatically and syntactically set up an event of potential change, which in turn does not then need to be encoded within the ROOT. This behaviour is also observed for *Statives* formed from the entirely uneventive nominal and adjectival stems in Akkadian (Kamil Forthcoming).²⁰

The rare cases of *Statives* of psych-ROOTS that are not prefaced by a conditional, usually then appear non-resultative, such as the one given in (56) for $\sqrt{zn\bar{I}}$ ‘be angry’.²¹

- (56) *Stative* for $\sqrt{zn\bar{I}}$ ‘be angry’
- | | | |
|---|------------------------------------|-------------------------------|
| <i>uššuš-āku</i> | <i>ra[?]b-āku</i> | <i>zen-āku</i> |
| $\sqrt{\bar{I}\bar{s}}$ ‘be distressed’ | $\sqrt{r\bar{I}\bar{b}}$ ‘tremble’ | $\sqrt{zn\bar{I}}$ ‘be angry’ |
| very distressed-STAT.1.SG | trembling-STAT.1.SG | angry-STAT.1.SG |

“I am very perturbed, trembling, and angry” (K.2764 / BA 5 657 No. 18:6, NA)

I make no assumptions nor hypotheses on whether psych-events are inherently inchoative or not, but instead hold the observation that intransitive psych-ROOTS form largely non-resultative *Statives* in context. Only a few examples display seemingly resultative or ambiguous forms. The VA, which can serve as a tentative indication as to whether a ROOT possesses eventive components, unfortunately cannot help disambiguate the issue, either. VAs of this class mostly do not entail change, and if they do, their change-entailment does not always co-occur with resultative *Statives*.

To illustrate, consider the collection of *Stative*-VA pairs for the ROOTS introduced in example (57) below. The forms given in i. are the *Statives*, the forms given in ii. are the VAs derived from the respective ROOTS.

- (57) *Stative*-VA pairs of psych-ROOTS
- a. $\sqrt{\bar{I}\bar{d}\bar{r}}$ I ‘worry, be restless’
 - i. resultative *Stative*: *adir* ‘he is become restless’
 - ii. non-resultative VA: *adru* ‘sad, dark’

²⁰ *Statives* can be formed for nouns and adjectives in Akkadian, too. These *Statives* are very, very rare. See Kamil (2023, Forthcoming).

²¹ It is notable that the D of $\sqrt{\bar{I}\bar{s}\bar{s}}$ ‘be distressed’, another psych-ROOT, does appear to have some sort of resultative connotation. The effect that D-associated features have on derivations will be discussed in Section 4.5 further below.

- b. \sqrt{prd} 'be scared, fear'
- i. non-resultative *Stative*: *parid* 'he is restless'
 - ii. resultative & non-resultative VA: *pardu* 'frightened, frightening/scary'
- c. $\sqrt{zn\bar{r}}$ 'be angry'
- i. non-resultative *Stative*: *zenāku* 'I am angry'
 - ii. non-resultative VA: *zenû* 'angry'

The overarching image this data presents is a strong preference for non-resultative *Statives* and non-resultative VAs. In fact, even the change-entailing VA in (57b,ii), 'frightened', is comparatively rare to its non-change-entailing pendant, 'frightening/scary'. The only 'proper' mismatch is observed in the case of $\sqrt{\bar{r}dr}$ I 'worry, be restless', though the ROOT appears to be singular in its type.

Non-resultative *Statives* and non-change-entailing VAs are properties observed for unergatives. The crucial difference between psych-ROOTS and unergatives, however, is the finding that unergatives hardly form *Statives* or VAs, while psych-ROOTS derive both forms aplenty.

It is notable that some psych-ROOTS appear to semantically overlap with PC ROOTS, which also derive VAs and *Statives* that do not encode a CoS-event. Some of the ROOTS in question are for instance $\sqrt{\bar{r}dr}$ I 'worry, be restless' and $\sqrt{zn\bar{r}}$ 'be(come) angry'. $\sqrt{\bar{r}dr}$ I 'worry, be restless' is sometimes also attested as 'become dark, gloomy', and as demonstrated in (58) below, can be used to refer to eclipses. An etymological origin as a PC ROOT, which has since developed psych-ROOT semantics and patterns, is thus possible. I would suggest, however, that this conflation mostly fails, on the basis of the *Statives* these two classes form: PC ROOTS will still derive resultative *Statives*, even if not prefaced by a modal particle, while psych-ROOTS will not.

The inflectional paradigms of psych-ROOTS are again mixed: both *perfectives* derive inchoatives and *imperfectives* may derive durative (58b) or inchoative (59) events, though inchoatives appear more often.

(58) Inflectional differences for $\sqrt{\bar{r}dr}$ I 'worry, be restless'

- a. *immenê i-dur-û* *pān-û=ka*
 $\sqrt{\bar{r}dr}$ I 'worry, be restless'
 why 3-worry.PFV-PL.M face-PL=yourM

"Why has your [Sîn, moon] face become eclipsed?" (Ebeling Parfümrezepte pl. 49:2, SB)

- b. *ana Šamaš šar ilī mannu i-ddur-0=u*
 $\sqrt{\text{?}dr}$ I ‘worry, be restless’
 DAT DN king.CSTR god-PL.OBL whoever 3-worry.IPFV-SG.M=SBJV

“Whoever mourns for Šamaš, king of the gods” (ABL 5:19, NA)

(59) Inflectional differences for $\sqrt{zn\text{?}}$ ‘be(come) angry’

- a. *ward-ū bēl-i=ya ... i-znū=ma*
 $\sqrt{zn\text{?}}$ ‘be(come) angry’
 slave-PL.CSTR lord-OBL=my ... 3-became angry.PFV.PL.M=CONJ

“My lord’s servants became angry and (left the court of the palace)” (ARM 2 76:25, OB)

- b. *kimt-u u sallat-u i-zenn-ū itti=ya*
 $\sqrt{zn\text{?}}$ ‘be(come) angry’
 family-NOM and kin-NOM 3-become angry.IPFV-PL.M with=me

“My whole family will become angry with me” (AnSt 6 150:20, Poor Man of Nippur, NA)

The non-resultativity of the psych-*Statives* leaves this class of ROOTS ambiguous as to its unaccusativity-status. As was mentioned at the beginning of this Subsection, psych-verbs cause cross-linguistic categorisation issues, and their deeper treatment goes beyond the scope of the present thesis. Nevertheless, they comprise a notable class of ROOTS in the Akkadian corpus, and as such at least deserved the mention and admittedly brief treatment.

I incorporate them into the ROOT class table, as follows in Table 3.15.

Table 3.15: ROOT classification tests

ROOT type	<i>Stative</i>		VA		<i>Perfective</i>		<i>Imperfective</i>	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓

internal argument depends on the *absence* of the DO operator. In other words: if verbs derived from this class surface as agentive, their inherent denotation implies a DO-predicate and no internal argument. If their verbs surface as non-agentive, their inherent denotation implies no DO-predicate, but instead an internal argument.

Aspectually, this ROOT class is unspecified, featuring regular behaviour in their conjugations.

Table 3.16: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]
Psych-ROOTS	$\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s)$	[±telic]
Labile motion	$\lambda e.DO(EVENT)(e)$ <i>OR</i> $\lambda x.\lambda e.EVENT(e) \wedge Patient/Theme(x, e)$	[±telic]

3.3.2.5.2 Diagnostics

The derivational behaviour of these ROOTS patterns in a mixed manner. ROOTS of this class regularly derive *Statives*, but as illustrated in the next two examples, these *Statives* are not resultative. Crucially, however, only the non-causal or non-agentive alternants of these ROOTS form these *Statives*.

(62) Stative of $\sqrt{?tl}$ ‘lie down’

utul=ma	<i>Enkidu šun-āt-a</i>	<i>i-naṭṭal-Ø</i>
$\sqrt{?tl}$ ‘lie down’		\sqrt{ntl} ‘look’
lie down.STAT.3.SG.M DN	dream-PL-OBL	3-look.IPFV-SG.M

“Enkidu was lying down, dreaming (lit. seeing dreams)” (George Gilg. *iv* 181, NB??)

Similarly, some of these ROOTS form VAs, albeit not change-entailing, as in (63).

(63) VA for \sqrt{hlq} ‘disappear, flee’

ḥalqu ‘fled, lost’

Due to these ROOTS deriving noncausal alternants and also regularly deriving *Statives*, I group them with the unaccusatives here, but recognise some unergative properties, too. A crucial argument to this classification concerns the regular derivation of D causatives in this class. I discuss D stem derivations in the next Chapter 4.

Finally, *perfectives* of this class denote punctual-completed events while *imperfectives* denote durative-ongoing events. I incorporate these labile motion verb types as follows in Table 3.17, putting the check marks of the *Stative* and VA in brackets to indicate their labile behaviour:

Table 3.17: ROOT classification tests

ROOT type	<i>Stative</i>		VA		<i>Perfective</i>		<i>Imperfective</i>	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓
Labile motion		(✓)		(✓)	✓			✓

3.3.2.6 Durative-aspectual ROOTS

3.3.2.6.1 Syntactic and semantic generalisations

Durative-aspectual ROOTS comprise Perlmutter's class of dutatives in (40f), but also some of the aspectual verbs of (40e). These ROOTS derive both *Statives* and VAs, which entails the encoding of an internal argument. Their internal argument does not per-default appear to undergo a CoS, which entails that it is a Theme and not a Patient.

When it comes to their event/specification, these ROOTS show some mixed behaviour: their *Statives* resultative, but most of their VAs do not entail change. I designate them as eventive here and hypothesise that the lack of change-entailment may be related to these ROOTS being specified for [-telic] aspect. This feature is evidenced primarily in both their *perfectives* and *imperfectives* denoting durative events. In other words: the telicity feature of the ROOT may override the telicity feature that determines viewpoint aspect at AspP.

Table 3.18: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]
Psych-ROOTS	$\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s)$	[±telic]
Labile motion	$\lambda e.DO(EVENT)(e)$ <i>OR</i> $\lambda x.\lambda e.EVENT(e) \wedge Patient/Theme(x, e)$	[±telic]
Durative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[-telic]

(67) Inflectional differences for \sqrt{dlp} 'continue, be/stay awake'

- a. *Nusku ša ta-dlip-Ø=u mušīt-u*
 \sqrt{dlp} 'continue, be/stay awake'
 DN REL 2-stay awake.PFV-SG.M=SBJV night(time)-OBL

"You, Nusku, who stayed awake all night, go now to the temple of Ekur." (KAR 58 r. 35, NA)

- b. *ard-ān-i=šunu akê issi=šunu i-dallib-ū*
 \sqrt{dlp} 'continue, be/stay awake'
 servant-PL-OBL=their.M how with=them.M 3-stayed awake.IPFV-PL.M

"See how their servants were sat up with them all night" (ABL 1370:12, NA)

The combination of the [-telic] feature of this ROOT class with the [+telic] feature of the *perfective* results in the atelic *perfectives* we observe. *Perfectives* of this class then denote a completed event that throughout its duration would have been durative/atelic in nature, and crucially, this connotation of duration is *retained* even in the *perfective*. In other words, the telicity features of ROOTS, that is lexical aspect, may override or at least heavily 'temper' with the specifications made later on at the level of grammatical aspect.

The choice of grammatical aspect, i.e., between a *perfective* or *imperfective*, is pragmatic, thus a matter of the speaker's intention for communication. Had the scribe chosen to pragmatically focus on the conclusion of the durative event, which would have entailed a result-state to follow, he or she would have chosen a *perfective*. Had the scribe chosen to focus on the duration or eventuation of the event without the consequence of a resulting post-event state, he or she would have used the *imperfective*.

Another example of this aspect-override is given for \sqrt{lbr} 'last, endure' in (68) below.

(68) Inflectional differences for \sqrt{lbr} 'last, endure'

- a. *šumma šipir=šu i-l<ta>bir-Ø ... i-mât-Ø*
 \sqrt{lbr} 'last, endure' $\sqrt{m?t}$ 'die'
 if affliction=his 3-last.<PROG>PFTV-SG.M ... 3-die.IPFV-SG.M

"If his affliction lasts, he will die (a death of ...)" (AMT 90,1 iii 16, NA)

b. *awāt-um la i-labbir-θ=am=ma*

\sqrt{ibr} 'last, endure'

word-NOM NEG 3-last.IPFV-SG.M=VEN=CONJ

"The matter should not drag on, (and they should not pester you again toward the latter part of the year)" (OECT 3 79:10, OB)

We thus summarise the findings of this ROOT class as in Table 3.19 below.

Table 3.19: ROOT classification tests

ROOT type	<i>Stative</i>		VA		<i>Perfective</i>		<i>Imperfective</i>	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓
Labile motion		(✓)		(✓)	✓			✓
Durative ROOTS	✓		✓	✓		✓		✓

3.3.2.7 Inchoative-aspectual ROOTS

3.3.2.7.1 Syntactic and semantic generalisations

As inchoative-aspectual ROOTS, I count Perlmutter's aspectual predicates, as well as a small number of the predicates of existing and happening. These predicates denote a CoS event, and regularly form *Statives* and VAs; as such their ROOTS encode Patient arguments.

Aspectually, these ROOTS are specified as [+telic], as evidenced by their displayed behaviour in *perfectives* and *imperfectives*, which both denote punctual-inchoative events. As such, this class forms the opposite of durative-aspectual ROOTS.

3.3.2.7.2 Diagnostics

Inchoative ROOTS productively form resultative *Statives*, as shown in the example below for \sqrt{btl} 'cease' in (69).

Just like durative-aspectual ROOTS, inchoative-aspectual ROOTS feature an override of their lexical aspect onto later on encoded grammatical aspect. While their *perfectives* are punctual-inchoative, their *imperfectives* display what aspect type coercion (Moens & Steedman 1988), wherein the interaction of more external markers (e.g., grammatical aspect, aspectual and temporal adverbs, pragmatic context, etc.) affect the way a verb marked by a particular lexical aspect is interpreted at spell-out. Here, *imperfectives* derive inchoative verbs with ongoing, almost pluractional or habitual meanings. Examples are given for $\sqrt{b\bar{t}l}$ ‘cease’ in (71).

(71) Inflectional differences for $\sqrt{b\bar{t}l}$ ‘cease’

- a. $\bar{u}m-u$ u $ar\bar{h}-u$ la **$ni-b\bar{t}il$** $\check{s}a$ la $dull-a$ u
 $\sqrt{b\bar{t}l}$ ‘cease’
 day-NOM and month-NOM NEG 1.SG-ceased.PFV REL NEG ritual-OBL and
 $n\bar{e}pi\check{s}-i$
 ceremony-OBL

“(As long as the gods kept him living,) we did not cease a day or a month without ritual or ceremony” (ABL 450 r. 8, NA)

- b. $\check{s}a$ $elat$ ina $\bar{u}m-u$ **$i-battil-\theta=u$**
 $\sqrt{b\bar{t}l}$ ‘cease’
 REL over in day-OBL 3-cease.IPFV-SG.M=SBJV

“He who stops working for over one day” (YOS 6 4:9, NB)

As can be observed in the example above, the *imperfective* denotes events that are indicated to happen habitually (71). As with the durative-aspectuals being per definition [-telic] and thus ‘colouring’ the semantics of *perfectives*, inchoative-aspectual ROOTS are per definition [+telic], which implies that their inchoativity is ROOT-encoded. As such, their *imperfectives* must also inherit the telic-inchoative function. Combined with the atelic/durative aspect *imperfectives* denote, the result is, to present knowledge, uniformly that of a habitual or pluractional inchoative event.

With that, we again summarise the findings, as in Table 3.21 below. I mark the habitual-inchoative usage of *imperfectives* with a ‘combined’ check-mark ✓ between inchoative/punctual and durative usage. This is to differentiate this pattern from the one found in PC ROOTS where both inchoative and stative/durative *perfectives* are attested independently of each other.

Table 3.21: ROOT classification tests

ROOT type	<i>Stative</i>		VA		<i>Perfective</i>		<i>Imperfective</i>	
	CoS	X-CoS	CoS	X-CoS	inch./ punct.	dur.	inch./ punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓
Labile motion		(✓)		(✓)	✓			✓
Durative ROOTS	✓		✓	✓		✓		✓
Inchoative ROOTS		✓	✓		✓			✓

3.3.3 Unergatives

The syntactic opposite of unaccusative predicates are unergatives. While unaccusatives are typically analysed as having an internal argument, i.e., deep-structure object that surfaces as a surface-structure subject, unergatives lack such an internal argument, and instead feature an external argument (Marantz 1984, Kratzer 1996, Alexiadou, Anagnostopoulou & Schäfer 2015, Preminger 2012). The basic syntactic structure, as adopted presently following Kratzer (1996) and Kastner (2020), was given in Figure 3.1 above.

In the Neo-Davidsonian approach that is followed by Kratzer (1996) and subsequent literature, external arguments, particularly Agents, are not encoded in the ROOT. The difference between the denotations of an unaccusative and an unergative ROOT could thus look as follows in (72).

(72) Denotational differences in unaccusative and unergative ROOTS

- a. Unaccusative: $\lambda x.\lambda e.fall(e) \wedge Patient(x,e)$
- b. Unergative: $\lambda e.run(e)$

As also previously introduced for the labile motion ROOTS in Section 3.3.2.5 above, agentive ROOTS encode a DO-predicate that sets them apart from non-agentive ROOTS. Their Agents are not radically encoded. In the remainder of the overview Tables, agentive ROOTS will thus not feature the Agent in their argument denotation.

Another important note on the following three classes grouped as unergatives, is that two of them, i.e., ROOTS of existence and emission B ROOTS do not actually instantiate Agent-subjects, as these ROOT classes are not agentive. I denote their arguments as Theme-subjects, but assume that they share their syntactic position with the unergative Agent-subjects. As

their in-depth discussions will show, these two classes nonetheless display the derivational behaviour of unergatives, evidenced most prominently by the shared lack of *Stative* and VA formation. In the very rare cases where *Statives* and VAs are derived, they are non-resultative, and function as atelic, stage-level predicates.

3.3.3.1 ROOTS of existence

3.3.3.1.1 Syntactic and semantic generalisations

ROOTS of existence comprise a class of ROOTS that may appear based on their superficial semantic character as though they pattern with durative-aspectual ROOTS, but in fact display behaviour that classes them as unergatives, once put to the test(s). They do not productively derive *Statives* and do not derive VAs, but also do not have any attested agentive usages. I thus do not assign this class a semantically denoted internal argument. I address the derivational patterns of these ROOTS in more detail in Section 4.5.3 below.

These ROOTS rarely derive *perfectives*, but instead mostly only derive *imperfectives*, which implies a [-telic] feature. This yields the following syntactic and semantic specifications, as summarised in Table 3.22.

Table 3.22: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]
Psych-ROOTS	$\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s)$	[±telic]
Labile motion	$\lambda e.DO(EVENT)(e)$ <i>OR</i> $\lambda x.\lambda e.EVENT(e) \wedge Patient/Theme(x, e)$	[±telic]
Durative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[-telic]
Inchoative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[+telic]
Existence ROOTS	$\lambda e.EVENT(e)$	[-telic]

3.3.3.1.2 Diagnostics

The most prominent and well-attested ROOT of this class is $\sqrt{bšʔ}$ ‘exist’. Following Bjøru & Pat-El (2024: p. 232), the ROOT does not occur in the *Stative*, at least as far as the epistolary corpora of the Assyrian dialects are concerned. Looking at the whole-Akkadian corpus, however, *Statives* of $\sqrt{bšʔ}$ ‘exist’ appear to be attested in the State Archives of Assyria corpus,²² as well as in inscriptions of the Neo-Babylonian dynasty (c. 625–539 BCE), most prominently by Nabopolassar, Nebuchadnezzar II, and Nabonidus. Curiously, the *Statives* in both corpora only appear in the 3.PL.M and 3.PL.F. A NB example is given in (73) below.

(73) *mūš-i u urr-a īn-ā=ya itti=šu bašâ*
 $\sqrt{bšʔ}$ ‘exist’
 night-OBL and day-OBL eye-DL=my with=him exist.STAT.3.PL.F

“Night and day, my eyes were on him” (AnSt 8 46 i 18, Nbn., NB)

A notable peculiarity of the $\sqrt{bšʔ}$ ‘exist’ *Stative*, which sets it apart from durative-aspectuals, is its lack of ROOT-inherited CoS event. The resultative nature of this *Stative* is debatable in itself; the context does not provide a resultative event, nor do other *Statives* occur in parallel usage close to the attestation.

This finding is thus quite damning for the recognition of the *Stative* as a productive conjugation of $\sqrt{bšʔ}$ ‘exist’. A form that has arisen so late in the history of a language, at a time when it has already begun to die out in favour of Aramaic (which productively employed the suffixing conjugation as a perfect), and is only found in royal and epigraphic registers, exclusively in the 3.PL, might be indicative of either a loan or a hypercorrection.²³

The VA test fails with this class entirely: $\sqrt{bšʔ}$ ‘exist’, as the other ROOTS of this class do not form VAs. In combination with the very rare and non-standard *Statives*, this class of ROOTS thus patterns as an unergative class.

As noted in Bjøru & Pat-El (2024: p. 232), $\sqrt{bšʔ}$ ‘exist’ rarely ever forms *perfectives*, but mostly *imperfectives*, a finding consistent throughout the class, which implies its [-telic] feature. The inflections are given in (74) below.

²²I thank Na’ama Pat-El for pointing this out to me.

²³In later times of Akkadian attestation, scribes were mostly either bilingual or non-native in Akkadian, speaking Aramaic instead (Hackl 2021b). Scribes in that sense often applied Aramaic grammar to their Akkadian writing, which was for instance seen in the lack of awareness for grammatical case and thereof resulting case-mismatches, or the usage of *ana* as a *nota accusativi*. As such, several forms and lexemes in the greater Akkadian corpus, which are only attested in later times, could be argued to be products of non-natives hyper-correcting and applying knowledge learned about Akkadian as a second language to produce forms previously unattested.

(74) Inflectional differences for $\sqrt{b\check{s}\check{I}}$ 'exist'

a. *ša la i-bši-0 matima*

$\sqrt{b\check{s}\check{I}}$ 'exist'

REL NEG 3-exist.PFV-SG.M ever

"Which never existed" (Gilg. M. i 3, OB)

b. *ina kapr-im bâr-um ul i-bašši-0*

$\sqrt{b\check{s}\check{I}}$ 'exist'

in village-OBL diviner-NOM NEG 3-exist.IPFV-SG.M

"There is no diviner in the village" (VAT 16 22:29, OB)

I summarise the findings in Table 3.23 below.

Table 3.23: ROOT classification tests

ROOT type	Stative		VA		Perfective		Imperfective	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓
Labile motion		(✓)		(✓)	✓			✓
Durative ROOTS	✓		✓	✓		✓		✓
Inchoative ROOTS		✓	✓		✓		✓	
Existence ROOTS		(✓)				✓		✓

3.3.3.2 Emission ROOTS B

3.3.3.2.1 Syntactic and semantic generalisations

The second class of emission ROOTS is differentiated from the first class of emission ROOTS by its aspectual specification, which is [+telic]. The ROOTS grouped into this class pattern more closely with unergatives through their derivational pattern, but also in their lack of *Statives* and VAs. This yields the following features:

Table 3.24: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]
Psych-ROOTS	$\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s)$	[±telic]
Labile motion	$\lambda e.DO(EVENT)(e)$ <i>OR</i> $\lambda x.\lambda e.EVENT(e) \wedge Patient/Theme(x, e)$	[±telic]
Durative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[-telic]
Inchoative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[+telic]
Existence ROOTS	$\lambda e.EVENT(e)$	[-telic]
Emission ROOTS B	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[+telic]

3.3.3.2.2 Diagnostics

ROOTS belonging to this class are for instance \sqrt{brq} ‘flash’, or $\sqrt{m\check{s}h}$ ‘flare up’: They denote events of stimulus emission that are inchoative and punctual—in other words, *telic* events.

Emission ROOTS B do not form *Statives* or VAs.

They may form *perfectives* and *imperfectives*, as illustrated in (75), but mostly derive *perfectives*. *Imperfectives*, such as the one given in (75b) demonstrate behaviour similar to that observed in inchoative ROOTS, which combine the [-telic] feature of the *imperfective* with the [+telic] feature of the ROOT to derive, in this case, a semelfactive event, wherein throughout a longer (*durative*) period of time, the telic event of lighting repeatedly happens. By virtue of the ROOTS’ [+telic] nature, the grammar continues to treat these ROOTS as [+telic], as will become clearer once we turn to D and Š stem derivation in Chapter 4.

(75) Inflectional differences of \sqrt{brq} ‘flash’

- a. *šumma ... birq-u adi 7-šu i-briq-0*
 \sqrt{brq} ‘flash’
 if ... lightning-NOM up to 7-times 3-flash.PFV-SG.M
- “If a lightning strikes up to seven times” (ACh Adad 20:26, NB)
- b. *erp-ēt mūt-i i-zannun-ū i-barriq-0 ušš-i*
 \sqrt{zn} ‘rain’ \sqrt{brq} ‘flash’
 cloud-PL.F.CSTR death-OBL 3-rain.IPFV-PL.M 3-flash.IPFV-SG.M

“The clouds of death are raining down, the arrow is flashing” (Epic of Zu, STT 19:54, SB)

An interesting case of a ROOT that solely derives *perfectives* is found with $\sqrt{m\check{s}h}$ ‘flash, flare up, shine’. In order to indicate some sort of duration, it resorts to reduplication of the *perfective* to denote a type of semelfactive, as exemplified in (76).

- (76) *Perfective* of $\sqrt{m\check{s}h}$ ‘flare up’
šumma kakkab-u i-mšuh-Ø i-mšuh-Ø
 $\sqrt{m\check{s}h}$ ‘flare up’ $\sqrt{m\check{s}h}$ ‘flash’
 if star-NOM 3-flash.PFV-SG.M 3-flare up.PFV-SG.M

“If a star flares up again and again” (Thompson Rep. 246E:3, NA)

With that, I incorporate the ROOTS of emission type B class as follows in Table 3.25 into the test-classification scheme.

Table 3.25: ROOT classification tests

ROOT type	<i>Stative</i>		VA		<i>Perfective</i>		<i>Imperfective</i>	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓
Labile motion		(✓)		(✓)	✓			✓
Durative ROOTS	✓		✓	✓		✓		✓
Inchoative ROOTS		✓	✓		✓		✓	
Existence ROOTS		(✓)				✓		✓
Emission ROOTS B					✓		✓	

3.3.3.3 Unergatives with Agent subjects

3.3.3.3.1 Syntactic and semantic generalisations

Unergatives comprise the class of ROOTS deriving intransitive verbs performed by an Agent-subject. Again, in line with the Neo-Davidsonian approach of severing external arguments from the ROOTS, I do not denote the Agent in the representation of the ROOT.

Unergatives derive regular *perfectives* and *imperfectives*, which makes them aspectually unspecified. This yields the following features:

Table 3.26: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]
Psych-ROOTS	$\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s)$	[±telic]
Labile motion	$\lambda e.DO(EVENT)(e)$ <i>OR</i> $\lambda x.\lambda e.EVENT(e) \wedge Patient/Theme(x, e)$	[±telic]
Durative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[-telic]
Inchoative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[+telic]
Existence ROOTS	$\lambda e.EVENT(e)$	[-telic]
Emission ROOTS B	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[+telic]
Unergative ROOTS	$\lambda e.DO(EVENT)(e)$	[±telic]

3.3.3.3.2 Diagnostics

ROOTS of this class typically do not form either *Stative* or VAs. Very rarely, if a ROOT of this category forms a VA, it will be derived as a durative stage-level adjective, such as the one in (77) for $\sqrt{lb\bar{?}}$ ‘howl’.

- (77) VA for $\sqrt{lb\bar{?}}$ ‘howl’
labû ‘howling’

This ROOT derives regular punctual-completed *perfectives* and durative-ongoing *imperfectives*, as illustrated in the next example (78) below.²⁴

- (78) Inflectional differences for $\sqrt{lb\bar{?}}$ ‘howl’

a. *šumma šaḥ-û ina bīt amēl-i i-lbû*
šumma šaḥ-û $\sqrt{lb\bar{?}}$ ‘howl’
if pig-PL.NOM in house.CSTR man-OBL 3-howl.PFV.PL.M

“If pigs squeal in the house of a man” (CT 38 45:21, Šumma Ālu 949.21, NA?)

b. *šār-u ina libb-i=šū i-s<san>aḥḥur-Ø i-lebbu-Ø*
šār-u *ina libb-i=šū* *i-s<san>aḥḥur-Ø* $\sqrt{sh\bar{r}}$ ‘turn around’ $\sqrt{lb\bar{?}}$ ‘howl’
wind-NOM in inside-OBL=his 3-whirl<PLUR>IPFV-SG.M

“The wind in his belly whirls and howls” (Köcher BAM 49:12, NA)

²⁴Note that 78a is my own translation, as previous translations were, in my opinion, faulty.

The inflectional differences for a motion unergative are given in (79).

(79) Inflectional differences for $\sqrt{\text{ʔlk}}$ 'go'

a. *inūma PN₁ itti šādīd asšl-im ša PN₂ appār-am i-llik-θ=u*
 $\sqrt{\text{ʔlk}}$ 'go'

when PN with boat tower-OBL REL PN marsh-OBL 3-go.PFV-SG.M=SBJV

"When PN₁ crossed the marsh with the boat tower of PN₂" (UET 5 607:48, OB)

b. *ina dull-u ša ištēn amēl-i a-llak u a-nehḥis=ma*
 $\sqrt{\text{ʔlk}}$ 'go, walk' $\sqrt{\text{nh̄s}}$ 'recede, return'

in work-NOM REL one man-OBL 1.SG-go.IPFV and 1.SG-return.IPFV=CONJ

"I go and return through the work of one man (~ I need every man for the performance of my task)" (BIN 1 39:21, NB)

With that, we can incorporate this class into the class overview as in Table 3.27. The bracketed check-marks given for *Statives* and *VAs* again indicate faulty and exceptionally derivations. Note that while the patterns observed here for the unergatives appear identical to the patterns observed for the labile motion-ROOTS, the former only allows Agent-subjects, unlike the latter, which also allows Patient/Theme-arguments.

Table 3.27: ROOT classification tests

ROOT type	<i>Stative</i>		VA		<i>Perfective</i>		<i>Imperfective</i>	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓
Labile motion		(✓)		(✓)	✓			✓
Durative ROOTS	✓		✓	✓		✓		✓
Inchoative ROOTS		✓	✓		✓		✓	
Existence ROOTS		(✓)				✓		✓
Emission ROOTS B					✓		✓	
Unergative ROOTS		(✓)		(✓)	✓			✓

- b. *akāl-a* *u* *šatâ* *la* *u-târ-Ø=ma* *i-kkal-Ø*
 $\sqrt{\text{ʔkl}}$ ‘eat’ $\sqrt{\text{štʔ}}$ ‘drink’ $\sqrt{\text{ʔkl}}$ ‘eat’
eat.INF-OBL and drink.INF.OBL NEG 3-D.cease.IPFV-SG.M=CONJ 3-eat.IPFV-SG.M
u ***i-šatti-Ø***
 $\sqrt{\text{štʔ}}$ ‘drink’
and 3-drink.IPFV-PL.M

“If he does not refrain from eating and drinking, but eats and drinks” (AMT 22:33, NA)

Labile ROOTS thus alternate between Agent-subject transitive and unaccusative usage. Radical pro-drop ROOTS behave similarly to the class of motion ROOTS with labile protagonist-control, as seen in Section 3.3.2.5 above.

Cross-linguistically, this divide between lability-types is often times paralleled to the unaccusative-unergative divide among intransitives (see for instance, Hale & Keyser 1993, Chierchia 2004, Armstrong 2011). Though in Akkadian, these two subgroups are not as internally diverse in their derivational consequences as the intransitives, their distinction is relevant for further derivation.

For the disambiguation of transitive classes for the present purposes, only the argument-structural specifications are of consequence. As such, only *Stative* and VA will be explicitly tested. Note that all transitive ROOT classes derive *Statives* as all transitive ROOTS encode an internal argument. However, transitive ROOT classes in Akkadian differ in terms of which argument functions as the internal argument.

Within the transitive classes, there are some aspectual sub-classes that are not discussed in the present thesis, due to their lack of consequence on the derivation of D and Š stems. Some agentive-transitive verbs for instance appear to be marked for a [+telic] feature (e.g., $\sqrt{\text{ptʔ}}$ ‘open’), but the presence of this feature does not disambiguate such ROOTS from other ROOTS when it comes to their ability to derive either D, Š, or for that matter also N or *t*-stems. I thus refrain from further dividing up the transitive classes by telicity here and do not test for *perfective* and *imperfective* behaviour.

The following overview of transitive ROOT classes will thus begin with the Agent-subject transitives in Section 3.4.1, continue with labile verbs in Section 3.4.2, and then conclude with the Experiencer-subject ROOTS in Section 3.4.3.

3.4.1 Agent-subject transitives

3.4.1.1 Syntactic generalisations

Agent-transitive ROOTS encode a Patient-object and an Agent-subject. In the case of ditransitives, which are not separately listed here, further arguments, usually Themes/Goals/Beneficiaries are encoded.

The ROOTS in this class are again aspectually unspecified, which yields the following features, as given in Table 3.28.

Table 3.28: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]
Psych-ROOTS	$\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s)$	[±telic]
Labile motion	$\lambda e.DO(EVENT)(e)$ <i>OR</i> $\lambda x.\lambda e.EVENT(e) \wedge Patient/Theme(x, e)$	[±telic]
Durative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[-telic]
Inchoative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[+telic]
Existence ROOTS	$\lambda e.EVENT(e)$	[-telic]
Emission ROOTS B	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[+telic]
Unergative ROOTS	$\lambda e.DO(EVENT)(e)$	[±telic]
Agent-transitives	$\lambda x.\lambda e.DO(EVENT)(e) \wedge Patient(x, e)$	[±telic]

3.4.1.2 Diagnostics

Non-labile transitive ROOTS regularly form Statives. With two arguments specified in these ROOTS, it is the Patient/Theme that is predicated in the Stative, as exemplified for \sqrt{kmr} ‘heap up’ in (82)

- (82) Stative for \sqrt{kmr} ‘heap up’
bubūt-um ina muḥḥ-i=ya kamr-at
 \sqrt{kmr} ‘heap up’
 famine-NOM in front-OBL=my heaped-STAT.3.SG.F

“Famine weighs heavily (lit. is heaped) upon me” (TCL 1 37:19, OB)

Non-labile transitive ROOTS also regularly form change-entailing VAs, as the one for \sqrt{kmr} ‘heap up’ in (83).

- (83) VA for \sqrt{kmr} 'heap up'
kamru 'sorted, heaped'

As mentioned further above, this class should be further divided into aspectually-unmarked ROOTS, and aspectually-marked ones. As far as the large majority of aspectually-unmarked ROOTS goes, however, this class does not present any surprises, either: *perfectives* denote punctual-completed events, *imperfectives* denote durative-ongoing events, as exemplified in the two examples in (84) below.

- (84) Inflectional differences for \sqrt{kmr} 'heap up'

a. *eql-am u mithart=i a-kmur=ma*

\sqrt{kmr} 'heap up'

field-OBL and square=my 1.SG-heaped.PFV=CONJ

"I added the surface and (one side of) my square" (TMB 1 No. 1:1, OB)

b. *uḥīn-u 10 GUR=ma i-kammar-ū=šunūti=ma*

\sqrt{kmr} 'heap up'

unripe dates-NOM 10 gur=CONJ 3-heap.IPFV-PL.M=them.M=CONJ

"They will spread 10 gur of unripe dates for them" (UCP 9 292 No. 8:16, OB)

These results are thus incorporated into the test overview as in Table below.

Table 3.29: ROOT classification tests

ROOT type	Stative		VA		Perfective		Imperfective	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓
Labile motion		(✓)		(✓)	✓			✓
Durative ROOTS	✓		✓	✓		✓		✓
Inchoative ROOTS		✓	✓		✓		✓	
Existence ROOTS		(✓)				✓		✓
Emission ROOTS B					✓		✓	
Unergative ROOTS		(✓)		(✓)	✓			✓
Agent-transitives	✓		✓		✓			✓

3.4.2 Labile verbs

3.4.2.1 Syntactic generalisations

Labile ROOTS alternate in their syntactic structure between Agent-subject transitives and eventive unaccusatives. This means that they principally encode the same argument-structural features as Agent-subject transitives, but other than Agent transitives, they do not always enforce the derivation of the Agent. Their DO-predicate thus appears to be labile or optional. Just as in the labile motion ROOT class, I represent this with a question mark.

These ROOTS, too, are aspectually unspecified, which gives the following set of features:

Table 3.30: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]
Psych-ROOTS	$\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s)$	[±telic]
Labile motion	$\lambda e.DO(EVENT)(e)$ <i>OR</i> $\lambda x.\lambda e.EVENT(e) \wedge Patient/Theme(x, e)$	[±telic]
Durative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[-telic]
Inchoative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[+telic]
Existence ROOTS	$\lambda e.EVENT(e)$	[-telic]
Emission ROOTS B	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[+telic]
Unergative ROOTS	$\lambda e.DO(EVENT)(e)$	[±telic]
Agent-transitives	$\lambda x.\lambda e.DO(EVENT)(e) \wedge Patient(x, e)$	[±telic]
Labile ROOTS	$\lambda x.\lambda e.DO?(EVENT)(e) \wedge Patient(x, e)$	[±telic]

3.4.2.2 Diagnostics

Just like Agent-subject transitives, labile ROOTS productively derive resultative Statives, as in (85), and change-entailing VA, as in (86)

- (85) *Stative* of \sqrt{gmr} 'finish'
awas=su gamr-at
 \sqrt{gmr} 'finish'
 word=his finished-STAT.3.SG.F

"Negotiations (lit. word) concerning his (affair) are finished" (BE 6/1 1:13, OB)

Table 3.31: ROOT classification tests

ROOT type	Stative		VA		Perfective		Imperfective	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓
Labile motion		(✓)		(✓)	✓			✓
Durative ROOTS	✓		✓	✓		✓		✓
Inchoative ROOTS		✓	✓		✓		✓	
Existence ROOTS		(✓)				✓		✓
Emission ROOTS B					✓		✓	
Unergative ROOTS		(✓)		(✓)	✓			✓
Agent-transitives	✓		✓		✓			✓
Labile ROOTS	✓		✓		✓			✓

3.4.3.2 Diagnostics

Experiencer-transitives can be most clearly differentiated from Agent-transitives by their *Statives*. While the *Statives* of Agent-transitives will predicate a ROOT's Patient argument, an Experiencer-subject's *Stative* will predicate the Experiencer-subject, as illustrated in (88) for \sqrt{wld} 'bear', which takes an Experiencer-subject and a Patient-object.

(88) *Stative* of \sqrt{wld} 'bear'

awilt-um ... *ana mutī=ša* 2 *mār-ī* **ald-at**
 \sqrt{wld} 'bear'
 woman-NOM ... DAT husband=her 2 son-PL.GEN bear-STAT.3.SG.F

"The woman has borne two sons for her husband." (AbB 7, 106: 19-21)

As noted in Kamil (Forthcoming), Experiencer-subject verbs are unique in their s-selectional mismatch between *Statives* and VAs: Their change-entailing VAs predicate the PATIENT/THEME,²⁶ as illustrated in (89), again for \sqrt{wld} 'bear'.

(89) VA for \sqrt{wld} 'bear'

waldu 'born'

²⁶Note that many Experiencer-subject ROOTS take THEMES as their objects, e.g., $\sqrt{sm?}$ 'hear', $\sqrt{?d?}$ 'know', etc.

Table 3.32: ROOT class features

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]
Psych-ROOTS	$\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s)$	[±telic]
Labile motion	$\lambda e.DO(EVENT)(e)$ <i>OR</i> $\lambda x.\lambda e.EVENT(e) \wedge Patient/Theme(x, e)$	[±telic]
Durative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[-telic]
Inchoative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[+telic]
Existence ROOTS	$\lambda e.EVENT(e)$	[-telic]
Emission ROOTS B	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[+telic]
Unergative ROOTS	$\lambda e.DO(EVENT)(e)$	[±telic]
Agent-transitives	$\lambda x.\lambda e.DO(EVENT)(e) \wedge Patient(x, e)$	[±telic]
Labile ROOTS	$\lambda x.\lambda e.DO?(EVENT)(e) \wedge Patient(x, e)$	[±telic]
Experiencer-transitives	$\lambda y.\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s) \wedge Theme(y, s)$	[±telic]

With the final class added, I now complete the Table of ROOT classes as follows:

Table 3.33: ROOT classification tests

ROOT type	<i>Stative</i>		VA		<i>Perfective</i>		<i>Imperfective</i>	
	CoS	X-CoS	CoS	X-CoS	inch./punct.	dur.	inch./punct.	dur.
PC ROOTS		✓		✓	✓		✓	✓
Eventive unacc.	✓		✓		✓			✓
Emission ROOTS A		(✓)		✓		✓		✓
Psych-ROOTS		✓		✓	✓		✓	✓
Labile motion		(✓)		(✓)	✓			✓
Durative ROOTS	✓		✓	✓		✓		✓
Inchoative ROOTS		✓	✓		✓		✓	
Existence ROOTS		(✓)				✓		✓
Emission ROOTS B					✓		✓	
Unergative ROOTS		(✓)		(✓)	✓			✓
Agent-transitives	✓		✓		✓			✓
Labile ROOTS	✓		✓		✓			✓
Experiencer-transitives	✓		✓		✓			✓

3.5 Interim Summary

This Chapter sought to motivate the disambiguation of derivationally-relevant ROOT classes in Akkadian by presenting three tests to determine the argument-structural and aspectual telicity properties of said ROOT classes. I have thereby introduced thirteen such classes, which are summarised along with their characterising denotations and features in Table 3.34.

Table 3.34: ROOT classes of Akkadian

ROOT class	Semantic denotation	Telicity
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]
Eventive unacc.	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[±telic]
Emission ROOTS A	$\lambda P.\lambda x \wedge Theme(x, e)$	[-telic]
Psych-ROOTS	$\lambda x.\lambda e.STATE(s) \wedge Experiencer(x, s)$	[±telic]
Labile motion	$\lambda e.DO(EVENT)(e)$ <i>OR</i> $\lambda x.\lambda e.EVENT(e) \wedge Patient/Theme(x, e)$	[±telic]
Durative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[-telic]
Inchoative ROOTS	$\lambda x.\lambda e.EVENT(e) \wedge Patient(x, e)$	[+telic]
Existence ROOTS	$\lambda e.EVENT(e)$	[-telic]
Emission ROOTS B	$\lambda x.\lambda e.EVENT(e) \wedge Theme(x, e)$	[+telic]
Unergative ROOTS	$\lambda e.DO(EVENT)(e)$	[±telic]
Agent-transitives	$\lambda x.\lambda e.DO(EVENT)(e) \wedge Patient(x, e)$	[±telic]
Labile ROOTS	$\lambda x.\lambda e.DO?(EVENT)(e) \wedge Patient(x, e)$	[±telic]
Experiencer-transitives	$\lambda y.\lambda x.\lambda s.STATE(s) \wedge Experiencer(x, s) \wedge Theme(y, s)$	[±telic]

The patterns observed for these ROOT classes have been observed in the G stem, which I treat as the syntactic and semantic projection of the LEXICAL IDIOSYNCRATIC ROOT. This means that the features observed in the behaviour of these ROOTS when derived in the G patterns is contained within the ROOTS when they derive D or Š verbs, too.

In the following chapter, I will introduce and outline the mechanics of the causativising D and Š stems. As will become clearer, D and Š verbs are themselves derived deradically and not on the basis of G structures.²⁷

²⁷Independent active and middle form derivations are also suggested by Kaufmann & Wunderlich (1998).

Feature chemistry: The D and Š stems

4.1 Introduction

As introduced in Chapter 1 above, the crucial puzzle of the Akkadian ROOT-and-pattern system concerns the two patterns D and Š: the two causatives. To reiterate, we are interested in solving two functional questions, namely 1) what the formal difference between a D causative and a Š causative is, and 2) which ROOTS derive D causatives and which D intensives.

The answer, I argue, lies in the semantic specifications of the two patterns, the categories of which are identical to the categories previously introduced for the ROOT classes in Chapter 3: telicity and the semantic primitive predicate. In other words, I argue that just like the IDIOSYNCRATIC LEXICAL ROOTS, the two causative morphemes, D and Š, are specified for argument-structural and aspectual features.

The telicity features of the causatives correspond to the telicity features observed in the LEXICAL IDIOSYNCRATIC ROOTS: the D stem is specified for [-telic] and the Š stem for [+telic]. These telicity features are what I claim determine which semantic primitive predicate a causative encodes: DO or CAUSE. I modify the definition of the two predicates for Akkadian and argue that they introduce different external arguments into the derivation, namely an Agent and Causer, respectively. The telicity features determining which semantic primitive a pattern derives and in turn which external arguments entails that primitives and arguments are aspectually different. In other words, I claim that in Akkadian, telicity maps onto argument structure, ultimately determining which thematic role is derived as a causative's external argument.

The specifications of the two causatives that I will argue for in this Chapter are summarised in Table 4.1 below.

Table 4.1: Causative morpheme features

	Semantic primitive	Argument	Telicity features
D stem	DO	$\lambda x.\lambda e.\text{Agent}(x, e)$	[-telic]
Š stem	CAUSE	$\lambda x.\lambda e.\text{Causer}(x, e)$	[+telic]

Telicity feature and semantic primitive are the two core driving forces that determine whether a ROOT may derive a D or Š causative and by extension a factitive or intensive D stem. This becomes especially clear once we look at the causative pattern distributions across the ROOT classes, as provided in Table 4.2.

Table 4.2: ROOT classes and their derivations

ROOT class	Semantic denotation	Telicity	Causative
PC ROOTS	$\lambda P.\lambda x.P(x)$	[±telic]	D & Š
Eventive unacc.	$\lambda x.\lambda e.\text{EVENT}(e) \wedge \text{Patient}(x, e)$	[±telic]	D & Š
Emission ROOTS A	$\lambda P.\lambda x \wedge \text{Theme}(x, e)$	[-telic]	D & Š
Psych-ROOTS	$\lambda x.\lambda e.\text{STATE}(s) \wedge \text{Experiencer}(x, s)$	[±telic]	D & Š
Labile motion	$\lambda e.\text{DO}(\text{EVENT})(e)$ OR $\lambda x.\lambda e.\text{EVENT}(e) \wedge \text{Patient/Theme}(x, e)$	[±telic]	D & Š
Durative ROOTS	$\lambda x.\lambda e.\text{EVENT}(e) \wedge \text{Theme}(x, e)$	[-telic]	D & Š
Inchoative ROOTS	$\lambda x.\lambda e.\text{EVENT}(e) \wedge \text{Patient}(x, e)$	[+telic]	Š
Existence ROOTS	$\lambda e.\text{EVENT}(e)$	[-telic]	Š
Emission ROOTS B	$\lambda x.\lambda e.\text{EVENT}(e) \wedge \text{Theme}(x, e)$	[+telic]	Š
Unergative ROOTS	$\lambda e.\text{DO}(\text{EVENT})(e)$	[±telic]	Š
Agent-transitives	$\lambda x.\lambda e.\text{DO}(\text{EVENT})(e) \wedge \text{Patient}(x, e)$	[±telic]	Š
Labile ROOTS	$\lambda x.\lambda e.\text{DO}?(\text{EVENT})(e) \wedge \text{Patient}(x, e)$	[±telic]	D & Š
Experiencer-trans.	$\lambda y.\lambda x.\lambda s.\text{STATE}(s) \wedge \text{Experiencer}(x, s) \wedge \text{Theme}(y, s)$	[±telic]	D & Š

The first inference that may be made about the set of features determined for the ROOTS and their respective causative-morpheme is that it appears as though the primary restriction we must account for is the barring of the D causative. As Table 4.2 suggests, ROOT classes that may derive D causatives may also derive Š causatives. Š forms thus appear to not be restricted by any features of the ROOT.

What further stands out is that the two [+telic] specified ROOT classes and the two classes with obligatory, i.e., non-labile DO-primitive disallow D causatives. In other words, as far as the telicity feature goes, we observe some kind of feature-matching requirement wherein a ROOT's and a causative's telicity feature must match in order to derive a D causative. When it comes to the primitive semantic predicates, we observe the opposite, namely some kind of repulsion of the same predicate: a ROOT specifying a DO-predicate cannot be causativised with a D causative, which itself adduces a DO-predicate into the derivation.

Goal of this Chapter will be to account for this distribution in causative patterns. In the remainder of this Section, I will provide the precise definitions of Agents and Causers as they are viewed in the present analysis of the Akkadian verb, namely by their aspectual properties. In Section 4.2, I will then introduce the formal framework of the present analysis, which is rooted in Magnetic Grammar (D'Alessandro & van Oostendorp 2020). I will motivate the aspectual properties of the two causatives D and Š in Section 4.3, followed by a motivation of their syntactic properties in Section 4.4. In Section 4.5 I will then compile the findings of this Chapter into a uniform analysis of D and Š causative derivation.

4.1.1 Agents and Causers

Prefacing the discussion of Agents and Causers, I terminologically differentiate a lowercase *causer*, which refers to any external argument that induces a CoS event, and a capitalised *Causer* to refer to the semantically and syntactically defined role of the indirect causer. This means that both Agents and Causers are *causers* and thus stand in no subset relation to one another.¹

In most formal approaches to Agents and Causers, the two arguments are distinguished by their animacy and agentivity. As such, Alexiadou & Anagnostopoulou (2009) treat Agents as human and agentive in the bringing about of a CoS while Causers are typically inanimate and not agentively involved in bringing about the CoS event.

But an aspectual distinction between Agents and Causers is not typologically unknown: Martin (2015, 2020) notes such aspectual differences wherein Agents are compatible as the external arguments of non-culminating events, not however Causers. In other words, non-culminating events allow Agents but not Causers. This phenomenon is known in Japanese (Tsujimura 2003), Altaic (Tatevosov & Ivanov 2009a,b), Malagasy (Travis 2010: p. 213) Salish (Jacobs 2011), and Mandarin Chinese and French (Demirdache & Martin 2015), among others.

An example for a non-culminated event is given in (90) below for French, from Demirdache & Martin (2015: p. 202).

(90) Non-culminated event with Agent in French

Pierre l' a provoquée, mais elle n' a pas été touchée du tout.

Pierre her has provoked but she NEG has NEG been touched at all

“Pierre provoked her, but she wasn't touched at all”

¹Kastner (2020) maintains a different distinction, wherein Agents and Causers are in a strict subset relationship: every Agent is a Causer, but not every Causer is an Agent. I circumvent this subset restriction by differentiating between the general function of causers causing the occurrence of an event, and the specific type of causer inducing the event either directly (Agent) or indirectly (Causer).

The Agent, Pierre, is actively and agentively provoking the causee, but the causee is not changed or affected by the provocation: the event is thus not culminated. By contrast, Causers cannot function as the external arguments of non-culminated events. Consider for instance the German example, again taken from Demirdache & Martin (2015: p. 209):

(91) Non-culminated event with Causer in German

Der Regen wusch die Straße sauber, #aber es ist überhaupt nicht sauberer
 the rain washed the street clean, but it is at all not cleaner
geworden!
 become

“The rain washed the street clean, but it didnt get cleaner!”

The rain is not actively or agentively involved in the washing of the street, but the event of washing entails culmination. Hence, the modification claiming the street did not get cleaner elicits a questionable grammaticality judgement.

To reiterate the classic definition of telicity as given further above, telic events are defined as culminated events, while atelic events are defined as non-culminated. There is thus some cross-linguistic evidence suggesting that Agents may occur with non-culminated atelic events, but Causers may not.

Both the definition by animacy and agentivity as well as the definition by telicity reveal a crucial idea to the present definition for Akkadian, that is: causative events are not mono-eventive. In other words, causative events, involving a causer and a causee consist at least of two individuated events (Davidson 1969, Pustejovsky 1991), namely a causation event and a CoS event.

The definition of Agent and Causer, and by extension also DO and CAUSE, then relies on the relationship between causation and CoS event. Committing to the telicity distinctions, I define the Agent as a causer with a causation event overlapping with the CoS event and the Causer as one with a causation event preceding the CoS event. In other words, the causation event of an Agent does not entail culmination and as such its respective CoS event does not rely on the completion of a causation event in order to eventuate: CoS and causation events overlap and neither entails the culmination of the other. By contrast, the causation event of a Causer *must* culminate in order for its respective CoS event to proceed. CoS and causation events are thus in a temporally ordered relationship wherein the inception of one relies on the culmination of the previous.

I summarise the difference as in (92) below. Any causative event is made up of two subevents, e_1 , defined as the causer's event A , and e_2 , defined as the causee's event P . I follow the notational framework in van Eynde (1991) wherein a \cap designates a temporal intersection between two events and $<$ designates precedence. An Agent is then defined as the argument in a causation event intersecting with a causee's CoS event, and a Causer is defined as the argument in a causation event preceding a causee's CoS event.

(92) The definition of Agent and Causer in Akkadian

- a. $\text{Agent}(x) \leftrightarrow \exists e_1 \exists e_2 [A(x, e_1) \wedge P(y, e_2) \wedge e_1 \cap e_2]$
- b. $\text{Causer}(x) \leftrightarrow \exists e_1 \exists e_2 [A(x, e_1) \wedge P(y, e_2) \wedge e_1 < e_2]$

Now, Agent and Causer are the external arguments of the D and Š stems. As mentioned further above in this Chapter, they are instantiated by the semantic primitive predicates DO and CAUSE. This means that if Agent and Causer are defined as the argument of A in their respective causation events in (92) above, DO and CAUSE may be defined to represent the two relational operators in the causation events, i.e., \cap for DO and $<$ for CAUSE, in contexts involving A and P .

(93) The definition of DO and CAUSE in Akkadian

- a. $\text{DO} = A \in (A \cap P)$
- b. $\text{CAUSE} = A \in (A < P)$

The telicity feature is involved in the definition of these two predicates as it defines DO as a sub-event e_1 that does not need to culminate in order for the second subevent e_2 to begin. CAUSE on the other hand is then defined as a sub-event e_1 that *must* culminate in order for the second subevent e_2 to begin. The entailments of the two predicates are given in (94-95) below.

(94) Entailment of DO

A predicate DO entails the existence of two subevents within a bi-eventive causative event, wherein the causation event e_1 intersects with the CoS event e_2 . Therein, DO denotes the causation event e_1 .

(95) Entailment of CAUSE

A predicate CAUSE entails the existence of two subevents within a bi-eventive causative event, wherein the causation event e_1 precedes the CoS event e_2 . Therein, DO denotes the causation event e_1 .

This relational difference also translates to the labels of ‘direct’ and ‘indirect’ causative: Agent causers with DO-predicates, which involve an intersectional or overlapping causation event with their entailed CoS event, are direct causers. Causer causers with CAUSE-predicates, which must culminate in order for their entailed CoS event to begin, are indirect causers. I summarise this in (96) and re-introduce the D and Š stems in light of this definition in the next Section.

(96) Semantic causation differences in Akkadian

- a. Direct causation: $\lambda x.\lambda e.DO[...]\wedge Agent(x,e)$.
- b. Indirect causation: $\lambda x.\lambda e.CAUSE[...]\wedge Causer(x,e)$

4.1.2 Application in Akkadian

4.1.2.1 The telicity restriction

If D stems are specified [-telic], i.e., atelic, and take Agent-subjects and Š stems are specified [+telic], i.e., telic, and take Causer-subjects, we would expect to see the culmination entailments, which are cross-linguistically observed for Agents and Causers, for the two causatives, too. In other words, we would expect to see D verbs, which do not entail culminated events, and Š verbs, which do. Indeed, that is the case.

The difference between the two causatives is well demonstrated in the derivation of D and Š stems of the aspectually-unmarked PC ROOTS. In the examples below, (97)² gives the D stem of $\sqrt{ml}?$ ‘full’, while (98) gives its Š stem.

(97) D stem of $\sqrt{ml}?$ ‘full’

<i>elipp-a</i>	<i>ša</i>	<i>PN₁</i>	<i>PN₂</i>	<i>mērešt-u</i>	<i>u-n<da>ll-Ø=u</i>
					$\sqrt{ml}?$ ‘full’
boat-OBL	REL	PN	PN	merchandise-OBL	3-fill<PROG>PFV-Ø=SBJV

“PN₂ has been filling up the ship (that is) of PN₁ with merchandise” (YOS 3 172:24, NB)

²Note two common sound changes that have occurred in the relevant form: Voicing /mt/ → /md/ and alveolarisation /md/ → /nd/.

- (98) Š stem of $\sqrt{ml?}$ 'full'
rišāt-im libb-a=šu tu-ša-mla-0
 $\sqrt{ml?}$ 'full'
 joy-OBL heart-OBL=his 2-CAUS-fill.IPFV-SG.M

"You caused his heart to fill up with joy" (MIO 1248:7f., OB)

In (97), the D stem denotes an event wherein an Agent actively fills up a ship with merchandise. Two observations are of relevance here: Firstly, the denoted event makes no implication as to the completeness of 'filling' the ship. The ship is certainly implied to be fuller than in an event-preceding state, but it is not implied that following the event, the ship is in an absolute state of 'being full'. Secondly, the Agent causer is actively and duratively involved in the effectuation of the CoS process of the Patient, the ship, but again no entailment is made on whether or not the Agent's causation event is at any point culminated.

In (98) on the other hand, we see the opposite pattern: First, the Patient *is* implied to be 'full with joy' and thus culminated its event of becoming full. Secondly, the Causer has effectuated the Patient to undergo an 'independent' CoS event. In other words, the Š Causer's causation event can, but does not necessarily have to overlap with the (independent) CoS event of the Patient. The most natural entailment relation that we can postulate for Š verbs is that the Š Causer has caused the event of a G verb to happen. See for comparison a G verb of the same ROOT in (99).

- (99) G stem of $\sqrt{ml?}$ 'full'
libb-a=šu tubbāt-i i-mla-0
 $\sqrt{ml?}$ 'full'
 heart-OBL=his goodness-OBL 3-full.PFV-SG.M

"His heart became full with goodness (~ he became friendly)" (Enūma Eliš II 104, SB)

Two even clearer examples of the entailed culmination of Š causatives are given in (100). Note that the causee's CoS event culminating entails that the causation event has culminated. In (100a), the causation event of placing a population at the given geographical location is entailed to be completed by the event, hence we derive the meaning that the people will be settled through it. In (100b), the causation event of making Gilgameš face his nightmare entails that Gilgameš will have faced it and thus accepted it (as indeed he does in the epic).

- (100) Culminated Š causatives

a. GN **tu-ša-škan-0=šunu** $\sqrt{\text{škn}}$ 'place'

GN 2-CAUS-place.IPFV-SG.M=them.M

"You will be having them settled in GN" (ABL 966:8, NA)

b. *šutt-a=šū* **u-ša-mḥir-0=šū** $\sqrt{\text{mḥr}}$ 'face, confront'

dream-OBL=his 3-CAUS-face.PFV-SG.M=his

"He made him accept (lit. face, confront) his dream" (Gilgameš V iv 22, SB)

As already mentioned above, D and Š's aspectual encoding is further implied by some ROOTS' restrictions in terms of which causatives they may derive through. As Table 4.2 above showed, ROOTS specified for [-telic] aspect typically derive D causatives but may also more rarely derive Š causatives, while ROOTS specified for [+telic] aspect may only derive Š causatives.³

To illustrate this distribution, consider the pair of emission ROOT classes A and B. [-telic]-specified emission ROOTS, such as the one in (101) typically causativise through the D, but may at times also have Š stems attested. On the other hand, [+telic]-specified emission ROOTS, as the one in (102), may *only* use the Š stem.

(101) G–D correspondence of $\sqrt{\text{hl}}$ 'wheeze, pipe'a. *ḥašû=šū* **i-ḥallul-ū** $\sqrt{\text{hl}}$ 'wheeze, pipe'

lung.PL=his 3-wheeze.IPFV-PL.M

"His lungs are wheezing" (Labat TDP 184:21, NA/B)

b. NÍG.KALA.GA.URUDU *ina libb-i* *bīt-i* **u-ḥallal-0** $\sqrt{\text{hl}}$ 'wheeze, pipe'

copper bell? in inside-OBL house-OBL 1-D.wheeze.IPFV-SG.M

"(The mašmāšu will purify the temple and ...) will make the copper bell resound in the temple" (RAcc. 153:343, NB)

³The only exception to this rule is found with ROOTS of existence, which will be addressed in Section 4.5.3 below.

(102) G–Š correspondence of \sqrt{brq} ‘flash’

a. *māt-u šī barq-u i-barrīq-0=šī*
 \sqrt{brq} ‘flash’

land-OBL this.F lightning-OBL 3-flash.IPFV-SG.M=her

“Lightning will strike that land” (CT 39 17:60, Šumma Ālu, SB)

b. *šumma Adad u-š-briq-0=ma qās=su itti barq-a*
 \sqrt{brq} ‘flash’

if Adad 3-CAUS-flash.PFV-SG.M=CONJ hand=his with flash-OBL

i-n-nammir-0

$\sqrt{?mr}$ ‘see’

3-PASS-see-IPFV-SG.M

“If (when) Adad makes lightning strike, his hand is seen with a thunderbolt in it”
 (Bab. 4 120:5, SB)

Emission ROOTS are not the only pair of ROOT classes to display this alternation; the very same pattern is also observed for the pair of aspectual ROOTS. The [-telic]-specified durative ROOTS derive mostly the [-telic]-specified D and sometimes [+telic]-specified Š stems, while the [+telic]-specified inchoative ROOTS derive solely the [+telic]-specified Š causatives.

4.1.2.2 The DO-block

As the Table above has also shown, agentive ROOTS, i.e., ROOTS with inherent DO-predicates, are restricted in their causative derivation, too. This restriction has been also noted by Kouwenberg (1997: pp. 265–267) in his study of the D stem: unergatives and Agent-transitives may only causativise through the Š stem, never through the D stem. If an agentive ROOT does derive a D stem, it derives an *intensive* meaning.

I illustrate this point in (103). (103a-b) give two unergatives, one of which derives no D stem, the other one deriving an intensive D stem, (103c) gives an object-labile unergative/active-transitive ROOT, and (103d-e) give active-transitive ROOTS, one of which again derives no D stem, the other deriving an intensive D.⁴

⁴The difference between the object-labile $\sqrt{?kl}$ ‘eat’ in (103c) and the active-transitives in (103d-e) manifests through the predication of the objects in the causative Š stem of (103d-e), i.e., *Y cause X to be killed (by Z)*, vis-à-vis the predication of the Agent-subject of the Š stem of $\sqrt{?kl}$ ‘eat’ in (103c), i.e., *Y cause X to eat*. This point will be elaborated on in Section 4.4.2.1 below.

(103) Unergatives and AGENT-transitives in alternation

	ROOT	G	D	Š
a.	$\sqrt{?lk}$	'walk'	/	'make so. go'
b.	\sqrt{hb}	'murmur'	'hiss'	'make so. gurgle'
c.	$\sqrt{?kl}$	'eat'	/	'make so. eat, feed so.'
d.	$\sqrt{dk?}$	'kill'	/	'have so. killed'
e.	$\sqrt{hr?}$	'dig'	'dig'	'cause sth. to be dug'

Two examples for intensive D stem are given in (104-105) below. In (104), I give the agentive ROOT \sqrt{rps} 'beat'. While the event denoted by its G verb is implied to be pluractional through the specification of 40 blows, the pluractionality is limited to that number alone. By contrast, its D verb is atelic with no indication to a point of culmination for the event. The man, in a frenzy, beats himself again and again.

(104) G–D intensive alternation for \sqrt{rps} 'beat' with atelic connotation

a. *u 40 ina huṭārt-i i-r<ta>ps-0=an=ni*

\sqrt{rps} 'beat'

and 40 in rod-OBL 3-beat.PFV<PROG>-SG.M=VEN=me

"(He seized me) and gave me forty (blows) with a rod" (AASOR 16 3:60, MB)

b. *u-reppis-0 libb-a=šu ina killal-ē=šu*

\sqrt{rps} 'beat'

3-D.beat.PFV-SG.M heart-OBL=his in both-PL.OBL=his

"(He threw himself on the ground, tore his garments and bared his arms, tore off his cap, plucked out his hair,) and pounded his chest with both his (fists)" (RINAP Sargon II 65:412, NA)

The alternation of the ROOT $\sqrt{?sq}$ 'draw, incise' is slightly different. G verbs of the ROOT denote singular events of drawing or incision. Their D verbs, however, are most commonly used to denote the regular drawing up of borders between lots. These D verbs typically take plural objects. The event again denotes a repetitive, pluractional event of drawing up lot after lot after lot.

(105) G–D intensive alternation for $\sqrt{?sq}$ 'draw, incise' with plural objects

- a. *šalam ilī rab-ūt-i bēl-ē=ya e-siq=a*
 $\sqrt{\text{ʔsq}}$ ‘draw, incise’
 image.CSTR god.PL.OBL great-PL-OBL lord-PL.OBL=my 1.SG-draw.PFV=?
šīrū=ššū

back=his

“I engraved images of the great gods, my lords on it (stele)” (RINAP Aššurbanipal 220 *iv* 2, NA)

- b. *qiš-āt-u i-qīs-∅=sunūti=ma u-ssiq-∅ isq-ēt-u*
 $\sqrt{qʔš}$ ‘give’ $\sqrt{\text{ʔsq}}$ ‘draw, incise’
 gift-PL.F-OBL 3-give.PFV-SG.M=themM 3-D.draw.PFV-SG.M lot-PL-OBL

“(The king) gave them presents and apportioned (lit. drew) the lots” (VAS 1 37 *iii* 35, NB)

Note that the intensive D verbs are not causatives to the ROOTS they are derived from. Rather, they appear to add to the agentivity as well as to the event-‘amount’. What we observe for D intensives is thus some kind of multiplied DO. As mentioned in Section 3.3.3 in the previous Chapter, I assume that agentive ROOTS, i.e., unergatives and Agent-transitives indeed do encode a DO-predicate. As suggested further above in this present Section, I also suggest that D stems introduce a DO-predicate into the derivation. As I will motivate and show further below, (most) ROOTS with no DO-predicates may thus derive D causatives, while ROOTS that already encode DO-predicates cannot derive causative D verbs, but instead derive *intensive* D verbs, as a result of a ‘multiplied’ or ‘factored’ DO, i.e., a kind of $\text{DO} \times \text{DO}$ or DO^{DO} . In other words, with DO-predicates instantiating Agents, intensive D meanings result from additional agentive encoding.

Many intensive predicates with such heightened agentive encoding, as the ones in (106a-b), highlight a repetitive or process-focussed usage, but that is not to say that all intensive D verbs are necessarily always atelic as the D stem’s [-telic] feature may suggest. I give such an intensive D stem with no repetitive, process-focussed, or plural-objects containing event in (106c).

(106) Intensive D stem predicates

- a. *bēt PN urd-ū ... šaḥ-ē=šu u-ṭ<t>abbiḥ-i*
 $\sqrt{wrđ}$ 'descend' $\sqrt{ṭbh}$ 'slaughter'
 house.CSTR PN 3.descend.PFV-PL.M ... pig-PL.OBL=his 3-D.slaughter.PFV-PL

"They burst into the house of PN ... (and) slaughtered his pigs" (ABL 564:13, NA)

- b. *kīma šēn-i u-parris*
 \sqrt{prs} 'separate'
 as sheep-OBL 1.SG-D.separate.PFV

"I distributed (camels) as if they were sheep and goats" (Streck. Asb. 76 ix 46, NA)

- c. *mamma šuāti ana agr-ī u-ṭ<t>eppi-θ*
 $\sqrt{ṭpʔ}$ 'assign'
 someone him_{dat} hired workers-PL.OBL 3-D.assign.<PROG>PFV

"Someone assigned him to the hired workers" (Kraus AbB 10 30, OB)

Crucially, the intensive reading is the product of a ROOT's interaction with the DO-predicate, itself complex predicate that partly consists of a [-telic] feature, not its interaction with the [-telic] feature itself. It is thus that we can account not only for intensive D verbs not always adopting the atelic properties of D stems, but also for the prevention of D causatives being derived for ROOTS containing a DO-predicate themselves.

Finally, labile-transitives, which may derive an Agent, but do not always, derive D stems, which may be interpreted as either intensive or factitive, depending on the base-transitivity of the corresponding G. I do not address the directionality of the labile alternation here, and as such refrain from making a definitive claim on whether D verbs of this class are inherently factitive, intensive, or ambiguous. This class does derive Š causatives. (107) below shows two examples of labile-transitive alternations, with (107a) deriving an intensive/factitive D and a causative Š, while (107b) derives only an intensive/factitive D.

(107) Labile-transitives in alternation

- | | ROOT | G | D | Š |
|----|--------------|------------------------|-------------|--------------------------|
| a. | \sqrt{tbl} | 'take away, disappear' | 'take away' | 'cause to be taken away' |
| b. | \sqrt{slh} | 'pull out, withdraw' | 'pull out' | / |

4.1.3 Summary and outline

To summarise this introduction into the D and Š stems, we are left with three findings: 1) Classes that may derive D causatives may also derive Š causatives, 2) D causative formation is prevented by a telicity mismatch with the ROOT, and 3) D causative formation is prevented by some kind of agentivity encoding in the ROOT.

What we thus observe is some kind of attraction and repulsion phenomenon of certain features when it comes to the derivation of causatives, particularly to that of D causatives. Therefrom, I hypothesise two semantic-syntactic restrictions, which I will motivate and argue for in the remainder of this Chapter. The first rule, given in (108) suggests that if a ROOT already encodes a DO-predicate, it cannot be causativised by means of a causative that also encodes a DO-predicate.

(108) Semantic primitive predicate repulsion rule

In the derivation of a causative, a LEXICAL IDIOSYNCRATIC ROOT's semantic operator repels a causative's semantic operator iff the operators are identical.

The second derivational rule, given in (109), concerns the telicity features of ROOTS and their apparent necessity to be matched with the telicity features of a causative. This is at the very least absolutely true for [+telic] ROOTS, but also mostly for [-telic] ROOTS.

(109) Telicity feature matching rule

For the derivation of a causative, a LEXICAL IDIOSYNCRATIC ROOT's telicity feature attracts the semantic / aspectual feature of a causative morpheme.

In the remainder of this Chapter, I will build and account for the architecture of the two Akkadian causatives and accordingly motivate the two rules in (108-109) above. As the vocabulary of the rules already suggests, I will introduce the notion of magnetism into the present theory, building on Magnetic Grammar (D'Alessandro & van Oostendorp 2020), in Section 4.2. I will then motivate the telicity features of the two causatives in Section 4.3, and then move on to motivate the semantic operators and respective syntactic structures of the two distinct arguments that are derived from the operators in Section 4.4. Section 4.5 will then apply the features and operators to the theory of feature magnetism in order to account for the derivational patterns observed thus far.

4.2 Magnetic Grammar and magnetic fields

As summarised in the introductory Section of this Chapter, but also in the previous one, I observe for the entirety of the Akkadian verb, that is for Akkadian ROOTS as well as derivational morphemes, a uniform set of features, with some of the features exhibiting compatibilities, while others exhibit clashes. The two rules formulated in (108-109) above can perfectly account for all the derivational observations concerning causative and intensive formations; with the only deviation being ROOTS of existence.

Thence arises the need to formalise these rules for compatibilities and clashes, and different formalisms deal with such phenomena in different ways. On the syntactic side, compatibilities could be accounted for through Agree-driven Merge (Adger 2003, Müller 2017, Svenonius 2021), clashes through anti-locality constraints (Grohmann 2003, 2011, Zyman 2021). Again other formalisms root Merge and Move phenomena in markedness (Roussou 2017, Roberts 2018). On the semantic side, attraction and repulsion is known in Force Dynamics (Talmy 1988), the cognitive compatibility of semantic features is also a requirement in Jackendoff's 1985 *Semantics and Cognition*, which also includes an application to the syntactic interface.

The interface is a crucial requirement to the formalisation of the observed patterns in the Akkadian verbal system; after all, the template itself is the manifestation of a three-way interface between syntax, semantics, and phonology. Frameworks aimed at incorporating all three sub-divisions of language do exist, for instance Jackendoff's *Parallel Architecture* (Jackendoff 1997, 2002, 2007), a development of the previous *Semantics and Cognition*. Jackendoff's models pose that all three components of language are generated independently of one another, but are then linked by a set of interface rules.

This approach is notably driven by mostly phrasal data from Indo-European. Semitic, however, presents us with data that spells out single lexical items derived as the direct result of the three-way interface. Cognitive processing arguments of longer chains of lexical items do not quite hold for us here; we are in need of something more unified. The framework I introduce here is guided by a language-theoretical assumption that primitive cognitive elements should be more or less uniform, an idea that in itself is wide-spread (see i.a., Katz & Fodor 1963, Wierzbicka 1996, Jackendoff 1997). I believe that this uniformity should hold not only within semantics, within syntax, and within phonology independently, but within language as a whole, a belief that is strengthened by the realisation of the Semitic template system as an inherently interfacial system.

I thus introduce here such a framework, for now for the purpose of accounting for the patterns observed in the Akkadian verbal system. Therein, the basic 'atoms' of language, their combinatory rules, and their spell-outs are hypothesised to be uniform across the sub-divisions of language. I adopt this uniformity here through the formalism of Magnetic Grammar, developed by

D'Alessandro & van Oostendorp (2020) initially to unify the representation of features in syntax and phonology. In many ways, however, it subsumes the intuitions of syntactic approaches such as Agreement, antilocality, semantic approaches such as the uniformity of primitive building blocks in language, and the universal linguistic concept of markedness. The framework, with slight modifications introduced in this thesis, may account for all derived functions in the Akkadian verbal system; that is, not only does it account for the derivational patterns and restriction of the two causatives D and Š, but also of the two anticausatives N and *t*-. As the remainder of this Chapter will show, I add to the syntactic and phonological system of features a semantic one, which is equally incorporable.

The core of the analysis employs the idea that features in grammar, here on the interface of syntax and semantics, interact in many ways as though electro-magnetically charged. As the previous Chapter already suggested with the distribution of the telicity feature across ROOT classes, I assume a trivalent charge-system, wherein features can either carry a 'positive', 'negative', or 'neutral', i.e., unspecified charge.

Before further motivating the features of the two causatives, I will thus introduce Magnetic Grammar, and along with it the notational framework it relies on. I will begin by providing a brief overview over the syntactic and morphosyntactic arguments made by D'Alessandro & van Oostendorp (2020) in favour of the attraction and repulsion of features in grammar in Section 4.2.1,⁵ and will then introduce my implementation of magnetic attraction and repulsion in Section 4.2.2.

4.2.1 Attraction and repulsion in the literature

The idea of magnetic attraction and repulsion is not entirely novel in formal analyses. In the minimalist programme, constituent movement is triggered by 'strong' features on certain heads, which may *attract* 'weak' features on other heads (Chomsky 1995, Adger 2003). Languages differ in their features' specifications of strength, leading to different surface word orders (see also Pollock 1989), as the set in (110), adapted from D'Alessandro & van Oostendorp (2020), suggests:

(110) Variation in surface word orders

a. Romance: V-to-T

Au cinéma, Pierre embrasse souvent Jean

At the cinema Pierre kisses often Jean

"Pierre often kisses Jean at the cinema"

(French)

⁵I refer the reader to the respective publication for the phonological motivations.

- b. Germanic: V-to-C

*In de bioscoop **kust** Piet Jan vaak*

In the cinema kisses Piet Jan often

“Piet often kisses Jan at the cinema”

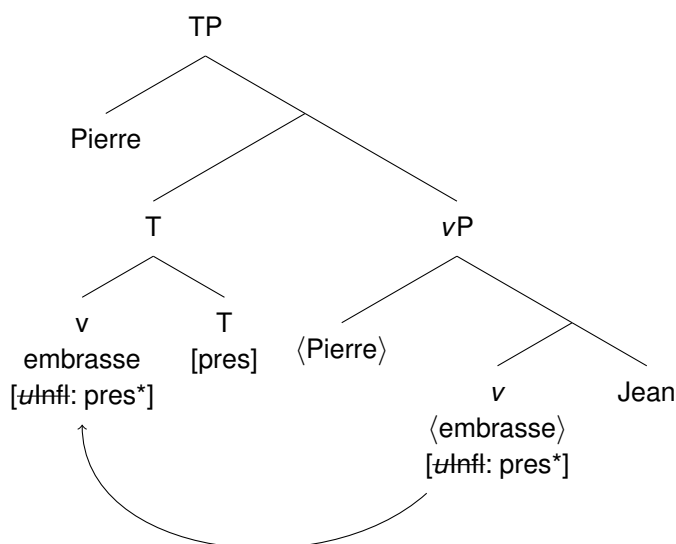
(Dutch)

- c. English: no movement

At the cinema, Peter often **kisses** John.

As Figure 4.1 shows for (110a), the Move operation is triggered by a strong uninterpretable inflection (tense) feature on *v*, marked with an asterisk *, which then triggers its Move to T where it can be checked by the interpretable inflection (tense) feature. In other words, attraction between interpretable and uninterpretable features can trigger Move operations.

Figure 4.1: French V-to-T Move



In similar fashion, Agree operations can also be argued to work through attraction, wherein a feature or “Probe does not need to have a bundle of unvalued features, but can be simply specified as attracting some” (D’Alessandro & van Oostendorp 2020: p. 419), and ‘looking’ for the closest matching goal in order to trigger an agreement relation (and any respective morphology). To compare, Adger (2003) treats Agreement similarly as the ‘checking’ of an uninterpretable, i.e., unvalued [*uF*] feature on one head with the interpretable feature of another. D’Alessandro & van Oostendorp (2020), however, assume that features can also attract other features without such uninterpretable specification for another feature. An example, again of tense feature checking, is given in (111).

(111) Tense feature checking, adapted from Adger (2003: p. 168)

- a. Past tense predicate: T[past] ... V + v[~~upast~~]
- b. Present tense predicate: T[present] ... V + v[~~upresent~~]
- c. *Past tense predicate: T[past] ... V + v[~~upresent~~]
- d. *Present tense predicate: T[present] ... V + v[~~upast~~]

But processes of *repulsion* have also already been posited in the literature, amongst others by Platzack (1996) who posited a Repel [F] (*read*: repel feature) operation. Van Craenenbroeck (2006) applied Platzack's system to his analysis of word order in Venetian clitic-left dislocated phrases (CLLD). The general pattern observed in Venetian is that Wh-phrases always precede complementizers, while complementizers always precede CLLD. An example is given in (112) with the CLLD marked by square brackets, and the complementizer underlined.

(112) Venetian Compl<CLLD, adapted from Van Craenenbroeck (2006: p. 53)

Me dispiase che [a Marco] i ghe gabia ditto cussi
 me is.sorry THAT to Marco they to.him have.SUBJ told so

"I am sorry that they said so to Marco."

When it comes to the combination of Wh-words with CLLDs, Wh-words do not precede CLLDs as expected, as illustrated in (113). I give the CLLD again in brackets and the Wh-phrase underlined

(113) Venetian CLLD<Wh, adapted from Van Craenenbroeck (2006: pp. 53–54)

- a. **Me domando a chi [el premio Nobel] che i ghe lo podaria dar*
 me I.ask to who the prize Nobel that they to.him it could give
- b. *Me domando [el premio Nobel] a chi che i ghe lo podaria dar*
 me I.ask the prize Nobel to who that they to.him it could give

"I wonder to whom they could give the Nobel prize."

To account for this pattern, Van Craenenbroeck suggests that CLLD elements are 'repelled' from any Focus domains. In other words, topicaliser category features, i.e., [Top], and focus category features, i.e., [Foc], repel one another in Venetian.

Further evidence for repulsion is found in morphosyntactic processes, as D'Alessandro & van Oostendorp (2020: p. 430) note, for instance in the repulsion of imperatives by negation elements in Italian. Small elements such as clitics and reflexive pronouns may repel one another in clusters when the elements are too similar or identical, as for instance observed in Spanish (Bonet 1995, Kayne 2003), Standard Italian (Cinque 1988), and Abbruzzese (Manzini 2014). See for an Italian example (114).⁶

(114) Si=si repair in Italian, following Cinque (1988)

a. **si=si* *guarda*
IMP=REFL looks

b. *ci=si* *guarda*
LOC=REFL looks

“One looks at oneself”

4.2.2 Current implementation

D'Alessandro & van Oostendorp (2020) assume a privative feature system, which assumes that features are either present or absent on any given item. Within this system, they formalise attraction and repulsion of features as summarised in (115), whereby the variables F, G, and H constitute three arbitrary features.

(115) Magnetic Grammar formalisation following D'Alessandro & van Oostendorp (2020: p. 406)

$F \supset G: G^*H: H$

- a. Feature F is specified as attracting feature G
- b. Feature G is specified as repelling feature H
- c. Feature H has no specification

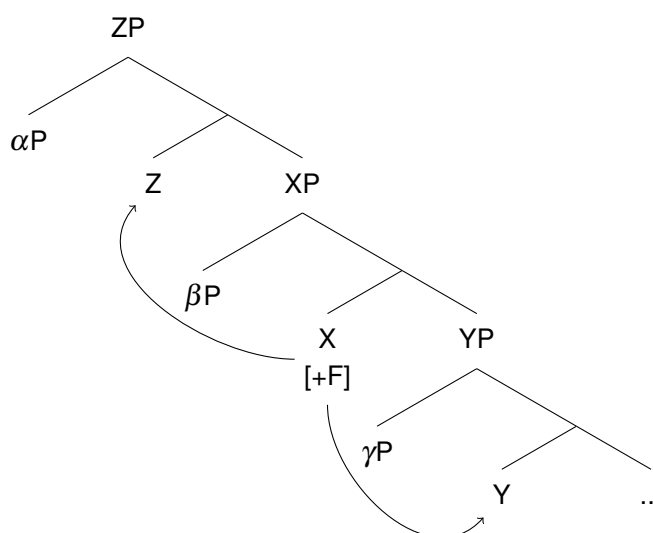
I formalise the system of magnetism somewhat differently, drawing more closely on admittedly broad and highly superficial parallels to electromagnetic fields. I assume features to behave akin to atoms, carrying specific charges. A feature can then be positively charged in which case I represent it as [+F], negatively charged in which case I represent it as [-F], or uncharged

⁶Note an alternate analysis could argue against such sequences by haplogy, see for instance Faust (2018).

in which case I represent it as $[\pm F]$. This Hegelian way (Maybe 2020) of representing the features will allow us to assume their presence even if neutrally charged (as opposed to, say, an ‘empty’ feature $[\]$). The necessity for such a way of marking features will become especially evident in accounting for the N stem in Chapter 5.

Now, extending the physical metaphor of the electromagnetic charge, charges of features create ‘charge-fields’ (i.e., metaphorical electric fields). The charge-field of a positively charged feature will attract negatively charged features and repel positively charged features; the charge-field of a negatively charged feature will accordingly attract positively charged features and repel negatively charged ones. Neutral charges neither attract nor repel. Based on the analysis of the D and Š derivations given in Section 4.5 below, I determine the charge-field to span from its own syntactic head to precisely one head above it and one head below it, as in Figure 4.2. This means that a given feature charge directly interacts with the feature charges of its preceding head and the head following it.

Figure 4.2: Charge-field scope



Morphemes are made up of different combinations of features; as such, they will typically attract some features while simultaneously repelling others. The combination of morphemes through derivation then creates what I will term the ‘feature-field’ (i.e., metaphorical magnetic field). The interaction of features and their charges runs largely through this feature-field. I propose that this field is already known to syntacticians as *c-command* relations, and merely reformulate it to be coherent with the concept of electromagnetic fields. Crucial to the syntactician is thus the notion that feature charges interact in the domain of *c-command*.

Importantly, changes to the charge of a feature, and by extension to its charge-field impact directly the feature-field, and vice-versa. In other words, items Merged throughout the derivation of a lexical item, phrase, sentence, or even within a more abstract context, can affect the interaction of features and their charges, and as such their interpretation⁷.

Additionally to the electro-magnetic features, I also make use of Adger's (2003) uninterpretable features, represented as [ν D]. As introduced above, D'Alessandro & van Oostendorp (2020) do mention that features need not be specified for such unvalued features, but can simply attract. I agree with this claim and make the distinction between features that simply attract or repel [\pm F] and features that are unvalued and thus enforce stronger attraction [ν F]. [ν F] features are checked by [\pm F], not however by [$-$ F]. An alternate way of representing them would be as a 'super-negative' charge; I refrain from doing that and adopt Adger's representation of [ν F] instead, for the sake of clarity.

In the remainder of this Chapter, as well as in the next, I will attempt to demonstrate how the magnetic feature system proposed here can work in the domain of the verb. The exploration of further domains, such as nominal derivation, but also phrasal syntax and pragmatic formalisation shall remain a goal for future work. With that, I now turn to the motivation of the aspectual telicity features of the two causatives.

4.3 The two aspects of the two causatives

4.3.1 Telicity and aspect

In this Section, I will only motivate the two aspectual features of the D and Š causatives as [$-$ telic] and [\pm telic], respectively. The derivational and syntactic consequences of these features will be discussed in Section 4.5 below.

As introduced in the Chapter 1 of this thesis in 1, telicity is understood here as a measurement of the culmination of an event. Telic events are events that either encode or imply an endpoint, i.e., a point of culmination, while atelic events do not encode or imply an endpoint (see Vendler 1957, Dowty 1979, Verkuyl 1993, Krifka 1998, i.a.). I expand on the previous definition in this Section.

The notion of telicity is directly intertwined with both lexical and grammatical aspect, though opinions diverge on whether lexical and grammatical aspect constitute subsets of the same phenomenon (see Dickey 2015 for an overview). Holt (1943: p. 6 *apud* Comrie 1976: p. 3) defines aspect in general as different "ways of viewing the internal temporal constituency of a

⁷See Farkas & Swart (2003) and Degen & Tanenhaus (2011) for semantic approaches to incorporation in discourse

situation.” The canonical separation between what is now known as lexical and grammatical aspect has been established with Smith (1997). Lexical aspect refers to a lexically-encoded property of verbs within a language that is not morphologically marked, while grammatical or viewpoint aspect refers to a morphologically marked property of verbs the encoding of which is situation and speaker-specific. While some works (e.g., Sasse 1991, Verkuyl 1993, Smith 1997, Simpson & Wu 2002) argue for a closer relatedness of the two concepts, others (e.g., Comrie 1976, Parsons 1989, Porter 1989, Bertinetto & Delfitto 2000, i.a.) argue for their strict separation.

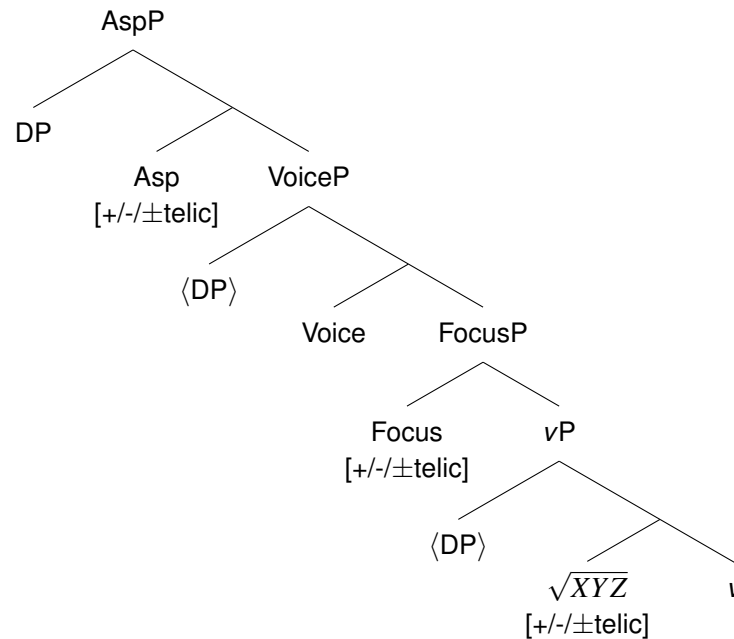
Returning to the notion of telicity in aspect, on the one hand, various types of lexical aspect or *Aktionsart* are often differentiated, among other parameters, by their telic properties (Vendler 1957, Dowty 1979, Filip 2004), with states and activities being typically classified atelic, while achievements and accomplishments are classified telic. On the other hand, grammatical or viewpoint aspect, could also be classified in these terms, with perfectives constituting the telic type and imperfectives the atelic one (Dahl 1981, see Bertinetto & Delfitto 2000 for counter-arguments): Comrie (1976: p. 24) defines *imperfectives* denote an ongoing or durative event with no denoted entailment of conclusion or a resulting state, but instead a focus on the eventuation of an event. *Perfectives* on the other hand denote completed or punctual events that *do* entail a point of conclusion or culmination and a therefrom resulting resultative state (Comrie 1981, Dahl 1985).

As far as the present case of Akkadian is concerned, I assume that lexical and grammatical aspect are by no means identical, however, they may be reduced to the same one primitive feature of telicity. This primitive feature of telicity, in following with the assumptions on feature-charges made in Section 4.2 above, may surface as [+/-±telic]. Lexical aspect is then a property encoded in the ROOT, while grammatical aspect is encoded on Asp(ect)P.⁸ The different aspects then arise from the combination of a telicity feature with two different syntactic nodes, and may still co-exist independently of each other within one given lexical item.

This levelling of the semantic primitive derives from the observation that in Akkadian, aspect is trivalent at every syntactic head it may appear at, which is not restricted to the ROOT and Asp alone. As I will argue throughout this Chapter, Akkadian marks yet another type of telicity, which I call *causation aspect*. As indicated in the introduction of this Chapter, causation aspect differentiates primarily two types of causatives: an atelic or imperfective causative, i.e., the D stem, and a telic or perfective causative, i.e., the Š stem. As Figure 4.3 below illustrates, the sole difference between lexical, causative, and grammatical aspect lies in the height of attachment of the telicity feature.

⁸I interpret [±telic] on AspP as the specification of the *Stative* conjugation.

Figure 4.3: Attachment of the three aspects



In the remainder of this Section, I will motivate the causative aspect by 1) running the two causatives through the telicity tests usually employed for the differentiation of lexical aspect in Section 4.3.2, and 2) presenting an Akkadian morphological parallel in Section 4.3.3. In Section 4.3.4, I will then further elaborate on the consequences of causative aspect in the interpretation of the D and Š causatives.

4.3.2 Telicity tests

4.3.2.1 Background

A common way to disambiguate telic predicates from atelic ones is through their respective compatibilities with different types of adverbial modification. One way in which Dowty (1979) (but see also Verkuyl 1993, Levin 1993) differentiates states and activities from achievements and accomplishments is by the lexical aspects' compatibility with in/for-modification. Take for instance, the predicates 'play the piano' and 'pass an exam'. As illustrated in (116a), the activity 'play the piano' is modifiable by a for-adverbial, not however by an in-adverbial. Conversely, (116b) gives an achievement predicate that is modifiable by an in-adverbial, not however by a for-adverbial.

- (116) a. Nathalie played the piano (for/*in an hour).
 b. Keren passed the exam (*for/in an hour).

The aspectual difference between the two predicates involves their implied culmination, i.e., the completion of an event, which results in the achievement of a post-eventive state of event-completion. Take (116a), which denotes an atelic activity: the event of ‘playing the piano’ does not naturally entail a result to come about from its eventuation. One may play the piano for any given amount of time, stop playing, and potentially resume playing, but the concept of playing the piano cannot be completed as a whole. On the other hand, (116b), which denotes a telic achievement, inherently implies the culmination of the event with the endpoint being that of a passed exam. One cannot pass an exam *for* an hour, as the event of passing is a punctual event of CoS.

As Dowty (1979: pp. 57–59) further notes, the two classes may be differentiated based on their entailments throughout the adverbial modification. In (116a), if *Nathalie played the piano for an hour*, the truth value of her playing the piano will be true at any given moment throughout the hour during which the event took place. In (116b), however, if *Keren passed the exam in an hour*, the truth value of her passing the exam will not be true that throughout the hour denoted in the utterance, but rather that the passing of the exam resulted in the culmination of a preceding exam-taking event, which took place for one hour.

Now, one may claim that it is the adverbial modifications in (116) that gives rise to lexical aspects of the events; telicity would thereby arise only through the more precise specifications of the event and not be a property of the ROOT of the event itself, as for instance suggested by Krifka (1998) (also more recently Koev 2025). This can be especially argued for some predicates such as *eat* and *drink*, which are compatible with both adverbials, as illustrated in (117) with a more complex predicate ‘eat one’s dinner’. Note that the atelic predicate in (117a) does not imply the culmination of an eating event, and thus allows for an interpretation in which food was left over, while the telic predicate in (117b) does not allow for such an interpretation.

- (117) a. Lotte ate her dinner for half an hour (and then gave her leftovers to Bilbo).
 b. Bilbo ate his dinner in two minutes (*and then gave his leftovers to Lotte).

However, for certain predicates such as the ones given in (116), I would argue that the restrictions for adverbial modification stem from a property encoded within the lexical specification of the ROOTS. As elaborated in the introductory part of this Section, I ascribe this property to the telicity features of ROOTS or, in the case of more complex predicates that may not be reduced to one simple LEXICAL ROOT, abstract predicate concepts.

4.3.2.2 Implementation

When it comes to our two causatives, D and Š, this test of for/in adverbial modification should also be applicable, assuming the two causatives carry different aspectual features. With the D stem carrying a [-telic] feature and the Š stem a [+telic] feature, one would expect D stems to be compatible with for-modification and Š stems to be compatible with in-modification.

Akkadian has different ways of expressing in/for-modification, which are summarised in Table 4.3 below with *ūmu(m)* ‘day’ as the temporal unit. ‘N’ represents a variable number.

Table 4.3: In vs. for-modification strategies

	Expression	Translation
In-Modification	<i>ina N ūmī(m)</i>	‘in N days’
	<i>adi N ūmī(m)</i>	‘(with)in N days’
	<i>N ūmā(m)</i>	‘N days.ACC’
For-modification	<i>ana N ūmī(m)</i>	‘for N days’
	<i>kala ūmi(m)</i>	‘all day long’
	<i>N ūmī(m)</i>	‘N days.GEN’

The readings in the Table above are based on the application of the adverbials alongside G stem verbs. It is then important to note that for instance an *ina/ana ūmi(m)* with no indication of how many days is read as ‘on the day’. A numbered amount of days is necessary to reach the in/for-modification reading for all expression, apart from *kala ūmi(m)*. Note, however, that *ina*-modifiers sometimes appear in the reading of ‘on the nth day’. These readings were excluded from consideration.

The unit of ‘days’ may be substituted for other units, such as *bēru* ‘ $\frac{1}{12}$ day (2h)’, *arḥu* ‘month’, or *šattu(m)* ‘year’. An example for both modifications is given in (118), with a G stem predicate for the for-modification, and a copula for the in-modification. Both adverbial modifiers are underlined.

(118) In and for-modification in the G stem

3 ūm-īm uššab=ma ina 5 ūmīm ašariš anāku
 $\sqrt{wšb}$ ‘sit, dwell’
 3 day-PL.OBL 1.SG.sit.IPFV=CONJ in 5 day-PL.OBL there I

“For three days I will stay, in five days I shall be there.” (ARM 10 111:7f., OB)

If the D and Š stems are indeed marked for [-telic] and [+telic] aspect respectively, then one would expect D stems to co-occur with *ana*, *kala*, or *n ūmī(m)*, while Š stems should co-occur with *ina*, *adi*, or *n ūmā(m)*.

To test this, I surveyed the entire CAD entry for *ūmu(m)* ‘day’ for attestations of the precise adverbials in question. The results mostly conformed to the expectations, but were surprising insofar as only very few D and Š verbs appear in modification of these temporal adverbs, namely almost 13% and 7% respectively, especially when compared to the G stem, which comprises 80% of all attestations modified by in/for-adverbials. The results are summarised in Table 4.3.

Table 4.4: In/for-modification of *ūmu(m)*

	G	D	Š	Total
<i>ina N ūmī(m)</i>	5	/	1	6
<i>adi N ūmī(m)</i>	3	/	1	4
<i>N ūmā(m)</i>	1	/	1	2
<i>ana N ūmī(m)</i>	20	1	1	22
<i>kala ūmi(m)</i>	11	/	1	12
<i>N ūmī(m)</i>	17	8	/	25
Total	57	9	5	71
Percent of total	80.28%	12.68%	7.04%	

To illustrate the usages in the two causatives, the two following examples give a D and a Š example of $\sqrt{knš}$ ‘submit to’. (119) gives an example of *ina N umī(m)* in the Š stem, (120) gives an example of *umī(m)* in the D stem.

(119) In-modification in the Š stem

ina 3-ti ūm-ē ana šēp Aššur bēl-i=ya lu u-še-kniš
 $\sqrt{knš}$ ‘submit to’
 in 3 day-PL.OBL DAT feet.CSTR DN lord-OBL=my MOD 1-CAUS-submit.PFV

“(All of Urartu) in three days I made (them) submit at the feet of my lord Aššur” (RIAo Shalmaneser I 1:40f, MA)

(120) For-modification in the D stem

40 ūm-ī māt-am nakirt-am lu u-kanniš
 $\sqrt{knš}$ ‘submit to’
 40 day-PL.OBL land-OBL enemy-OBL MOD 1.SG-D.submit.PFV

“For forty days, I subjugated the enemy land” (RA 8 65 ii 10, OB (Ašduni-erim))

While the distribution of D and Š forms across in this admittedly limited set of attestations does mostly conform to the expected split, the mostly singular attestations of either D or Š causatives accompanied by in/for-adverbials is not a very strong claim. The other time measurements known to occur in these constructions are not very helpful either: *bēru* ‘ $\frac{1}{12}$ day, double hour’ is attested with not one D or Š stem, neither is *arḫu* ‘month’.

The situation with *šattu(m)* ‘year’ looks more like *ūmu(m)* ‘day’: in-adverbials are hardly attested for the D and Š stems with only one odd D stem attestation. For-adverbials are a little better attested, with a more solid degree of attestation for D verbs, and two Š verbs, which are both causatives of an inchoative and an unergative ROOT, respectively. The survey of in/for-expressions found to co-occur with *šattu(m)* ‘year’ in the CAD entry for *šattu(m)* is summarised in Table 4.5. Note that some of the adverbial constructions found with *ūmu(m)* do not occur with *šattu(m)* (e.g., N *ūma(m)*, which is not attested as an in-adverbial for *šattu(m)*), while other constructions were found to occur with *šattum* did not occur with *ūmu(m)* (e.g., *ištu* N *šatti(m)* ‘since N years’ (~ ‘for N years’) and N *šanat*⁹ ‘n years’, both serving as for-adverbials).

Table 4.5: In/for-modification of *šattu(m)*

	G	D	Š	Total
<i>ina</i> N <i>šattī(m)</i>	13	1	/	14
<i>adi</i> N <i>šattī(m)</i>	2	/	/	2
<i>ana</i> N <i>šattī(m)</i>	9	/	1	10
<i>kala</i> <i>šatti(m)</i>	7	2	/	9
N <i>šatti(m)</i> / <i>šanat</i>	19	6	1	26
<i>ištu</i> N <i>šanat</i>	6	3	/	9
Total	56	12	2	
Percent of total	80%	17.14%	2.86%	70

Two reasons could be offered for a reduced rate of D and Š verbs co-occurring with in/for-adverbials: On the one hand, D and Š verbs occur far less than G verbs do. Out of the 3070 verb types found in Akkadian, 1642 comprise G verbs and its derivations (i.e., Gt and N), while 961 comprise D verbs and their derivations, and only 438 comprise Š verbs and their derivations.¹⁰ It is thus to be expected that in a relatively small selection of attestations, such as the attestations listed for one lexical item in a dictionary, the amount of attestations for D or Š verbs modified by in/for-adverbials will equally be small to non-existent.

⁹This is the absolute state form.

¹⁰Excluded from these numbers are 29 ŠD verbs and their derivations.

On the other hand, however, the G stem is, as the projection of the ROOT, mostly aspectually unspecified, with the exception of the five ROOT classes that are specified for telicity. As such, most G verbs do not carry any aspectual encodings that could prevent them from combining with either in- or for-adverbials. Assuming D and Š verbs *are*, however, specified for telicity-features, we could then on the one hand explain why they mostly co-occur with the adverbials that match their telicity-feature, or why they hardly occur with any modification at all: they already carry the feature, and require no further specification.

These telicity-tests provide us with a weak but nonetheless present additional argument at least for the assumption of telicity features on the two causatives D and Š. They make an even stronger claim when coupled with the distribution of the causatives across ROOT types: As shown in Table 4.2, D causatives are only compatible with [-telic] ROOTS, while Š causatives are mostly only productive for [+telic] ROOTS.

4.3.3 Parallels of atelicity in Akkadian

Another argument for the [-telic] property of D stems can be found in their morphology. As already argued for by Rundgren (1959) for Akkadian and Ethiosemitic, but also acknowledged by Kouwenberg (2010: 96, 279ff. see also Kouwenberg 1997), the reduplication of the middle ROOT radical is associated with plurality and by extension intensity. As Kouwenberg (2010: p. 281) notes, this is not an Akkadian-specific property: Frajzyngier (1979) notes a pattern of reduplication indicating plurality or intensity for Cushitic, Chadic, and Egyptian, Sasse (1981: p. 209) notes it in Cushitic, Prasse (1972) and Kossmann (2015) note such a pattern for Tuareg (Amazigh), and Procházka (1995) for Classical Arabic. Beyond Afroasiatic, morphological or lexical reduplication is equally-well attested as a mechanism for the expression of pluractionality and durativity (see for typological overviews Mithun 1988, E. Wood 2007, Kuhn 2019, Mattiola 2020).

An inner-Akkadian (as well as Ethiosemitic; Meyer 2016) parallel might even be found in the *imperfective* aspect (Kouwenberg 2010: p. 96), which in the G stem is marked by a doubled middle radical, as illustrated in (123) below.

(123) Inflectional differences for the aspects in G

- a. Perfective: PERSON-XYV_RZ-NUMBER.GENDER
- b. Imperfective: PERSON-XaYYV_TZ-NUMBER.GENDER

In the *imperfective*, the morphological operation of reduplication is then correlated with the notion of a durative-ongoing and non-culminating event, which serves as further evidence to the claim made in the introductory part of this Section that the *imperfective* grammatical aspect is realised through a [-telic] feature on AspP: the same feature I associate to be introduced to a D verb through the gemination of its middle radical.

The gemination in the G *imperfective* thus provides us with another iconicity-based argument to assume a [-telic] feature on the D causative, which we might add to the other two arguments of for-adverbial compatibility and the compatibility of [-telic] ROOTS almost solely with D causatives. In parallel fashion, as the inflectional aspects of Akkadian, the [-telic] D causative is then contrasted with the [+telic] Š causative, which is compatible with in-adverbials and is the only causative derivable for [-telic]-specified ROOTS.

With that, I now turn to the semantic generalisations one may infer from the [+/-telic] feature on the type of causation of the two causatives.

4.3.4 Consequences on the semantics of the causatives

Two causatives with two different telicity-specifications imply that we are dealing with two different types of causation. As also noted by Kouwenberg (1997: 243f.), D and Š differ in their degree of contact. Translating Kouwenberg's observations into the present system, the D causative denotes a *direct causative*, while the Š stem denotes an *indirect causative*.¹¹

Earlier in this Chapter, I have introduced the differences between the D and Š causatives based on to two core components: 1) the denotation of a culminated causation event, and 2) the temporal ordering of causation event and CoS event. D causatives encode non-culminating causation and CoS events with causation and CoS intersecting, while Š causatives encode culminating causation and CoS events with causation preceding CoS.

In the following, I will further explain these two differences of direct and indirect causation. The difference is best exemplified in ROOTS that are not aspectually specified and may derive either D or Š causative. Minimal pairs are often found in PC ROOTS, for instance \sqrt{wqr} 'rare, expensive' for which a D and a Š form is given in (124).

¹¹Kouwenberg does not actually fully acknowledge the Š stem as being entirely of indirect type, but rather claims it to be both direct and indirect. I will argue here for a solely indirect causative.

(124) D vs. Š causatives of \sqrt{wqr} 'rare, expensive'

a. *ana šūpuš elipp-āt-i qereb qīš-āt-i iṣṣ-ē*

DAT manufacture.CSTR ship-PL.F-OBL near.CSTR forest-PL.F-OBL tree-PL.OBL

rab-ūt-e uqqir-ū ina napḥar māt-āt-i=šunu

\sqrt{wqr} 'rare, expensive'

big-PL-OBL 3.D.rare.PFV-PL.M in entirety.CSTR land-PL.F-OBL=their.M

"For the manufacture of ships, they made the great trees near the forests rare in all their lands." (OIP 2 118:10 / RINAP 3 43:10, NA)

b. *mê balat napišt-i=šunu a-kla maštīt-u*

\sqrt{kl} 'detain'

water.CSTR living.CSTR life-OBL=POSS.3.PL.M 1.SG-detain.PFV drink-NOM

u-š-âqir ana pī=šun

\sqrt{wqr} 'rare, expensive'

1.SG-CAUS-rare.PFV DAT mouth.PL.OBL=their.M

"I held back the water for the preservation of their life, I caused the drink to become rare/valuable for their mouths." (Streck Ashurbanipal 74 / RINAP 5 11 ix 34, NA)

To better understand the types of causation, let us set the scenes of both examples. In (124a), Sennacherib details the aftermath of a campaign in which he subdued a foreign land. In the section from which the excerpt is taken, he describes the chores he made the captured do, in particular for the ultimate goal of building a palace. A fuller excerpt is given in translation below with (124a) underlined.¹²

At that time, I made the enemy people whom I had captured carry baskets (of earth) and they made bricks. [...] They quarried mountain sheep colossi of white limestone in the city Tastiati to be their (the palatial halls) gatekeepers. Throughout all their lands they depleted forests of large trees to have boats built. In the month Ayyāru (II), the time of spring floods, they brought (the colossi) across to this side (of the river) with difficulty in magnificent boats. They sank large boats at the quay dock (and then) made their crews struggle (and) strain. With might and main, they struggled to transport (the colossi) and install (them) in their gates.

¹²This excerpt of the translation is taken and adapted from ORACC: <http://oracc.org/rinap/Q003517/> (accessed 07/MAR/25).

The pragmatic focus of the sentence within the context of its occurrence does not intend to express or focus on any state resulting from the rare-making of the trees, but rather on the activity of ship-building—for which trees needed to be felled—in order to carry colossi (i.e., large statues) over the river and to the palace that was being built. The predicate encodes an event in which the trees are undergoing a process of becoming rarer, but it does not encode whether there is a natural end-point to it that denotes an absolute result of the trees now being rare. Rather the trees' state has shifted its *degree* of rarity from any point on the 'rarity-scale' to a point that is *more rare*. Crucially, the degree of rarity is not defined on the 'rarity-scale', and is thus unbound.

The [-telic] feature of the D stem thus takes a direct effect on the Patient's CoS event in that it does not imply its culmination, but rather an ongoing CoS. I will use a degree operator, following the notation of Hay, Kennedy & Levin (1999) and Kennedy & Levin (2008) (but see also Krifka 1992 for the relation of telicity and graduality) to represent this effect, as in (125). The representation can be translated as follows: there exists an event, which manifests to a certain degree *d* for an entity *x*.

(125) [-telic] representation in semantics

$$[-\text{telic}] = \exists e, d[\dots (x, d, e)]$$

(126) gives the semantic derivation of a G and D verb. In the example ROOT \sqrt{wqr} 'rare, expensive', we have no event denoted, only a property predicate. In the G stem, we have seen PC ROOTS regularly derive inchoative meanings in the *perfective* and *imperfective* where other ROOT classes have not. In other words, we see the G verb encoding a CoS event, in which an entity BECOMES the state of the ROOT-encoded property. The way I deal with this observation here is to adopt the general assumption of DM that ROOTS do not naturally encode a word class; rather, the encoding of a word class happens derivationally through the combination of a ROOT with a characterising head *v*, *n*, or *a* (Marantz 1997). The verbalising head *v* then introduces a basic event template (Marantz 2013b, Harley 2014). In Akkadian, in the case of ROOTS with inherent eventive structure, *v* does not contribute much, but in the case of ROOTS with no inherent eventive structure, *v* introduces a BECOME predicate.¹³

In the D stem, the verb encodes a degree-variable modifying the entire existent property state of the causee entity (i.e., the changed entity). This degree state is brought on through direct and atelic causation, as is indicated by the DO-predicate. The DO-predicate conditions the subsequent Merge of an Agent.¹⁴

¹³See for instance also Wood & Marantz (2017). I do not go in deeper detail regarding how such a BECOME predicate is generated in little *v* here.

¹⁴The syntactic mechanism will be elaborated on in the next Sections 4.4.1 and 4.5.

(126) Structure of \sqrt{wqr} ‘rare, expensive’

- a. ROOT: $\lambda P.rare(P) \wedge P(x)$
- b. G: $\lambda x.\lambda e.BECOME(rare)(e) \wedge Patient(x, e)$
- c. D: $\lambda y.\lambda e.DO[\lambda d.rare(x, d, e) \wedge Patient(x, e)] \wedge Agent(y, e)$

In line with these definitions, the entailment of DO, as defined in (94) above must now be revised to incorporate the event of the telicity feature on the CoS event. I modify it as follows in (127).

(127) Entailment of DO (revised)

A predicate DO entails the existence of two subevents within a bi-eventive causative event, wherein the causation event e_1 intersects with the CoS event e_2 . Therein, DO denotes the causation event e_1 . The predicate entails that the CoS event e_2 progresses as a degree-achievement.

By contrast, consider (124b), an excerpt from a campaign detailed by Ashurbanipal in which he ordered the blockade of a water source to annihilate his fled opponents. The fuller context is given below, (124b) again underlined.¹⁵

The fugitives who had fled from my weapons became frightened (and) took to Mount Hukkuruna, a rugged mountain. In the cities Manḥabbi, Apparū, Tenuquri, Ṣayuran, Marqanâ, Saratein, Enzikarme, Ta²nâ, (and) Sarâqa, where(ever there was) a spring (or) a source of water, as many as there were, I had guards stationed over (them) and (thus) I withheld (from them) the water (which) sustains their live(s). I made drink scarce for their mouths (and) they laid down (their) live(s) from parching thirst.

The result of the causation event of “making rare” the drink in the refugees’ mouth is absolute: the drink is now rare and as a result, the refugees have died. The causation event encoded by the Š predicate thus entails a resulting state that is absolute and not measurable as the resultant state implied in a D causative. The [+telic] feature of the Š stem thus again relays the causation aspect with effect on the Patient or causee’s event: the Patient undergoes a complete CoS event e . The representation in (128) translates to the existence of an event, which is restricted to the scope of the brackets [...].

¹⁵This excerpt of the translation is taken and adapted from ORACC: <http://oracc.org/rinap/Q003710/> (accessed 07/MAR/25).

- (128) [+telic] representation in semantics
 [+telic] = $\exists e[\dots(e)]$

The logical structure of a Š causative can be summarised as in (129d) below. Note that the CoS event of the Patient in a Š event behaves essentially as a G event. Š Causers then CAUSE the complete eventuation of a G event.

- (129) Structure of \sqrt{wqr} 'rare, expensive' (continued)
- a. ROOT: $\lambda P.rare(P) \wedge P(x)$
 - b. G: $\lambda x.\lambda e.BECOME(rare)(e) \wedge Patient(x, e)$
 - c. D: $\lambda y.\lambda e.DO[\lambda d.rare(x, d, e) \wedge Patient(x, e)] \wedge Agent(y, e)$
 - d. Š: $\lambda y.\lambda e.CAUSE[\lambda x.\lambda e.BECOME(rare)(e) \wedge Patient(x, e)] \wedge Causer(y, e)$

We can now also modify the entailment definition of CAUSE, as in (130).

- (130) Entailment of CAUSE (revised)
 A predicate CAUSE entails the existence of two subevents within a bi-eventive causative event, wherein the causation event e_1 precedes the CoS event e_2 . Therein, DO denotes the causation event e_1 . The predicate entails that the CoS event e_2 culminates.

As regards the first point differentiating direct from indirect causation in Akkadian, we thus hold that the direct D stem does not naturally entail a resultative state, while the indirect Š stem does.¹⁶

The second point, which concerns the temporal distribution of causation event and change-of-state event, is likewise illustrated by the examples in (130) above. To clarify, the two events we are interested in are on the one hand the event of causation whose logical argument is the causer, and the event of causation whose logical argument is the causee, i.e., the argument undergoing any type of change or external causation.

¹⁶These findings are again compatible with the idea that D causatives are atelic and Š causatives telic. Comrie (1981) finds that perfective constructions (i.e., in our terms construction marked telic) tend to induce a pragmatic shift from Agent to Patient. It is indeed also what we find here with the telic Š causative denoting a culminated CoS for its Patient.

In the direct D causative, the two events of causation and effect (or CoS) coincide; in the indirect Š causative, they do not. The causation and CoS event do not entail a concrete onset and conclusion point in the D stem. In the Š, the causation event entails a point culmination, which coincides with the onset of the resultative state or event that the causee then undergoes. This difference is illustrated in the next two figures with a D stem causative illustrated in Figure 4.4 for the D causative and Figure 4.5 for the Š causative below. The black line(s) separating causation and affect/CoS event in Figure 4.5 indicate the conclusion and onset of the two events, respectively: points I do not assume are naturally entailed for the D stem's causation or CoS event.

Figure 4.4: D stem causation events

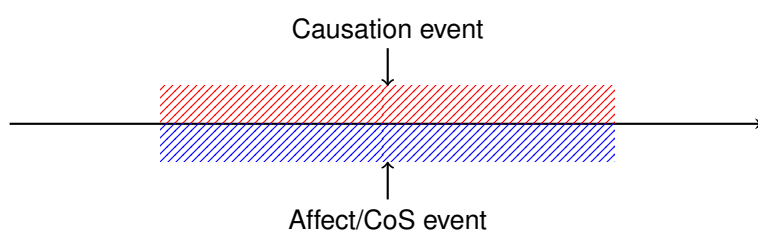
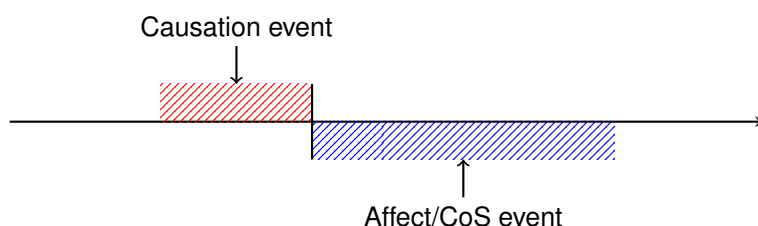


Figure 4.5: Š stem causation events



These event-structural specifications of the two causatives thus again overlap with the specifications known for *imperfective* and *perfective* events, or rather telic and atelic events, as outlined in Section 4.3.1 above.

The situation in Akkadian is a little more complex with the causative aspect being specified somewhere between the domains of lexical and grammatical aspect. Causative aspect appears to encode an aspect more similar to that of grammatical aspect when it comes to aspectually unspecified ROOTS for which the speaker may choose a causative strategy based on pragmatic needs. As was illustrated for the ROOT classes in the previous Chapter 3, grammatical aspect is principally compatible with any ROOT class, regardless of its aspectual encoding.¹⁷ Causative aspect appears more closely related to lexical aspect, however, when considering aspectually-marked ROOTS may restrict or even bar the derivation of a causative altogether.

¹⁷Note that the aspectual specification of ROOT may 'colour' the semantics generated by its combination with a given grammatical aspect, but it cannot generally prevent it from being derived.

With the causative aspect nestled in between the two, I will thus adopt here a system of a trivalent [+/-±telic] feature, which depending on height of attachment may encode either lexical aspect, causation aspect, or grammatical aspect. I will treat the D stem as causative marked for [-telic] aspect and the Š as a causative marked for [+telic] aspect. I discuss underspecified [±telic] in Chapter 5 where I identify it as the value of N stem derivations. A summary of diagnostics and the resultant telicity-features is given in Table 4.6 below. With the semantic features covered, I now move on to discuss the syntactic features of the D and Š stems.

Table 4.6: Causative semantic patterns and features

	Resultant state	Causation event overlap with CoS	Semantic feature
D	✗	✓	[-telic]
Š	✓	✗	[+telic]

4.4 Syntactic features of the two causatives

As in the previous Section, this Section will solely motivate the two syntactic features of D and Š as Agent and Causer, respectively. The derivational and syntactic consequences of these features, along with the semantic-aspectual features discussed in the previous Section, shall be discussed in the next Section 4.5.

4.4.1 D stem syntax and VoiceP

4.4.1.1 Preliminary generalisations

As previously suggested in Chapter 3 prefacing the introduction of the unergative classes, I assume the most basic distinction between unaccusatives and unergatives in Akkadian to be twofold: 1) unaccusatives encode internal arguments while unergatives do not, and 2) all agentive ROOTS, that is the unergative class and Agent-transitives, encode a DO-predicate. Both of these assumptions about the internal denotation of ROOTS are crucial to our understanding of what the D stem does syntactically. This is most clearly illustrated when looking at the two types of D stems that can be derived: the factitive (i.e., causative) and the intensive.

Right off the bat, I assume that the morphosyntactic operation(s) of the D verb are uniform and regular. After all, D stem morphology is uniform whether in factitive or intensive function; the function can not be told by the form. This means that whether we build a D stem on a non-agentive ROOT or one on an agentive one, the syntactic (and semantic) features and operators

added are always the same, and the difference in meaning then results from the difference in ROOT+D-morphology combinations. To draw on the principles of the magnetic features introduced in Section 4.2 above, it is the feature field, i.e., the concentration and combination of all previously derived features, that can impact the charge-field of newly Merged features, and in effect its semantic spell-out. If we Merge D stem morphosyntax onto a non-agentive ROOT, the D stem will spell out as causative. If we Merge D stem morphosyntax onto an agentive ROOT, the D stem will spell out as intensive, as summarised in (131).

- (131) D stem spell out
- a. Non-agentive ROOT + D = causative D
 - b. Agentive ROOT + D = intensive D

The question of what it is that the D stem adds or does to a verb is not a new one. In his work on *Gemination in the Akkadian Verb*, Kouwenberg (1997: p. 244) claims that D factitives are essentially transitives, with the only exception being their derivation from nonactive G verbs. This difference could be represented as in (132). A nonactive G simply denotes a Patient that undergoes a given event. An active G on the other hand implies that there is an Agent that agentively performs the event through which the Patient then undergoes the change. A D factitive, according to Kouwenberg, denotes precisely the same as an active G with the only difference being the Agent (and by extension the DO-predicate) being morphologically adduced instead of inherent to the ROOT.

- (132) Structural differences of G and D verbs following Kouwenberg (1997)
- a. G nact [VERB Patient]
 - b. G act [Agent DO VERB Patient]
 - c. D fact [Agent DO [VERB Patient]]

As the previous Section on the semantic features of the two causatives illustrated, the situation is a little more complicated than that: While in (132) above it appears as though the D stem introduces only Agent and DO-predicate into the derivation, I have motivated that it crucially also introduces a [-telic] feature, which entails the direct object undergoing an ongoing event of CoS with no entailed culmination.

Finding correspondences of active G verbs and factitive D verbs is practically impossible as D factitives are exclusively derived from nonactive ROOTS. But the D stem's degree modification, though most clearly observable for PC ROOTS as illustrated in (124) above, should, in line with the uniformity of D stem formation, also be applied to intensive D verbs. The G–D pair in (133)

4.4.1.2 Severing the Agent

At least since Kratzer (1996), Agent-subjects have been logically separated from the primitive structure verbs in what is generally known as the neo-Davidsonian approach (Dowty 1989). Davidson (1967) posed that agentive events with adverbial modification logically consists of multiple elements, namely at least of the event and its arguments, but possibly also of adjuncts or modifiers. He posited that arguments are more closely 'related' to events than adjuncts; arguments could be said to be naturally entailed in the denotation of a given event, while adjuncts would have to be externally introduced, as in (134a).

As Kratzer (1996: p. 109) notes, this distinction between arguments and adjuncts was not universally adopted; Parsons (1985) for instance claims arguments are predicates independent from the predicate of the event itself, as in (134b).

(134) Davidsonian vs. Neo-Davidsonian denotation

Marduk slayed Tiāmat with an arrow.

- a. $\text{slay}(\text{Marduk})(\text{Tiāmat})(e) \wedge \text{with}(\text{arrow})(e)$
- b. $\text{slay}(e) \wedge \text{Agent}(\text{Marduk})(e) \wedge \text{Patient}(\text{Tiāmat})(e) \wedge \text{with}(\text{arrow})(e)$

Kratzer (1996), building on Marantz (1984), then presents an approach wherein external arguments (e.g., Agents) are associated in the syntax, not however in the primitive conceptualisation of predicates (in our case: ROOTS). Marantz's (1984) argument for the conceptualisation of internal arguments, not however of external arguments, stems from the observation that internal arguments often affect the interpretation of the verb in a predicate. An example is given in (135). Crucially, this can hardly be said for external arguments, as illustrated in (136).

(135) Predicates influenced by internal arguments (Kratzer 1996: (6))

- a. throw a baseball
- b. throw support behind a candidate
- c. throw a boxing match (i.e., take a dive)
- d. throw a party
- e. throw a fit

(136) Predicates uninfluenced by external arguments

- a. Keren threw a baseball
- b. The child threw a baseball
- c. The ball launcher threw a baseball

Kratzer then motivates that the locus in which Agents are then added is a layer called Voice. I will adopt this layer here, too, and elaborate on its specifications for the G and D stems in the next Subsection. But what Kratzer leaves unanswered is whether or not there exists a mechanism, which enforces a predicate, or in our case a ROOT, to force the derivation of an Agent at VoiceP.

As mentioned before, I suggest that the relevant variable is in fact a DO-predicate in the event denotation of agentive roots. To illustrate, consider the following set of data in (137). In (137a), the unaccusative ‘fall’ receives an Agent in the D stem, in (137b-c), however, the agentive ‘cut’ and ‘stack’ do not. Instead, what is increased through the D stem is the intensity in (137b) or the pluractionality of the event in (137) in form of a pluractional event.

(137) D factitive and intensive alternations

- | | |
|--|--|
| <p>a. \sqrt{mqt} ‘fall’
 G: <i>imqut</i> ‘he fell’
 D: <i>umaqqit</i> ‘he collapsed (a building)’</p> | <p>c. \sqrt{qrn} ‘stack, pile’
 G: <i>igrun</i> ‘he stacked’
 D: <i>uqarrin</i> ‘he stacked (plural objects)’</p> |
| <p>b. \sqrt{prs} ‘separate, cut’
 G: <i>iprus</i> ‘he cut’
 D: <i>uparris</i> ‘he chopped’</p> | |

A possible way of representing the differences between agentive and nonagentive roots and their G and D derivations could thus be the one in (138). Contra Marantz (1984) and Kratzer (1996), but more in line with Beavers & Koontz-Garboden (2020) and Ausensi (2023), I believe that D intensive verbs suggest the existence of a primitive on agentive transitive ROOTS that, while it may not directly encode an Agent, certainly implies and later instantiates its future derivation: Agentive (transitive) ROOTS like \sqrt{qrn} ‘stack, pile’ encode within them a DO-predicate that is in a way ‘doubled’ in the D stem, resulting in the pluractionality of events most commonly associated with the derivation.

(138) D factitive and intensive event denotations

- a. \sqrt{mqt} 'fall'
 ROOT: $\lambda x.\lambda e.fall(e) \wedge Patient(x, e)$
 G: $\lambda x.\lambda e.fall(e) \wedge Patient(x, e)$
 D: $\lambda y.\lambda e.DO[\lambda x.\lambda d.fall(e, d) \wedge Patient(x, e)] \wedge Agent(y, e)$ ¹⁸
- b. \sqrt{qrn} 'stack'
 ROOT: $\lambda y.\lambda x.\lambda e.DO(stack)(e) \wedge Theme(x, e)$
 G: $\lambda y.\lambda x.\lambda e.DO(stack)(e) \wedge Theme(x, e) \wedge Agent(y, e)$
 D: $\lambda y.\lambda e.DO[\lambda x.\lambda d.DO(stack)(e, d) \wedge Theme(x, e)] \wedge Agent(y, e)$

As mentioned above, an intensive D stem will not spell out a verb with double-Agents. In other words, the D stem of \sqrt{qrn} 'stack, pile' will not spell out a predicate like “*He and he stacked the boxes”. This finding strengthens the argument of ROOT-independent encoding of external arguments.

I propose that the DO-predicate, i.e., the primitive predicate previously defined as encoding a causation event of an Agent that coincides with the CoS event experienced by a Patient, is what triggers the derivation of an Agent. G transitives and D factitives ultimately differ not only in the telicity-specification of D verbs, but also in the locus from which they obtain their DO-predicate.

I now turn to the syntactic mechanism that determines the derivation of Agents at VoiceP.

4.4.1.3 Voice [+D]

An observation that will hold for all D verbs, whether factitive or intensive, not however for all G verbs is their obligatory Agent-subject, as shown for the pair of ROOTS in Table 4.7. While the previous Subsection has argued that it is a DO-predicate either in the ROOT or in the D stem morphosyntax that triggers the derivation of an Agent, there must be another element in the derivation of G vs. D verbs that makes sure that D verbs *will* derive Agents, while G verbs may have more leeway, depending on a ROOT's specifications.

Table 4.7: Argument structural differences in the derivations

	G	D
\sqrt{mqt} 'fall'	Patient	Agent & Patient (factitive)
\sqrt{prs} 'cut'	Agent & Patient	Agent & Patient (intensive)

¹⁸Note that the D of \sqrt{mqt} translates to 'collapse (tr.)'.

It is here that we return to the feature EPP (*extended projection principle*, Chomsky 1982, 1995) introduced in Section 2.3.2.1 above, which requires the occupation of the subject position of a phrase by a DP. I follow Kastner's (2020) analysis of the Modern Hebrew verb in adopting the trivalent EPP feature [D]¹⁹ (not to be confused with the D of the D stem) for the Akkadian verb, though with slight modification to its precise definition. In its original definition, a [D] feature determines whether or not a DP must, may, or may not be derived in the following specifier (Schäfer 2008). In the present definition, this feature further specifies that the DP is a *novel* nominal element in the derivation (see also J. Wood 2015).

In other words: A [+D] feature on Voice enforces EPP and thus the derivation of a new DP in the specifier of VoiceP, which may not be co-indexed with any previously derived DP. A [-D] feature on Voice bars EPP and thus also the derivation of a new DP in the specifier of VoiceP. As we will see in the next Chapter, this feature-charge does not bar the Move of previously derived DPs into that position. Finally, an underspecified [\pm D] feature on Voice neither enforces nor bars the derivation of a new DP in Spec,VoiceP. I summarise these generalisations in Table 4.8 below.

Table 4.8: The trivalent [D] feature

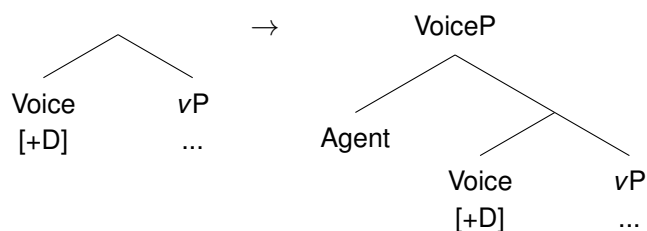
Feature-value	Syntactic consequence	
[+D]	positive D-feature on Voice	New DP must be generated at Spec,VoiceP
[\pm D]	unspecified D-feature on Voice	New DP may be generated at Spec,VoiceP
[-D]	negative D-feature on Voice	New DP may not be generated at Spec,VoiceP

The feature we are thus actually looking to isolate to further differentiate between the template patterns *syntactically* is the EPP feature [D]. The D stem, whether in factitive or intensive function, can be shown to always (with the exception of nine ROOTS) occur with an Agent. I thus attribute a stable [+D] feature on Voice to the derivation of the D stem. While semantically, it is the DO-predicate that triggers the semantic derivation of an Agent, syntactically, it is the [+D] feature that enforces the derivation of an Agent (not co-indexed with a Patient) in the specifier of VoiceP, as illustrated in Figure 4.6.

The question that then arises is what the relationship between DO-predicate and [+D] is, or in other words: What happens on the syntax-semantics interface? Further below in Section 4.5, I will motivate that it is the DO-predicate, or rather its origin, the [-telic] feature of the D stem in its derivational locality that enforces a [+D] on Voice.

¹⁹In the minimalist programme, Chomsky (1995) introduced the feature [D], which derives its name from the DP, the determiner phrase. Every NP, i.e., nominal phrase, is headed by a DP.

Figure 4.6: D VoiceP



For now, I summarise the findings on the D stem syntax as follows: While Agents are not encoded in the ROOT or in D stem morphosyntax, both agentive ROOTS, as well as D morphosyntax encode DO-predicates. A DO-predicate Merged onto a ROOT that does not contain such an operator results in the semantic derivation of a causative D verb. If Merged onto a ROOT that does contain a DO-predicate, the semantic derivation will result in an intensive D verb. Further, in order to ensure the derivation of an Agent in Spec,VoiceP, a D stem is specified for a [+D] EPP feature. I summarise in Table 4.9 and move on to discuss the syntax of Š stems.

Table 4.9: Summary of D stem syntax and semantics

	G	D	
non-agentive ROOT	Patient	[-telic, +D] & DO	→ factitive/causative D
agentive ROOT	DO & Patient	[-telic, +D] & DO	→ intensive D

4.4.2 Š stem syntax and CauseP

4.4.2.1 Ambiguous Agents

Š stem causatives behave decidedly differently to D stem causatives in that they are, in principle, not restricted for derivation. While they are not as commonly found as D stems, they are by comparison the somewhat more common causative with 314 Š causatives against 281 D causatives attested in the present corpus.

One explanation for this statistic could be found in the semantic operator repulsion rule formulated in (108) above: If Š stems are in principle compatible with any ROOT class, a finding supported by the present corpus, then that would mean that the operator characterising Š causatives cannot be the DO-predicate, but must in fact be a different one, as nothing in the Š stem information structure ‘repels’ any ROOT’s specifications.

As discussed in Section 4.3 above, the operator I suggest that characterises Š causatives is CAUSE, which functions as an indirect causer and scopes as such over an entire event as in (139). As already suggested by Goetze (1942) (but see also Kouwenberg 1997, 2010), a Š Causer CAUSES the entire event otherwise denoted in a G verb (i.e., a ROOT) to take place without the Causer's direct involvement or the causation event's temporal overlap with the CoS event.

(139) Š causative abstraction

- a. ROOT: $\lambda x.\lambda e.DO(\text{cut})(e) \wedge \text{Patient}(x, e)$
- b. G: $\lambda y.\lambda x.\lambda e.DO(\text{cut})(e) \wedge \text{Patient}(x, e) \wedge \text{Agent}(y, e)$
- c. Š: $\lambda y.\lambda e.CAUSE[\lambda x.DO(\text{cut})(e) \wedge \text{Patient}(x, e)] \wedge \text{Causer}(y, e)$

Š causatives are characterised by a [+telic] feature and as such do not add any degree-variable to the derivation. Since their CAUSE operator does not overlap with any ROOT-encoded semantic operator, we have no unusual semantics in the event-structure of Š predicates.

The syntactic patterns of Š causatives are not as regular as those of D causatives, however. A peculiarity found in Š causatives concerns the very common omission of Agents in the causativisation of transitive agentive ROOTS—a peculiarity (naturally) not found in D causatives given the obligatory Agent-derivation in D verbs. A very common example, especially in Akkadian letters, of a ROOT that regularly 'skips' the derivation of Agents over which the Š causer scopes is \sqrt{wbl} 'bring'. An example is given in (140).

(140) Agent-omission in the Š stem

<i>ṭupp-i</i>	<i>annêṃ ištu</i>	<i>Šubar-Enlil</i>	<i>u-ša-bil=ak=kum</i>	
			\sqrt{wbl} 'bring'	
tablet-OBL	this	from GN		1.SG-CAUS-bring.PFV=VEN=you

"I had this tablet brought (~ sent) to you from Šubar-Enlil" (ARM 1 5:47-48, OB)

This pattern is not typologically uncommon for indirect causatives, but is in fact also observed in Romance (see Cannings & Moody 1978, Bordelois 1988, among others), Korean (Kim 2011), Hiaki (Uto-Aztecan, Harley 2013), and many more. An example in French is given in (141) below. Note that the subject is introduced into the utterance as a *par*-adjunct, unlike the other arguments (the letter, Jean, and the speaker).

(141) French *faire*-causatives (Cannings & Moody 1978: (3))

*J' ai fait envoyer la lettre à Jean par/*à*
 I have.PRES.1.SG do.PAST.PCPL send.INF DEF.F.SG letter to PN through/*to
Albert
 PN

“I had Albert send the letter to Jean”

That is not to say, however, that Agents are categorically barred from derivation in Š causatives. Š causatives of unergatives, for instance *must* specify the Agent as in (142a) for $\sqrt{?lk}$ ‘go’. But Agents will sometimes also surface in the Š forms of agentive transitive ROOTS as in (142b).

(142) Š causatives with specified Agents

a. *PN ana kisalluhūt-i ana lštar-Ninuwa u-ša-llak-Ø*
 $\sqrt{?lk}$ ‘go’
 PN DAT role of courtyard sweeper-OBL DAT lštar of Ninive 3-CAUS-go.IPFV-SG.M

“He made the woman PN go (~ serve) as courtyard sweeper at the Ninive temple of lštar” (HSS 14 106:9, MB)

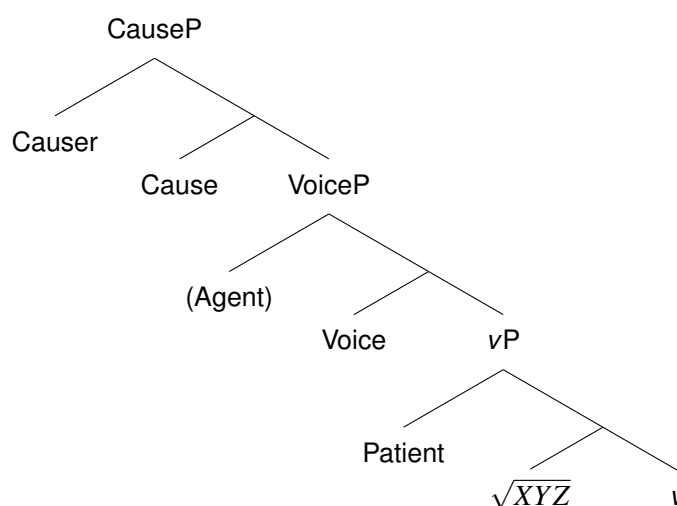
b. *šumma kasp-am šaqāl-am lā i-mua-Ø niqi-am*
 $\sqrt{šql}$ ‘weigh’ $\sqrt{m?}$ ‘be willing’
 if silver-OBL pay.INF-OBL NEG 3-willing.IPFV-SG.M offering-OBL
kasp-am 10 šiqil ša-ddin=aš=šum=ma
 \sqrt{ndn} ‘give’
 silver-OBL 10 sheqel CAUS-give.IMPER=VEN=him=CONJ

“If he refuses to pay the silver, make him pay ten sheqel as tribute” (BIN 6 38:24, OA)

The examples in (140) and (142) infer two syntactic points: 1) Š causatives do not ‘need’ Agents, but also do not bar their derivation, 2) the existence of Š causatives that take Agents imply that Causers and Agents must be derived at two different syntactic layers. I will deal with the Agent-instability of the first point in the next Subsection. But as concerns the Š-specific syntactic projection, I follow the analyses of Harley (2013) for Hiaki and Kim (2011) for Korean, among others, in assuming a higher level of projection for indirect causatives, i.e., our Š causative, which I will call CauseP.

CauseP is hierarchically higher than VoiceP, as in Figure 4.7. This syntactic layering is supported not only by the semantic scope Causers take over Agents, but also by the morphology of the Š causative. As Harbour (2008), Kastner & Tucker (Forthcoming), Kastner (2020) and Zukoff (2023), i.a., note, higher projections are often mirrored in affixal morphology across Semitic: the prefixing Š stem mirrors that behaviour, especially compared with the ‘lower’ D causative, which modifies the ROOT non-concatenatively by gemination of the second radical.

Figure 4.7: Š causative structure



By assuming Causers and Agents appear at different levels of projection, we leave the possibility open for both to be derived, as is attested in examples like in (142) above.

I now move on to address the unstable Agent-derivation of Š causatives through the stem's specification of the [D] feature.

4.4.2.2 Voice [\pm D]

The structural requirement that arises for the syntax of Š is that it should allow but also not enforce the derivation of Agents. As introduced in Table 4.8 above, this requirement can be met by assuming an underspecified [\pm D] feature on Voice for Š causatives.

Š causatives do, however, require a Causer-subject. This subject is introduced through the specification of [+D] on the Cause head, which then triggers the derivation of a new DP to serve as the subject in the next specifier, namely of CauseP.

As the summarising Table 4.10 suggests, the feature [D] can occur in multiple projections of the derivation, but it is ultimately its position within said derivation that determines which causer is derived: Agent or Causer. In the case of the derivation of both Agent *and* Causer, it will be the highest derived DP, or rather the DP derived through the [+D] feature that will function as the causer subject.

Table 4.10: Summary of Š stem syntax and semantics

	G	Š		
non-agentive ROOT	Patient	[+telic, ±D] & CAUSE & [+D]	→	Causer & Patient
agentive ROOT	DO & Patient	[+telic, ±D] & CAUSE & [+D]	→	Causer & (Agent &) Patient
unergative ROOT	DO	[+telic, ±D] & CAUSE & [+D]	→	Causer & Agent

4.4.3 Interim summary

This Section has motivated the semantic and syntactic features of the two causatives. I have argued for a difference of direct and indirect causation of D and Š causatives, respectively, which manifests in a telicity distinction of a [+/-telic] feature, a difference in causation-operations identified as DO and CAUSE, and a difference in EPP features, namely [+/-D], which are realised differently on different hierarchies of projection. The features are summarised in Table 4.11 below.

With the features motivated, I now move on to incorporate them into the theory of ‘electromagnetic’ feature behaviour introduced in Section 4.2 above. As I will show, the interactions of these features on the interface of syntax and semantics are governed by their respective charges; the different charges then affect the different derivations of the two causatives.

Table 4.11: Causation features

	Causation-type	Telicity	Semantic operator	Voice	Cause
D	Direct causation	[-telic]	DO	[+D]	
Š	Indirect causation	[+telic]	CAUSE	[±D]	[+D]

4.5 Feature chemistry: The derivation of the two causatives

Up until this point, this Chapter has introduced three core theoretical notions and tools necessary to account for the derivation of D and Š verbs in Akkadian. In Section 4.2, I have introduced a modified take on Magnetic Grammar, where I pose that features in grammar have charges in somewhat of an ‘electromagnetic’ fashion. Features can take positive, negative,

or neutral charges, which I represent as [+F], [-F], and [\pm F] respectively. The charges of features create what I call a charge-field: a field, which mediates the charge of a feature outwards. Throughout a derivation, the combination of features and their respective charge-fields creates a feature-field. A given feature-field can affect the interpretation of and effect a newly Merged feature and its charge-field can have on the derivation.

In Sections 4.3 and 4.4, I then motivated the relevant features for the derivation of the two template patterns D and Š. The direct causatives of D verbs are characterised by a DO-predicate, which syntactically manifests through a [-telic] feature. D verbs also carry a [+D] feature on Voice. The indirect causatives of Š verbs are characterised by a CAUSE-predicate, which syntactically manifests as a [+telic] feature. They carry a [\pm D] feature on Voice and a [+D] feature on Cause.

In this final Section of the D and Š Chapter, I will synthesise the established features and their respective charges with the theory of Magnetic Grammar to account for the derivation of the two patterns. A crucial step that needs to be taken before that though is the definition of the locus of the telicity features, which up until this point I have left unanswered. I will define said layer of telicity projection in Section 4.5.1. Section 4.5.2 will then finally present the derivational mechanism of the D and Š stem verbs. Section 4.5.3 will address the problem that the presented solution raises for [-telic] ROOTS, which derive solely Š verbs (i.e., ROOTS of existence). Finally, I summarise in Section 4.5.4.

4.5.1 A layer of telicity: FocusP

The discussion of causative derivation brings us back to the beginning of this thesis: to morphology.

Consider the paradigm of conjugations in Table 4.12 below, given with three example ROOTS \sqrt{prs} 'cut, separate' (a/u), \sqrt{lmd} 'learn' (a/a),²⁰ $\sqrt{nkđ}$ 'beat, throb' (u/u), and \sqrt{kpl} 'roll up' (i/i). Beginning with the previously established observations, we note two properties of the G stem conjugations: 1) there appear to be no characterising morphological consistencies throughout the G stem, and 2) root and theme vowels surface in all conjugations, except for the *Stative*. In the D stem, we note the consistent gemination of the second radical, and in the Š stem, we note the consistent prefixation of the š(V)-morpheme to the ROOT.

Another important observation lies in the templatic similarities displayed between D and Š stems: 1) the first vocalic slot is always turned to /u/, regardless of whether it consists of a \varnothing -feature or templatic/causative-morpheme, 2) the *perfective* is consistently realised through the insertion of an /i/ in the last *templatic*, i.e., non-prefixing or suffixing, slot, and the *imperfective* is consistently realised through an /a/ in the last templatic slot.

²⁰Note that the imperfective of \sqrt{lmd} is irregular with the pattern $XiYV_RZ-\emptyset$.

Table 4.12: Paradigms and example conjugations in the template patterns for \sqrt{prs} ‘cut, separate’, $\sqrt{lm\acute{d}}$ ‘learn’, and \sqrt{kpl} ‘roll up’

	G	D	Š
<i>Perfective</i>	$i\text{-}XYV_RZ\text{-}\emptyset$	$u\text{-}XaYYiZ\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}XYiZ\text{-}\emptyset$
	$i\text{-}prus\text{-}\emptyset$	$u\text{-}parris\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}pris\text{-}\emptyset$
	$i\text{-}lmad\text{-}\emptyset$	$u\text{-}lammid\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}lmid\text{-}\emptyset$
	$i\text{-}kkud\text{-}\emptyset$	$u\text{-}nakkid\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}kkid\text{-}\emptyset$
	$i\text{-}kpil\text{-}\emptyset$	$u\text{-}kappil\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}kpil\text{-}\emptyset$
<i>Imperfective</i>	$i\text{-}XaYYV_TZ\text{-}\emptyset$	$u\text{-}XaYYaZ\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}XYaZ\text{-}\emptyset$
	$i\text{-}parras\text{-}\emptyset$	$u\text{-}parras\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}pras\text{-}\emptyset$
	$i\text{-}lammad\text{-}\emptyset$	$u\text{-}lammad\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}lmad\text{-}\emptyset$
	$i\text{-}nakkud\text{-}\emptyset$	$u\text{-}nakkad\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}kkad\text{-}\emptyset$
	$i\text{-}kappil\text{-}\emptyset$	$u\text{-}kappal\text{-}\emptyset$	$u\text{-}\acute{s}a\text{-}kpal\text{-}\emptyset$
<i>Stative</i>	$XaYiZ\text{-}\emptyset$	$XuYYuZ\text{-}\emptyset$	$\acute{s}u\text{-}XYuZ\text{-}\emptyset$
	$paris\text{-}\emptyset$	$purrus\text{-}\emptyset$	$\acute{s}u\text{-}prus\text{-}\emptyset$
	$lamid\text{-}\emptyset$	$lummud\text{-}\emptyset$	$\acute{s}u\text{-}lmud\text{-}\emptyset$
	$nakid\text{-}\emptyset$	$nukkud\text{-}\emptyset$	$\acute{s}u\text{-}kkud\text{-}\emptyset$
	$kapil\text{-}\emptyset$	$kuppul\text{-}\emptyset$	$\acute{s}u\text{-}kpul\text{-}\emptyset$
<i>Imperative</i>	$XV_RYV_RZ\text{-}\emptyset$	$XuYYiZ\text{-}\emptyset$	$\acute{s}u\text{-}XYiZ\text{-}\emptyset$
	$purus\text{-}\emptyset$	$purris\text{-}\emptyset$	$\acute{s}u\text{-}pris\text{-}\emptyset$
	$limad\text{-}\emptyset$	$lummid\text{-}\emptyset$	$\acute{s}u\text{-}lmid\text{-}\emptyset$
	$ukud\text{-}\emptyset$	$nukkid\text{-}\emptyset$	$\acute{s}u\text{-}kkid\text{-}\emptyset$
	$kipil\text{-}\emptyset$	$kuppil\text{-}\emptyset$	$\acute{s}u\text{-}kpil\text{-}\emptyset$

The D and Š patterns must thus have some kind of conceptual commonality that underlies a derivation for the particular morphophonology, which then surfaces in both of these template patterns. I suggest that this conceptual commonality is represented by a shared syntactic layer, termed FocusP (following Simpson & Wu 2002), directly above the vP. FocusP serves as a type of ‘priming phrase’ of a derived verb and serves two purposes: On the one hand, it forms a syntactic layer that blocks the projection of ROOT-encoded morphophonological any further in the derivation. In that way, we can account for the highly regular morphophonological templates of the D and Š stems, and the more idiosyncratic templates that surface in G verbs. But as the remainder of this Chapter will illustrate, Focus also serves as an important syntactosemantic layer in the derivation of different causatives.

The category name ‘Focus’ may appear confusing for our purposes at first: after all, we are in need of some kind of ‘causative priming’ phrase, not of a Focus phrase. But as the majority of ROOT classes show, for instance the PC ROOT examples given in Section 4.3 above, Akkadian speakers could—with the exception of agentive or telicity-specified ROOTS—make use of either atelic or telic causative and this choice was, I hypothesise, driven by a speaker’s pragmatic *intention* in communication. In other words, speakers could communicate a telicity focus in the expression of causatives.

As Simpson & Wu (2002) motivate, FocusP is a type of Agreement phrase, i.e., it is a layer that primes and then enforces an Agreement relation in further derivation. This is exemplified for instance by French negative concord and Mandarin Chinese aspect. In Mandarin Chinese, for instance, progressive aspect is often marked with the auxiliary *zai* 'exist', glossed as ASP for its aspectual use as in (143).

(143) Mandarin Chinese progressive aspect (Simpson & Wu 2002: (28))

ta zai kan-shu
he ASP look-book

"He is reading."

Additionally to *zai*, a progressive can also be marked with the optional phrase-final particle *ne*, as in (144).

(144) Mandarin Chinese progressive aspect (Simpson & Wu 2002: (29))

ta zai kan-shu ne
he ASP look-book ASP

"He is reading."

Progressive aspect in Mandarin can thus be expressed discontinuously, enveloping the verbal phrase. In that way, Simpson & Wu (2002) present us with a two-way comparandum to our present puzzle: For one, Akkadian causative marking also appears to be discontinuous, scoping over multiple phrasal layers. The Merge of a subject DP through a [+D] feature happens on two distinct layers for D and \check{S} syntax, namely on Voice and Cause, respectively. The marking of the telicity feature for the causatives also needs its distinct layer, as implied by the shared morpho-phonological structure of D and \check{S} verbs. But the example of Mandarin aspect is furthermore a fitting comparison in that it illustrates the focus function of this discontinuous marking. While *ne* in Chinese is optional, the other case study Simpson & Wu (2002) present is that of French negative concord, i.e., the double negation *ne ... pas*, which for a substantial amount of time in the history of French was an obligatory two-part marking of negation.

As an Agreement phrase, FocusP solves another issue for us, namely the necessity for a layer where telicity-feature matching occurs. Recall the causative patterns summarised in Table 4.2 above and the subsequent semantic generalisation given in (109). The crucial finding of the ROOT classes and their causative compatibility is that a ROOT specified for a [+telic] feature, cannot derive a [-telic] D causative, but only a [+telic] Š causative. By contrast, ROOTS specified for a [-telic] feature typically derive [-telic] D causatives, but sometimes also [+telic] Š stems.

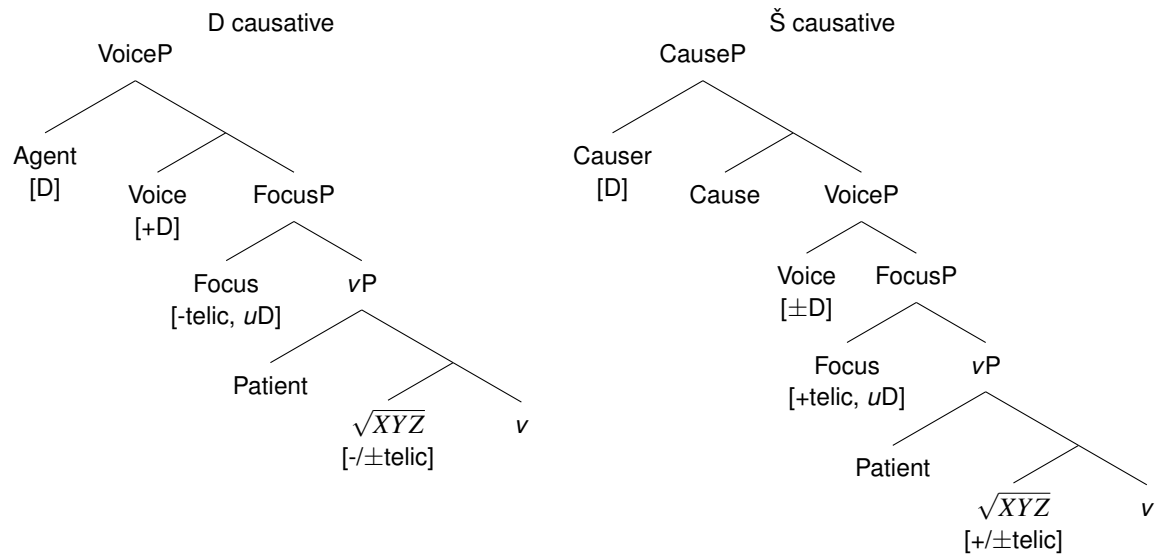
The causative restriction of [+telic] ROOTS can be analysed as the necessity of an Agreement relation to hold between ROOTS and causative morphemes. The apparent lack of restriction for [-telic] ROOTS implies that this Agreement relation is locally restricted. This locality restriction pertains to FocusP and VoiceP.

For causative derivation, Focus carries either a [+/-telic] feature, which determines which type of causative will be derived. This feature may either be projected from the ROOT, i.e., through the feature-field, or determined by the choice of the speaker. At the same time, the telicity feature on Focus is bundled with an uninterpretable [*u*D] feature, priming the syntactic requirement for an external argument. The introduction of the external argument, be it an Agent in Spec,VoiceP or a Causer in Spec,CauseP is dependent on the telicity feature of the causative: [-telic] causatives introduce the durative and direct DO-predicates, while [+telic] causatives introduce the non-overlapping and indirect CAUSE-predicate.

The difference is illustrated in Figure 4.8 below. The structure on the left shows the derivation of a D causative, the structure on the right that of a Š causative. The D causative may be derived either of a [-telic] or a telicity underspecified ROOT, while the Š causative may be derived either from a [+telic] or again telicity underspecified ROOT. Both trees illustrate that the telicity feature may either be inherited from the ROOT or chosen by the speaker in case the ROOT makes no specification. Crucially, a [-telic] ROOT does not derive a [+telic] feature on Focus, and neither does a [+telic] ROOT derive a [-telic] feature on Focus. Note also that a [\pm D] feature on Voice does not enforce the derivation of a DP in the specifier of VoiceP, which is why in the Š causative structure, it remains unoccupied by a DP. If the ROOT encodes a DO-predicate, the speaker does have the option, however, of expressing it in that position. The crucial difference to the DP derived in the Spec,VoiceP of D causative structure is that it is a derivation forced by the [+D] feature on Voice.

Another way to imagine the effects of FocusP is in the form of a type of ‘chemical reaction’ of features. In the introduction of this Chapter, I have presented the formal difference between the two semantic operators DO and CAUSE as one concerning the overlap of causation event *A* and CoS event *P*. Direct causation entails the intersection or at least partial overlap of *A* and *P*, while indirect causation entails no intersection between the two events, but rather an ordered sequence wherein *A* precedes *P*.

Figure 4.8: D and Š causatives (revised)



In Section 4.3 I have then motivated the telicity features of the D and Š stems. The telicity features are indeed compatible with the denotations of direct and indirect causation. The ‘imperfective’ [-telic] D event entails a CoS event that is not specified or entailed for a particular endpoint: just as the direct causation event does not specify or imply as such for the overlap of *A* and *P* events. The ‘perfective’ [+telic] Š event, however, does specify and entail that the CoS event results from a completion of a causation event.

As I now claim that this feature of telicity is introduced at Focus, i.e., before Voice where an external argument is Merged, this entails that the feature scopes over the *P* event, i.e., the CoS event. I thus refine the definitions of the telicity features on Focus to pertain to the CoS event *P*, as in (145).

(145) Definition of telicity features on Focus

- a. Direct causation: $A \cap P$
 $\text{Focus}_{[-\text{telic}]} = \llbracket P \rrbracket = \exists e, d[\dots(x, d, e)]$
- b. Indirect causation: $A < P$
 $\text{Focus}_{[+\text{telic}]} = \llbracket P \rrbracket = \exists e[\dots(e)]$

As the introductory Section of this Chapter has also claimed, the difference in $A-P$ relationship is what gives rise to the two different operators DO and CAUSE. I would now again like to modify that claim and adapt it to the concept of feature chemistry. As I have also claimed further above, it is the operator, which prompts later derivation of an external argument. This effect can be achieved for instance by a [ν D] feature.

(146) Definition of [ν D] on Focus

$$\text{Focus}_{[\nu D]} = \lambda x. \lambda e. \text{OPERATOR}[P](e)$$

Having defined the two relevant features appearing on Focus on the syntactic and semantic level, we can then observe what happens upon their combination: the operators are subject to the telicity features they interact with. A variable operator reacting with an atelic degree event results in the specification of a DO-predicate; an operator reacting with a telic event results in the specification of a CAUSE-predicate.

Table 4.13: Feature chemistry

Direct causation:		
[-telic]	+	[ν D]
$\llbracket P \rrbracket = \exists e, d[... (x, d, e)]$	+	$\lambda y. \lambda e. \text{OPERATOR}[P](e) \rightarrow \lambda y. \lambda e. \text{DO}[\lambda x. \lambda e. \lambda d... (x, d, e)]$
Indirect causation:		
[+telic]	+	[ν D]
$\llbracket P \rrbracket = \exists e[... (e)]$	+	$\lambda y. \lambda e. \text{OPERATOR}[P](e) \rightarrow \lambda y. \lambda e. \text{CAUSE}[... (e)](e)$

The introduction of the actual causers, i.e., an Agent or Causer, then depends on the derived structure's interaction with a new feature: [+D], which I define as follows in (147), with X indicating an undefined syntactic head:

(147) Definition of [+D]

$$X_{[+D]} = [...] \wedge \text{External_Argument}(x, e)$$

Once we Merge the [+D] feature into the already derived FocusP structure, we get different external arguments, based on the operators derived. I summarise this in (148).

(148) 'Feature chemistry' (continued)

a. Direct causation:

$$[-\text{telic}, \nu D] + [+D] \rightarrow \lambda y. \lambda e. \text{DO}[\lambda x. \lambda e. \lambda d... (x, d, e)] \wedge \text{Agent}(y, e)$$

b. Indirect causation:

$$[+\text{telic}, \nu D] + [+D] \rightarrow \lambda y. \lambda e. \text{CAUSE}[... (e)] \wedge \text{Causer}(y, e)$$

Now, as briefly mentioned further above in this Section, the telicity feature on FocusP may have one of two origins: In the case of telicity-specified ROOTS, the feature is inherited and projected up from the ROOT. In the case of ROOTS underspecified for telicity, I hypothesise that a speaker would make a pragmatic choice: If the intention of the utterance were to focus on the eventuation or agentivity of an event, a speaker would utilise the D stem. If the intention were to focus on the effect of an event, a speaker would use the Š stem.²¹

Akkadian having gone extinct as a spoken language likely somewhere around the 4th century BCE, I have no definitive way of proving this point. However, it is striking that the distribution of D and Š causatives appears to sometimes be genre-specific. Medical texts and recipes, for instance, which give explicit instructions to the reader on what to *do*, feature what appears to be a disproportionately high density of D stem.²² As the two examples below show, this is true of both D causatives (149a) and D intensives (149b).

(149) D stems in medical texts

a. ... *ina išat-i tu-kabbab-Ø*
 \sqrt{kb} 'burn'

... in fire-OBL 2-D.burn.IPFV-SG.M

"You burn (a branch) in fire" (BAM 520 15', NA)

b. *zē šaḥ-i zē kalb-i šalṃ-i ru⁷ut*

excrement.CSTR pig-OBL excrement.CSTR dog-CSTR dark-CSTR spittle.CSTR

imēr-i ina šamn-i tu-ballal-Ø
 \sqrt{bl} 'mix'

donkey-OBL in oil-OBL 2-D.mix.IPFV-SG.M

"You mix the excrement of a pig, the excrement of a black dog, and the spittle of a donkey with oil" (Köcher BAM 183:8, NA)

FocusP in that way not only licenses the Agreement of a telicity-feature in the derivation of causatives, it also provides us with a layer of grammaticalised pragmatic choice, i.e., of grammaticalised *focus*-marking.

²¹See Farkas & Swart (2003), Degen & Tanenhaus (2011) and Martin, Schäfer & Kastner (2024) for similar analyses of different linguistic phenomena.

²²I am presently unaware of studies that quantify this observation, and state it solely based on personal acquaintance with the corpora.

As Simpson & Wu (2002) note, this layer is easily lost in reanalysis processes (as observed for French negation and Mandarin progressive aspect-marking). I would thus go further to hypothesise that this layer of telicity of causative aspect was productive in earlier stages of Semitic, as can be observed in lexicalised remnants across modern Semitic languages (see 150), but was eventually lost.

(150) Causative alternations in Modern Hebrew

- | | | | |
|----|------------------------------|--------------------------------|------------------------------|
| a. | $\sqrt{\text{šlm}}$ 'full': | D <i>šilem</i> 'pay' | Š/H <i>hišlim</i> 'complete' |
| b. | $\sqrt{\text{bšl}}$ 'ripen': | D <i>bišel</i> 'cook' | Š/H <i>hivšil</i> 'ripen' |
| c. | $\sqrt{\text{kdm}}$ 'front': | D <i>kidem</i> 'advance (tr.)' | Š/H <i>hikdim</i> 'precede' |

I believe that the forms in (150) display the same pattern observed for the D and Š stems in Akkadian: the event of paying implies that an amount due is being 'filled', but it does not necessarily entail that it is filled to completion (one may pay a partial sum). The Š/H stem 'complete', however, does. The event of cooking implies a ripening process of some sort, but it does not entail that the ripening or cooking event is completed (something can be half-cooked). The Š/H stem 'ripen', however, does. Finally, the event of *advancing* something implies that the object has become more fronted relative to a previous stage, but it does not entail a state of being absolute front in comparison to another object. The Š/H stem 'precede', however, again does.²³

I thus maintain that FocusP was a productive projection in Akkadian causative formation based on the following features: 1) morphological similarities between D and Š stems that reflect in morphosyntactic representation, 2) the necessity for telicity-Agreement between ROOT and causative-morpheme, 3) the role of pragmatic intention for communication and the possibility to shift aspectual focus in Akkadian, and 4) parallels observed in other Semitic languages, which have since lost the productivity of focus and lexicalised the forms, in accordance with the diachronic behaviour postulated for FocusP by Simpson & Wu (2002).

We remain with one problem at hand: if FocusP enables and enforces an Agreement relation between ROOT and causative-morpheme, why does this relation pertain only to [+telic]-specified ROOTS and not to [-telic] ones? I turn to solve this issue in the next Section.

²³I add to this argument a morphophonological one. Akkadian and Hebrew D and Š verbs correspond to one another in that the first vocalic slots of the Akkadian verbs are coloured to /u/, the Hebrew ones (D *XiYYeZ* and Š/H *hiXYiZ*) are coloured to /i/ (compare with G *XaYaZ*). Note the cross-Semitic cognate relationship of /u/ and /i/, in Hebrew for instance in $\sqrt{\text{y/wld}}$ *yalad* 'bore' vs. *holid* 'begot'.

4.5.2 FocusP and VoiceP

With the introduction of FocusP, we can account for the Agreement relation between [+telic] ROOTS and [+telic] causatives. But this Agreement relation does not seem to pertain for [-telic] ROOTS, which may derive both [-telic] and [+telic] causatives.

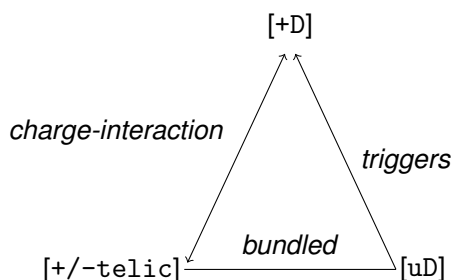
This issue may be solved if we return once more to the idea of ‘electromagnetic’ charges of features interfering with the ‘chemical’ reactions between them; the particular stage of interactions that we are concerned with lies in the intersection of Focus and Voice; heads which carry the telicity and EPP feature respectively. I summarise the features we have thus far encountered of the two respective heads Focus and Voice in (151) below.

(151) Features on Focus and Voice heads

- a. Focus: [+/-telic]
- b. Voice: [+/ \pm D]

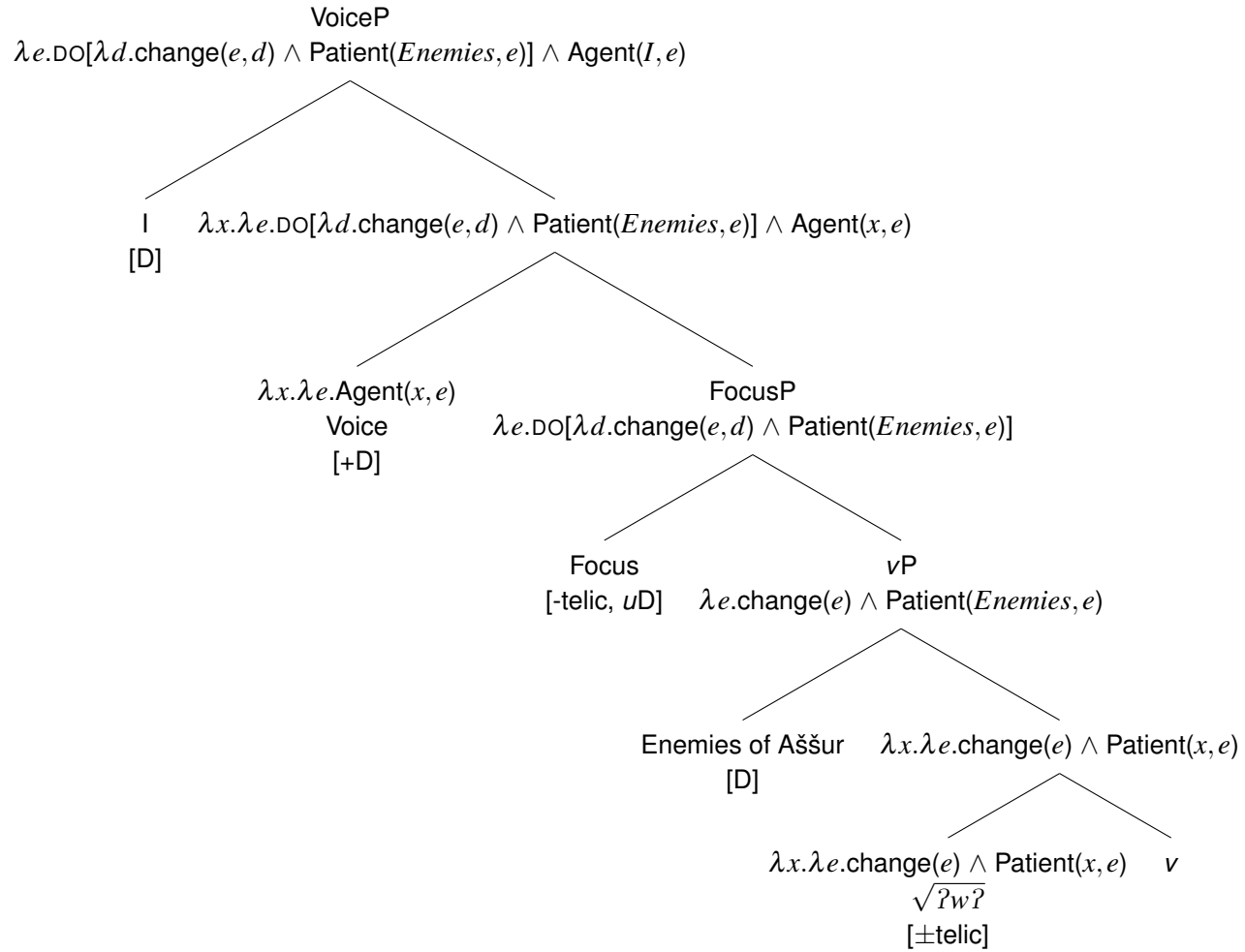
The two features stand in a triangular relationship to [ν D], itself bundled with the telicity feature on Focus. [ν D] triggers the derivation of the EPP feature, which in turn reacts with the telicity feature. As Magnetic Grammar would predict, [-telic, ν D] features on Focus should attract a [+D] feature on Voice, permit a [\pm D] feature, and reject a [-D] charge. In mirrored fashion, the [+telic, ν D] features on Focus should attract a [-D] charge, permit a [\pm D] charge, and reject a [+D] charge on Voice. I summarise the relationship of these three features in Figure 4.9.

Figure 4.9: Feature relations between Focus and Voice



What we see is a slightly different picture. [-telic, ν D] indeed attract a [+D] feature on Voice. [+telic, ν D], however, do not attract a [-D], but instead an underspecified [\pm D]. The reason for this will be introduced in the next Chapter with the discussion of de-transitive operations where I claim that [-D] is reserved to encode a particular de-transitive morpheme, namely the *t*-morpheme. which is specified for [-D].

Figure 4.10: D stem causative



Back to the syntax, the uninterpretable [ν D] feature now enforces the derivation of a nominal element. [-telic] is ‘charge-compatible’ with a [+D] feature, as such [+D] is enforced on the next head Voice, the next-closest head. Semantically, the [+D] feature introduces the template of an Agent-causer, i.e., the direct causer required by a [-telic] causative. This Agent is then derived at Spec,VoiceP as the subject *I* (typically pro-dropped in Akkadian). The Agent is thus filled and the derivation of *ummi* is completed.

Moving on to the Š stem causative, (154) gives a syntactically similar example.

(154)	<i>a-ppul</i>	<i>a-qqur</i>	<i>u-š-eme</i>	<i>karm-eš</i>
	$\sqrt{np\bar{l}}$ ‘dig out, destroy’	\sqrt{nqr} ‘demolish’	$\sqrt{\bar{l}w\bar{l}}$ ‘change’	
	1.SG.destroy.PFV	1.SG.demolish.PFV	1.SG-CAUS-change.PFV	ruin-ADV
	<i>bīt</i>	<i>šēr-u</i>		
	house.CSTR	back-OBL		

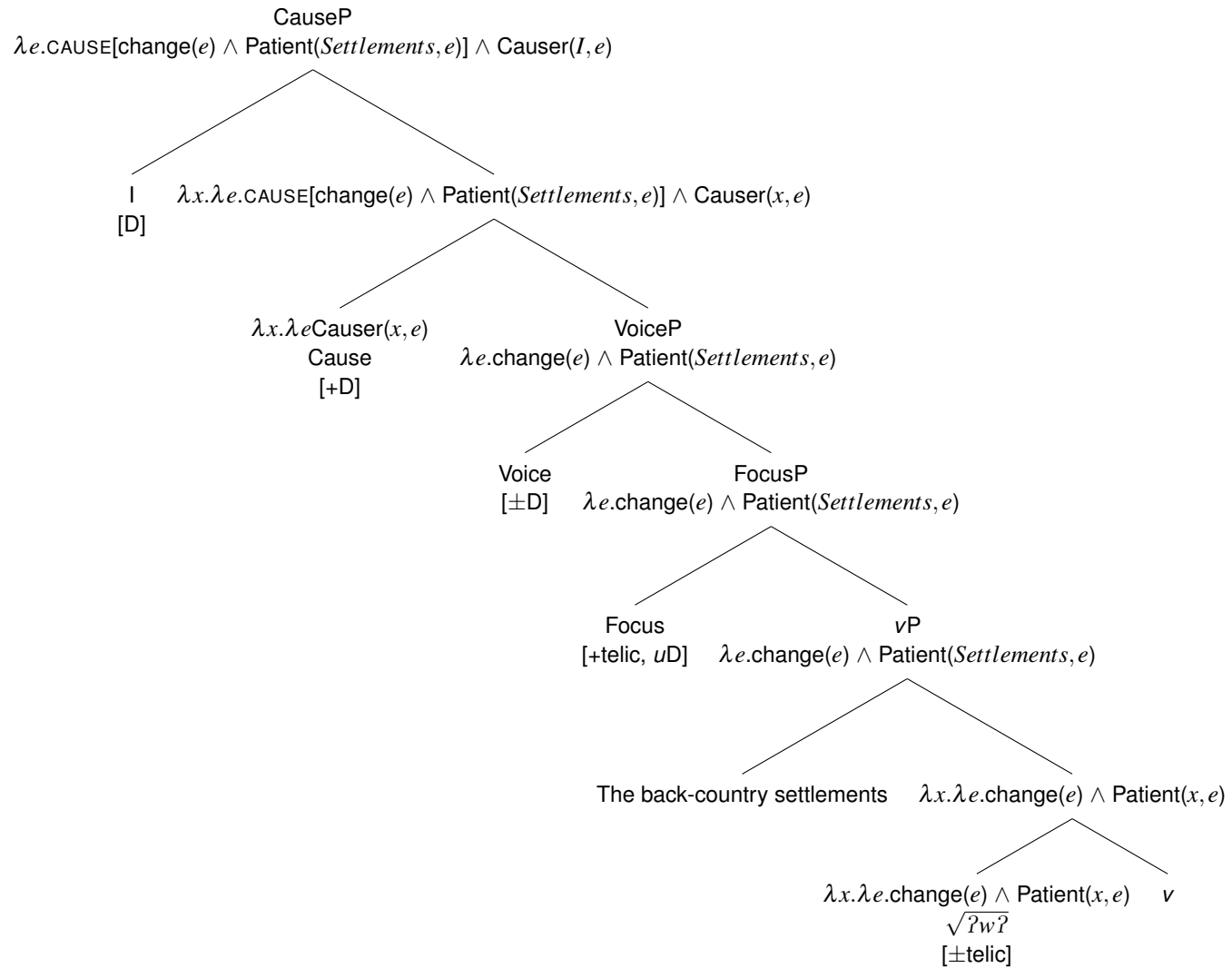
“I destroyed, demolished, had the back-country settlements turned to ruins” (RINAP 3 3:24, NA)

The derivation here begins in the same manner: the ROOT is Merged with a verbaliser, the Patient is filled at Spec, ν P. As again no telicity is pre-dictated by the ROOT, the speaker this time chooses a [+telic] causative, and specifies Focus and [+telic] accordingly. Semantically, the event is bound as culminated.

The [+telic] feature on Focus *cannot* enforce the derivation of the Causer required by [ν D] in the next-closest head Voice due to ‘charge-incompatibility’: [+D] cannot appear within the charge-field of [+telic]. Instead a [\pm D] feature is derived, which does not conflict with the charge of the [+telic] feature on Focus. Importantly, unlike a [-D] feature, it also allows a potential semantic derivation of a ROOT-inherited DO-predicate, which may result in the appearance of an Agent at Spec,VoiceP. In this present example, no Agent has been derived at VoiceP, and thus we continue the derivation with no nominal element Merged at Spec,VoiceP.

But the requirement for a nominal element still persists with the uninterpretable feature [ν D] at Focus still remaining unchecked. At this point, the derivation thus introduces a Cause-head, which carries the EPP-feature [+D], which is necessary in order to enforce the introduction of a [D]-carrying nominal element. [+D] at Cause and [+telic] at Focus are at this point locally far enough from another to avoid any charge-incompatibilities. The strong EPP feature on Cause then forces the Merge of a nominal element at Spec,CauseP, in this case the Causer *I*.

Figure 4.11: Š stem causative



Semantically, the Cause-head, in combination with the [+telic] feature on Focus, introduces the CAUSE-predicate, which again ‘fossilises’ the thus-far derived information and applied to it a CAUSE-predicate. Note that the equivalent reaction happens for the combination of a [-telic] and [+D] feature in D causatives: only once both are derived, can the causation-predicate be derived. In the case of Š causatives, this feature-binding happens further above in the derivation: in that way we can also account for the fossilisation of events that include Agents.

I summarise the findings of this Section as follows: A Focus-head introduces the morphological, syntactic, and semantic ‘template’ for the derivation of causative template patterns. It carries a telicity-feature, which may either be inherited from the ROOT or pragmatically chosen by the speaker. Whichever feature is derived at Focus then determines further derivation. Telicity features on Focus are always bundled with a [ν D] feature, which sets the requirement for checking through the introduction of a novel nominal element. This [ν D] feature must be checked as soon as possible, but its checking is subject to the charge of the telicity feature and its charge-field.

[-telic] features on Focus pair with [+D] features on Voice, the next adjacent head, which leads to the derivation of a DO-predicate and a respective Agent-causer. [+telic] features on Focus pair with an unspecified [\pm D] feature on Voice, which does not enforce the derivation of an Agent at Spec,VoiceP. It allows, however, the inheritance of a DO-predicate from the ROOT, which in turn can lead to the derivation of an Agent at Spec,VoiceP. The still unchecked [ν D] then enforces the Merge of the EPP feature [+D] through a new head Cause. [+D] on Cause is geographically far enough from the [+telic] feature on Focus so as to not interfere with it. This is summarised in Table 4.14.

Table 4.14: Feature-chemistry summary

ROOT-telicity	Focus	Voice	Cause		Causative
[\pm telic]	[-telic]	[+D]	/	→	D
	[+telic]	[\pm D]	[+D]	→	Š
[-telic]	[-telic]	[+D]	/	→	D
	[+telic]	[\pm D]	[+D]	→	Š

4.5.3 [-telic] ROOTS and Š causatives

We remain with one last problem to solve. Recall from Table 4.2 above that ROOT classes specified for [-telic] aspect, for instance ROOTS of emission A and durative-aspectual ROOTS, do at times allow Š causatives. Even further, some classes, such as ROOTS of existence, allow *only* Š causatives. The issue at hand then is why some [-telic] specified ROOTS allow and even *require* Š causatives.

I will discuss these two cases separately, beginning with the two classes that *allow* Š causatives. The present corpus counts a total of 13 emission type A ROOTS, two of which derive Š causatives, and a total of 10 durative-aspectual ROOTS, five of which derive Š causatives (or derivations thereof).²⁴ All of the Š causatives are decidedly rarer than their D equivalents; Š causatives are thus relatively rare in these classes.

This is not unexpected. Given Focus' inheritance of a [-telic] feature from the ROOT, one would expect the triggering of a [+D] feature on Voice. I treat these Š derivations as errors in this mechanism, which arise from a speaker's pragmatic wish to communicate a [+telic] causation for [-telic] ROOTS. In other words, a speaker's communicative intentions may override lexical rules, by inserting a [-telic] feature at Focus.

As for ROOTS of existence, the issue is a little more complicated. In total, the present corpus found 6 such ROOTS; not a very big group to begin with. I hypothesise that these ROOTS contain another component in their lexical semantic make-up that prevents them from taking direct causers.

Verbs of EXISTENCE generally describe states that cannot be duratively caused: for instance, for $\sqrt{bš?}$ 'exist', $\sqrt{n?š}$ 'live', or $\sqrt{mk?}$ 'lack' all describe states or stative events that entail a somewhat active participant that is not quite agentive, however. I believe it logically impossible to 'make someone exist/live/lack' with the causative event perfectly overlapping with the caused event. These ROOTS maintain a degree of self-determination for their object-arguments in causative contexts.

I hypothesise that another lexical feature comes into play here, namely that of internally-caused change (ICC, Bentley 2023). The events denoted by ROOTS of definitive ICC cannot be directly or duratively caused, as they already contain a ROOT-internal component licensing their existence. I leave this point speculative here, and delay a more satisfying solution for future work, but acknowledge the presence of a yet under-explored field of study, especially in Semitic.

4.5.4 Summary

This Chapter had three primary goals: 1) to account for the derivational patterns of causatives across the ROOT classes by 2) determining what the D and Š causatives are comprised of, and then 3) exploring the interactions of ROOT encoded features with derivational features in the syntactic and semantic derivation of D and Š verbs.

²⁴A full list of the ROOTS, ordered by class, can be found in the Appendix, along with their alternations.

I have attempted to account for the patterns by assuming a version of Magnetic Grammar, extending the electromagnetic metaphor to include charges, charge-fields, and feature-fields. I have motivated the relevant telicity feature and respective charges of the two causatives as [-telic] for D and [+telic] for Š. Syntactically, I have motivated that this feature is introduced at Focus. The realisation of the telicity feature on Focus, where derived morphology is primed, along with the [μ D] feature setting the requirement for the introduction of an external argument, was identified as either direct causation, implying an overlap of causation and CoS events and resulting in a semantic DO-predicate, and indirect causation, implying a sequence-relationship between causation and CoS events and resulting in a semantic CAUSE-predicate.

The requirement for an external argument to check the [μ D] feature can only be satisfied by a [+D] feature. I have then shown that the charge-fields of the telicity features on Focus affect where the [+D] feature may be Merged. Identical charges, in particular [+telic] and [+D] repel one another, which leads to the derivation of a [+D] feature at Cause for [+telic] causatives.

With the causatives accounted for, I now turn to the discussion of anticausatives.

Detransitive operations: The N and *t*-stems

5.1 Introduction

With the derivational mechanisms of Akkadian causative morphology covered, we can now turn to anticausative formation, or more broadly, the derivation of morphologically-marked middles. Akkadian differentiates two syncretic middle morphemes, known as the *n*-morpheme and the *t*-morpheme. Both morphemes are syncretic (Embick 1998) as they each encode at least three distinct middle functions, namely passive, reflexive/reciprocal, and noncausal (i.e., verbs like ‘*the vase broke*’), the latter of which is more commonly referred to as anticausative.¹

The *n*-morpheme forms the so-called N stem, the regular passive to the G stem or ROOT. As it surfaces primarily as a passive, but is also found in other middle functions, most prominently to mark noncausal verbs, I refer to its general function as (medio-)passive.

The *t*-morpheme forms the so-called *t*-stems to all template patterns G, D, Š, and very rarely even the N stem. Functionally, both reflexive/reciprocal and passive functions are commonly found, though with different functional distributions across the patterns. I thus refer to its function as ‘middle’. Finally, the combination of the *n*- and *t*-morpheme is referred to here as the combination of the two functions: ‘medio-passive’. I summarise the derivational patterns in Table 5.1 below.

¹Note the important difference between noncausal events being referred to as ‘anticausative’ and the general morphological marking of middles being referred to as ‘anticausative’; this terminological overlap is oftentimes not disambiguated in the literature. To maintain a clearer picture, I will refer to the function of noncausal events as ‘noncausal’ and maintain the term ‘anticausative’ for the morphological marking technique of middles. This means that the *t*- and *n*-morphemes are both anticausative morphemes, which may derive noncausal, passive, and reflexive/reciprocal functions.

Table 5.1: Template patterns & middle-distribution

	Patterns		
Active	G	D	Š
Middle	Gt	Dt	Št
(Medio-)passive	N		
Medio-passive	Nt		

Beyond the three core middle functions marking passive, reflexive/reciprocal, and noncausal verbs, both *n*- and *t*-morpheme derive active usages, also known as *deponents*, i.e., forms morphologically marked with features, which the function does not reflect (Grestenberger 2014). I refer to these active middles as ‘figure-reflexives’, following J. Wood (2014) and Kastner (2017).

In the listing of functions, I differentiate between reflexive and reciprocal functions and list them separately. Along with passive, noncausal, and figure-reflexive functions, I thus differentiate five basic functions ascribed to the *t*-morpheme. In my analysis of the different middle functions, I will only structurally account for the core functions of passive, reciprocal/reflexive, and noncausal, acknowledging that syncretic middles are cross-linguistically more prone to idiosyncratic behaviour (Grestenberger 2018, Oikonomou & Alexiadou 2022), such as the derivation of figure-reflexives. The derivation of such active usages will not be addressed in this thesis.

In the following, I will introduce the morphemes separately, beginning with the *t*-stems in Section 5.2, and following up the N stem in Section 5.3. Each Section will discuss the distribution of functions in the respective pattern-derivations and account for the respective syntax. I will then summarise and conclude the Chapter in Section 5.4.

5.2 The *t*-stems

5.2.1 Overview

5.2.1.1 Morphological notes

The general morphophonological rule that can be observed for the *t*-morpheme is its infixal insertion following the first consonant, i.e., it takes the position of the second consonantal slot of a lexical item (Kamil 2023). For the G and D stems, this means that the *t*-morpheme is always inserted after the first ROOT radical. For the Š stem and the N stem, this means that the *t*-morpheme is inserted after the characterising templatic morpheme *š(V)*- or *n(V)*-. In Table 5.2 below, I give the templatic paradigms for the G, D, and Š in one prefixing conjugation, the *perfective*, and one suffixing conjugation, the *Stative*, in their respective 3.SG.M forms.

c. Noncausal *t*-

šumma mē nār-i kīma ziqin nār-i ina kibir

if water.CSTR river-OBL as beard.CSTR river-OBL in bank.CSTR

nār-i u-ta-^{??}al-ū

$\sqrt{?l}$ 'hang, bind'

river-OBL 3-D.MID.bind.IPFV-PL.M

"If the waters of a river are as the 'beard-of-the-river' and coagulate at the river bank" (Šumma Ālu §61.11, SB)

The Akkadian *t*-morpheme is not only syncretic in its middle functions, but also in form of a Voice-Aspect syncretism. Across Semitic and Afro-Asiatic, the *t*-morpheme is not an easy morpheme to account for; in Akkadian, it presents additional complications as beyond the multiple middle functions, it may also be used as a pluractional and a progressive marker (see Steiner 1981, Voigt 1987, Huehnergard 2005, Kouwenberg 2010, Kamil 2025, i.a.). Thereby, the morphological form of a given word with a middle, pluractional, or progressive *t*-morpheme is largely indistinguishable.²

In the following, I will briefly introduce the two other functions of the *t*-morpheme, for the purpose of providing a comprehensive overview over its functions. As will become clearer in the next Section, particularly in Section 5.2.2.1, these functional overlaps are relevant to the motivation of the syntactic and semantic properties of the morpheme. A comprehensive analysis of the pluractional and progressive functions of the *t*-morpheme requires a diachronic perspective, which, as has been mentioned in the Introduction of this thesis, I do not seek to provide in this thesis. I will thus not further analyse the other two functions here.

The pluractional *t*-form looks mostly like the middle *t*-form, except that in the *imperfective*, it surfaces as *tan-* with an additional (and cryptic) *-n*. The pluractional functions attested comprise repetitive, habitual, or continuous events (Huehnergard 2005: p. 411). Examples are provided in (156).

²For a typological comparison, see Magni (2017) on Ancient Greek.

(156) Pluractional *t*-stem

- a. *ana šāb-im tarād-im i-š<tan>appar-0=ak=kum*
 \sqrt{trd} 'send' $\sqrt{špr}$ 'write, send'

DAT troops-OBL send.INF-OBL 3-send<PLUR>IPFV-SG.M=VEN=you.M.DAT

"He keeps on writing to you for (you) to send (him) troops" (ARM 2 23: rev. 10', OB)

- b. *šumma erû ... ištêniš i-t<tan>apraš-û=ma*
 $\sqrt{nprš}$ 'fly'

if eagle.PL.NOM ... together 3-fly<PLUR>IPFV-PL.M=CONJ

"If eagles fly around together" (Šumma Ālu, CT 41 1 1244:2, SB)

In its progressive function, the *t*-morpheme links the event of the ROOT to which it is attached to a series of other (typically preceding) events (Streck 1999, 2003). Morphologically, progressive *t*-forms take the theme vowel in the second vocalic slot of a G stem template. An example is given in (157).

(157) Progressive *t*-stem

- kīma i-b<ta>šl-0=u tu-šella-0 dišp-a u šamn-a*
 $\sqrt{bšl}$ 'cook' $\sqrt{šl}$ 'remove'

when 3-cook<MID>PFV-SG.M=SBJV 2-D.remove.IPFV-SG.M honey-OBL and oil-OBL

- ḥalš-a ana libb-i ta-naddi-0*
 $\sqrt{ndʔ}$ 'throw'

fine-OBL inside-OBL 2-throw.IPFV-SG.M

"As soon as it has come to a boil, you remove (it), you throw honey and fine oil into it" (AMT 80,7:2, NA)

As mentioned above, these two functions will not be further discussed in this thesis, however, as the next Section will demonstrate, especially the pluractional meanings will be of relevance to the proposed analysis. I now turn to the motivation of the analysis.

5.2.2 Argument-blocker: Syntax of the *t*-morpheme

Given the cross-linguistic phenomenon of syncretic middles with distinct functions represented by the same morpheme, middles are typically defined by their morphology, rather than by their syntactic function (Grestenberger & Kamil Forthcoming, see also Geniuien 1987, Klaiman 1991, Kemmer 1993, Kaufmann 2007). The syntax of middles is particularly puzzling in regards to Agent-realisation: noncausal events do not generally specify an Agent (though see Alexiadou, Anagnostopoulou & Schäfer 2015 on an opposing view), passives imply agentive influence, and reflexives and reciprocals encode Agents, which are co-indexed with the Patient/Theme.

The encoding of Agents in middles has received numerous treatments in the literature, especially in the discussion of the so-called ‘middle-construction’ (e.g., *she cut the bread* → ***the bread cuts nicely***); as Fábregas & Putnam (2014: p. 195) note, most syntacticians assume a type of syntactic Agent-blocking in the formation of middle constructions (e.g., Condoravdi 1989, Fagan 1992, Ackema & Schoorlemmer 1994, Steinbach 2002, i.a.), others derive the lack of Agents from a mismatch between semantic interpretation and syntactic structure (e.g., Stroik 1992, 1999, Hoekstra & Roberts 1993), while yet again others assume that Agents are preserved for all middle constructions in similar fashion to passive constructions (Lekakou 2005).

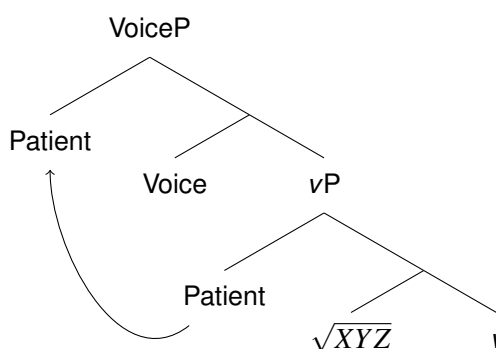
Fábregas & Putnam (2014) offer yet another approach in which the presence of an Agent “depends on the semantic event structure upon which the morphosyntactic requirements of a middle voice construction [...] are dependent” (Fábregas & Putnam 2014: p. 195), asserting that the availability of an Agent is correlated with a given structure’s encoding of an event variable. In other words, to translate this observation to the present framework: the derivation of a middle’s properties relies on the event specifications of a ROOT.

Similarly, Kaufmann (2007) suggests that both active and middle voice derivations in Fula (Niger-Congo) are independent from one another; middles are not derived from an active counterpart of the same underlying verb or ROOT, but rather from the ROOT itself (see also Bierwisch 1983, 1996, Maienborn 2001; see Hale & Keyser 1993, Alexiadou & Anagnostopoulou 1999 for opposing views). Different middle functions thereby then arise from the semantic specifications of the lexical entries, i.e., ROOTS, upon which the middles are built.

I adopt this approach here for both anticausatives, too, but modify it specifically for Akkadian by precisely defining the *t*-morpheme as the morphosyntactic requirement of Fábregas & Putnam’s (2014) definition in the derivation of middles. The Akkadian *t*-morpheme, I argue, *can* be defined syntactically, though not by a syntactic function, rather as the overt realisation of a syntactic *operation*. Said syntactic operation prevents the introduction of novel nominal elements into the derivation.

This claim for one stands to reason as the predominant syntactic pattern of middles can be summarised as the promotion of the internal argument of a predicate to surface subject position, as in Figure 5.1 below. While the actual syntactic function may differ between passives, reflexive/reciprocals, and noncausals, all three function do share this syntactic commonality.

Figure 5.1: Promotion of internal argument



Semantically, the implications of the three middle functions are slightly different, however: as mentioned further above, passives retain an implication of an unexpressed Agent performing the event *to* the Patient-subject, noncausal verbs do not naturally imply the existence of an Agent, and reflexives/reciprocals create a co-reference relation between the Patient undergoing the event and the Agent performing it.

As we have seen for the formation of Akkadian causatives, I explain these semantic differences through feature chemistry: while the syntactic operation remains the same, it is the pre-derived content onto which the *t*-morpheme is added—that includes the ROOT—which determines the meaning at spell-out. My formal proposition for the present *t*-morpheme is that it serves as the overt realisation of a [-D] feature on Voice and as such triggers the same syntactic operation wherever it is specified: namely the prohibition to introduce a new DP into the derivation.

Recall that a [+D] feature forces the derivation of a new DP as Agent at Voice. By contrast a [-D] feature would prohibit the derivation of a new DP as Agent. The result is the derivation of mostly non-agentive predicates, with the exception of reflexives/reciprocals, which promote a previously derived Patient to Agent position.

A crucial argument for this argument-blocking operation comes from the admittedly rare middle formation of unergatives. Unergative middles result in middle constructions, e.g., $\sqrt{\text{?}lk}$ 'go' → Gt 'roam, walk about'. These middle constructions are attested for the Gt (and more rarely Nt) and denote predicates of reduced agentivity.

The following Section 5.2.2.1, addresses the middle formation of unergative ROOTS in Akkadian, drawing on cross-linguistic parallels in Semitic and non-Semitic languages, too. I will then address the syntactic implications of the additional argument-block in Section 5.2.2.2. Section 5.2.2.3 will then introduce the respective Gt, Dt, and Št functions and synthesise the sets of functions with the patterns' respective syntactic analyses.

5.2.2.1 Unergative middles and argument-blocking

Gt stems of unergatives derive what is generally known as middle constructions (Ackema & Schoorlemmer 1994), which consist of agentive ROOTS denoting less agentive events when derived with a middle-*t*. The classical example of this pattern is provided by $\sqrt{\text{ʔlk}}$ 'go', which derives the meaning of 'roam' in the Gt. An example is given in (158).

(158) Gt middle construction

<i>ša etell-iš</i>	<i>a-t<ta>llak=u</i>	<i>ḥalāl-a</i>	<i>a-lmad</i>
	$\sqrt{\text{ʔlk}}$ 'go'	$\sqrt{\text{hl}}$ 'creep, slink'	$\sqrt{\text{tmd}}$ 'learn'
REL proud-ADV	1.SG-walk<MID>IPFV=SBJV	creep.INF-OBL	1.SG-learn.PFV

"I who used to walk about proudly, have (now) learned to sneak" (Lambert BWL 34:77, SB)

This behaviour is not unique to Akkadian. In fact, the ROOT $\sqrt{\text{ʔlk}}$ 'go' is attested in this meaning across North-West Semitic languages, which retained the lexical meaning of 'go', as exemplified in (159).

(159) $\sqrt{\text{ʔlk}}$ 'go' *t*-forms in Semitic

a. Hebrew: *hithaleχ* 'roam'

b. Ugaritic:

<i>bʕl</i>	<i>y-t-lk</i>	<i>w-y-šd</i>
	$\sqrt{\text{hlk}}$ 'go'	$\sqrt{\text{šd}}$ 'hunt'
DN	3-MID-go.IPFV	and-3-hunt.IPFV

"Ba'al was scouring and combing" (1.12 I 34)

The effect that the middle-*t* thus appears to have on unergatives is some kind of tampering with or blocking of its agentive qualities; a quality observed in the pluractionalisation of unergatives, too. One could argue for a somewhat pluractional reading of these middle unergatives: In (158-159), the events denoted are of longer duration, and describe some kind of goalless repetition of a walking-event (i.e., the subject walks and walks and walks). Recall that the *t*-morpheme is also attested as a pluractional marker in Akkadian.

The pluractionalisation of events is cross-linguistically known to block the introduction of additional arguments. In the case of agentive verbs, this usually results in Patient suppression. In other words: the pluractionalisation of events results in the derivation of intransitives, and in the case of agentive verbs usually unergatives. Any additional objects, including the demoted Patient, would have to be introduced as adjuncts, as illustrated in (160-161). In (160), the English predicate *write* is pluractionalised to *write away*, in (161), the predicate *hacken* 'hack' is pluractionalised to *herum hacken* 'hack around'. In both b. examples, either object, i.e., *her dissertation* in (160) and *the meat* in (161), can only be added as an adjunct with the preposition 'at'; *write away* and *hack around* are thus strictly syntactically intransitive.

(160) Pluractionalisation of active-transitives in English

- a. Jasmin is **writing** her dissertation.
- b. Jasmin is **writing away** *(at) her dissertation.

(161) Pluractionalisation of active-transitives in German

- a. *Der Koch **hackt** das Fleisch.*
the cook chops the meat

"The cook chops the meat."
- b. *Der Koch **hackt** (am Fleisch) **herum** (*das Fleisch).*
the cook chops at the meat around the meat

"The cook chops around *(at) the meat."

Pluractional events such as the ones in the examples above usually also receive less-agentive readings. A set of examples for non-agentive and pluractional overlap is given in (162) for German *ver-* attached to unergative verbs. All three examples given below denote events of elongated duration.

(162) Pluractional *ver*-verbs

- a. *gehen* 'go' – *vergehen* 'go by, wither, elapse (esp. time)'
- b. *laufen* 'go, run' – *verlaufen* 'go by, proceed (nonactive)'
- c. *fliegen* 'fly' – *verfliegen* 'go by, fly away'

The proximity of these pluractionals to middles can be seen in the prefix *ver-* oftentimes triggering an obligatory reflexive pronoun 'sich' to precede the verb in question, as in (163).

(163) Pluractional and middle *ver*-verbs

- a. *laufen* 'go, run' – *sich verlaufen* 'get lost'
- b. *ziehen* 'pull' – *sich verziehen* 'leave (coll.)'
- c. *lieben* 'love' – *sich verlieben* 'fall in love'

Syncretic morphology marking both pluractionality and reflexivity or reciprocity is cross-linguistically well attested (Mattiola 2019: 39f.). In either reading, the morphology derives intransitive (both agentive and non-agentive) verbs, but while pluractionals typically suppress Patients, reflexives/reciprocals typically suppress new Agents (i.e., an Agent that is not co-referenced with the Patient). This is illustrated in the following examples (164-166) for German, Hebrew, and English. Again, additional objects may only be adduced as adjuncts.

(164) Intransitive middles in German

- a. *Lotte bewegt ihren Knochen vor die Tür.*
 Lotte moves her bone before the door
 "Lotte moves her bone to (be in front of) the door"
- b. *Der Knochen bewegt sich *(durch) Lotte.*
 the bone moves SE through Lotte
 "The bone moves *(through the intervention of) Lotte"

(165) Intransitive middles in Hebrew

- a. *Safta irχ-a et ha-mišpaχa*
 $\sqrt{\text{ʔrħ}}$ 'host'
 grandma host.PAST-3.F.SG ACC the-family

"Grandma hosted the family"

- b. *ha-mišpaχa hi<t>arχa etsel/*et safta*
 $\sqrt{\text{ʔrħ}}$ 'host'
 the-family host<MID>PAST-3.SG.F at/*ACC grandma

"The family was hosted *(by) grandma"

(166) The dissertation writes itself easily *(by) the student.

The property both pluractionals and middles cross-linguistically share is the suppression of a second semantic argument from syntactic derivation. In other words, only one DP may be derived (and later on Moved if needed). In the case of pluractional predicates, it is the Patient that is suppressed. In the case of middles, it is the Agent that is suppressed. Crucially, while the syntactic outcome differs, the actual syntactic *operation* is the same.

Given the cross-linguistic parallels of middles and pluractionals barring the derivation of more than one semantic argument from syntactic derivation, I thus suggest that in the present case of middle formation through the *t*-morpheme, which in Akkadian both morphologically and functionally overlaps with the formation of pluractionals, syntactically blocks the introduction of additional arguments. This argument suppression happens at Voice through the feature [-D]. At Voice, [-D] thus suppresses Agents. I now turn to the formal analysis of this additional-argument-block at Voice.

5.2.2.2 Voice [-D]

In the previous Section, I have suggested that the middle *t*-morpheme functions predominantly as a syntactic operation that blocks the introduction of an additional syntactic argument. In this Section, I will implement this claim into the architecture of the Akkadian verb, and account for the several types of meanings attested for it in Sections 5.2.2.3.1, 5.2.2.3.2, and 5.2.2.3.3.

The feature of relevance here is, once again, the EPP feature [D] on Voice, which for the *t*-morpheme is regularly realised as [-D] (adopted from the parallel with Hebrew *hitpa'el* following Kastner 2020). The *t*-morpheme occurring in all template patterns, its syntactic encoding must be universally applicable—a condition that applies to Voice. As summarised in Table 5.3, all template patterns can combine with the *t*-morpheme through its definition of [-D] on Voice. Morphosyntactically, the position can further be motivated by the *t*-morpheme's proximity to the ROOT relative to the *š*-morpheme of the causative *Š* stem, as well as the passive *n*- of the N stem.

Table 5.3: Pattern features

Head		G	N	D	Š
Focus		/	[±telic]	[-telic]	[+telic]
	<i>t</i> -form	/	[±telic]	[-telic]	[+telic]
Voice		[±D]	[±D]	[+D]	[±D]
	<i>t</i> -forms	[-D]	[-D]	[-D]	[-D]
Cause		/	/	/	[+D]
	<i>t</i> -form	/	/	/	[±D]
Passive		/	[-D]	/	/
	<i>t</i> -form	/	[-D]	/	/

A positively charged [+D] feature, as seen for D stem verbs, enforced the derivation of a new DP; in mirrored fashion, a negatively charged [-D] prohibits the derivation of a novel DP.

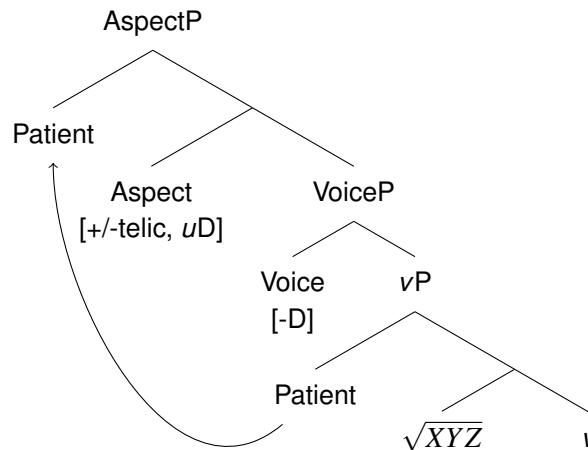
As I have motivated in the previous Section, the *t*-morpheme represents a syntactic operation, namely the prohibition to derive more than one argument. I hereby refine this claim to describe the *t*-morpheme as the overt realisation of a [-D] feature on Voice. [-D] on Voice prevents the derivation of an Agent at Voice; an observation that holds for passives, noncausal verbs, and to a certain degree also reflexives and reciprocals, which create co-reference between Patient and Agent, thereby not deriving a new argument.³ But [-D] on Voice also serves to explain the reduced agentivity noted for middle construction *t*-forms of unergative ROOTS: The DO-predicate of the ROOT would struggle to derive an Agent against Agent-prohibition of the [-D] feature, leading to the derivation of 'reduced' Agents.

As illustrated in Figure 5.2, the derivation of an abstract Gt looks as follows: As always, in the first step, a ROOT is verbalised. Assuming the ROOT encodes an internal argument, it will then derive said argument as a Patient or Theme in the specifier of *v*P. The decision to derive a *t*-form is then determined at Voice with the selection of a [-D] feature. [-D] then blocks the Merge

³Note that middle constructions such as the ones in (160-161) above are, to my present knowledge, not attested for the middle *t*-morpheme. Therefrom arises no need to account for any Patient-blocking properties.

of another argument, EPP cannot be satisfied at this stage, and the derivation moves on to derive the grammatical aspectual features, i.e., the derivation of a *perfective* or *imperfective* form. Through the [ν D] feature on Asp, EPP can be satisfied and the Patient Moves to the specifier.

Figure 5.2: The derivation of a Gt



In the remainder of this Section, I will proceed by introducing the different effects the *t*-morpheme takes on the three core template patterns G, D, and Š, and then elaborate on the effects of [-D] on Voice in combination with the various features of the ROOT classes and the patterns.

5.2.2.3 The *t*-morpheme across the patterns

As was mentioned in the introduction of this Chapter, the functional distributions of the *t*-morpheme across template patterns differ. This Section will thus discuss the different pattern+*t* functions separately, each Subsection introducing the functions first and then subsequently discussing their distribution through the syntax and semantics of the *t*-morpheme's combination with the respective template pattern.

5.2.2.3.1 The Gt

Functions The present corpus attests 145 ROOTS deriving Gt stems. Eleven of these Gt forms are media-tantum ‘base-Gt’ derivations with no G equivalent. Along with the five core functions attested for the Akkadian middles, the Gt also displays a number of unergative ROOTS deriving middle constructions, discussed above in Section 5.2.2.1. An overview over the attested functions is given in Table 5.4.⁴

Table 5.4: Gt stem functions

Function	Count
Passive	2 (1.38%)
Reflexive	24 (16.55%)
Reciprocal	44 (30.34%)
Noncausal	17 (11.72%)
Figure-reflexive	26 (17.93%)
Middle construction	5 (3.45%)
Combinations	12 (8.28%)
Unclear	4 (2.76%)
Base-Gt	11 (7.59%)
Total	145

By far, the most common usage of Gt is that of reciprocal middles. Contra von Soden (1995: §92) who claimed the primary functions of the Gt to be passive and reciprocal, the present corpus has found only two passive Gt forms attested, but 24 reflexive Gt forms against von Soden’s one ($\sqrt{p\bar{s}}$ ‘anoint’). This finding is also reflected in Kouwenberg’s (2010: 360f.) study who found mostly reciprocal, some reflexive, but no passive usage for the Gt.

(167) gives two examples of Gt formations, one reciprocal (167a) and one reflexive (167b).

(167) Reciprocal and reflexive Gt forms

- a. *puḥr-a ulā i-m<ta>gar-Ṭ*
 \sqrt{mgr} ‘face’
 assembly-OBL NEG 3-face<MID>PFV-SG.M

“The assembly will not agree with each other (\sim come to an agreement)” (YOS 10 31 x 44, OB)

⁴‘Combinations’ refer to any overlaps in functions. The present corpus found two instances of reflexive-reciprocal overlaps, seven instances of reflexive-noncausal overlaps, and three instances of reciprocal-noncausal overlaps.

b. *ta-r<te>hiṣ-i* $\sqrt{rḥṣ}$

2-wash<MID>PFV-SG.F

“You bathed yourself” (TIM 9 54 rev. 11, NA)

Notable are also the 26 ROOTS deriving figure-reflexive forms, i.e., middle-marked agentive verbs in which the argument functions as both the Agent and the Theme of a motion event (i.e., the *figure*, J. Wood 2014, Kastner 2017). An example is given in (168).

(168) Figure-reflexive Gt

u hiṣpat-um kabitt-um ana pān-ī=ya i-p<ta>rik-0
 \sqrt{prk} ‘obstruct’

and insolence-NOM heavy-NOM DAT face-OBL=my 3-obstruct.PFV<MID>-SG.F

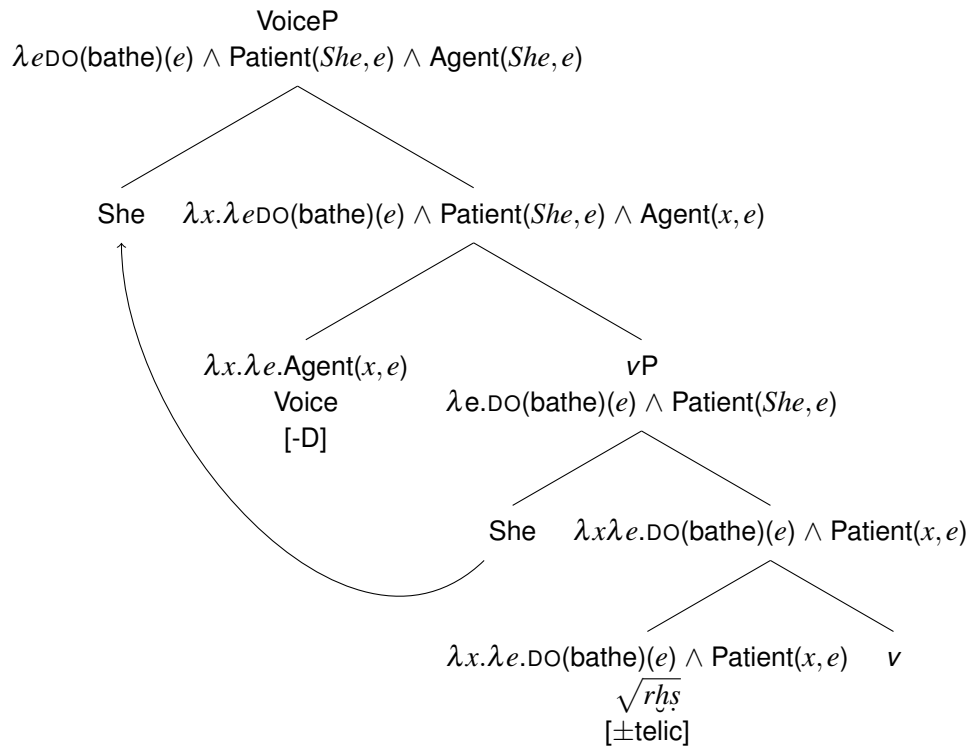
“And great insolence obstructs my way (lit. at my front/face)” (AbB 1 128: rev. 13-14, OB)

Structure The common reciprocal/reflexive functions of the Gt can be accounted for through the inheritance of a ROOT-encoded DO-predicate. As argued throughout the thesis, the DO-predicate of a ROOT is what triggers the derivation of Agents. With [-D] on Voice preventing the Merge of new DPs into the derivation, the DO-predicate must satisfy its Agent-needs otherwise, and the previously derived Patient DP Moves up to the specifier of Voice instead. Patient and Agent are now co-indexed.

I show this process for (167b) in Figure 5.3 below.

The structural difference to noncausal Gt forms is that noncausal forms fail to enforce the derivation of an Agent through the DO-predicate. Given the scarcity of noncausal forms relative to reciprocal and reflexive Gt predicates, I interpret noncausal Gt derivations as a somewhat faulty and non-standard derivation. But this derivational pattern is also indicative of the ‘strength’ of the radical DO-predicate: A ROOT’s DO predicate tends to be projected to Voice if no other projection intervenes.

Passive Gt verbs, which are almost non-existent fail in derivation in a different way. I discuss them in passing in the next Section, which treats the Dt forms. As it turns out, the most common Dt predicate is passive.

Figure 5.3: The derivation of a Gt reflexive

5.2.2.3.2 The Dt

Functions The most common *t*-form is the Dt. The present corpus attests 223 ROOTS deriving Dt stems, 6 of which are media-tantum base-Dt derivations with no G, Gt, or D equivalent. The functions are summarised in Table 5.5.⁵

Table 5.5: Dt stem functions

Function	Count	
Passive	137	(61.43%)
Reflexive	10	(4.49%)
Reciprocal	8	(3.59%)
Noncausal	27	(12.11%)
Figure-reflexive	4	(1.79%)
Combination	28	(12.56%)
Unclear	3	(1.35%)
Base-Dt	6	(2.69%)
Total	223	

⁵The overlaps in functions summarised under 'combinations' comprise six instances of passive-reflexive forms, 17 instances of passive-noncausal forms, one instance of a reflexive-reciprocal overlap, and finally four reflexive-noncausal forms.

By far, the most common Dt function attested is that of a passive, with an example given in (169).

(169) Passive Dt

ina kakk-i ummān=ī u-š<ta>bbar-θ
 $\sqrt{\text{šbr}}$ 'break'

in weapon(s)-OBL troops.CSTR=my 3-D.break.IPFV<MID>-SG.M

"In battle, my troops will be broken" (RA 65 73:40', OB)

An example of the second most common function, of noncausal Dt is given in (170).

(170) Noncausal Dt

šumma nār-u kīma šēr-i u-k<ta>ppal-θ=u=ma
 $\sqrt{\text{kpl}}$ 'roll'

if river-NOM as/like snake-OBL 3-D.roll<MID>IPFV-SG.M=SBJV=CONJ

"If the (water of the) river coils up like a snake" (Šumma Ālu §61.24, SB)

Structure As the previous paragraph showed, the overwhelming majority of Dt forms are passive in nature. I account for this pattern again through the syntax, but also through the semantics of passives.

Passives, contrary to other types middles, can be shown to be more closely associated with agentive causation, which simply remains unexpressed (Ackema & Schoorlemmer 1995). To exemplify, Ackema & Schoorlemmer (1995: (7-8)) give the following examples, differentiating between passives and what they refer to as 'middles':

(171) Agentivity differences in passives vs. 'middles' (Ackema & Schoorlemmer 1995: (7-8))

a. Passives:

- i. The wall was painted on purpose.
- ii. The wall was painted by Harry.
- iii. The wall was painted to protect it against the rain.

b. 'middles':

- i. *Walls paint easily on purpose.
- ii. *Walls paint easily by Harry.
- iii. *Walls paint easily to protect it against the rain.

The ‘middle’ examples given in (171b) can serve as a useful parallel to explain why noncausals are less commonly found in Dt forms. While noncausals do allow agentive modification, not every ROOT can undergo the causative alternation (see for instance Levin 1993).

(172) Illicit noncausal alternations

- a. I broke the vase. / The vase broke.
- b. I painted the walls. / *The walls painted.

I suggest that, for Akkadian, this has to do with the implied and semantically encoded agentivity of a given predicate (but see also Alexiadou, Anagnostopoulou & Schäfer 2015). But in the case of D passives, this heightened agentivity derives from the additional DO-predicate of the D stem at Focus, which entails a causative DO event.

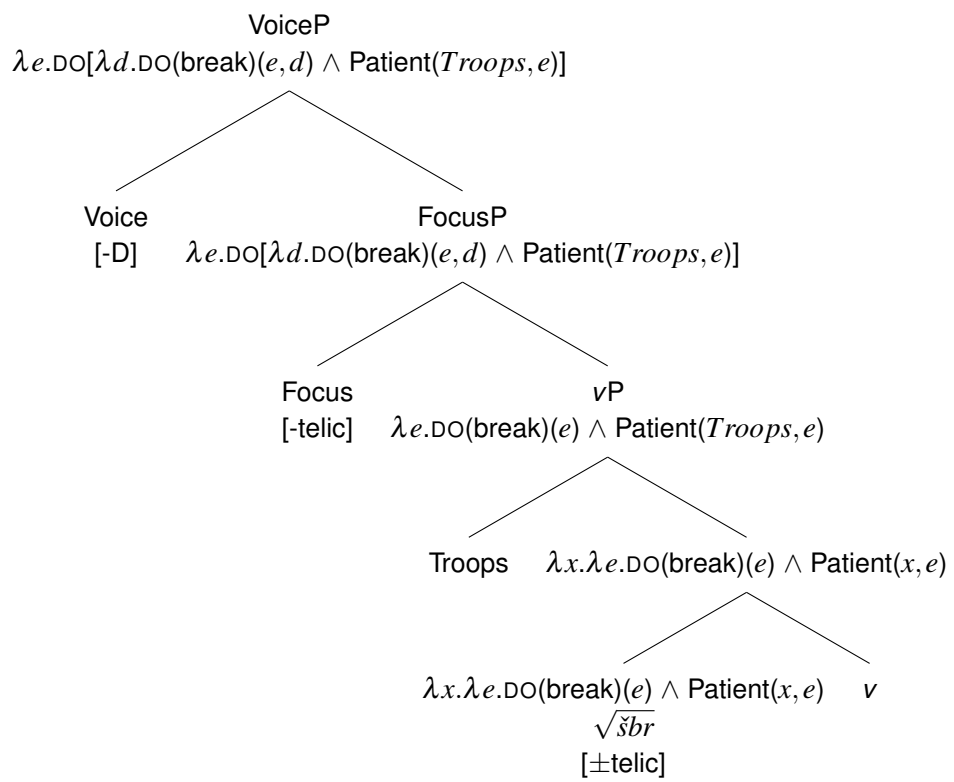
Passives being more commonly associated with an implied agentive causation event, require this heightened agentivity in order to be derived. This is also how one may explain that Gt forms practically do not derive any passives: they lack the additional causative DO.

To illustrate, let us derive the structure of the Dt passive in (169). The first difference between a Gt and a Dt is the layer of Focus, which introduces the [-telic] direct causation and thus an additional DO-predicate, resulting in a heightened agentivity. The effect of this is that the ROOT-inherited DO-predicate can no longer enforce the derivation of an Agent at Voice. Instead, we now have an externally Merged non-radical DO-predicate, which implies the involvement of an external argument in the event. This external DO-predicate now directly interacts with the [-D] feature on Voice.

Now recall the rules of Magnetic Grammar introduced in the previous Chapter, wherein in order to derive a licit causative, the telicity features on Focus and the EPP feature on Voice must be charge-compatible. A notable issue in the present analysis of the Dt predicate then arises through the immediate proximity of a [-telic] feature on Focus and a [-D] feature on Voice. I deal with this issue by assuming two processes occurring: 1) the speaker’s intention to express a middle can function as an outside ‘force’ that enforces the presence of [-D] on Voice, and 2) in effect, the regular causative D derivation fails and the mismatch in feature-charges leads to the lack of an Agent-derivation at Voice.

As no Agent is logically introduced at Voice, the derivation continues without its syntactic or semantic encoding, but the notion of heightened agentivity in the event is retained in the two DO-predicates that are not realised overtly.

Figure 5.4: The derivation of a Dt passive



Noncausal Dt predicates can again be accounted for through a faulty loss of agentivity, which may arise from the introduction of [-D]. The very rare reflexive/reciprocal Dt forms can be accounted for by assuming the proximity of [-D] and [-telic] did not 'break' the regular derivation in any way. With an Agent derived at Voice, but [-D] preventing the introduction of an additional argument, co-indexing of the sole argument as both Patient and Agent can take place. As it stands, these structures are rare and as such considered to be somewhat faulty here.

With the Dt structure covered, I now turn to the final *t*-form.

5.2.2.3.3 The Št

Functions Finally, the present corpus attests 110 ROOTS deriving Št stems, three of which are media tantum base-Št derivations with no G, Gt, D, Dt, or Š equivalent.

The situation with the Š stem is a little more complicated. For one, classical grammars differentiate between two types of Št stems: a 'regular' medio-passive Št termed Št1, and a 'lexical' Št termed Št2. I have for the most part identified the 'lexical' Št2 verbs as either figurative passives, figure-reflexives, or causatives of Gt forms, which have been mistranslated.⁶

I summarise the functions found in Table 5.6.⁷

Table 5.6: Št stem functions

Function	Count
Passive	36 (32.73%)
Reflexive	8 (7.27%)
Reciprocal	5 (4.55%)
Noncausal	8 (7.27%)
Figure-reflexive	8 (7.27%)
Combinations	11 (10%)
Causative + passive	15 (13.64%)
Causative + other combinations	6 (5.45%)
Unclear	9 (9.09%)
Base-Št	3 (2.73%)
Total	109

⁶As this thesis provides a linguistic analysis of the Akkadian verb, I refrain from philological commentary on the interpretation of these Št2 forms at this point, and reserve this endeavour for future publications. I do hypothesise on their nature in the structural analysis in the next paragraph, however.

⁷The combinations of the Št include: two passive-reflexive forms, one passive-reciprocal, two passive-noncausal and passive-figure-reflexives each, as well as one passive-reciprocal-noncausal, passive-figure-reflexive-noncausal, reciprocal-noncausal, and noncausal-figure-reflexive each. As for the causative combinations, the corpus attested three Causative+reflexive forms, and one causative+reciprocal, causative+noncausal, and causative+passive-reflexive each.

One final functional remark about the Št stems must be made about the so-called ‘Št2’. As mentioned above, most forms previously identified as Št2, can be argued to be either figurative passives, figure-reflexives, or mistranslated causatives of Gt forms. An example for a figurative passive is given in (176). Note that while the ROOT $\sqrt{\text{ʔh}z}$ ‘grasp’ does not attest a productive figurative use as a predicate denoting decision-making, other semantically-related ROOTS such as $\sqrt{\text{ʔb}t}$ ‘seize’ do, e.g., *tēmi šabātu* ‘make a decision’ (lit. grasp a decree).

(176) Figurative Št passive

<i>lš-am</i>	<i>Ninlil ana Šamaš</i>	<i>ulid-Ø=ma</i>	<i>u-š-ta-ḥiz-Ø=ma</i>
		$\sqrt{\text{w}l}d$ ‘bear’	$\sqrt{\text{ʔ}h}z$ ‘grasp’
DN-OBL DN	DAT DN	3.bear.PFV-SG.F=CONJ	3-CAUS-MID-grasp.PFV-SG.F=CONJ
<i>ina šūl-īm</i>	<i>īzib-Ø=šu</i>		
	$\sqrt{\text{ʔ}z}b$ ‘leave’		
in	street.PL.OBL	3.leave.PFV-SG.M=him	

“Ninlil bore lšum for Šamaš and she was made to decide (lit. grasp) to leave him in the streets” (CT 15 6 *vii* 8, OB)

Structure The structural requirement that arises for the Št verb is a way in which we can account for scope ambiguities wherein one interpretation entails a middle to a causative and the other interpretation entails a causative to a middle. I will from now on refer to the two scopes as Scope A and Scope B, following example (175) above. Scope A, i.e., the middle to the causative, can be more easily accounted for, assuming a more-or-less parallel derivation as the one observed for the Dt. Figure 5.5 illustrates the derivation of the Št predicate in (173).⁸

The Focus head introduces a telic causation, which is semantically realised in the form of a CAUSE-predicate. [-D] on Voice prevents the derivation of a new argument, no DO-predicate triggers Agent-derivation, thus the Patient remains in its internal argument position.

The interesting alternation then happens at Cause, which I designate here as [\pm D], meaning that new argument may or may not be derived in the specifier. If a new argument is not derived and the Patient instead again moves up to fill the specifier position, we get Scope A middle to causative readings, given the presence of a CAUSE-predicate still being specified in the semantics of the verb. If the CAUSE-predicate manages to enforce the derivation of a Causer

⁸ $\sqrt{\text{n}t}l$ ‘look’ behaves like an agentive ROOT, following the tests given in Chapter 3.

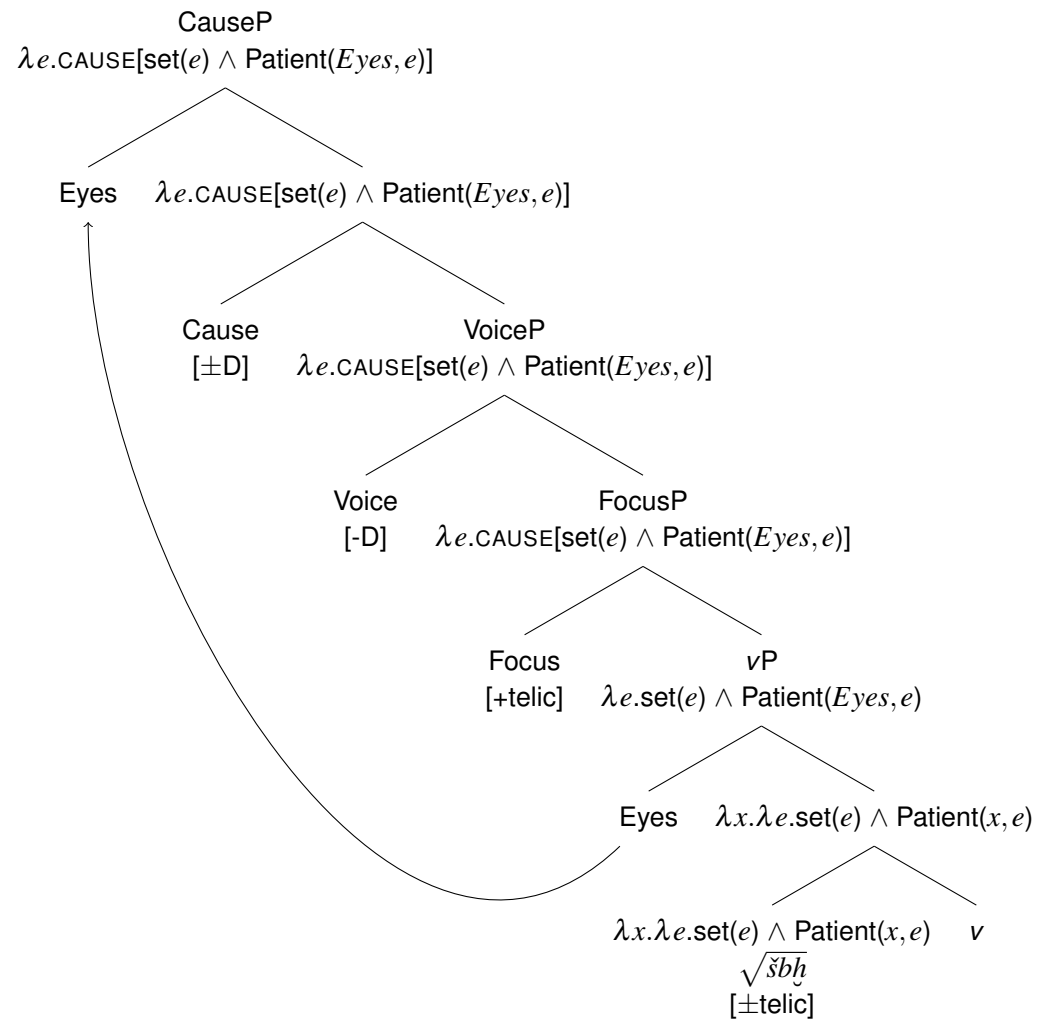
and a new argument is introduced at Spec,CauseP, we get Scope B causative to middle readings. Given the presence of a non-ROOT CAUSE-predicate, similarly to the non-ROOT DO-predicate of the D stem, the Št carries the implication of outside causation and thus most commonly derives passive middles.

It is the derivation of Š morphology happening on two more distant hierarchies of projection, namely Focus and Cause, that gives rise to the scope ambiguities. Following the specification of the [+telic] causation feature and the subsequent [-D] feature of the *t*-morpheme, the two shared semantic components of both scopes are derived: an externally caused event and a syntactically-promoted Patient. With the introduction of *another* layer for the derivation of the Š causative, another option arises for a new argument to be derived.

Extending this analysis even further, I believe that the more cryptic 'lexical' Št₂ forms derive from the very same structural ambiguity, wherein the lexical or colloquial usages of the more common G verbs can be 'inherited' in Št semantics.

With that, I conclude the Section on the *t*-morpheme, and move on to discuss the final morpheme: the *n*-morpheme.

Figure 5.5: The derivation of a Št passive



5.3 The N stem

5.3.1 Overview

5.3.1.1 Morphological notes

The *n*-morpheme is prefixed before the first ROOT radical of the G stem. It does not occur in the D or Š stem. The N stem forms a derivationally mixed paradigm, showing both a closer relation to the G stem, but also some of the characteristics of derived verbs. On the one hand, the N stem differentiates the prefixing conjugations by doubling the second radical in the *imperfective*, and the prefixes retain their original vocalisation of *i*- (3rd persons), *ta*- (2nd persons), *a*- (1.SG), and *ni*- (1.PL). On the other hand, the ablaut classes do not surface as regularly: While the G stem preserves full distinctions between the Ablaut classes, the N stem maintains only a distinction of the (i/i) class, while (a/u), (a/a), and (u/u) entirely conform to the marking found in the derived D and Š verbs, wherein the *perfective* is marked by an /i/ in the last vocalic slot, and the *imperfective* is marked by an /a/. Similarly, both *Stative* and *imperfective* vocalisations conform entirely to the vocalisations found in the D and Š stem. An overview is given in Table 5.7.

Table 5.7: N stem morphology

	G	N
<i>Perfective</i>	i-XYV _R Z-∅	i-X-XaYiZ-∅
	<i>i-prus-∅</i>	<i>i-p-paris-∅</i>
	<i>i-lmad-∅</i>	<i>i-l-lamid-∅</i>
	<i>i-kkud-∅</i>	<i>i-n-nakid-∅</i>
	<i>i-kpil-∅</i>	<i>i-k-kapil-∅</i>
<i>Imperfective</i>	i-XaYYV _T Z-∅	i-X-XaYYa/iZ-∅
	<i>i-parras-∅</i>	<i>i-p-parras-∅</i>
	<i>i-lammad-∅</i>	<i>i-l-lammad-∅</i>
	<i>i-nakkud-∅</i>	<i>i-š-šaggam-∅</i>
	<i>i-kappil-∅</i>	<i>i-k-kappil-∅</i>
<i>Stative</i>	XaYiZ-∅	na-XYuZ-∅
	<i>paris-∅</i>	<i>na-lmud-∅</i>
	<i>lamid-∅</i>	<i>na-lmud-∅</i>
	<i>nakid-∅</i>	<i>na-nkud-∅</i>
	<i>kapil-∅</i>	<i>na-kpul-∅</i>
<i>Imperative</i>	XV _R YV _R Z-∅	na-XYiZ-∅
	<i>purus-∅</i>	<i>na-pris-∅</i>
	<i>limad-∅</i>	<i>na-lmid-∅</i>
	<i>ukud-∅</i>	<i>na-nkid-∅</i>
	<i>kipil-∅</i>	<i>na-kpil-∅</i>

As the paradigm above shows, the *n*-morpheme does not usually surface in its ‘original’ phonological form, but is usually assimilated to the following consonant. In the very rare Nt stem, which in fact usually surfaces as a pluractional *tan-*, the *n*-morpheme appears before the *t*-morpheme and assimilated to a geminated /t/. An example of a pluractional Nt is given in (177). Note then in the Nt forms, *imperfectives* no longer feature geminated middle radicals.

(177) Nt example

ina bīt-i=ya ... **a-t-tan-ahlal**
 \sqrt{hl} ‘creep, slink’
 in house-OBL=my ... 1.SG-PASS-PLUR-creep.IPFV

“In my house (I have been sweating, but now) I am creeping about” (AbB 6 188:18’, OB)

5.3.1.2 Functional scope

The present corpus attests 387 ROOTS deriving N stems, 43 of which are media tantum base-N derivations with no G or Gt equivalent. As the Table below shows, the most common function of the N stem is that of a passive to the ROOT, but noncausal and notably also passive-noncausal combinations are decently attested, as well.⁹

Table 5.8: N stem functions

Function	Count	
Passive	223	(57.62%)
Reflexive	6	(1.55%)
Reciprocal	5	(1.29%)
Noncausal	52	(13.44%)
Figure-reflexive	11	(2.84%)
Combinations	12	(3.10%)
Passive + noncausal	29	(7.49%)
Unclear	6	(1.55%)
Base-N	43	(11.11%)
Total	387	

The N stem predominantly marking passives and hardly any reflexives/reciprocals is not surprising: in that way, a more or less clean functional distribution is maintained from the predominantly reciprocal/reflexive Gt. An example of a passive N form is given in (178).

⁹The combinations comprise one passive-reciprocal, five passive-figure-reflexive forms, one passive-reflexive-noncausal, one reflexive-reciprocal, and one reflexive-noncausal form, two reciprocal-noncausal forms, and one noncausal-figure reflexive form.

(178) Passive N

<i>Laḥmu u</i>	<i>Laḥamu u-š-t-āpû</i>	<i>šum-i</i>	<i>i-z-zakr-û</i>
	$\sqrt{?p?}$ 'appear'		\sqrt{zkr} 'declare'
DN	and DN	3-CAUS-MID-appear.PFV.PL.M	name-OBL 3-PASS-declare.PFV-PL.M

“Laḥmu and Laḥamu were fashioned (lit. caused to appear) and they were declared by name (~ given names)” (Enūma Eliš / 10, SB)

Notably, noncausal forms are the second most attested function for N stems. An example is given in (179).

(179) Noncausal N

<i>šumma rēš</i>	<i>libb-i=šu</i>	<i>i-t-tan-azqar-0</i>
		\sqrt{zqr} 'build high'
if	head.CSTR inside-OBL=his	3-PASS-PLUR-protrude.IPFV-SG.M

“If the top of his belly continuously protrudes” (LKA 85:3, NA)

5.3.2 The final layer: Passive

Table 5.7 above illustrated that the N stem lies somewhere between the G and the derived D and Š stems: while it retains the vocalic realisation of the prefixes as well as the marking of the *imperfective* by gemination of the second ROOT radical, the N stem’s ‘internal’ templatic structure, that is the structure onto which the ROOT radicals are mapped resembles more closely that of the D and Š stems.

The N stems’s derived morphology properties are further evidenced by its participles, given in Table 5.9 below. Note that a phonological rule barring the occurrence of two unstressed short syllables in sequence leads to the omission of an /i/ between the second and third ROOT radical in the N stem participle. In the construct state, the vowel surfaces again in the participles (e.g., *mu-p-paris*).

Table 5.9: Participle formation

	G	N	D	Š
<i>Participle</i>	XāYiZ-u	mu-X-XaYZ-u	mu-XaYYiZ-u	mu-ša-XYiZ-u
	<i>pāris-u</i>	<i>mu-p-pars-u</i>	<i>mu-parris-u</i>	<i>mu-ša-pris-u</i>
	<i>lāmid-u</i>	<i>mu-l-lamd-u</i>	<i>mu-lammid-u</i>	<i>mu-ša-lmid-u</i>

What this means for the derivation of N stems is that we cannot assume ‘pure’ ROOT projections as in the G stem. N stems must adduce additional information to the derivation. In parallel fashion to the $\check{S}(V)$ - prefix of the causative, this information is introduced in discontinuous fashion: one layer introduces the morphophonological template, another introduces the n - prefix of the passive.

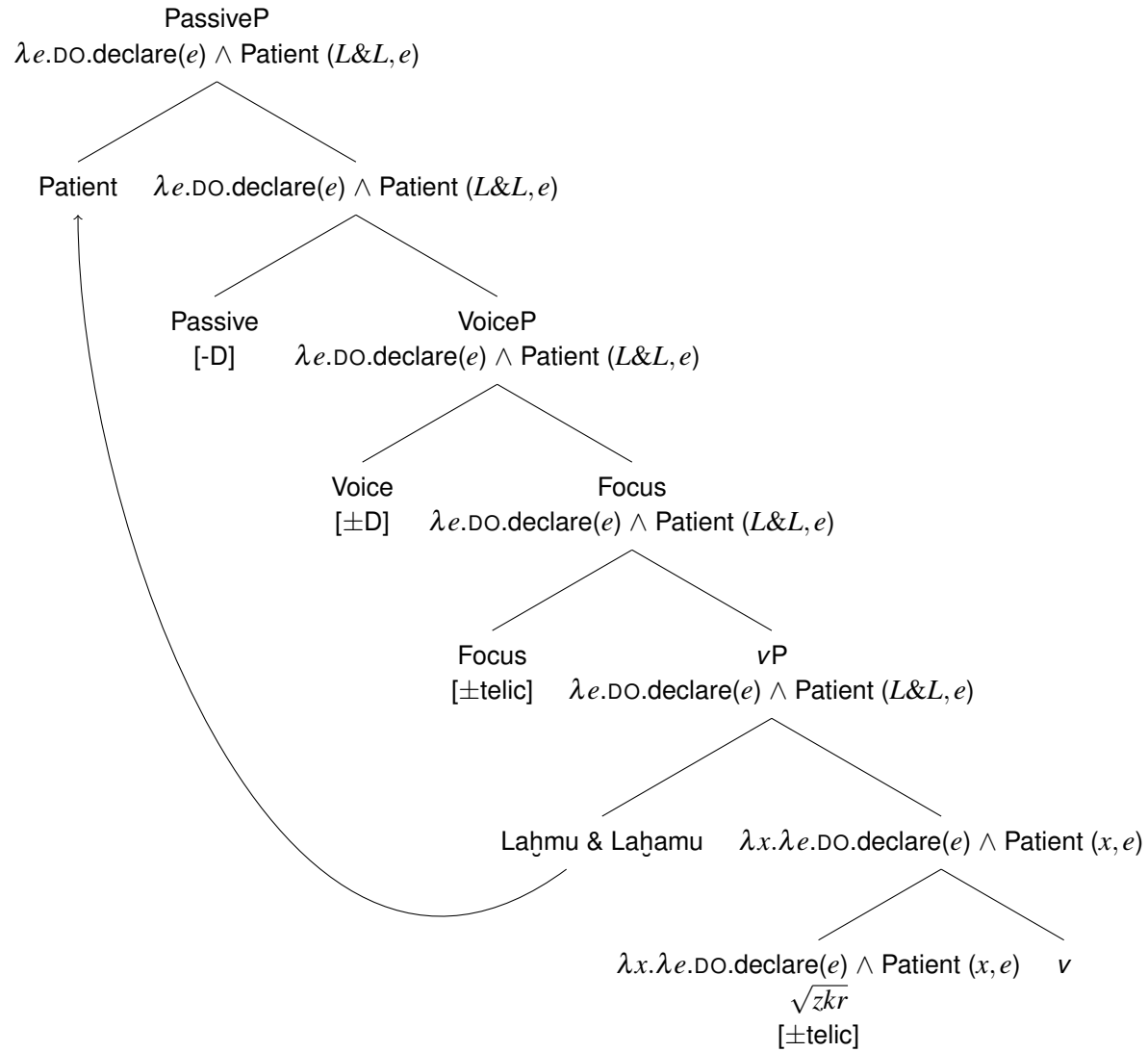
As with the D and \check{S} stems, I suggest that the N stem encodes a Focus layer, however with a neutral telicity feature [\pm telic]. In that way, we can first of all account for the derived morphology observed for N verbs, while also explaining why this derived morphology is ‘weaker’ than the one of the D and \check{S} stems: the feature is ‘neutral’ or empty of charge, and thus also has no bearing on the telicity marking of the lexical item. Secondly, by supposing a Focus layer for N, we can account for the lack of D and \check{S} stems deriving N stems. Focus cannot encode two telicity features on the same head. The prefix n - is then introduced on its separate head Passive, above VoiceP.

Figure 5.6 gives the derivation of (178). We begin the derivation, as always, by Merging the ROOT with a verbaliser. The ROOT requires a Patient, which is then Merged at the specifier of vP . To derive a non-G verb, we then introduce a Focus head into the derivation, but its telicity feature is neither positive, nor negative and no new arguments are introduced into the derivation. As such, the ‘focus’ remains on what has already been derived: the Patient.

Now, recall that in G derivations, a ROOT-encoded DO-predicate may enforce the derivation of an Agent at VoiceP. This option is barred from happening here due to the intervening Focus head. As mentioned in the discussion of Gt structures in Section 5.2.2.3.1 above, I thus suggest that ROOTS can only enforce themselves onto Voice if no other head intervenes. With no Agent derived at Voice, we derive a passive meaning.

From the vP on out, nothing happens any more semantically. Syntactically, a Passive head introduces the characterising prefix n - and a [-D] feature (in parallel fashion to the [+D] feature on Cause for the \check{S} stem), which prohibits the introduction of a novel DP, triggering the Move of the previously derived Patient to specifier position.

Figure 5.6: N stem derivation



5.4 Summary and discussion

In this final Chapter, I have accounted for the derivational mechanisms of anticausative morphology in Akkadian by making use of the features introduced in the previous Chapter, namely the telicity feature at Focus, as well as the EPP feature [D] at two different heads, Voice and Passive.

I have accounted for the *t*-morpheme's universal applicability by interpreting it as the encoding of a [-D] feature on Voice, which triggers a uniform syntactic operation, namely the prohibition to introduce new arguments into the derivation. I have further shown that the different functions that surface more or less prominently across the template patterns can be accounted for through the respective patterns' features and the subsequent effects these features take on the derivation, once merged with the [-D] feature. The N stem was accounted for in more parallel fashion to the Š stem, by positing discontinuous marking on Focus and Passive heads respectively. The passive readings can be accounted for through the presence of a DO-predicate encoded in the ROOT. However, the Focus head of Passive prevents said DO-predicate from deriving Agents at Voice.

I repeat the feature-combination summary from Table 5.3 as follows in Table 5.10.

Table 5.10: Pattern features

		G	N	D	Š
Focus		/	[±telic]	[-telic]	[+telic]
	<i>t</i> -form	/	[±telic]	[-telic]	[+telic]
Voice		[±D]	[±D]	[+D]	[±D]
	<i>t</i> -forms	[-D]	[-D]	[-D]	[-D]
Cause		/	/	/	[+D]
	<i>t</i> -form	/	/	/	[±D]
Passive		/	[-D]	/	/
	<i>t</i> -form	/	[-D]	/	/

This final Chapter further highlights a hierarchy of 'strength' of features from different origins, which I give in (180). Derivational features such as the [+D] feature on Voice, which is triggered by a [-telic] feature on Focus, form the 'weakest' type of feature. These features are entirely subject to Magnetic Grammar; they may never mismatch any adjacent feature-charges, nor may they override any specifications made by other feature-charges. ROOT charges, on the other hand, are stronger: they may project their features past *vP* all the way up to Focus, thus triggering the derivations of Agents despite Intention features, such as [-D] prohibiting such derivations.

- (180) Hierarchy of feature strength by origin
Intention > ROOT > derivational

Intention features nevertheless prove to be the ‘strongest’ type of feature: Intention features can determine the telicity at Focus, in the case of [-telic] verbs deriving Š causatives even overriding ROOT specifications, and can enforce charge-mismatches between features, for instance through Dt derivations specifying [-telic] and [-D].

Conclusion

6.1 Summary

This thesis set out to provide a comprehensive analysis of the Akkadian ROOT-and-pattern system, with the primary goal of explaining why ROOTS derive different meanings in the various different patterns. The answer, I have argued, lies in the internal properties of ROOTS and templatic morphemes.

In order to determine the internal properties of the LEXICAL ROOTS in Akkadian, I have developed three tests that facilitated the disambiguation of thirteen ROOT classes based on their syntactic and aspectual-semantic contents. These tests were applied to the G stem, which I have argued serves as the direct projection of ROOT-encoded information. On the morphophonological level, G verbs show no regularities in the formation of their different inflections and they are the only verbs that feature the root-theme vowel alternation; on a semantic level, G verbs adduce nothing to the core meaning of a ROOT.

The three tests developed, namely the *Stative*, VA, and prefixing conjugations tests, allowed for the definition of the ROOTS' internal properties that are relevant also for other pattern derivations. The *Stative* test provided us with a syntactic test, determining whether or not a ROOT encoded an internal argument. The VA test provided additional proof on whether or not a ROOT encoded an internal argument, but it also provided us with the first semantic test: ROOTS that derived a resultative VA encoded an eventive template, while ROOTS that derived non-resultative VAs encoded states or properties, but not events. Finally, the conjugations test provided us with information on the telicity features of ROOTS. If a ROOT derived non-peculiar *perfectives* and *imperfectives*, it was classified aspectually unspecified; but if it derived peculiar conjugations, for instance durative *perfectives* or punctual/inchoative *imperfectives*, it served as an indication that the ROOT encodes a telicity feature that may interact with any grammatical aspect features Merged later on.

These tests have led to the disambiguation of thirteen ROOT classes in Akkadian, which prove to be consequential in the derivation of the two causatives D and Š, but also the two anticausatives N and *t*-.

I have argued that the two causatives D and Š are themselves specified for telicity, which gives rise to the encoding of two different kinds of causation events: an atelic and a telic causation. The atelic causation D is of the direct type and encodes the temporal overlap of the causation event and the CoS event. It is expressed through the D causative. The telic causation Š is of the indirect type and encodes a sequence relationship between the causation and CoS events, wherein CoS comes to eventuation through the culmination of causation event. These two different kinds of causation events are represented by two different semantic primitive predicates DO (D) and CAUSE (Š).

I have motivated the telicity features of the two causatives based on their respective compatibilities with (a)telic adverbial modifications and morphological parallels in the marking of atelicity for the D stem. I have then showed that the two causatives have different argument structural configurations: While D verbs obligatorily encode Agent-subjects, Š verbs encode a Causer and *may* additionally encode an Agent, which performs the caused event. A causative's telicity feature is encoded at Focus, a layer directly above the vP. A verb may inherit its telicity feature directly from the ROOT, which is the case for the causative derivations of telicity-specified ROOTS projecting their features to Focus; in the case of telicity-unspecified ROOTS, speakers could typically choose whether they wanted to express a direct or indirect causative. The choice, I hypothesise, is intentional and pragmatic.

Based on the different telicity features encoded at Voice, the syntactic specifications for the derivation of different arguments differ, too. This syntactic difference is analysed as the encoding of an EPP feature [D] on Voice. The D stem, specified for [+D] enforces the derivation of a novel DP (i.e., nominal element) at Voice, which leads to the regular derivation of Agents. The Š stem on the other hand is specified for [±D], i.e., a neutral specification for the derivation of novel DPs; as such it may derive Agents at Voice, but is not obligatorily required to do so. The interactions between the telicity features on Focus and the EPP features on Voice are, as I argue, somewhat electromagnetic: identical charges naturally repel each other, which is why for instance [-telic] charges require a [+D] charge.

As regards the intensive meanings of D, I account for them by assuming that the combination of two DO-predicates leads to their conceptual 'multiplication': a process that only happens for ROOTS that already encode such a DO-predicate.

In the final Chapter of this thesis, I have then discussed anticausative morphology, accounting for the non-active meaning N and *t*-stems derive, but leaving out the treatment of active meanings. I have motivated that the *t*-morpheme constitutes the overt realisation of a [-D] feature on Voice, barring the introduction of novel DP elements into the derivation at that point. In that way, I have accounted for the mostly reciprocal and reflexive meaning derived in the Gt, wherein a ROOT-encoded DO-predicate triggering the derivation of Agents interacts with the Agent-block of [-D] by Moving a Patient to Agent position, thus creating co-reference.

b. *Bēl u Nabû il-ān-i kali=šunu ūm-ē ša šarr-i bēl-i=ya*

DN and DN god-PL-OBL all=their day-PL.OBL REL king-OBL lord-OBL=my

u-šêrik-ū

$\sqrt{\text{ʔrk}}$ 'long'

3-CAUS.long.PFV=PL.M

"Bēl and Nabû (and) all the gods have prolonged the days of my king, my lord"
(ABL 437 rev. 11, NA)

Both forms are given in the *perfective* and both forms describe the elongation of days by gods. In (181a), we a D stem and in (181b) a Š stem. In the translation of the D stem example, it is understandable that the publisher of the text employed an English perfect, but while the translation reflects the sentiment of the phrase, it is not entirely accurate. Rather, *turrik* expresses an event of actively making the scribe or speaker's days long throughout the event of elongation; the *perfective* marking entails that this causation event is completed. A phrase such as the one in (181a), could thus be translated as "You have been elongating my days", perhaps even "up until now, you have elongated my days".

By contrast, (181b) gives a Š causative of the same ROOT. The translation appears to imply an atelic causation event as the one denoted by the D. Given the Š causative's property of ordering causative and CoS event, thus usually 'causing ROOT to happen', I suggest to lean translations on this mechanism of translation: "Bēl and Nabû (and) all the gods have caused my the days of my king, my lord, to become long".

6.3 Outlook

This analysis is as comprehensive as the current data allowed, but of course it does set the stage for future work to be conducted. For one, I could at present not account for the derivation of Š causatives to ROOTS of existence, and hypothesise that these ROOTS may encode another property or feature that is yet unexplored by could account for their unique derivational behaviour.

As regards the formalism, I have provided an analysis utilising mostly well-established mechanisms of generative syntax, but have also made use of the relatively recent idea of feature magnetism. Undoubtedly, this line of inquiry will require more attention in the future, especially in the derivative version that I have argued for here.

Finally, on the comparative Semitic level, I have only very marginally suggested that the proposed system of causative aspect could also be applied to other Semitic branches and languages. Future work would certainly benefit from the application of this hypothesis to languages with living native speakers. With this analysis of Akkadian, I hope to have sparked the initiative to pursue this hypothesis further; crucially, also on the diachronic level.

List of verbal ROOTS and alternations

A.1 Overview

I provide in the following a list of all the testable ROOTS in Akkadian and order them by class. For each ROOT I give the full breadth of attested alternations, leaving out, however, any alternations attested solely in lexical lists. The data collection was conducted by compiling all the lexical ROOTS attested in the Chicago Assyrian Dictionary (CAD), the Akkadisches Handwörterbuch (AHw), and the Concise Dictionary of Akkadian, and then checking CAD and AHw for all the attestations. ROOTS, which did not produce testable attestations in any of the stems were excluded from consideration. I have also found multiple overlaps and synthesised some ROOTS that were otherwise listed as two separate ones.

The following Table A.1 provides an overview over the ROOT classes and total counts. The categorisation of ROOTS into a class relies on the results it produced when subjected to the three tests outlined in Section 3.3.1 above.

Table A.1: ROOT class count

Class	Count
PC ROOTS	139 (10.91%)
Eventive unaccusative ROOTS	113 (8.87%)
ROOTS of emission A	14 (1.10%)
Psych-ROOTS	40 (3.14%)
Labile motion-ROOTS	34 (2.67%)
Durative-aspectual ROOTS	10 (0.78%)
Inchoative-aspectual ROOTS	6 (0.47%)
Unergative ROOTS	132 (10.36%)
ROOTS of existence	6 (0.47%)
ROOTS of emission B	8 (0.63%)
Active-transitive ROOTS	650 (51.02%)
Labile ROOTS	62 (4.87%)
Experiencer-subject ROOTS	60 (4.71%)
Total	1274

A.2 Property concept ROOTS

In total, the present corpus counted 139 PC ROOTS.

Table A.2: PC ROOTS

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?r}$ I	awake	G			D				
$\sqrt{?b?}$	thick	G							
$\sqrt{?p?}$	dim, cloudy	G					Š		
$\sqrt{?b}$	bright, pure, clean	G			D	Dt	Š	Št	
$\sqrt{?d}$	pointed, spiky	G		N	D				
$\sqrt{?dš}$	new	G			D	Dt			
$\sqrt{?g?}$	lazy, negligent	G							
$\sqrt{?hr}$	behind	G			D				
$\sqrt{?kl}$ II	dark	G			D	Dt			
$\sqrt{?l}$ IV	pure, free	G			D	Dt			
$\sqrt{?m}$	hot	G			D				
$\sqrt{?mq}$ I	wise	G						Št	
$\sqrt{?mr}$ III	red	G			D				
$\sqrt{?mš}$ I	sour	G							
$\sqrt{?nš}$	poverty-stricken	G			D	Dt			
$\sqrt{?pq}$ II	massive, solid	G			D	Dt			
$\sqrt{?q}$	heavy	G			D				
\sqrt{wqr}	rare, precious	G			D		Š		
$\sqrt{?r?}$ II	pregnant	G					Š		
$\sqrt{?rk}$	long	G			D	Dt	Š		
$\sqrt{?rp}$	cloud/dark	G			D				
$\sqrt{?r}$ V	arrid, moldy	G		N	D				
$\sqrt{?t?}$	dark	G		N	D	Dt			
$\sqrt{?tl}$	man/male	G				Dt			
$\sqrt{b?l}$ I	dominant	G			D				
$\sqrt{bh?}$	thin	G			D				
$\sqrt{bn?}$ I	pleasant/grow	G			D				
$\sqrt{bqš}$	broad, prominent	G							
$\sqrt{br?}$ II	available	G			D				
\sqrt{brm} I	variegated, multicoloured	G	Gt		D				
$\sqrt{d?m}$ I	dark, dim	G			D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
\sqrt{dl} I	small, wretched	G			D				
\sqrt{dmq}	good	G			D		Š		
$\sqrt{dn}?$	of inferior quality?	G							
\sqrt{dn}	strong	G			D	Dt			
\sqrt{dpr} I	sated	G			D				
$\sqrt{dš}?$	abundant				D	Dt			ŠD
$\sqrt{dšp}$	sweet				D				
\sqrt{gpr}	superior	G		N	D	Dt			
$\sqrt{gpš}$	huge, massive	G	Gt/N		D	Dt			
$\sqrt{gšr}$	strong, powerful	G			D	Dt			
$\sqrt{hb}?$ I	soft, mild	G							
\sqrt{hbr} II	thick, solid	G			D				
$\sqrt{hbš}$ I	hard, swollen	G			D				
$\sqrt{hl}?$ I	ill, sick	G							
\sqrt{hmr} I	dry out	G			D	Dt			
\sqrt{hms} II	five	G			D				
\sqrt{hrb}	deserted	G					Š	Št	
\sqrt{hsb} II	green	G					Š		
$\sqrt{hš}?$ II	dark	G							
\sqrt{kbt}	heavy	G			D	Dt	Š		
\sqrt{kbr}	thick, solid	G		N	D				
\sqrt{kdr} I	overbearing	G		N			Š		
$\sqrt{kr}?$	short	G			D		Š		
$\sqrt{kš}?$	cold	G			D				
$\sqrt{kš}$ II	massive	G							
\sqrt{lbk}	soft	G			D		Š		
$\sqrt{lk}?$	weak	G			D				
\sqrt{lmn}	bad, evil	G	Gt		D	Dt		Št	ŠD
\sqrt{lpn}	poor	G			D				
$\sqrt{m}?$ d	numerous	G		N			Š		
$\sqrt{md}?$	visible	G			D				
$\sqrt{ml}?$ II	full	G		N	D	Dt	Š	Št	ŠD
$\sqrt{mr}?$ II	slow	G							
\sqrt{mr} I	bitter	G			D	Dt	Š		
$\sqrt{mrš}$	ill, arduous, difficult	G			D		Š	Št	
\sqrt{msk}	bad	G		N	D		Š		

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{m\check{s}l}$	equal	G		N	D	Dt	Š	Št	
$\sqrt{mt\check{q}}$	sweet	G			D				
\sqrt{mtr}	spotted, speckled	G							
$\sqrt{n\check{?}p}$ I	dry	G				Dt			
$\sqrt{nb\check{t}}$	bright	G		N(t)	D	Dt	Š	Št	
\sqrt{ndr}	wild, furious	G		N					
\sqrt{ngl}	white	G		N	D				
$\sqrt{nk\check{l}}$	skillful, artful, clever	G			D		Š		
\sqrt{nkr}	different, strange, hostile	G	Gt		D	Dt	Š		
$\sqrt{np\check{s}}$ I	wide	G		N	D	Dt			
$\sqrt{nr\check{b}}$	soft	G			D				
\sqrt{nwr}	bright, shine, brighten	G		N	D	Dt	Š		ŠD
$\sqrt{p\check{?}q}$	narrow, tight	G	Gt		D				
$\sqrt{p\check{l}\check{?}}$	red			N					
$\sqrt{p\check{l}k\check{?}}$	wide			N			Š		
$\sqrt{p\check{r}d\check{?}}$	bright			N			Š		
$\sqrt{pr\check{s}m}$	old				D	Dt			
$\sqrt{prz\check{h}}$	abundant						Š		
$\sqrt{p\check{s}\check{?}}$	white	G			D				
$\sqrt{p\check{s}q}$	narrow, difficult	G			D		Š	Št	
$\sqrt{p\check{t}n}$ II	strong	G			D				
$\sqrt{q\check{l}}$ I	light, weak, slight	G			D	Dt			
\sqrt{qrb}	close	G	Gt	N	D		Š	Št	
$\sqrt{q\check{t}n}$	thin, narrow	G			D				
$\sqrt{r\check{?}q}$ II	empty	G			D		Š		
$\sqrt{rb\check{?}}$ I	big, grow	G		N	D	Dt	Š		ŠD
$\sqrt{r\check{b}}$	calm	G					Š		ŠD
$\sqrt{rd\check{?}}$ II	suitable	G							
\sqrt{rg}	mischievous	G							
$\sqrt{r\check{h}t}$	viscous?	G							
$\sqrt{rm\check{?}}$ II	loose	G			D	Dt			
$\sqrt{rp\check{s}}$	broad	G	Gt		D	Dt	Š		ŠD
$\sqrt{r\check{q}}$	thin, fine	G			D				
$\sqrt{r\check{s}\check{?}}$ II	red	G				Dt			
$\sqrt{r\check{t}b}$	damp	G			D				
$\sqrt{s\check{?}m}$	red, brown	G			D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{s\dot{l}q}$	narrow	G			D				
\sqrt{skt}	silent	G			D				
$\sqrt{sl\dot{?}} \text{ I}$	ill	G		N					
\sqrt{slm}	amicable	G			D		Š		
$\sqrt{\dot{s}dr}$	askew	G			D				
$\sqrt{\dot{s}hr}$	small	G			D				
$\sqrt{\dot{s}lm}$	dark	G		N	D	Dt			
$\sqrt{\dot{s}\dot{l}b} \text{ II}$	old	G							
$\sqrt{\dot{s}dl}$	wide	G			D	Dt			
$\sqrt{\dot{s}hn}$	hot	G	Gt	N	D	Dt			
$\sqrt{\dot{s}ks}$	dry	G			D				
$\sqrt{\dot{s}qm}$	silent, still								ŠD
$\sqrt{\dot{s}lm}$	healthy, intact, complete	G			D	Dt			
$\sqrt{\dot{s}mr} \text{ I}$	violent, fierce	G	Gt				Š		
$\sqrt{\dot{s}m\dot{?}} \text{ II}$	pointed	G			D				
$\sqrt{\dot{s}p\dot{?}} \text{ II}$	silent		Gt		D				
$\sqrt{\dot{s}pl}$	deep, low	G		N	D	Dt	Š		
$\sqrt{\dot{s}r\dot{?}} \text{ I}$	wealthy	G			D		Š		
$\sqrt{\dot{s}rh} \text{ I}$	pre-eminent		Gt	N	D	Dt	Š		
\sqrt{tqn}	secure, in good order, placid	G		N	D				
\sqrt{trq}	green-yellow, blue	G							
$\sqrt{tr\dot{s}} \text{ II}$	pleasing, correct, right	G			D				
$\sqrt{\dot{t}\dot{l}b}$	good	G			D		Š		
$\sqrt{\dot{t}h\dot{?}}$	near	G	Gt		D	Dt	Š		
$\sqrt{\dot{t}np}$	dirty	G			D				
$\sqrt{\dot{t}p}$	very full	G							
$\sqrt{\dot{t}p\dot{s}}$	plump, fat	G							
$\sqrt{\dot{t}r}$	beard(ed)	G							
$\sqrt{w\dot{?}s}$	small, few	G					Š		
$\sqrt{wp\dot{?}}$	visible	G			D		Š	Št	
\sqrt{wrq}	green-yellow, pale	G			D	Dt	Š		
$\sqrt{wr\dot{s}}$	dirty	G			D				
\sqrt{wsm}	fitting, suitable, seasonable	G			D		Š		
$\sqrt{w\dot{s}\dot{t}}$	strong, difficult, stiff	G			D				
\sqrt{wtr}	outsize, surplus	G			D	Dt	Š	Št	
$\sqrt{zk\dot{?}}$	clear, pure	G			D	Dt	Š		

A.3 Eventive unaccusative ROOTS

In total, the present corpus counted 113 eventive unaccusative ROOTS.

Table A.3: Eventive unaccusative ROOTS

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?b\bar{l}}$ I	dry, intr.	G			D	Dt	Š		
$\sqrt{?b\bar{t}}$ I	cramp, contract	G		N	D	Dt			
$\sqrt{?mr}$ IV	swell, have colic	G		N					
$\sqrt{?m\bar{s}}$	be paralysed	G							
$\sqrt{?r}$ IV	rot, defecate	G		N					
$\sqrt{?šb}$	flourish	G			D				
$\sqrt{?tk}$ I	bend, twist (intr.)	G			D				
$\sqrt{?w?}$ II	change (into)	G			D		Š		
$\sqrt{b?l}$ IV	die away				D				
$\sqrt{b\bar{l}?$	come to an end	G			D				
$\sqrt{b\bar{t}}$	recover, live, heal (intr.)	G			D	Dt			
$\sqrt{d?m}$ II	be giddy, stagger	G			D				
$\sqrt{dw?}$	jerk, convulse	G			D				
$\sqrt{gl?}$	be deported	G					Š		
$\sqrt{glt?}$	awake, wake up			N					
\sqrt{gr}	turn over, roll over	G		N					ŠD
$\sqrt{gš?}$	belch	G			D				
$\sqrt{h?l}$ II	tremble, writhe	G							
$\sqrt{h?l}$ III	be in labour, exude	G							
\sqrt{hbs} I	delight, swell	G	Gt			Dt	Š		
\sqrt{hbt} IV	triumph, prevail?	G							
$\sqrt{hls?}$	slip, slide			N			Š		
\sqrt{hms} I	snapp off? Bend off?	G			D				
\sqrt{hmt} II	burn (up)	G	Gt		D	Dt	Š		
\sqrt{hnb}	sprout, flourish	G			D	Dt	Š		
\sqrt{hnm}	thrive, be luxuriant, bloom	G				Dt			
\sqrt{hpt}	triumph, prevail	G			D				
$\sqrt{hrbš}$	freeze			N					
\sqrt{hrd} III	wake up		Gt	N	D				
\sqrt{hrm} III	break down, collapse			N			Š		
\sqrt{hrmt}	dissolve, melt			N			Š		

ROOT	Meaning	Attested patterns								
		G	Gt	N	D	Dt	Š	Št	ŠD	
$\sqrt{hr\check{s}}$ I	be in labour	G			D					
$\sqrt{hr\check{s}}$ III	collapse			N						
$\sqrt{h\check{s}r}$	flake away, chip off	G		N	D					
$\sqrt{hz\check{l}}$ III	become lame		Gt							
$\sqrt{kn\check{s}}$	bow down, submit	G	Gt		D	Dt	Š		ŠD	
$\sqrt{kp\check{s}}$	bend over, distort	G		N	D					
$\sqrt{k\check{s}d}$	be delayed			N	D	Dt				
$\sqrt{k\check{s}\check{l}}$ II	yield profit	G			D					
\sqrt{kt}	quiver? low?	G			D			Št		
$\sqrt{mrk\check{l}}$	be delayed			N			Š			
$\sqrt{m\check{s}l}$	submerge						Š	Št		
$\sqrt{n\check{l}}$ III	lie down (to die)	G			D		Š			
$\sqrt{n\check{l}p}$ II	be shaken					Dt				
$\sqrt{n\check{l}\check{s}}$ I	wheeze?	G			D					
$\sqrt{n\check{l}\check{s}}$ II	quake, shake	G			D	Dt				
$\sqrt{n\check{l}\check{t}}$	(have a bowel disorder)	G								
$\sqrt{nb\check{l}}$ I	rise, well up	G								
\sqrt{nd}	cede	G			D					
$\sqrt{nh\check{r}}$	snort, snore	G								
$\sqrt{nh\check{t}}$	chuckle, hiccup				D					
$\sqrt{nl\check{s}}$	(fall as) dew	G			D					
$\sqrt{np\check{g}}$	sink, disappear	G								
$\sqrt{nr\check{t}}$	tremble, shake	G			D		Š		ŠD	
$\sqrt{nt\check{l}}$	overlap, go parallel			N						
$\sqrt{nw\check{l}}$	be abandoned, lie in ruins	G		N	D	Dt				
$\sqrt{nz\check{l}}$	void urine, excrement	G								
$\sqrt{p\check{l}\check{s}}$ II	come to an agreement	G								
$\sqrt{pr\check{h}}$	sprout	G								
$\sqrt{p\check{s}h}$	cool/calm down, rest	G		N	D	Dt	Š	Št	ŠD	
$\sqrt{q\check{l}}$ II	fall	G			D					
$\sqrt{q\check{l}p}$ I	fall down, collapse	G			D		Š			
$\sqrt{q\check{l}}$ II	hang down, levitate			Nt						
$\sqrt{q\check{l}p\check{l}}$	float, glide			N			Š			
$\sqrt{qr\check{h}}$	freeze	G								
$\sqrt{qt\check{l}}$	come to an end, perish	G			D	Dt	Š	Št		
$\sqrt{q\check{t}r}$	smoke, become gloomy	G			D	Dt	Š			

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{r?b}$ I	shake, tremble	G					Š	Št	
$\sqrt{r?d}$	quake, shake	G							
$\sqrt{r?h}$	remain, survive	G			D		Š		
$\sqrt{rb?}$ II	set, disappear	G			D				
\sqrt{rt}	tremble	G							
$\sqrt{s?}$ I	cry out, Whince	G							
\sqrt{sh}	tremble	G			D				
\sqrt{sk}	be clogged, stopped up	G		Nt	D	Dt			
\sqrt{skl} II	balk, get stuck	G							
\sqrt{slh} II	jerk, twitch, tremble	G							
$\sqrt{sm?}$	vacillate	G			D				
\sqrt{smh}	become involved, mix in	G			D	Dt			
$\sqrt{smš}$	go into hiding			N	D				
\sqrt{spk}	writhe			N					
$\sqrt{s?d}$ II	melt	G			D				
$\sqrt{s?r}$	spread out	G							
\sqrt{smr} II	swell up, bloat	G			D				
\sqrt{sr} II	flash, flit	G							
$\sqrt{s?b}$ I	tremble, quake	G			D				
$\sqrt{s?h}$ I	blow	G							
$\sqrt{s?h}$ III	grow (tall)	G			D				
$\sqrt{s?q}$	tremble	G							
$\sqrt{s?r}$ II	rise early	G							
$\sqrt{s?s}$	decline, wane	G		N					
$\sqrt{s?b?}$	sate	G		N	D	Dt			
$\sqrt{s?b}$ I	burn, be parched	G							
$\sqrt{s?g?}$	rage, be rabid	G		N					
$\sqrt{s?h}$	fall out, disintegrate, disappear	G		N	D	Dt			
$\sqrt{s?kr}$	be(come) drunk	G			D				
$\sqrt{s?lg}$	snow	G							
$\sqrt{s?mh}$ I	grow, flourish, be magnificent	G		N	D				
$\sqrt{s?n?}$ III	change	G	Gt		D	Dt	Š		
$\sqrt{s?n}$	equal, rival, match	G	Gt	N					
$\sqrt{s?r?}$ II	lean	G			D				
$\sqrt{s?th}$	stretch out	G			D				
$\sqrt{s?w?}$	roast	G			D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{tpš}$	be taken into custody			N	D				
\sqrt{tr}	tremble, shake	G		N	D				
$\sqrt{tbʔ}$	sink, submerge	G			D	Dt			
\sqrt{trd} II	be called, named			N					
$\sqrt{zʔb}$	ooze away			N					
$\sqrt{zʔq}$	blow, waft, gust	G							
$\sqrt{zʔr}$ I	twist, turn (round)	G			D				
\sqrt{zn} I	rain	G					Š		
\sqrt{zpr}	become rotten	G							

A.4 ROOTS of emission A

In total, the present corpus counted 14 ROOTS of emission of type A.

Table A.4: ROOTS of emission A

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{bʔš}$ I	smell bad	G			D				
$\sqrt{brš}$	sparkle, shine brightly	G							
$\sqrt{gʔš}$ II	vomit				D		Š		
\sqrt{gnh}	cough	G			D				
\sqrt{hbr} I	be(come) noisy	G				Dt	Š		
\sqrt{hl} II	wheeze, pipe	G			D				
$\sqrt{hlʔ}$ II	shine	G	Gt		D		Š		
$\sqrt{mšh}$ II	flash, shine, glow	G							
$\sqrt{nbʔ}$ V	shine, sparkle	G							
\sqrt{ntk}	drip	G			D		Š		
$\sqrt{rš}$	glow (with heat)	G							
\sqrt{sr} I	drip, flow	G			D				
$\sqrt{špʔ}$ I	flicker, surge, burn, swell up	G		N	D				
$\sqrt{šrk}$ II	suppurate, discharge pus	G	Gt						

A.5 Psych-ROOTS

In total, the present corpus counted 40 psych-ROOTS.

Table A.5: Psych-ROOTS

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?dr}$ I	be worried, restless; obscure	G		N	D	Dt	Š	Št	
$\sqrt{?dr}$ II	fear, respect	G		N				Št	
$\sqrt{?g}$	be(come) furious	G			D				
$\sqrt{?lš}$	rejoice, swell?	G	Gt		D	Dt	Š		
$\sqrt{?mš}$ II	be(come) hungry	G			D				
$\sqrt{?nh}$ I	be(come) tired	G		N			Š	Št	
$\sqrt{?r}$ III	fear, become agitated	G	Gt	N	D	Dt			
$\sqrt{?š}$ I	become distressed; despair	G	Gt	N	D	Dt		Št	
$\sqrt{?z}$ I	be(come) angry, rage	G			D		Š		
$\sqrt{b?š}$ II	become ashamed	G			D				
$\sqrt{br?}$ III	be hungry, starve	G			D				
\sqrt{gl}	tremble, be afraid	G			D	Dt	Š		ŠD
$\sqrt{gr?}$	be hostile, attack	G	Gt	N	D				
$\sqrt{h?p}$ I	fear?	G			D				
$\sqrt{h?š}$ I	worry	G			D				
$\sqrt{hd?}$ I	be joyful, rejoice	G		N	D		Š		
$\sqrt{hm?}$ II	become confident, trust	G			D				
\sqrt{hr} IV	be dazed								ŠD
\sqrt{hs}	be conscious, remember	G	Gt	N	D		Š	Št	
$\sqrt{hš}$ I	swell, be happy	G			D	Dt			
$\sqrt{k?r}$ II	be dazed	G							
\sqrt{kml}	be(come) angry	G	Gt	N	D				
\sqrt{kr} II	think, hesitate	G	Gt						
$\sqrt{mh?}$	become frenzied, go into trance	G		N					
$\sqrt{nkđ}$	beat, throb, be frightened	G		N	D		Š		
\sqrt{nzq}	worry, be upset; squeak, hiss	G					Š		
\sqrt{plh}	fear, revere	G	Gt	N	D	Dt	Š		
$\sqrt{prđ}$	be restless; fear	G	Gt		D	Dt	Š		ŠD
$\sqrt{q?p}$ II	(en)trust, believe	G		N	D				
$\sqrt{qn?}$ II	be jealous	G							
\sqrt{shm}	be under pressure, miserable	G		N	D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{sm\bar{l}}$	be thirsty	G			D		Š		
$\sqrt{s\bar{l}h}$ II	be agitated			N					
$\sqrt{s\bar{b}s}$	be angry	G					Š		
$\sqrt{s\bar{h}t}$ I	fear, hold in awe	G	Gt		D	Dt			
$\sqrt{s\bar{h}t}$ III	become angry	G							
$\sqrt{tm\bar{l}}$ II	be amazed?	G							
\sqrt{wml}	be(come) agitated, nervous	G			D	Dt			
$\sqrt{zn\bar{l}}$	be angry, offended	G		N	D		Š		
\sqrt{zrb}	rage, be furious			N					

A.6 Labile motion-ROOTS

In total, the present corpus counted 34 Labile motion-ROOTS.

Table A.6: Labile motion-ROOTS

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{l\bar{k}s}$	walk, go	G	Gt		D	Dt			
$\sqrt{l\bar{l}l}$ I	go up, rise	G	Gt		D	Dt	Š	Št	
$\sqrt{l\bar{l}l}$ II	exceed, surpass					Dt			
$\sqrt{l\bar{r}b}$ I	enter; arrive	G			D		Š		
$\sqrt{wr\bar{d}}$	go down, descend	G					Š		
$\sqrt{b\bar{l}s}$ IV	go away, withdraw	G			D				
$\sqrt{dr\bar{l}}$	flow, roam	G		N					
$\sqrt{gr\bar{s}}$	go towards, come	G							
$\sqrt{hd\bar{l}}$ II	retreat, go back	G			D				
$\sqrt{hl\bar{q}}$	be lost, disappear, flee	G		N	D	Dt	Š	Št	ŠD
$\sqrt{hn\bar{}}$	run, flow	G			D				
$\sqrt{hr\bar{p}}$ I	come early	G			D		Š		
$\sqrt{l\bar{l}d}$	bend down	G							
$\sqrt{n\bar{l}h}$	rest	G		N	D		Š		
$\sqrt{n\bar{l}l}$ I	lie down		Gt		D		Š		
$\sqrt{nh\bar{s}}$	(re)cede, return	G			D	Dt	Š		
$\sqrt{pl\bar{s}h}$	fall, squat			N			Š		

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{pl\dot{t} ?}$	pass			N			Š		
$\sqrt{pr\dot{k}}$	lie across, obstruct	G		N	D		Š		
$\sqrt{pz\dot{r}}$	hide	G		N	D	Dt	Š	Št	ŠD
$\sqrt{r\dot{?}q}$ I	withdraw	G	Gt		D		Š		
$\sqrt{rb\dot{s}}$	lie down, rest	G					Š		
$\sqrt{s\dot{?}r}$ I	rotate, dance, whirl, circle	G			D				
$\sqrt{sh\dot{?}}$	become troublesome, rise up	G		N	D	Dt			
$\sqrt{sk\dot{p}}$ II	rest, lie down	G			D				
$\sqrt{s\dot{?}d}$ I	prowl, whirl, spin	G			D				
$\sqrt{s\dot{l}}$ I	lie (down), sleep	G					Š		
$\sqrt{sr\dot{h}}$ IV	dispatch quickly, hurry	G							
$\sqrt{sh\dot{t}}$ I	jump, attack; escape, fall off	G		N	D		Š		
$\sqrt{s\dot{l}}$ II	creep, slither			N					
$\sqrt{s\dot{q} ?}$ I	rise	G		N	D		Š		
$\sqrt{t\dot{?}r}$	(re)turn, become again, recede	G			D	Dt			
$\sqrt{tb\dot{?}}$	arise, set out; pulsate, throb	G		N	D		Š		
$\sqrt{w\dot{?}r}$	go, approach, attach	G			D				

A.7 Durative-aspectual ROOTS

In total, the present corpus counted 10 durative-aspectual ROOTS.

Table A.7: Durative-aspectual ROOTS

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?pl}$ II	be late	G			D	Dt			
$\sqrt{b\dot{?}r}$ III	stay firm, true, appear, turn out	G			D	Dt			
$\sqrt{dl\dot{p}}$	be/stay awake, continue working	G		N	D		Š		
$\sqrt{k\dot{?}n}$ I	last, endure	G	Gt		D	Dt		Št	
$\sqrt{k\dot{?}š}$	be late, tarry	G			D			Št	
\sqrt{lbr}	last, endure	G	Gt		D	Dt	Š		
\sqrt{lz}	continue, persist	G							
$\sqrt{m\dot{t} ?}$	lack, be small	G			D	Dt	Š	Št	
$\sqrt{nh\dot{s}}$	prosper, thrive, be in good health	G		N	D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{!th\bar{d}}$	thrive, prosper	G			D	Dt			

A.8 Inchoative-aspectual ROOTS

In total, the present corpus counted 6 inchoative-aspectual ROOTS.

Table A.8: Inchoative-aspectual ROOTS

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{br\bar{q}}$	lightning	G		N			Š		
$\sqrt{bš\bar{l}}$	ripen, cook	G					Š		
$\sqrt{b\bar{l}}$	stop, cease	G		N			Š		
$\sqrt{m\bar{l}t}$	die	G					Š		
$\sqrt{sr\bar{h}}$ III	flare up, twinkle	G					Š		
$\sqrt{š\bar{l}ʔ}$ I	submerge	G					Š		

A.9 Unergative ROOTS

In total, the present corpus counted 132 unergative ROOTS.

Table A.9: Unergative ROOTS

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{ʔ\bar{s}}$	retch	G							
$\sqrt{ʔb\bar{t}}$ II	run away, flee	G		N					
$\sqrt{ʔh\bar{ʔ}}$	fraternise		Gt	N					
$\sqrt{ʔ\bar{l}}$ III	shout atlulu		Gt				Š		
$\sqrt{ʔl\bar{ʔ}}$ IV	roam around			N					
$\sqrt{ʔl\bar{k}}$	go, walk	G	Gt				Š		
$\sqrt{ʔn\bar{h}}$ II	perform an inḥu song	G			D	Dt			
$\sqrt{ʔn\bar{n}}$ III	sin	G							

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?n}$ IV	pray (a lot?)	G							
$\sqrt{?pr}$ I	cover the head	G	Gt	N	D				
$\sqrt{?rb}$ II	flee, escape			N					
$\sqrt{?rh}$ I	hasten, be urgent, hurry	G			D			Št	
$\sqrt{?r}$ VI	go to assist, bring reinforcements			N					
$\sqrt{?šr}$ II	straighten up, go straight	G		N			Š	Št	
$\sqrt{?tl}$	lie down	G	Gt		D		Š		
$\sqrt{?z?}$ I	hiss, sigh, moan	G							
$\sqrt{?z?}$ II	defecate	G							
$\sqrt{?z?}$ III	hurry, be hasty	G							
$\sqrt{?z}$ II	stand, be present	G	Gt	N			Š		
$\sqrt{b?t}$	spend the night	G			D		Š		
$\sqrt{b?r}$ II	revolt, rise against	G	Gt	N					
$\sqrt{bk?}$	weep	G					Š		
$\sqrt{blš}$	stare	G			D				
$\sqrt{d?l}$	move, roam/run around, walk	G			D		Š		
\sqrt{db}	speak, talk, tell (lies/truth)	G			D		Š		
\sqrt{dk}	gambol, scamper	G							
\sqrt{dkm}	bow down	G			D				
\sqrt{dm}	wail, moan; mourn	G	Gt				Š		
\sqrt{dms}	prostate oneself	G	Gt						
\sqrt{dpr} II	move away				D				
$\sqrt{g?}$	spit, spew	G							
$\sqrt{g?š}$ I	go, come	G							
$\sqrt{g?š}$ IV	spend the night, stay overnight	G							
\sqrt{ghb}	cough				D				
\sqrt{grm}	follow course	G							
$\sqrt{grš?}$	run about in confusion			N			Š		
$\sqrt{gz?}$	take refuge					Dt			
$\sqrt{h?š}$ III	rush, hasten (to)	G							
\sqrt{hb} I	murmur, chirp, twitter	G			D		Š		
\sqrt{hd} I	rustle, roar	G							
\sqrt{hl} III	creep, slink	G		Nt	D				
\sqrt{hlp} II	slip in/through	G	Gt						
\sqrt{hmt} I	hasten, be quick	G	Gt		D		Š	Št	
\sqrt{hnp}	commit villany	G							

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{hn\bar{s}}$	lift lips, bare teeth?	G			D				
\sqrt{hr} II	croak, rumble	G		N					
$\sqrt{hw}?$	howl, whine	G							
$\sqrt{hz}?$ I	sigh, gasp	G							
$\sqrt{hz}?$ II	hiss, raise objections	G			D				
$\sqrt{k}?$	spew, vomit	G							
$\sqrt{klm}?$	frown			N					
\sqrt{km}	nod the head	G					Š		
\sqrt{kms} II	kneel, squat	G	Gt	N	D	Dt	Š		
$\sqrt{kp\check{s}}$	perform an act	G							
$\sqrt{kt}?$ I	band together	G							
$\sqrt{lb}?$	howl, whine, squeal, cry out	G							
\sqrt{lb}	rage	G		N			Š		
$\sqrt{lh\bar{b}}$	rumble, growl	G					Š		
$\sqrt{lh\check{s}}$	murmur, whisper		Gt		D	Dt			
$\sqrt{lk\bar{d}}$	run	G							
\sqrt{lsm}	run	G							
$\sqrt{m}?$ \bar{h}	set out, depart; hurry?	G							
$\sqrt{m}?$ \bar{z}	refuse					Dt			
$\sqrt{m\check{s}r}$	circle, make a detour, linger	G		N	D				
$\sqrt{n}?$ I	shout	G			D				
$\sqrt{n}?$ \bar{m}	advance boldly	G							
$\sqrt{n}?$ \bar{q} I	cry (out), wail	G							
$\sqrt{n}?$ \bar{q} II	run, go	G							
$\sqrt{n}?$ \bar{r} I	roar, snarl	G			D	Dt			
$\sqrt{nb}?$ IV	wail, lament	G			D				
\sqrt{nb}	play the flute	G							
$\sqrt{nb\bar{h}}$	bark	G			D				
\sqrt{nbz}	bleat	G							
\sqrt{ng}	bray, bellow, bawl	G							
$\sqrt{ng\check{s}}$	leave, go away	G		Nt	D				
$\sqrt{ng}?$	sing joyfully, carol	G		N					
$\sqrt{n\check{s}}$	shake, wriggle; sniff?	G							
\sqrt{nzm}	moan, complain	G			D	Dt	Š		
$\sqrt{n\bar{z}}$	squeal, grunt,	G			D				
\sqrt{phr}	gather, assemble	G			D	Dt	Š		ŠDt

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
\sqrt{phz}	act arrogantly	G					Š		
\sqrt{pl}	precede	G							
$\sqrt{pn}^?$	face, be ahead	G			D				
$\sqrt{pr}^? II$	speak basely, rudely	G			D				
$\sqrt{prq\bar{d}}$	lie flat			N					
$\sqrt{pr\check{s}}$	fly; speed, rush			N(t)			Š		
$\sqrt{pr\check{s}\bar{d}}$	flee, escape			N					
\sqrt{psh}	march on, advance			N	D				
$\sqrt{p\check{s}l}$	crawl	G	Gt				Š		
$\sqrt{ptn} I$	dine	G					Š		
$\sqrt{qd}^?$	screech like an owl	G							
$\sqrt{rh\check{s}} III$	gather, hold a gathering	G							
\sqrt{rmk}	bathe, wash os	G			D	Dt	Š		
\sqrt{rm}	roar, growl	G							
\sqrt{rpd}	roam, wander	G			D		Š		
$\sqrt{rq\bar{d}}$	dance, skip	G					Š		
$\sqrt{r\check{s}n}$	roar					Dt			
$\sqrt{sb}^? II$	brew beer	G							
$\sqrt{slq} II$	climb, go up	G							
$\sqrt{sp\bar{d}}$	mourn	G					Š		
$\sqrt{s}^?h$	laugh, smile; be alluring	G	Gt		D				
$\sqrt{sb}^? I$	go to war	G							
$\sqrt{sbr} I$	prattle, twitter, flit, squint	G	Gt	N	D		Š	Št	
\sqrt{spn}	hide, shelter	G							
$\sqrt{srh} II$	sing, sing a lamentation	G					Š		
$\sqrt{\check{s}}^? I$	fly about, flutter; forget	G			D				
$\sqrt{\check{s}}^?l II$	rejoice					Dt			
$\sqrt{\check{s}}^?n II$	urinate	G	Gt						
$\sqrt{\check{s}dh}$	walk, stride, move in procession	G	Gt		D		Š		
$\sqrt{\check{s}gm}$	roar, shout	G					Š		
$\sqrt{\check{s}gr}$	lie, cheat				D				
$\sqrt{\check{s}h}^? II$	have illicit sexual intercourse				D	Dt			
$\sqrt{\check{s}k\check{s}}$	scowl, glower?	G							
$\sqrt{\check{s}l} III$	commit an act of impudence	G	Gt						
$\sqrt{\check{s}ls}^?$	glide, slither			N					
$\sqrt{\check{s}mh} II$	break an agreement	G							

ROOT	Meaning	Attested patterns								
		G	Gt	N	D	Dt	Š	Št	ŠD	
$\sqrt{\check{s}n\check{t}}$ IV	run, trot	G								
$\sqrt{\check{s}n\check{s}}$	sneer, scoff at	G								
$\sqrt{\check{s}p}$	walk	G								
$\sqrt{\check{s}pr}$ II	outfit oneself		Gt							
$\sqrt{\check{s}r\check{t}}$ IV	fast, stop eating				D	Dt				
$\sqrt{\check{s}rb}$	wander about	G								
$\sqrt{\check{s}rb\check{t}}$	flit, chase about			N						
$\sqrt{\check{s}r}$	go ahead, off; deteriorate	G			D					
$\sqrt{\check{s}s\check{t}}$	shout, call, read (out)	G	Gt	N			Š	Št		
$\sqrt{\check{s}tn}$	urinate	G								
$\sqrt{\check{t}\check{t}}$ I	eat, graze	G	Gt							
$\sqrt{\check{t}m\check{t}}$ I	take an oath, swear	G			D		Š			
$\sqrt{\check{t}s\check{t}}$	defecate	G								
$\sqrt{\check{w}s\check{t}}$ I	go out, come out	G	Gt				Š	Št		
$\sqrt{\check{w}s\check{b}}$	sit (down), dwell	G	Gt				Š			
$\sqrt{\check{z}mr}$ II	sing (of)	G		N	D		Š			

A.10 Roots of existence

In total, the present corpus counted 6 ROOTS of existence.

Table A.10: ROOTS of existence

ROOT	Meaning	Attested patterns								
		G	Gt	N	D	Dt	Š	Št	ŠD	
$\sqrt{\check{b}r\check{t}}$ IV	endure, be continuous		Gt					Št		
$\sqrt{\check{b}s\check{t}}$	be, exist	G		N			Š			
$\sqrt{\check{l}\check{t}}$ I	be able, overpower	G	Gt				Š			
$\sqrt{\check{m}k\check{t}}$ I	lack, go missing	G					Š			
$\sqrt{\check{n}\check{t}\check{s}}$ III	live, revive; recover	G					Š			
$\sqrt{\check{s}bh}$	settle, be deposited	G						Št		

Table A.11: ROOTS of emission B

ROOT	Meaning	Attested patterns								
		G	Gt	N	D	Dt	Š	Št	ŠD	
$\sqrt{\text{?r?}}$ I	vomit	G					Š			
$\sqrt{\text{br}}$	flicker	G					Š			
$\sqrt{\text{nšh}}$	have diarrhoea	G			D					
$\sqrt{\text{pr?}}$ III	vomit	G					Š			
$\sqrt{\text{pš?}}$	exhale; rebuke, fart	G								
$\sqrt{\text{s?l}}$	cough	G			D			Št		
$\sqrt{\text{srt}}$	fart	G			D					
$\sqrt{\text{šhq}}$	sneeze?	G								

A.11 Agent-subject ROOTS

In total, the present corpus counted 650 Agent-subject transitive ROOTS.

Table A.12: Active-transitive ROOTS

ROOT	Meaning	Attested patterns								
		G	Gt	N	D	Dt	Š	Št	ŠD	
$\sqrt{\text{?l}}$ I	bind, tie up	G	Gt	N	D	Dt				
$\sqrt{\text{?bt}}$ I	destroy	G		N	D	Dt				
$\sqrt{\text{?bh}}$	gird, belt up, surround	G		N						
$\sqrt{\text{?bk}}$ I	send, dispatch	G		N	D		Š			
$\sqrt{\text{?bk}}$ II	turn upside down, upset	G		N	D					
$\sqrt{\text{?bl}}$ II	to net, catch with a net	G								
$\sqrt{\text{?br}}$ I	bind, surroung				D	Dt				
$\sqrt{\text{?br}}$ II	cross over, extend beyond	G					Š			
$\sqrt{\text{?br}}$ III	paint (the face)	G								
$\sqrt{\text{?ps}}$ I	fringe				D					
$\sqrt{\text{?bt}}$ II	take as substitute				D					
$\sqrt{\text{?dh/k}}$	cover	G			D					
$\sqrt{\text{?dl}}$	lock, shut, bolt (from)	G	Gt	N	D	Dt				
$\sqrt{\text{?dq}}$	clothe, dress	G		N	D	Dt		Št		
$\sqrt{\text{?dr}}$ III	embrace, wrap oneself round	G		N						
$\sqrt{\text{?gr}}$ I	hire, rent	G		N	D					

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?h\bar{z}}$	take, grasp, marry, learn	G	Gt	N	D	Dt	Š	Št	
$\sqrt{?k\bar{?}}$	starve, deprive					D			
$\sqrt{?k\bar{d}}$	behave aggressively					D			
$\sqrt{?k\bar{}}$	scratch	G				D	Dt		
$\sqrt{?k\bar{l}} \text{ I}$	eat	G	Gt	N			Š	Št	
$\sqrt{?k\bar{m}}$	take away, deprive	G		N	D				
$\sqrt{?k\bar{p}}$	come close, approach	G	Gt			D		Št	
$\sqrt{?l\bar{?}} \text{ III}$	lick up							Št	
$\sqrt{?l\bar{h}}$	strew, sprinkle	G				D			
$\sqrt{?l\bar{t}}$	swallow up, absorb	G				D			
$\sqrt{?m\bar{q}} \text{ II}$	appoint a carer					D			
$\sqrt{?m\bar{r}} \text{ II}$	pile up bricks	G							
$\sqrt{?n\bar{?}}$	change, alter, cross	G	Gt	N				Št	
$\sqrt{?n\bar{b}}$	gather/bear fruit					D			
$\sqrt{?n\bar{}} \text{ I}$	beseech					D	Dt		
$\sqrt{?n\bar{}} \text{ II}$	punish	G							
$\sqrt{?n\bar{q}}$	suck	G				D		Š	
$\sqrt{?n\bar{t}}$	weaken					D	Dt		
$\sqrt{?p\bar{l}} \text{ I}$	satisfy, pay, answer	G	Gt	N	D	Dt	Š		
$\sqrt{?p\bar{}}$	encircle?	G		N					
$\sqrt{?p\bar{q}} \text{ I}$	embrace, grow over/round	G	Gt			D	Dt		
$\sqrt{?p\bar{r}} \text{ II}$	feed, provide for	G						Š	Št
$\sqrt{?p\bar{s}} \text{ II}$	object	G				D			
$\sqrt{?p\bar{s}}$	do, make, build	G		N	D		Š	Št	
$\sqrt{?q\bar{?}} \text{ I}$	anoint, smear on	G				D			
$\sqrt{?q\bar{?}} \text{ II}$	incise, inscribe					D			
$\sqrt{?r\bar{?}} \text{ III}$	cut off	G				D	Dt		
$\sqrt{?r\bar{?}} \text{ IV}$	strip bare					D			
$\sqrt{?r\bar{d}}$	serve	G				D			
$\sqrt{?r\bar{h}} \text{ II}$	devour, destroy, consume	G						Š	
$\sqrt{?r\bar{h}} \text{ III}$	attack, rush against	G						Š	
$\sqrt{?r\bar{m}}$	stretch/place over	G		N	D				
$\sqrt{?r\bar{}} \text{ II}$	curse, insult	G							
$\sqrt{?r\bar{s}} \text{ I}$	sow, cultivate	G		N	D		Š		
$\sqrt{?r\bar{s}} \text{ II}$	ask, request, wish for	G		N					
$\sqrt{?s\bar{h}}$	assign, allocate	G		N	D		Š		

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{\text{ʔsl}}$	blow up, inflate	G		N					
$\sqrt{\text{ʔsp}}$	gather together, collect	G		N	D		Š		
$\sqrt{\text{ʔsq}}$	incise, carve	G			D	Dt			
$\sqrt{\text{ʔsr I}}$	enclose, confine	G		N	D	Dt			
$\sqrt{\text{ʔsr II}}$	demand, exact payment	G		N	D				
$\sqrt{\text{ʔsd}}$	harvest	G		N			Š		
$\sqrt{\text{ʔsl}}$	paralyse	G		N	D	Dt			
$\sqrt{\text{ʔsp}}$	double	G							
$\sqrt{\text{ʔsr I}}$	draw, desgin	G				D			
$\sqrt{\text{ʔsr III}}$	cut through					D			
$\sqrt{\text{ʔsʔ I}}$	slit, cut into	G							
$\sqrt{\text{ʔšr I}}$	muster, review, check	G						Št	
$\sqrt{\text{ʔš II}}$	catch, encompass	G							
$\sqrt{\text{ʔš III}}$	renew					D			
$\sqrt{\text{ʔtq}}$	go past/through, cross over	G		N			Š		
$\sqrt{\text{ʔtr I}}$	take away, save	G		N					
$\sqrt{\text{ʔtr II}}$	pay	G		N	D	Dt			
$\sqrt{\text{ʔzb}}$	leave, leave behind	G	Gt	N			Š	Št	
$\sqrt{\text{ʔzh}}$	gird on, strap on, tie on	G		N					
$\sqrt{\text{ʔzr I}}$	help	G							
$\sqrt{\text{ʔzr II}}$	curse (so. with a curse)	G							
$\sqrt{\text{bʔ I}}$	go/walk along/across, come	G					Š		
$\sqrt{\text{bʔ II}}$	look for, seek					D	Dt		
$\sqrt{\text{bʔl II}}$	pray, beseech	G							
$\sqrt{\text{bʔl III}}$	rule (over), dispose of	G		N	D				
$\sqrt{\text{bʔr I}}$	catch, trap	G				D			
$\sqrt{\text{bʔr IV}}$	choose, select	G		N					
$\sqrt{\text{bʔš III}}$	stir	G				D			
$\sqrt{\text{bd}}$	waste, dissipate					D			
$\sqrt{\text{bdh}}$	kiss	G							
$\sqrt{\text{bhr}}$	select, choose	G							
$\sqrt{\text{bl}}$	mix up; alloy	G	Gt	N	D	Dt			
$\sqrt{\text{bnʔ II}}$	create, build	G		N			Š		
$\sqrt{\text{bqm}}$	pluck	G		N	D		Š		
$\sqrt{\text{bqr}}$	claim	G	Gt	N	D	Dt	Š		
$\sqrt{\text{brʔ I}}$	inspect, look at	G	Gt				Š		

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
\sqrt{brm} II	seal up, emboss	G					Š		
\sqrt{bsr}	praise, bring pleasant news				D				
$\sqrt{b\bar{s}r}$	tear apart				D				
$\sqrt{b\check{s}m}$ I	create, form	G		N	D				
$\sqrt{b\check{s}m}$ II	carry away, kidnap	G							
$\sqrt{b\check{s}m}$ III	allocate, establish (a price)	G							
\sqrt{btq}	cut off, divide	G		N	D	Dt			
\sqrt{btr}	mutilate				D				
$\sqrt{bz?}$	make demands				D				
$\sqrt{d?p}$	push (away), press, knock (against)	G		N	D	Dt			
$\sqrt{d?k}$	kill	G	Gt	N			Š		
$\sqrt{d?n}$	judge, administer justice, litigate	G		N	D				
$\sqrt{d?s}$	treat unjustly, disrespect, pressurize	G							
$\sqrt{d?š}$	tread down, thresh	G			D				
$\sqrt{dh?}$	beat, press down	G		N					
\sqrt{dhs}	oppress				D	Dt			
$\sqrt{dk?}$	(re)move, arouse, call up	G		N	D		Š		
$\sqrt{dkš}$	press in	G			D				
$\sqrt{dl?}$	draw (water), irrigate	G							
\sqrt{dlh}	disturb, stir up	G		N	D		Š		
\sqrt{dl} II	sing praise (of)	G							
$\sqrt{dm?}$	bring to tears				D				
\sqrt{dpn}	knock down	G							
\sqrt{dq}	crush minutely				D				
$\sqrt{dqš}$	approach	G							
$\sqrt{dr?}$ I	intercalate	G				Dt			
$\sqrt{dr?}$ II	neglect, reject				D				
\sqrt{drk} I	pack up	G							
\sqrt{drk} II	tresh				D				
\sqrt{dr} II	intercalate	G							
\sqrt{drs}	trample, push back	G	Gt	N	D				
$\sqrt{drš}$	try?	G							
$\sqrt{g?s}$	bestow, make a present	G							
$\sqrt{g?š}$ III	turn over, grub up	G							
\sqrt{gdm}	cut off	G							
\sqrt{glb}	shear, shape				D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
\sqrt{gl} I	roll	G			D				
\sqrt{gl} II	commin a sin				D				
$\sqrt{glš}$	flatten?	G							
\sqrt{gm}	cut off	G							
\sqrt{gml}	do a favor, spare	G	Gt					Št	
\sqrt{gn}	confine	G			D				
$\sqrt{gnš}$	wrinkle one's nose	G			D				
\sqrt{grd}	pluck, tear out	G	Gt		D				
$\sqrt{gš}$	cut off	G		N					
\sqrt{gz}	shear	G							
$\sqrt{hʔ}$	spew, spit out	G							
$\sqrt{hʔd}$	say, pronounce	G	Gt						
$\sqrt{hʔp}$ II	cleans, purify	G			D	Dt			
$\sqrt{hʔq}$	mix (up)	G		N				Št	
$\sqrt{hʔr}$ I	choose, seek in marriage	G							
$\sqrt{hʔr}$ II	prepare, provide	G							
$\sqrt{hʔš}$ II	give	G							
\sqrt{hb} II	carress?	G			D				
$\sqrt{hbʔ}$ II	draw (water)	G			D				
$\sqrt{hbʔ}$ III	give refuge	G							
\sqrt{hbl} I	oppress, wrong	G		N	D	Dt			
\sqrt{hbl} III	bind, harness	G							
$\sqrt{hbš}$ II	smite down, pulverise	G							
$\sqrt{hbš}$ II	crush, comminute	G		N					
\sqrt{hbt} I	rob, plunder	G		N		Dt			
\sqrt{hbt} III	make an incursion; razzia a land	G		N				Š	
\sqrt{hd} II	incise	G			D				
$\sqrt{hdʔ}$ II	cut off				D				
\sqrt{hdl} I	tie up, knot	G	Gt						
\sqrt{hkr}	comminute	G							
\sqrt{hl} I	confine, shut away	G			D			Št	
\sqrt{hlb}	milk	G							
\sqrt{hlp} I	cover	G		N	D			Š	
$\sqrt{hlš}$	squeeze, comb out (a man, not hair)	G							
$\sqrt{hlš}$	scrape off, grub up	G			D				
\sqrt{hm}	gather, collect	G			D	Dt			

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{hm?}$ I	paralyse	G		N	D		Š		
\sqrt{hmd}	hide, evade (information)	G							
\sqrt{hml}	plan, plot	G						Št	
\sqrt{hmr} II	contract? Pucker?	G			D				
\sqrt{hms}	tear off/away	G			D		Š		
$\sqrt{hn?}$ I	plead / plague	G							
$\sqrt{hn?}$ II	lodge, give shelter				D				
\sqrt{hnq}	strangle, constrict	G		N	D	Dt	Š		
\sqrt{hp}	wash	G			D				
$\sqrt{hp?}$ I	wrap up, beat down				D				
\sqrt{hpd}	blind, delete (words)				D				
\sqrt{hpr} I	surround, encircle	G			D				
\sqrt{hpr} II	scrape, dig, collect	G							
\sqrt{hqr}	investigate	G							
\sqrt{hr} I	dig, hollow out	G			D				
\sqrt{hr} III	lay waste						Š	Št	
$\sqrt{hr?}$ I	interfere, lay hand on	G						Št	
$\sqrt{hr?}$ II	dig, excavate	G		N	D		Š		
\sqrt{hrd} I	merge, fit together	G			D				
\sqrt{hrm} I	cover, envelop	G			D				
\sqrt{hrm} II	separate, cut off	G			D				
\sqrt{hrp} II	cut away	G							
\sqrt{hrs}	cut off, deduct	G		N	D			Št	
\sqrt{hrs} II	bind (on)	G			D				
\sqrt{hrt}	feed on	G							
$\sqrt{hs?}$	cover up, shroud	G		N	D	Dt		Št	
\sqrt{hsp}	tear away/off	G			D				
\sqrt{hs} I	snap off	G			D	Dt			
\sqrt{hs} II	erect	G							
\sqrt{hsb} I	break off	G		N	D				
\sqrt{hsn}	hug, take under one's protection	G			D				
\sqrt{hs} II	gather, compile	G	Gt		D				
$\sqrt{hs?}$ I	crush, chop	G			D				
$\sqrt{hs?}$ III	pass over in silence	G							
\sqrt{hsb}	count				D				
\sqrt{hsl}	crush	G			D	Dt	Š		

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{ht?}$ I	strike down	G			D				
$\sqrt{ht?}$ II	attach	G							
\sqrt{htk}	decide	G							
\sqrt{htn}	protect, shelter	G							
\sqrt{htp}	slaughter	G			D	Dt			
$\sqrt{ht r}$	flutter, bob (tail)	G							
\sqrt{ht} I	dig out, excavate	G					Š		
\sqrt{ht} II	ferment/distill	G							
$\sqrt{ht?}$	fail, do wrong, miss; sin	G			D	Dt	Š		
\sqrt{htm}	muzzle; block	G			D				
\sqrt{hzm}	mutilate/shrivel	G			D				
$\sqrt{k?l}$	hold				D	Dt			
$\sqrt{k?p}$	oppress, wrong	G							
$\sqrt{k?r}$ I	rub (on)	G			D				
$\sqrt{k?s}$	wipe / carry away	G							
$\sqrt{k?š}$ I	flay, skin, strip off	G		N	D				
$\sqrt{k?š}$ II	rub, grind?	G							
$\sqrt{kb?}$	sew, patch				D				
\sqrt{kbl}	paralyse?	G			D	Dt			
\sqrt{kbs}	tread, put pressure on	G		N	D	Dt	Š		
\sqrt{kd}	rub	G			D				
\sqrt{kdr} II	delimit, draw a boundary	G			D				
\sqrt{kl} I	veil, crown				D	Dt			
\sqrt{kl} II	complete						Š	Št	
\sqrt{klm}	reveal, show				D	Dt	Š		
$\sqrt{klš}$	contract	G							
$\sqrt{km?}$	capture	G		N	D				
\sqrt{kmd}	prepare / beat cloth	G			D				
\sqrt{kmr}	pile up, accumulate	G	Gt	N	D	Dt			
\sqrt{kms} I	gather, collect	G		N	D	Dt	Š		
\sqrt{knk}	seal	G		N	D		Š		
\sqrt{knz}	store away	G							
\sqrt{kp}	bend, curve, wrap around	G	Gt	N	D		Š		
$\sqrt{kp?}$	bend (back)	G			D			Št	
\sqrt{kpd}	plan, scheme	G	Gt		D		Š		
\sqrt{kpr} I	wipe off, smear	G		N	D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
\sqrt{kpr} II	strip, clip, trim down	G							
\sqrt{kpt}	compress, gather, collect				D	Dt			
\sqrt{kr}	set, lay, put in place	G		N					
\sqrt{krb}	pronounce, pray, bless, greet	G		N	D				
\sqrt{krk} I	roll up, collect; block; soak	G		N				Št	
\sqrt{krk} II	perform promptly	G		N			Š		
\sqrt{krm} II	pile up, store	G		N					
\sqrt{krs}	tie up	G							
\sqrt{krs}	break off, punch off	G			D				
\sqrt{krt}	slice, cut off	G			D				
\sqrt{ks}	chew, gnaw; hurt	G		N	D				
$\sqrt{ks?}$	bind, put in fetters	G		N	D	Dt			
\sqrt{ksm}	cut up/chop	G							
\sqrt{ksp} I	break (into bits)	G				Dt			
\sqrt{ksp} II	make funerary offering	G		N					
\sqrt{ksr}	block, pave	G		N					
$\sqrt{kš}$	grind, grate, trim	G		N	D	Dt		Št	
$\sqrt{kšb}$	cut off	G		N					
$\sqrt{kšr}$	tie, knot; gather	G	Gt	N	D	Dt	Š	Št	
$\sqrt{kš?}$ I	cover over	G		N					
$\sqrt{kšp}$	cast spells on, bewitch	G			D				
$\sqrt{kšr}$ I	restore, have success	G			D				
$\sqrt{kšt}$	cut off, chop down	G							
$\sqrt{kt?}$	distrain, take as pledge	G			D				
\sqrt{ktm}	cover up	G		N	D	Dt	Š		
$\sqrt{kw?}$	bake, roast	G			D				
\sqrt{kzb}	flatter, fawn				D				
\sqrt{kzr}	curl the hair	G							
$\sqrt{l?}$ II	sully				D	Dt			
$\sqrt{l?}$ III	enrich, endow				D				
$\sqrt{l?b}$	harass, afflict	G		N	D				
$\sqrt{l?k}$	lick	G			D				
$\sqrt{l?m}$ I	consume, eat and drink	G							
$\sqrt{l?m}$ II	admonish	G			D				
$\sqrt{l?m}$ III	dissolve				D				
$\sqrt{l?š}$ I	oppress?	G			D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{l\bar{l}\bar{s}}$ II	knead	G							
$\sqrt{l\bar{l}t}$ I	swallow up	G			D				
$\sqrt{l\bar{l}t}$ II	confine, keep in check, enclose	G			D				
\sqrt{lbn} I	speak, make bricks	G					Š		
\sqrt{lbn} II	beg, pray; be humble	G			D		Š		
\sqrt{lhm}	make beer, brew	G			D				
\sqrt{lm} I	chew	G			D				
\sqrt{lm} II	test	G							
\sqrt{lp}	wrap around	G							
\sqrt{lpt}	touch, take hold of; write	G	Gt	N	D	Dt	Š	Št	
$\sqrt{lq?}$	take hold of, receive, take away	G		N	D		Š		
\sqrt{lqt}	gather up, glean	G		N	D				
$\sqrt{lt?}$	split	G		N	D				
\sqrt{ltk}	try out, test	G			D				
\sqrt{lzn}	ridicule, jeer at	G			D				
$\sqrt{m?}$ I	push away; vomit gall	G			D				
$\sqrt{m?n}$	supply with food	G							
$\sqrt{m?q}$	weary, tire (tr.)				D				
$\sqrt{m?r}$	buy	G							
$\sqrt{m?s}$	crush	G		N					
$\sqrt{m?s}$	churn	G							
$\sqrt{m?s}$ II	check	G							
\sqrt{md} I	measure (out)	G	Gt	N	D		Š		
\sqrt{md} II	escape, avoid	G							
\sqrt{mdl}	preserve in salt	G							
\sqrt{mgs}	neglect				D				
\sqrt{mhs}	beat, weave; hit, kill	G	Gt	N	D		Š	Št	
$\sqrt{mk?}$ II	neglect, be negligent	G						Št	
\sqrt{mkk}	extend, spread (out)	G			D				
\sqrt{mkr} I	irrigate, water	G		N	D	Dt	Š		
\sqrt{mkr} II	sell, do business?	G			D			Št	
\sqrt{mks}	collect	G		N					
\sqrt{ml} I	eat (one's fill)	G					Š		
\sqrt{ml} II	play (with)	G							
$\sqrt{ml?}$ I	take out	G							
\sqrt{mlh}	remove	G		N	D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
\sqrt{mlk} II	rule over	G							
$\sqrt{mlš}$	pluck out, tear out	G							
$\sqrt{mn}?$ I	count, calculate, recite	G		N	D	Dt	Š	Št	
$\sqrt{mr}?$ I	fatten	G					Š	Št	
\sqrt{mrh}	allow to become spoiled	G		N					
\sqrt{mrq}	rub smooth, grind (down)	G		N	D	Dt			
\sqrt{mr} II	plow, break up (field)	G		N		Dt			
$\sqrt{mr}?$	scratch, scrape off, overuse	G		N	D				
$\sqrt{ms}?$	wash, clea(se), purify	G		N	D	Dt			ŠD
\sqrt{msh}	treat with contempt				D				
\sqrt{msr}	withhold	G		N					
$\sqrt{mš}$	wipe off; clean	G		N	D	Dt			
$\sqrt{mš}?$ II	take away by force, rob	G	Gt	N	D		Š		
$\sqrt{mš}?$ III	rub				D				
$\sqrt{mšd}$	beat, strike (of stroke); comb	G		N	D				
$\sqrt{mšh}$ I	measure	G		N					
$\sqrt{mšr}$	drag (across)	G					Š		
\sqrt{mth}	pick up, lift	G		N	D				
$\sqrt{mz}?$	press, squeeze	G		N	D				
\sqrt{mzq}	suck	G			D	Dt	Š		
$\sqrt{n}?$ d II	praise, celebrate	G		N	D	Dt		Št	
$\sqrt{n}?$ k	have (illicit) sexual intercourse	G		N			Š		
$\sqrt{n}?$ l II	moisten	G							
$\sqrt{n}?$ p III	make additional payment	G							
$\sqrt{n}?$ r II	hit, kill	G			D				
$\sqrt{n}?$ s	chew up, gnaw	G			D				
$\sqrt{n}?$ t	enclose, surround	G							
$\sqrt{nb}?$ II	plunder	G							
$\sqrt{nb}?$ III	name, nominate, decree	G		N			Š		
\sqrt{nbk}	bring along	G							
$\sqrt{nd}?$	throw, lay down	G		N			Š	Št	
\sqrt{ndn}	give	G		N			Š	Št	
\sqrt{ngr}	announce	G		N	D				
\sqrt{nhl} I	sieve, sift	G			D				
\sqrt{nhl} II	hand over	G							
\sqrt{nht}	trim, diminish				D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{nk\bar{m}}$	heap, pile (up)	G		N	D				
$\sqrt{nk\bar{p}}$	push, thrust	G	Gt		D				
$\sqrt{nk\bar{s}}$	cut, fell	G		N	D	Dt			
$\sqrt{nk\check{s}}$	set aside	G			D				
$\sqrt{np\bar{l}}$	take as pledge, distraint	G							
$\sqrt{np\bar{l}}$ I	dig out, up	G		N	D				
$\sqrt{np\bar{l}}$ II	pay, balance, compensate	G		N	D		Š		
$\sqrt{np\check{s}}$	push down, away	G	Gt		D	Dt			
$\sqrt{np\check{s}}$ II	pluck, pick (wool)	G		N	D				
$\sqrt{nq\bar{l}}$	pour out (as libation)	G		N	D				
$\sqrt{nq\bar{b}}$	rape, deflower	G			D				
$\sqrt{nq\bar{r}}$	demolish, scratch, tear down	G		N	D		Š		
\sqrt{nsh}	tear out, pull out	G		N	D	Dt	Š	Št	
\sqrt{nsk}	throw (down)	G		N			Š	Št	
\sqrt{nsq}	choose, select	G			D		Š	Št	ŠD
$\sqrt{n\check{s}\bar{l}}$	tear down, slit open	G							
$\sqrt{n\check{s}\bar{b}}$	suck	G		N	D				
$\sqrt{n\check{s}\bar{r}}$	guard, protect	G	Gt	N	D		Š	Št	
$\sqrt{n\check{s}k}$	bite	G			D				
$\sqrt{n\check{s}\bar{p}}$	blow away, winnow	G		N	D				
$\sqrt{n\check{s}q}$	kiss	G	Gt	N	D		Š		
$\sqrt{n\check{s}\bar{r}}$ II	pour out	G							
\sqrt{nr}	demolish						Š		
$\sqrt{n\check{t}\bar{l}}$	hit, beat	G		N	D		Š		
$\sqrt{n\check{t}\bar{l}}$	look	G	Gt	N	D		Š	Št	
$\sqrt{n\check{t}\bar{p}}$	tear out	G		N					
$\sqrt{n\check{z}\bar{l}}$	pour out, drain away	G							
$\sqrt{n\check{z}\bar{r}}$	blaspheme, curse	G		N			Š		
$\sqrt{p\check{r}\bar{d}}$	fasten, affix, confine, imprison	G		N	D		Š		
$\sqrt{p\check{r}\bar{g}}$	take away, appropriate	G							
$\sqrt{p\check{r}\bar{h}}$	exchange				D	Dt	Š		
$\sqrt{p\check{r}\bar{l}}$	exchange						Š	Št	
$\sqrt{p\check{r}\bar{n}}$	grind	G							
$\sqrt{p\check{r}\bar{r}}$	seek	G							
$\sqrt{p\check{r}\bar{s}}$	break up, crush; smite	G			D				
$\sqrt{p\check{r}\check{s}}$ I	break up, crush	G			D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{pd}?$	spare, release	G			D				
$\sqrt{ph}?$	bar, block, caulk, seal	G		N	D				
\sqrt{ph}	weaken	G							
\sqrt{pkr}	tie up, tether	G			D				
\sqrt{plk}	divide off, demarcate	G		N	D				ŠD
\sqrt{plq}	slaughter, strike down	G			D				
\sqrt{pnk}	mount, cap	G			D				
\sqrt{pqd}	entrust, care for; appoint	G	Gt	N	D	Dt	Š		
$\sqrt{pr}?$ I	cut off, slice through	G		N	D				
\sqrt{prq}	divide off	G							
\sqrt{pr}	uncertain meaning	G		N	D	Dt			
\sqrt{pr}	spread out						Š		
\sqrt{prs}	cut (off), divide	G	Gt	N	D		Š	Št	
$\sqrt{prš}$ I	breach	G		N	D		Š		
$\sqrt{prš}$ II	carry out ritual	G		N	D	Dt			
$\sqrt{prš}$	flatter	G			D				
\sqrt{prt}	break	G		N	D				
$\sqrt{ps}?$	press?	G			D				
\sqrt{psk}	clear away/out				D				
\sqrt{psl}	turn (away), twist	G			D				
\sqrt{psm}	veil	G			D	Dt			
\sqrt{ps}	erase, cancel, break	G		N	D	Dt			
\sqrt{psd}	break up, break apart	G			D	Dt			
$\sqrt{pšr}$	release, free	G	Gt	N	D	Dt	Š		
$\sqrt{pš}$	anoint, smear	G	Gt	N	D				
$\sqrt{pšt}$	erase	G			D		Š		ŠD
\sqrt{pth}	puncture, bore through	G			D	Dt			
\sqrt{ptl}	twine, twist	G		N	D				
\sqrt{ptq} I	shape, create, form	G		N	D		Š		
\sqrt{ptq} II	drink	G							
$\sqrt{q}?$	(a)wait				D				
$\sqrt{q}?$ d	ignite, set fire to	G		N					
$\sqrt{q}?$ l I	pay attention, be silent	G					Š		
$\sqrt{q}?$ š	give, present	G			D	Dt			
$\sqrt{qb}?$	say, speak, command, recite	G		N			Š		
\sqrt{qbr}	bury	G		N	D	Dt			

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{qd\check{s}}$	purify, dedicate				D	Dt			
$\sqrt{qm\check{?}} \text{ I}$	burn (up)	G			D	Dt	Š		
$\sqrt{qm\check{?}} \text{ II}$	grind	G							
$\sqrt{qn\check{?}} \text{ I}$	acquire, take; keep	G		N	D				
\sqrt{qnn}	make a nest	G							
$\sqrt{qr\check{?}}$	call, invite	G							
\sqrt{qrm}	cover, overlay	G			D				
\sqrt{qrn}	stack up, pile up	G			D	Dt		Št	
\sqrt{qr}	pour	G		N	D				
$\sqrt{qr\check{s}}$	chop up	G			D				
$\sqrt{qt\check{l}}$	kill	G					Š		
$\sqrt{qt\check{p}}$	pluck	G		N	D	Dt			
$\sqrt{r\check{?}} \text{ I}$	befriend	G	Gt						
$\sqrt{r\check{?}b} \text{ II}$	replace, requite	G			D	Dt			
$\sqrt{r\check{?}k}$	smear/pour out/knead	G			D				
$\sqrt{r\check{?}m} \text{ II}$	present, endow	G							
$\sqrt{r\check{?}m} \text{ IV}$	scatter				D				
$\sqrt{r\check{?}s}$	strike, smite	G			D				
$\sqrt{r\check{?}\check{s}}$	come, rush (to help)	G			D				
$\sqrt{rb\check{?}} \text{ III}$	quadruple				D				
\sqrt{rbk}	boil down, decoct	G							
$\sqrt{rb\check{s}}$	raise objections, protest	G							
\sqrt{rd}	chase, pursue	G							
\sqrt{rdm}	let flow						Š		
\sqrt{rdp}	pursue	G							
$\sqrt{rg\check{?}}$	wrong, make illegitimate claims				D				
\sqrt{rgb}	roof				D				
\sqrt{rgm}	call, summon, lodge claim	G	Gt				Š		
\sqrt{rh}	mix?	G							
$\sqrt{rh\check{s}} \text{ I}$	flood, wash, bathe	G	Gt	N			Š		
$\sqrt{rh\check{s}} \text{ IV}$	trample, kick, destroy	G	Gt	N	D				
\sqrt{rkb}	ride, mount, ride on	G	Gt				Š		
\sqrt{rks}	bind, tie (on)	G	Gt	N	D	Dt	Š		
$\sqrt{rm\check{s}}$	enclose, mount	G							
$\sqrt{rpq} \text{ I}$	hoe, fix	G			D				
$\sqrt{rpq} \text{ II}$	fasten, put in fetters	G							

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
\sqrt{rps}	beat, thresh	G			D				
$\sqrt{rq\bar{?}}$ II	process oil				D				
$\sqrt{rs\bar{?}}$	sully				D	Dt			
\sqrt{rsb}	smash, strike down	G			D				
\sqrt{rsn}	soak, steep	G							
$\sqrt{r\bar{s}p}$	erect, pile up	G							
$\sqrt{r\bar{s}\bar{?}}$ III	slacken, weaken, acquiesce	G							
$\sqrt{r\bar{s}\bar{d}}$	lay foundation						Š		
$\sqrt{rt\bar{?}}$	drive in, fix	G		N	D				
$\sqrt{s\bar{?}}$ II	press down	G							
$\sqrt{s\bar{?}b}$	draw (water, beer)	G							
$\sqrt{s\bar{?}d}$ I	smite, slay	G							
$\sqrt{s\bar{?}d}$ II	support, assist	G							
$\sqrt{s\bar{?}k}$	pound, pulverise	G			D				
$\sqrt{s\bar{?}r}$ II	plaster, smear	G			D				
\sqrt{sbk}	interweave	G			D				
\sqrt{sbs}	call together, assemble				D				
\sqrt{sd} I	is provided with	G			D				
\sqrt{sd} II	raid	G							
\sqrt{sdr}	do regularly, place in order	G			D				
$\sqrt{sg\bar{?}}$ I	cause distress, trouble	G							
\sqrt{shl}	prick, pierce	G		N	D				
\sqrt{shn}	draw (dagger)				D				
\sqrt{shp}	envelop, overwhelm	G		N	D		Š	Št	
\sqrt{skl} I	appropriate fraudulently	G			D				
\sqrt{skn}	see to, care for	G			D				
\sqrt{skp} I	thrust, push away, overturn, reject	G		N	D	Dt			
\sqrt{skr} I	shut/block off, dam, clog	G		N	D	Dt			
\sqrt{skr} II	heat, fire	G							
$\sqrt{sl\bar{?}}$ II	cheat, lie, deceive	G		N					
$\sqrt{sl\bar{?}}$ III	pray, appeal				D				
$\sqrt{sl\bar{h}}$ I	sprinkle, moisten, wet	G		N	D				
\sqrt{sl}	flutter, flap	G			D				
\sqrt{slq} I	boil	G		N	D				
\sqrt{slt}	slit, slice through, split off	G		N	D	Dt			
\sqrt{smd}	grind finely, into groats	G		N					

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
\sqrt{smk}	dam a canal, reject? Remove?	G		N	D				
\sqrt{snb}	tie	G							
\sqrt{sn}	pour				D				
\sqrt{snp}	tie on	G			D				
\sqrt{snq} I	reach, settle on, proceed against	G	Gt	N	D	Dt	Š		
$\sqrt{snš}$	insert, infix	G			D				
$\sqrt{sp?}$ I	pluck, pull?	G							
$\sqrt{sp?}$ II	pray, supplicate				D				
\sqrt{sph}	scatter, disperse	G		N	D	Dt			
\sqrt{spn}	flatten, level, devastate, destroy	G		N			Š		
\sqrt{spr}	write alphabetic script	G							
\sqrt{sql}	take away, carry off	G							
$\sqrt{sr?}$	check, confirm				D				
\sqrt{srd}	load, pack, harness	G			D				
\sqrt{srh}	destroy, ruin?	G		N	D	Dt			
\sqrt{srn}	cut, cut into, make incision	G							
\sqrt{srp}	sip?	G							
\sqrt{srq}	strew, sprinkle, pour	G		N	D				
\sqrt{sr} I	cheat	G			D				
\sqrt{sr} II	pray, worship				D				
\sqrt{stl}	plant	G							
$\sqrt{s?l}$	fight, quarrel, object	G	Gt					Št	
$\sqrt{s?n}$ II	load a boat/cargo, heap	G							
$\sqrt{s?p}$	rub	G							
$\sqrt{sb?}$ III	soak, irrigate, flood	G			D				
$\sqrt{sb?}$ V	look upon				D	Dt		Št	
$\sqrt{s\bar{b}}$	spread (wings), teach to fly	G			D		Š		
$\sqrt{s\bar{b}r}$ II	bend, slant	G		N					
$\sqrt{s\bar{b}t}$	seize, arrest; overcome	G	Gt	N	D		Š	Št	
$\sqrt{s\bar{h}t}$ I	extract, process (fluids)	G		N	D				
$\sqrt{s\bar{l}?$ I	cast/set/put down, abort	G					Š	Št	
$\sqrt{s\bar{l}?$ II	fight, object, quarrel; ignite	G	Gt/N						
$\sqrt{s\bar{l}}$ II	roof				D	Dt			
$\sqrt{s\bar{l}p}$	cross out, cancel, pervert	G			D				
$\sqrt{s\bar{m}d}$	yoke, harness, bandage	G			D		Š	Št	
$\sqrt{s\bar{m}t}$	transfer, sell	G			D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{\text{sp}h}$	squeeze out				D				
$\sqrt{\text{sp}r}$ II	strand (hair), dress, trim	G			D				
$\sqrt{\text{sr}?$	exalt				D				
$\sqrt{\text{sr}h}$ I	heat, scorch	G		N	D				
$\sqrt{\text{sr}h}$ V	build high				D				
$\sqrt{\text{sr}k}$	disembowel, gut	G							
$\sqrt{\text{sr}p}$ II	dye red, dye, steep	G			D				
$\sqrt{\text{š}?$	pad, upholster	G							
$\sqrt{\text{š}?$	seek (out)	G	Gt		D				
$\sqrt{\text{š}?$	ask	G	Gt	N	D				
$\sqrt{\text{š}?$	coat, smear	G			D				
$\sqrt{\text{š}?$	sharpen, whet	G			D				
$\sqrt{\text{š}?$	buy, purchase	G		N					
$\sqrt{\text{š}?$	fix, decree, bequeath	G		N					
$\sqrt{\text{š}?$	put on (shoes)	G							
$\sqrt{\text{š}?$	win, conquer	G							
$\sqrt{\text{š}?$	lean into, bow over				D				
$\sqrt{\text{š}?$	neglect, despise, commit crime	G							
$\sqrt{\text{š}b}$ II	proclaim	G							
$\sqrt{\text{š}br}$	break	G		N	D	Dt			
$\sqrt{\text{š}bš}$	gather, collect	G		N	D				
$\sqrt{\text{š}bt}$	accommodate, lodge				D				
$\sqrt{\text{š}b\ddot{t}}$	beat, sweep (away)	G		N					
$\sqrt{\text{š}g\ddot{l}}$	misappropriate; seize	G							
$\sqrt{\text{š}gš}$	kill, slaughter	G		N	D				
$\sqrt{\text{š}h?}$ I	remove				D				
$\sqrt{\text{š}h?}$ III	spoil, ruin				D				
$\sqrt{\text{š}hd}$	give, present	G							
$\sqrt{\text{š}hl}$	sieve, filter	G							
$\sqrt{\text{š}ht}$ II	wash/wipe (off, away), clear	G		N	D	Dt	Š		
$\sqrt{\text{š}h\ddot{t}}$ II	tear away, off, down	G		N	D	Dt	Š		
$\sqrt{\text{š}k}$	harrow, thread	G	Gt	N	D				
$\sqrt{\text{š}kl}$	wipe down/out				D				
$\sqrt{\text{š}kn}$	put, place, lay down	G	Gt	N			Š		
$\sqrt{\text{š}l?}$ II	whirl/kick up, shoot, throw	G		N	D				
$\sqrt{\text{š}l?}$ III	tear to pieces	G							

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{\check{s}l\check{?}}$ IV	neglect, be negligent	G							
$\sqrt{\check{s}l}$ I	capture, plunder	G		N	D				
$\sqrt{\check{s}lp}$	draw, tear out	G		N	D				
$\sqrt{\check{s}lq}$	cut open	G			D				
$\sqrt{\check{s}l\check{s}}$	do three times, to 'third' ¹	G			D				
$\sqrt{\check{s}lt}$ II	cut (into) / add	G							
$\sqrt{\check{s}md}$	apply ornaments	G			D				
$\sqrt{\check{s}m}$	injure, cause pain	G		N	D				
$\sqrt{\check{s}mr}$ II	extol, praise		Gt						
$\sqrt{\check{s}mt}$	mark, brand	G							
$\sqrt{\check{s}m\check{t}}$ I	tear away, down	G		N	D			Št	
$\sqrt{\check{s}n\check{?}}$ I	block, block off	G			D				
$\sqrt{\check{s}n\check{?}}$ II	do twice, do for a second time	G			D	Dt		Št	
$\sqrt{\check{s}n\check{?}}$ V	flood, sluice	G			D				
$\sqrt{\check{s}p\check{?}}$ III	wrap up, seal up	G							
$\sqrt{\check{s}p\check{?}}$ IV	ask, ask for, question	G			D		Š		
$\sqrt{\check{s}ph}$	sprinkle	G			D				
$\sqrt{\check{s}pk}$	heap up, pour on	G	Gt	N	D		Š		
$\sqrt{\check{s}pr}$ I	send, write to; (give) order	G		N			Š	Št	
$\sqrt{\check{s}ps}$	clasp, enfold; grip, twist	G	Gt		D				
$\sqrt{\check{s}p\check{t}}$	judge, reprimand	G							
$\sqrt{\check{s}q\check{?}}$ II	give to drink, irrigate	G		N			Š		
$\sqrt{\check{s}ql}$ I	weigh, pay, balace, suspend	G	Gt	N	D		Š		
$\sqrt{\check{s}qr}$	pierce				D				
$\sqrt{\check{s}r\check{?}}$ III	begin, start, inaugurate				D				
$\sqrt{\check{s}rh}$ II	mark, brand, pull (single) out	G							
$\sqrt{\check{s}rk}$ I	present, give	G		N			Š		
$\sqrt{\check{s}rm}$	trim, peel off	G			D				
$\sqrt{\check{s}rp}$	burn, burn away	G		N	D				
$\sqrt{\check{s}rq}$ I	steal	G	Gt	N					
$\sqrt{\check{s}rq}$ II	fuse, cast				D				
$\sqrt{\check{s}r\check{t}}$	tear, shread	G		N	D	Dt			
$\sqrt{\check{s}t\check{?}}$ I	drink	G					Š		

¹Note that the ROOT $\sqrt{\check{h}m\check{s}}$ 'five' behaves more like a PC ROOT and does not derive active meanings in the G as the present ROOT (and $\sqrt{\check{s}n\check{?}}$ 'two') does. That being said, these ROOTS conceptually should belong to the same class.

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{wm\bar{l}}$	deceive	G							
$\sqrt{wn\bar{l}}$	pressure, threaten	G							
$\sqrt{wps\bar{s}}$	insult	G							
$\sqrt{wq\bar{l}}$	wait for	G			D	Dt			
$\sqrt{wr\bar{l}}$	lead, conduct; fetch, bring	G	Gt				Š	Št	
$\sqrt{wsq\bar{q}}$	strengthen, raise up	G							
$\sqrt{ws\bar{s}}$	interrogate				D	Dt			
$\sqrt{ws\bar{l}}\text{ II}$	spread out				D				
$\sqrt{wsb\bar{b}}$	add, increase	G		N	D				
$\sqrt{ws\bar{p}}$	enchant, cast a spell	G			D				
$\sqrt{ws\bar{r}}$	sink down, let down	G			D	Dt			
$\sqrt{wzn\bar{n}}$	listen, give ear				D				
$\sqrt{z\bar{l}n}$	adorn, overlay, plate	G		N	D				
$\sqrt{z\bar{l}z}$	divide, distribute	G		N	D	Dt			
$\sqrt{zbl\bar{l}}$	carry, deliver	G		N	D	Dt	Š		
$\sqrt{zkr\bar{r}}$	declare, invoke, name, mention	G	Gt	N	D		Š		
$\sqrt{zmr\bar{r}}\text{ I}$	account for	G							
$\sqrt{zn\bar{n}}\text{ II}$	provision, provide for	G			D		Š	Št	
$\sqrt{zqd\bar{d}}$	exchange		Gt						
$\sqrt{zqp\bar{p}}$	fix upright, plant, impale	G		N	D		Š		
$\sqrt{zqr\bar{r}}$	build high	G		N	D			Št	
$\sqrt{zqt\bar{t}}$	sting, bite; hurt	G			D				
$\sqrt{zr\bar{l}}$	winnow, scatter	G							
$\sqrt{zrp\bar{p}}$	purchase, acquire	G							
$\sqrt{zrq\bar{q}}$	sprinkle, strew	G							

A.12 Labile ROOTS

In total, the present corpus counted 62 labile transitive ROOTS.

Table A.13: Labile ROOTS

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?d\bar{p}}$	blow, blow into, away	G		N	D				

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?gr}$ II	twist, cross, perverse	G	Gt					Št	
$\sqrt{?l}$ II	hang up, suspend	G	Gt	N	D	Dt			
$\sqrt{?lp}$	sprout, grow	G	Gt		D	Dt		Št	
$\sqrt{?md}$	lean on, impose	G	Gt	N		Dt	Š	Št	
$\sqrt{?š?}$ I	(get) confuse(d), make unclear	G		N		Dt	Š		
\sqrt{blkt}	cross over			N			Š	Št	
\sqrt{gmr}	finish, come to an end	G		N	D	Dt	Š		
$\sqrt{h?l}$ I	dissolve; exude	G			D				
$\sqrt{hp?}$ II	break	G		N	D	Dt			
\sqrt{hrd} II	watch over	G							
$\sqrt{k?n}$ II	prostate oneself; (make) submit	G							
\sqrt{kb}	burn	G			D				
$\sqrt{kl?}$	hold back, detain	G		N	D	Dt	Š		ŠD
\sqrt{kn}	roll up, twist	G		N	D			Št	
\sqrt{kpl}	roll up, wind up	G	Gt		D	Dt			
\sqrt{krm} I	hinder, slow down	G							
$\sqrt{lw?}$	besiege, (en)circle	G	Gt	N	D		Š		
\sqrt{mg}	become stiff, stretch out	G			D				
\sqrt{mh}	soak, steep; dissolve	G		N					
\sqrt{mhr}	face, confront; receive	G	Gt	N	D		Š	Št	
$\sqrt{mq̄t}$	fall, collapse; attack, invade	G			D		Š		
$\sqrt{n?}$ II	turn back	G		N	D				
$\sqrt{nms̄}$	depart (from), move	G	Gt		D				
\sqrt{nph}	blow, light up, rise	G		N	D	Dt		Št	
$\sqrt{ns?}$	be distant, withdraw, move back	G		N	D		Š		ŠD
$\sqrt{nš?}$	lift, carry, transport	G	Gt	N			Š		
$\sqrt{nšr}$ I	cut off, deduct, remove	G		N	D	Dt	Š		
$\sqrt{plš}$	perforate, pierce	G		N	D		Š		
$\sqrt{prk?}$	cease			N			Š		
$\sqrt{pt?}$	open	G		N	D	Dt	Š	Št	
$\sqrt{p̄r}$	loosen, release	G		N	D	Dt	Š		ŠD
\sqrt{qd}	bow down	G			D		Š		
$\sqrt{ql?}$	roast, burn	G		N	D				
\sqrt{qlp}	peel, hatch, strip off	G		N	D				
$\sqrt{r?}$ II	pasture, tend to pasture	G	Gt	N					
$\sqrt{r?š}$	rejoice, hail	G			D		Š		

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{rd}?$ I	flow, travel, drive	G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{rh}?$	sire, beget; pour over; overcome	G		N	D				
$\sqrt{rhš}$	move, be in motion	G							
$\sqrt{rm}?$ I	set in place, endow; dwell	G					Š		ŠD
$\sqrt{rq}?$ I	hide (oneself)	G		N			Š		
$\sqrt{sb}?$ I	rock, quake, launch	G			D		Š		
$\sqrt{sg}?$ II	move about, observe	G							
\sqrt{shr}	(re)turn; surround; delay; search	G		N	D		Š	Št	
$\sqrt{š?n}$ I	fill up, bloat	G		N	D				
$\sqrt{špr}$ I	squint, wink	G			D				
$\sqrt{šrp}$ I	refine, burn (intr.)	G	Gt	N	D	Dt	Š		
$\sqrt{š?t}$	remain, be left; leave	G			D				
$\sqrt{š?t}$ I	pull, tow	G							
$\sqrt{šd}$	drag, tow, stretch	G		N	D		Š		
$\sqrt{šg}$	stiffen, be tense	G		N					
$\sqrt{šlh}$	pull out, uproot, withdraw	G			D				
$\sqrt{šql}$ II	hang								ŠD
$\sqrt{štq}$	split, crack off	G			D				
\sqrt{tbk}	pour (out), lay flat; heap up, stack	G		N	D	Dt	Š		
\sqrt{tbl}	take away, carry off; disappear	G		N	D		Š		
\sqrt{tl} I	stretch out, stiffen, draw a bow	G			D				
\sqrt{trk}	lash (out); throb, pound; become dark	G		N	D		Š		
$\sqrt{trš}$ I	stretch out, extend, point	G		N	D	Dt	Š		
$\sqrt{tp}?$	add, attach, append	G		N	D				
$\sqrt{tr}?$ II	ooze; extract, squeeze	G							

A.13 Experiencer-subject ROOTS

In total, the present corpus counted 60 Experiencer-subject transitive ROOTS.

Table A.14: Experiencer-subject ROOTS

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?d}?$	'know'	G		N	D	Dt	Š	Št	ŠD

ROOT	Meaning	Attested patterns							
		G	Gt	N	D	Dt	Š	Št	ŠD
$\sqrt{?dm}$	'(own) share'	G							
$\sqrt{?mr}$ I	'see, look at'	G	Gt	N			Š		
$\sqrt{?rs?}$	make ready, prepare							Št	
$\sqrt{?sn}$	smell	G		N	D		Š		
$\sqrt{?sr}$ II	listen attentively				D				
$\sqrt{?s?}$ II	have	G							
$\sqrt{?tk}$ II	be on guard	G			D				
$\sqrt{?tm}$	be smitted, affected	G						Št	
$\sqrt{?w?}$ I	speak (against), argue in court	G	Gt					Št	
\sqrt{dgl}	look, see, wait, obey	G	Gt/N				Š		
$\sqrt{h?b}$	love	G							
$\sqrt{h?t}$	watch over; explore; weigh	G		N	D				
\sqrt{hbl} II	borrow, owe (in Stative)	G		N	D				
\sqrt{hbt} II	borrow	G			D				
\sqrt{hkm}	understand, apprehend	G		N	D		Š		
$\sqrt{hšh}$	need, desire	G		N	D	Dt			
\sqrt{ksp}	think, reckon, estimate, account	G			D				
$\sqrt{kš}$ I	acquire; exact services; master	G		N					
$\sqrt{kšd}$	reach, arrive, accomplish	G	Gt	N	D		Š		
$\sqrt{kšr}$ II	succeed, achieve	G							
\sqrt{lbs}	wear clothes	G	Gt	N	D	Dt	Š	Št	
\sqrt{lmd}	learn, come to know	G	Gt	N	D		Š		
$\sqrt{m?}$ II	be willing, want	G							
$\sqrt{m?š}$ I	despise, have contempt; forgive	G		N	D				
\sqrt{mgr}	consent, agree	G	Gt	N(t)	D		Š		
\sqrt{mlk} I	ponder, deliberate; give advise	G	Gt	N					
$\sqrt{mn?}$ II	love	G							
$\sqrt{ms?}$	be equal to, amount to	G			D	Dt	Š	Št	
$\sqrt{mš?}$ I	forget, leave behind	G		N	D		Š		
$\sqrt{n?d}$ I	attend, watch, pay attention	G	Gt		D		Š		
$\sqrt{n?š}$	scorn	G							
$\sqrt{npī}$	look at	G							
\sqrt{pls}	look (at)	G		N(t)	D	Dt	Š		
$\sqrt{(n)pq?}$	pay attention				D				
\sqrt{qbl}	accept				D				
$\sqrt{r?m}$ I	love	G	Gt	N	D	Dt			

ROOT	Meaning	Attested patterns								
		G	Gt	N	D	Dt	Š	Št	ŠD	
$\sqrt{r?m}$ III	have compassion	G	Gt				Š			
$\sqrt{rhš}$ II	trust	G					Š			
$\sqrt{rš?}$ I	acquire, get; find; show mercy?	G					Š			
\sqrt{snq} II	be in need of	G								
$\sqrt{šb?}$ II	wish (for)	G								
$\sqrt{šb?}$ IV	wish, desire, need	G								
$\sqrt{šd?}$	receive as sustenance	G			D					
$\sqrt{šht}$ II	wish, desire	G								
\sqrt{smr} I	strive for				D					
\sqrt{snh}	void, have diarrhoea	G								
$\sqrt{šrm}$	endeavour, strive, apply oneself	G			D					
$\sqrt{šlt}$ I	rule, be in authority	G	Gt			Dt	Š			
$\sqrt{š?m}$ III	ponder, reflect (no stative)				D			Št		
$\sqrt{šm?}$	hear	G	Gt	N			Š	Št		
$\sqrt{i?p}$	be attentive to, pursue	G								
\sqrt{tkl}	trust	G		N	D					
\sqrt{wkl}	trust?	G			D					
\sqrt{wkm}	notive, observe	G			D					
\sqrt{wld}	give birth, beget	G		N	D	Dt	Š			
$\sqrt{ws?}$	identify				D	Dt				
$\sqrt{wt?}$	find, discover	G						Št		
$\sqrt{z?r}$ II	dislike, hate, reject	G	Gt	N						
$\sqrt{zm?}$	lack, be deprived				D					

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