The Somali middle: Voice or derivation?

by

Aisha Barise

A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Science

Department of Linguistics
University of Alberta

Examining committee:

Dr. David Beck, Supervisor
Dr. Evangelia Daskalaki, Examiner
Dr. Jordan Lachler, Examiner

ABSTRACT

Traditionally, the term “middle” refers to a semantically driven concept that is often linked to the term “voice” in descriptive and theoretical grammars. This thesis rigorously examines the status of the Somali middle suffix *-at* as voice by applying the concept of voice proposed in Mel’čuk (1991), which defines voice as an inflectional category, where by its categories (grammemes) result in a modification of the basic diathesis, whilst maintaining its propositional meaning. A close look at the Somali middle reveals that while it shares the semantics of what are called “middle voices” in many languages, it does not meet Mel’čuk’s criteria for being a voice and instead fits better into the category of derivation.

Examination of a corpus of Somali middle forms reveals that while *-at* in fact conforms to the middle semantic domains identified in Kemmer (1993), *-at* expresses other meanings as well, some of them within but others outside the middle semantic domain. Despite having middle semantics, *-at* has many unvoice-like properties. These include inconsistent diathetic effects on the base to which *-at* is attached, some of which alter the base’s valence, whereas voices should maintain the basic valence while maintaining the propositional meaning. Further examination of the corpus also reveals that *-at* shows signs of irregularity incompatible with its being an inflection. Testing of *-at* stems reveals that many stems formed with *-at* are semantically irregular, that *-at* has unpredictable meanings with given bases, and that the stem is largely unproductive. All of this evidence taken together suggests that *-at* is a derivational suffix with middle semantics.

PREFACE

This thesis is an original work by Aisha Barise. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name “Affixal Polysemy in Somali Middle Verbs”, No. 94096, 10/17/2019.

DEDICATION

”كُنْتُ أَظُنُّ أَنَّ ٱلْعَقْرَبَ أَشَدُّ لَسْأَةً مِنَ الزُّنْبُورِ، فَإِذَا هُوَ إِيَّاهَا“

(Sībawayh; c. 760–796)

Basra school of grammar

ACKNOWLEDGEMENT

Words can not express the gratitude I have for my supervisor Dr. David Beck. Thank you for guiding me throughout the intricate process of researching and writing this thesis. Without your insightful feedback on many earlier drafts of this research, I couldn't have written this thesis, nor could I have honed my skills as a writer and a critical thinker. Many thanks to the examination committee members: Dr. Jordan Lachler (for guiding me and ensuring that I got settled and comfortable in cold Edmonton), Dr. Evangelila Daskalaki (for the guidance, encouragement to endeavor, and introducing me to many research opportunities like the heritage LAB). I am also indebted to the department of Linguistics at the University of Alberta for funding and to the Queen Elizabeth II scholarship making this research possible.

Special thanks to Dr. Marina Blekher for the kindness and for helping me develop my skills as a graduate student and a teaching assistant. Thanks to Dr. Johanne Paradis for her generosity and for granting me the opportunity to be a part of the Language Acquisition Lab. Thanks to Dr. Jorge Roses Labrada for reaching out to me to be involved in research and being a friendly face. Thanks to Dr. Yvonne Lam for kindly offering me her expertise on this thesis. Thanks all other members of the Linguistics Department whom I don't name, your assistance during my studies is invaluable. I would like to make special mention of my undergraduate supervisor and mentor Dr. Laura Grestenberger, for inspiring my interest to pursue my studies.

I sincerely appreciate the contribution of all the Somali informants—Farxiya, Nacimo, Asli, Damac, and Nadiifo and thanks to the Somali Center for Women and Children. Special thanks to Asia Abbas for going above and beyond in connecting me to Somali informants in Edmonton.
Finally, I would like to express my deepest gratitude to Faiza Hassan and Abdullahi Barise for the sacrifices they have made in order for me to receive an education, *waad mahadsantihiin hoyo iyo aabo*. You have been instrumental in directing me to a lifelong path of seeking knowledge. Thanks to Mariam, Ramla, Hafsa, Sumaya, Asma, and Sarah for being my lifelong friends and siblings. I couldn't have completed this research without our intriguing discussions, laughter, and long drives.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

–	morpheme boundary	INDEF	indefinite
:	portmanteau/suppletive boundary	INFIN	infinitive
.	space/	INST	instrument
=	clitic	M	male
1	first-person	MID	middle
2	second-persom	MOD	modal
3	third-person	NEG	negation
ABL	ablative	PFV	perfective
ABS	absolutive	PL	plural
AC	anti-causative	PRES	present
AGR	agree	PROG	prgresisve
AGT	agentive	PROX	proximate
AUX	auxillary	PST	past
BEN	benefactive	RECIP	reciprocal
CAUS	causative	REF	reflective
COM	comitative	SBFI	social, business, and financial interaction
CONJ	conjunction	SBJV	subjective
DAT	dative	SG	singular
EXC	exclusive	SIMP	simple
F	female	STAT	stative
FOC	focus	TAM	tense, aspect, mood
GEN	genitive	VAD	verbal adposition
IMP	imperative	VEN	venitive
IMS	impersonal	VOC	vocative
INC	inchoative	VRB	verbalizer
INCL	inclusive		

1 INTRODUCTION

The Somali *-at* suffix is traditionally labeled as a "middle voice" suffix (e.g. Moreno, 1955, Saeed, 1993). This term "middle" is based on classical languages such as Latin, Sanskrit and Greek, representing one of a three-way voice distinction that is "intermediary" to active and passive voices. An event in the active voice typically expresses an agent-like entity acting upon a patient-like entity, while an event in the passive voice typically focuses on the patient-like entity undergoing the action of the agent-like entity. Traditionally, an event in the middle voice expresses a single entity with both an agent-like and a patient-like role, blending active and passive functions.

The Somali middle suffix *-at* can have this type of effect on the base, as in the stem QUBAYSO in (2):[1]

QUBAY (Ú) 'X washes Y's body with water'
QUBAYSO 'X washes X's body with water'

(1) elmaha bay ú qubaysay

elmó–ka	b=ay	ø=ú	qubay–s–ay
kids–PROX:M:ABS	FOC=3SG:F:SBJV	3PL:ABS=BEN	bathe–3SG:F–PST

'She bathed the kids'

(2) wuu qubaystay

w=uu	qubay–sat–ø–ay
AUX=3SG:M:SBJV	bathed–MID–3SG:M–PST

'He bathed'

In (1) the verb is in the active voice, there is an agent acting on a patient. While the *-at* stem in (2) is in the middle voice, there is a single event-participant which is acting on itself. This event-participant has both an agent-like and a patient-like role in the event, as is expected of a middle.

Although the suffix *-at* fits into the traditional middle profile, a closer examination of *-at* reveals a wide range of other distinct effects. For instance, *-at* has different diathetic effects (mapping between semantic and syntactic levels) on the base, as shown by the anti-causative *-at* stem in (4):

[1] The suffix *-at* has the allomorph *-sat*, both suffixes are subject to complex synchronic phonological rules, hence for the sake of simplification the suffixes are indicated by the imperative middle correlate suffixes *-o* and *-so*, as it is in dictionary definitions.

GUB ‘X burns Y

GUBO ‘X burns’

(3) gúriga buu gubay

gúri–ga	b=uu=ø	gub–ø–ay
guri–PROX:M:ABS	FOC=3SG:M:SBJV=3SG:M:ABS	burn–3SG:M–PST

‘He burnt the house’

(4) guriga baa gubtay

gúri–ga	baa	gub–at–ø–ay
guri–PROX:M:ABS	FOC	burn–MID–3SG:M–PST

‘The house burnt’

The radical in GUB (3) assigns two semantic roles, an agent (expressed as the subject clitic *uu* ‘he’) and a patient (*guri* ‘house’), while the *-at* stem in (4) merely expresses the patient role, and is therefore an anti-causative.

In addition to occasionally making changes to number of semantic roles assigned by a radical, in some cases *-at* alters the part of the speech of its base, as in the stem CUSBURO in (6):

CUSBUR ‘henna’

CUSBURO ‘X applies henna on X’s body’

(5) cúsbur bay samaysay

cúsbur–ø	b=ay	samaay–s–ay
henna:ABS–INDEF	FOC=3SG:F:SBJV	make–3SG:F–PST

‘She made some henna’

(6) way cusburatay

w=ay	cusbur–at–t–ay
AUX=3SG:F:SBJV	apply.henna–MID–3SG:F–PST

‘She applied henna to herself’

The radical CUSBUR in (5) is a noun, it is the subject of the verb *samaay* ‘to do’. In (6) the suffix *-at* alters the lexical class of the base to derive verb CUSBURO.

Furthermore, there are cases where *-at* induces other irregular effects on the base, one of which is adding an idiosyncratic meaning, as in the stem DHIMO in (8):

DHIN ‘X makes Y smaller in quantity’

DHIMO ‘Y dies’

(7) lacágta bay dhintay

lacág–ta b=ay dhin–t–ay
money–PROX:M:ABS FOC=3SG:F:SBJV decrease–3SG:F–PST
‘She decreased the (amount of) money’

(8) way dhimatay

w=ay dhin–at–t–ay
AUX=3SG:F:SBJV die–MID–3SG:F–PST
‘She died’

The radical in (7) DHIM means ‘decreasing’ while the *-at* stem in (8) means ‘dying’, the *-at* stem does not preserve the meaning the base: ‘decrease’ ≠ ‘die’. There is no plausible meaning that can be attributed to the suffix *-at* to be added to the base ‘decrease’ to generate the meaning ‘die’: thus, the *-at* form is non-compositional in relation to the base.

Not only does the middle suffix *-at* have a wide range of effects in its base, these effects are often un-voice like. A voice is an inflectional morpheme which alters the basic diathesis of a stem, resulting in the preservation of the propositional meaning (Mel’čuk, 1993). Unlike a voice, *-at* frequently alters the propositional meaning of the base as shown by the anti-causative *-at* stem, GUBO in (4).

In addition, if the suffix *-at* is a voice, then it would be an inflection (Mel’čuk, 1993). However, inflection doesn’t alter the part of speech of a radical and is regular in its effects on the bases it attaches to. Unlike an inflection, *-at* alters the part of speech of the base as in the stem CUBURO in (6) and has irregular semantic effects on the base such as adding non-compositional meaning, as in the stem DHIMO in (8). All these effects taken together indicate that the middle suffix *-at* only resembles a voice in a limited number of cases, such as that illustrated in (2). Therefore, I argue in this thesis that *-at* is not a middle voice, but instead a derivational suffix which often expresses middle-like meanings.

This thesis is structured as follows: §1.1 gives an overview of the Somali language typology and is followed by §1.3 introducing the theoretical framework underpinning the notion of voice used in this thesis. In Chapter 2, I will show that *-at* has middle semantic effects on the base. Then in Chapter 3, I test the status of *-at* as a voice by examining its diathetic effects on the base. In Chapter 4, I rigorously test the status of *-at* as an inflection by closely examining the effects *-at*

has on the part of speech of the radical (§4.1) and its regularity (§4.2). In testing the regularity of *-at*, I show its semantic compositionality (§4.2.1), the predictability of the meanings it expresses when combined with various types of radicals (§4.2.2), and its productivity (§4.2.3), building a strong case for *-at* being a derivation.

1.1 THE SOMALI LANGUAGE

Somali is classified as a member of the Cushitic branch of the Afro-Asiatic language family and is comprised of three main dialects—Northern, Benadir, and Maay. This thesis employs data from the Northern variety as it is considered the standard form used in education, media, etc. "Northern" is an umbrella term covering many regional variants including some spoken in southern Somalia (Saeed, 1993). Somali largely uses a Latin-based orthography. In this script, the letters *kh* and *c* correspond to pharyngeal fricatives [ħ] and [ʕ], and *dh* is a retroflex stop [ɖ]. As in the IPA, *x* and *q* correspond to a velar fricative [x] and a uvular stop [q]. The glottal stop is written as ', but for the purpose clarity *ʔ* is used instead of the apostrophe in this thesis. An acute accent on a vowel indicates a high tone, and a low tone is unmarked; for long vowels, an acute accent on the first vowel indicates rising tone and a grave accent on the first vowel indicates falling tone.

Somali uses a subjective-absolutive system of case-marking, and case is mainly indicated by modification of tonal patterns and by suffixation. Tone largely encodes grammatical meaning such as case and gender, though tone has some limited lexical functions. Noun phrases are head-initial and contain multiple dependent elements such as possessive nouns and adjectives. The verb phrase is head-final, with a fairly flexible word order. Somali morphology is largely agglutinative; it employs suffixation to mark both derivation and inflection, and uses accentual apophony for certain inflections.

1.1.1 NOUN PHRASES

Nouns phrases are head-initial and may contain multiple dependent elements such as possessive nouns, and adjectives. Nouns are inflected for definiteness, gender, number, and case. Gender is a mostly arbitrary binary class distinguishing masculine and feminine genders. For animate nouns, those with human and animal referents, gender corresponds to biological gender, as in *wèel* 'boy' and *gabár* 'girl'. The gender of nouns is usually indicated by the form of the definite/indefinite suffixes, as in *wèel-ka* 'the boy' and *gabár-ta* 'the girl', though it may also be

marked through tonal differences (*ínan* 'boy' vs *inán* 'girl'). A common feature of Somali nouns is that the gender in the singular form is reversed in plural forms; this is referred to as "gender polarity" (Saeed, 1993). For example, the masculine noun *salìib* 'cross' becomes feminine in the plural, *saliibyò* 'crosses'. Number in Somali is binary, distinguishing singular and plural; plural is encoded through suffixation, reduplication, or a change in the tonal patterns of the base. Independent and clitic pronouns have inherent gender, number and person; both inflect for case. Somali has a subjective-absolutive case system that is mostly marked by tone, though there is some suffixation.

1.1.1.1 CASE

Nouns inflect for four cases—absolutive, subjective, genitive, and vocative. Case is marked using tones and suffixation. The absolutive form of the noun has the basic (unmodified) tonal pattern, usually an H tone on either the ultimate or penultimate syllable, while the subjective case removes the H tone. The genitive case does not affect tone and may add a suffix, while the vocative replaces the absolutive tone with an H on the first mora and a suffix, which (in some forms) bears a low tone. Traditionally, case in Somali is analyzed as a nominative-absolutive system; however, in this thesis we adopt the term "subjective-absolutive" to account for the fact that subjects have a marked or derived tonal pattern, whereas non-subjects have the unmarked or basic tone. Table 1 below shows feminine nouns inflected for each of the cases:

Table 1 Nominal case forms

gloss	Absolutive	Subjective	Genitive	Vocative
'thorn'	qodáx	qodax	qodax–èed	qódax–éey
'cow'	lóʔ	loʔ	loʔ–àad	lóʔ–yahay
'Maryan'	Maryán	Maryan	Maryán	Màryan–éey

In the absolutive, the bisyllabic noun *qodáx* 'thorn' has an H tone on the ultimate syllable; a trisyllabic absolutive noun such as *baaqúli* 'bowl' has a H tone on the penultimate syllable. The subjective form of all three nouns removes the H tone. In the genitive, a noun may take the genitive suffixes—as in *qodax-éed 'thorn'* or *loʔ-àad 'cow'* which carry a H tone—or a noun may maintain

its basic H tone, as in *Maryán*. A vocative noun like *Máryan* ‘Maryan!’ has an H tone on the first mora and may also take the vocative suffix *-èey or yahay*.

The isolation form of nouns is the absolutive case form. Absolutive case is used for the object of transitive verbs, as in (9):

(9) buugàag baan ʔaqriay

buugàag–ø	b=aan=ø	ʔaqri–ø–ay
book:PL:ABS–INDEF	FOC=1SG:SBJV=3SG:M:ABS	read–1SG–PST

‘I read some books’

The verb *ʔaqri* ‘read’ takes the object *buugàag* ‘books’ which is in the absolutive case, the noun bearing an H on the ultimate syllable. Nouns also take the absolutive case when they occur as objects of verbal adpositions, as in (10):

(10) mindí baan ku jaray ròotiga

mindí–ø	b=aan=ø	ø=kú	jar–ø–ay	
knife:ABS–INDEF	FOC=1SG:SBJV=3SG:M:ABS	3SG:M:ABS=INST	cut–1SG–PST	ròoti–ka
				bread–PROX:M:ABS

‘I cut the bread with a knife’

The verbal adposition *kú* ‘with’ takes the object *mindí* ‘knife’ which occurs in the absolutive with an H tone on the ultimate syllable.

The subjective case occurs in nominals that are the subject of both intransitive and transitive verbs, as in (11) and (12) below :

(11) Maryan way carartay

Maryán	w=ay	carar–t–ay
Maryan:SBJV	AUX=3SG:F:SBJV	run–3SG:F–PST

‘Maryan ran’

(12) Maryan Cáli bay disshay

Maryán	Áli	b=ay=ø	dil–s–ay
Maryan:SBJV	Áli:ABS	FOC=3SG:F:SBJV=3SG:M:ABS	hit–3SG:F–PST

‘Maryan hit Ali’

The subject of the intransitive verb *carar* ‘run’ in (11) is *Maryan,* which is in subjective case with the H tone removed. The subject of the transitive verb *dil* ‘hit’ in (12) is *Maryan*, also in the subjective case without a H tone, and the object is *Áli*, in the absolutive case with the high tone.

The genitive case occurs largely in possessive nominal phrases. In such phrases, the possessor occurs in the genitive case:

(13) qalínka Maryán

qalín–ka	Maryán
pen–PROX:M:ABS	Maryan:GEN

'Maryan's pen'

(14) caanó loʔàad

caanó	loʔ–àad
milk:ABS	cow–GEN

'cow milk'

The possessor, *Maryán*, in (13) is in the genitive case with a basic H tone. The possessor is *loʔ* 'cow' in (14) is in the genitive marked by the case suffix *-àad*, which is restricted to the class of nouns referring to domestic animals.

Finally, the vocative case occurs in nominals used to invoke or address someone, as in:

(15) Máryanèey, kalay

Maryán–èey	kalay–ø
Maryan:VOC–VOC:F	come–IMP:2SG

'Maryan, come!'

As we see here, the proper noun *Maryan* takes a H tone on the first syllable and a vocative suffix *-èey*.

1.1.1.2 DEFINITENESS

Nouns are inflected for the category of definiteness, which has two values, definite and indefinite: 'indefinite' is marked by a zero, -ø (e.g., *mìis–ø* 'a table'), and 'definite' is marked by a variety of overt suffixes. Definite suffixes distinguish proximate and non-proximate referents, gender and case, as shown in Table 2 below:

Table 2 Absolutive definite suffixes

	Feminine	Masculine
Proximate	*lúg–ta* 'the leg'	*mìis–ka* 'the table'
Non-proximate	*lúg–tìi* 'the leg'	*mìis–kìi* 'the table'

Definite absolutive nominals have a basic H tone on the stem marking case. In the subjective, case is marked on the definite suffix rather than on the noun itself, which appears with its basic tone pattern (maintaining the H tone), as shown in Table 3:

Table 3 Subjective definite suffixes

Definite (Subjective)	Feminine	Masculine
Proximate	*lúg–tu* 'the leg'	*mìis–ku* 'the table'
Non-proximate	*lúg–tii* 'the leg'	*mìis–kii* 'the table'

Subjective proximate nominals take *-tu* in the feminine and *-ku* in the masculine; in non-proximate nominals, the basic non-proximate suffixes undergo tonal lowering, becoming *-tii* in the feminine and *-kii* in the masculine.

Because the indefinite suffix is zero, case is indicated tonally on nouns in bare/indefinite nominals, as we see above and in (16) and (17) below:

(16) qof baa qayliay

qóf–ø	baa	qayli–ø–ay
person:SBJV–INDEF	FOC	yell–3SG:M–PST

'A person yelled'

(17) qóf bay cawisay

qóf–ø	b=ay=ø	cawi–s–ay
person:ABS–INDEF	FOC=3SG:F:SBJV=3SG:M:ABS	help–3SG:F–PST

'She helped a person'

In (16) the subject, *qof* 'person', is in the subjective case, as evident from the low tone on the noun. In (17) the object, *qóf* 'person' is in the absolutive case and maintains its underlying H tone. Note that it does seem that in spoken Somali, case is moving more towards tonal case marking and away from the use of the subjective definite suffixes shown in Table 3. For some speakers, for example, the form *nínku* [man:ABS-PROX:M:SUBJV] 'the man' becomes *ninka* [man:SBJV-PROX:M] 'the man'—that is, case is marked by tone on the noun itself rather than by the subjective definite suffix *-ku*.

1.1.1.3 INDEPENDENT PRONOUNS AND CLITICS

Somali has both independent and clitic pronouns. Independent pronouns are communicatively marked and are mainly reserved for emphatic usage as opposed to the clitics, as in (18):

(18) aníga waayi salantay

aníga	w=ay=i	salan–t–ay
1SG:ABS	AUX=3SG:F:SBJV=1SG:ABS	greet–3SG:F–PST

'As for me, she greeted me'

In this expression, *aníga* 'I' is a fronted topic, used in much the same way as English *as for me* in the free translation. Independent pronouns tend to be coreferential with clitic pronouns as shown in (18), where the 1SG object pronoun *aníga* is coindexed with the 1SG object clitic *=i.*

Independent pronouns distinguish three persons, two numbers, and (in the singular) two genders. First person plural pronouns distinguish exclusive and inclusive. They also inflect for case, as shown in Table 4:

Table 4 Independent pronouns

	ABS	SBJV		ABS	SBJV
1 SG	aníga	anigu	1 PL EXC	annága	annagu
2 SG	adíga	adigu	1 PL INC	innága	innagu
3 SGM	isága	isagu	2 PL	idínka	idinku
3 SG F	iyáda	iyadu	3 PL	iyáda	iyadu

Akin to nouns, independent pronouns inflect for absolutive and subjective case. The object series has a high tone and ends in the vowel *a,* whereas the subjective series has a low tone and ends in the vowel *u*, as in (19):

(19) anigu waan baxaa

anígu	w=aan	bax–Ø–aa
1SG:SBJV	AUX=1SG:SBJV	leave–1SG–PRES

'As for me, I will leave'

The 1sg independent pronoun is in the subjective form as opposed to the absolutive form seen in (19). Note that independent pronouns seem to be diachronically related to the proximate definite suffixes; however, these suffixes are merely fossilized components of the pronouns, serving no synchronic function. The pronominal clitics are given in Table 5:

Table 5 Pronominal clitics

	SBJV	ABS
1 SG	=aan	=i
2 SG	=aad	=ku
3 SGM	=uu	=Ø
3 SG F	=ay	=Ø
1 PL EXC	=aannu (aan)	=na
1 PL INC	=ayu	=ina
2 PL	=aydin	=idin
3 PL	=ay	=Ø
Impersonal	la	——
Reflexive	——	=íss

The personal clitics make same person, number and gender distinctions as independent pronouns. Clitic pronouns tend to cliticize to the preceding element in the clause such as auxiliaries or focus particles, as in (20) and (21) below:

(20) waan ciyaaray

w=aan	ciyaar–ø–ay
AUX=1SG:SUBJV	play–1SG–PST

'I played'

(21) kubbád baan ku ciyaaray

kubbád–ø	b=aan=ø	ø=kú	ciyaar–ø–ay
ball–INDEF	FOC=1SG:SUBJV:3SG:M:ABS	3SG:M:ABS=INST	play–1SG–PST

'I played with/ using a ball'

The 1sg subject clitic in (20) cliticizes to the auxiliary *waa* and with the focus particle in (21). Pronominal clitics may also cliticize to one another, as we will see below.

The paradigm in Table 5 also includes the impersonal/non-specific subject pronoun *la* 'one'. This clitic is only used as a subject to express action by an unknown agent. It has a passive-like function in that it suppresses the agent-like role in the clause, as shown in (23):

(22) wayi fiirisay

w=ay=i	fiiri–s–ay
AUX=3SG:F:SBJV=1SG:ABS	look–3SG:F–PST

'She looked at me'

(23) waa li fairway

waa	la=i	fiiri–ø–ay
AUX	IMS=1SG:SBJV	look–3SG:F–PST

'I was looked at'

Because *la* acts as a subject and has no H tone, it is analyzed here as having subjective case.

The third clitic is the reflexive/reciprocal *ìss* 'self, each other'. *=ìss* is an object clitic occurring in the absolutive case and bearing a high tone. This object clitic is coreferential with a subject, as in (24):

(24) waanuìss fiirisay

w=aannu=ìss	fiiri–n–ay
AUX=1PL:EXC:SBJV=REF:ABS	look–1PL–PST

'we looked at ourselves' or 'we looked at each other'

The clitic *=íss* is used when the subject and object overlap in the roles they play in the event, therefore it may have a reflexive or a reciprocal function.

1.1.2 SIMPLE CLAUSE

Somali demonstrates a fairly flexible word order, having SOV, SVO, VSO, VOS, OVS, and OSV orders, as demonstrated by the following examples:

(25) Maryan baa Cáli raadisay

Maryán	baa	Áli	raadi–s–ay
Maryan:SBJV	FOC	Ali:ABS	look.for–3SG:F–PST

'Maryan looked for Ali'

(26) Maryan baa raadisay Cáli

Maryán	baa	raadisay	Áli
Maryan:SBJV	FOC	look.for–3SG:F–PST	Ali:ABS

'Maryan looked for Ali'

(27) way raadisay Maryan Cáli

w=ay=ø	raadi–s–ay	Maryán	Áli
AUX=3SG:F:SBJV=3SG:M:ABS	look.for–3SG:F–PST	Maryan:SBJV	Ali:ABS

'Maryan looked for Ali'

(28) way raadisay Cáli Maryan

w=ay=ø	raadi–s–ay	Áli	Maryán
AUX=3SG:F:SBJV= 3SG:M:ABS	look.for–3SG:F–PST	Ali:ABS	Maryan:SBJV

'Maryan looked for Ali'

(29) Cáli bay radisay Maryan

Áli	b=ay=ø	raadi–s–ay	Maryán
Ali:ABS	FOC=3SG:F:SBJV= 3SG:M:ABS	look.for–3SG:F–PST	Maryan:SBJV

'Maryan looked for Ali'

NPs ordered before the verb, as in the SOV, SVO and OVS order evident in (25), (27), and (29) tend to occur in clauses along with the focus particle *baa* (or *aya*), which coalesces with subject or object clitics coreferential with the nominals. This raises a number of interesting questions about Somali syntax, but these are beyond the scope of this thesis.

Clitics appear in strict SOV order, for example (30) and (31) below:

(30) wuui raadiay

w=uu=i	raadi–ø–ay
AUX=3SG:M:SBJV=1SG:ABS	look.for–3SG:M–PST

'He looked for me'

(31) wuu raadiay

w=uu=ø	raadi–ø–ay
AUX=3SG:M:SBJV=3SG:M:ABS	look.for–3SG:M–PST

'He looked for him'

These clitics generally encliticize to the first element in the clause, although they can become proclitics and combine with certain elements such as verbal adpositions, which we discuss in the following section.

1.1.3 VERBAL ADPOSITIONS

Somali has a set of particles, traditionally called "verbal adpositions" (VAD), that appear to be associated with certain kinds of secondary/oblique objects (Saeed 1993). These verbal adpositions appear immediately before the verb and encode the semantic roles of nominals. There are four verbal adpositions—*ká* 'ablative', *ú* 'benefactive/ dative', *kú* 'instrumental/allative', and *lá* 'comitative'.

The ablative adposition *ká* assigns a locative role to object nominals, as in (32) and (33) below:

(32) Cali baa **gúriga ka** baxay

Áli	baa	gúri–ka	ø=ká	bax–ø–ay
Ali:SBJV	FOC	house–PROX:M:ABS	3SG:M:ABS=ABL	leave–3SG:M–PST

'Ali got out of the house'

(33) Cali baa **ka** baxay **gúriga**

Áli	baa	ø=ká	bax–ø–ay	gúri–ka
Ali:SBJV	FOC	3SG:M:ABS=ABL	leave–3SG:M–PST	house–PROX:M:ABS

'Ali got out of the house'

Verbal adpositions have a fixed, immediately preverbal position, and the nouns whose semantic role they assign may be separated from the VAD, as shown in (33). I analyze nominal complements of verbal adpositions as always being "doubled" by a =ø third-person clitic.

The benefactive VAD *ú* assigns a beneficiary semantic role, as in (34):

(34) Maryan way u lebbistay ilmáha[2]

Maryán	w=ay	ø=ú	lebbis–t–ay	ilmó
Maryan:SBJV	AUX=3SG:F:SBJV	3SG:M:ABS=BEN	dress–3SG:F–PST	kids–PROX:ABS

'Maryan dressed up the kids'

The verb *lebbis* 'to dress' assigns an agent role to the subject Maryan, the VAD *ú* assigns a beneficiary role to the object *ilmáha* 'kids' to denote that the referent of its complement benefits from the event of dressing. Object nominals take an instrumental role from the VAD *kú*, as in (35) below:

(35) fargèeto baan ku cunnay

fargèeto–ø	b=aa	ø=kú	cunn–ø–ay
fork:ABS–INDEF	FOC=1SG:SBJV	3SG:F:ABS =INSTR	eat–1SG.SUB–PST

'I ate with a fork'

The verb "eat" assigns an agent role to the 1SG subject clitic and the verbal adposition *kú* assigns an instrument role to its complement *fargèeto* 'fork'.

The comitative adposition *lá* encodes a comitative role. The VAD *lá* differs in tone from the impersonal subject clitic *la*, as in (36):

(36) ilmáha buu la ciyaaray Cali

ilmó–ka	b=uu	ø=lá	ciyaar–ø–ay	Áli
kids–PROX:M:A	FOC=3SG:M:SBJV	3PL:ABS=COM	play–3SG:M–PST	Ali:SBJV

[2] Note that in (34)(21) the definite proximate suffix *-ka* has the allomorph *-ha*, which occurs before the vowels /e/ and /o/ and triggers harmony in the root final vowel.

‘Ali played with the kids’

The verb ‘play’ assigns an agent role to the subject *Ali*, and the verbal adposition *là* ‘with’ assigns a comitative role to object *ilmáha* ‘kids’ to denote that object performs the action along with the subject.

VADs host various preceding elements such as object clitics and/or the impersonal subject pronoun *la*. Examples are shown in (37), (38), and (39) below:

(37) biyáha bay iga qaadatay

biyó–ka	b=ay=ø	i=ká	qaad–at– t–ay
water–PROX:M:ABS	FOC=3SG:F:SBJV=3SG:M:ABS	1SG:ABS=ABL	take–MID–3SG:F–PST

‘She took the water from me’

(38) biyáha baa laga qaaday Maryán

biyó–ka	baa	la=Ø=ká	qaad–Ø–ay	Maryán
water–PROX:M:ABS	FOC	IMS:SBJV=3SG:ABS=ABL	take–3SG:F–PST	Maryan:ABS

‘The water was taken from Maryan’

(39) wuu ka qaadatay Maryán

w=uu=ø	ø=ká	qaad–ø–ay	Maryan
AUX=3SG:M:SBJV=3SG:M:ABS	3SG:F:ABS=ABL	take–3SG:M–PST	Maryán:ABS

‘He took it from Maryan’

When the VAD *ká* combines with the impersonal subject pronoun *la, ká* also undergoes voicing, as shown in (38). Verbal adpositions also combine with one another, as in (40):

(40) Cali baa ilmáha dukàanka uga sòo gaday caano

Áli	baa	**ilmó–ka**	dukàan–ka
Ali:SBJV	FOC	kids–PROX:M:ABS	store–PROX:M:AB ø=**ú**=ø=ká
sòo	gad–ø–ay	càano	
VEN	buy–3SG:M–PST	milk:ABS	3PL:ABS=BEN=3SG:M:ABS=ABL

‘Ali bought milk from the store for the kids’

The benefactive *ú* and the ablative *ká* maintain an immediate preverbal position, but govern different nominals: *ká* assigns its semantic role to the nominal *dukàan* ‘store’ whereas *ú* assigns its role to *ilmó* ‘kids’. As shown in (40) above, other particles may occur in between VADs and the verb, such as the adverbial particles such as *sòo* ‘venitive’ and *sìi* ‘andative’, which indicate the direction towards or away from the speaker, respectively. These particles don’t introduce semantic roles, but only function as verbal deixis.

1.1.4 VERBAL INFLECTIONAL CATEGORIES

Verbs agree with their subjects in person, number, and gender using a series of agreement suffixes (AGR). Verbs also inflect for Tense, Aspect and Mood (TAM), through suffixes which typically follow the AGR suffixes. The past/present-tense paradigm of the verb *fur* 'open' is shown in Table 6 below:

Table 6 Inflections of the verb *fur* 'open'

	Verb	AGR	Past /	Present
1 SG	fur	-Ø	-ay	-aa
2 SG	fur	-t, (-s)	-ay	-aa
3 SGM	fur	-Ø	-ay	-aa
3 SG F	fur	-t, (-s)	-ay	-aa
1pl exc	fur	-n	-ay	-aa
1pl inc	fur	-n	-ay	-aa
2 PL	fur	-t, (-s)	-een	-aan
3 PL	fur	-Ø	-een	-aan

The past tense suffix is *-ay* and has the allomorph *-een* in 2 and 3PL; similarly, the present suffix *-aa* has the allomorph *-aan* in the 2 and 3PL.

The future is expressed using the auxiliary *doon* (derived from *doon* 'wish, want') and the infinitive form of the verb, as in (41):

(41) waan sugi doonaa

w=aan	sug–i	doon–ø–aa
AUX=1SG:SBJV	wait–INFIN	FUT–1SG–PRES

'I will wait'

As seen in (41), the infinitive of the verb is formed by adding the suffix *-i* to the stem; there are a number of allomorphs of the infinitive suffix, depending on the stem class.

There are three aspects—simple, progressive, and habitual; the simple aspect is the zero form. The aspectual paradigm of the verb *fur* 'open' in the 3SGF is shown in Table 7. The progressive aspect in the past and present is encoded by suffixation, the progressive suffix preceding the AGR suffixes. Habitual aspect is only used in the past tense and indicates an event regularly taking place in the past. Habitual aspect is encoded by an auxiliary construction.

Table 7 Aspectual paradigm of the verb *fur* 'open' (3SG:F)

Aspect	Past	Present	Future
Simple	furtay 'she opened it'	furtaa 'she opens it'	furi doontaa 'she will open it'
Progressive	fureysay 'she was opening it'	fureysaa 'she is opening it'	——
Habitual	furi jiirtay 'she used to open it'	——	——

Mood is a larger category, comprised of declarative, imperative, conditional, optative, and potential. The forms are shown in Table 8; the declarative mood is used for assertions and is zero marked. The imperative is used only for second person singular and plurals and is marked by the suffixes -∅ (2SG) and -*a* (2PL). Conditional mood signifies hypothetical situation types in the present or past and is encoded by an auxiliary construction: a verb in the infinitive following the auxiliary *laahay* 'have'. Optative mood indicates wishes, hopes, and blessings and is marked by the suffix -*o* (Saeed, 1993). The optative mood also takes special subject clitics which are too complex to discuss here (see Saeed, 1993). The potential mood indicates that an event which hasn't occurred yet, but which could potentially occur at the time of reference. The potential mood is encoded by the suffix -*ee* except in the second- and third-person plurals, where it is zero.

Table 8 Mood paradigm for *fur* 'open'

	Declarative	Imperative	Conditional	Optative	Potential
1SG/3SGM	furay	——	furi lahaa	fur furo	furee
2 SG/3SGF	furtay	fur	furi lahayd	furtid furto	furtee
1 PL	furnay	——	furi lahayn	furno	furnee
2 PL	furteen	fur	furi lahaydeen	furteen	furteen
3 PL	fureen	——	furi lahaayeen	fureen	fureen

1.1.5 DERIVATIONAL AFFIXES

Derivational affixes are affixes that form a new lexeme from a base (Mel'čuk, 1991). In Somali, derivational suffixes occur immediately after a verbal radical, preceding inflectional affixes like

AGR and TAM. Common derivational suffixes that derive verbs in Somali are the inchoative, a general verbalizer, the causative, and the anti-causative. These derivational suffixes are shown in Table 9, along with the type of the base they attached to:

Table 9 Derivational suffixes

Name	Suffix	Radical
Inchoative	-ow (-oob)	noun
Anti-causative	-am	verb
Verbalizer	-ay	noun, adjective
Causative	-i	verb

The inchoative suffix /-ow/ (allomorph -*oob*) is affixed to nouns to create verbs that express either becoming the entity expressed by the base or coming into a state associated with that base as in (42):

BARAF 'snow/ice'
BARAFOW 'X becomes icy or frozen'

(42) wuu barafoobay

w=uu	baraf–ow–Ø–ay
AUX=3SG:M:SBJV	ice–INC–3SG:M–PST

'It became frozen'

The suffix -*ow* tends to derive intransitive stems, as does the anti-causative suffix, -*am*.

The suffix -*am* is traditionally described as a passive (Saeed, 1993); however, in this thesis we referred to -*am* as an 'anti-causative' because -*am* is added to bivalent radicals in order to remove the agent/causer from the meaning of a base (as opposed to simply shuffling grammatical relations), as in (44) below:

DAAR 'X turns Y on'

DAARAM 'Y is turned on'

(43) way daartay

w=ay=ø	daar–t–ay
AUX=3SG:F:SBJV= 3SG:M:ABS	turn.on–3SG:F–PST

'She turned it on'

(44) wuu daarmay

w=uu	daar–am–Ø–ay

AUX=3SG:M:SBJV turn.on–AC–3SG:M–PST
'It turned on'

The base in (43) shows a bivalent radical with *w=ay* 'she' expressing the causer/agent role and an elided object. In the *-am* stem, the participant expressed by the object clitic in the basic form becomes the subject as a result of removing the causer/agent role. Note that *-am* is subject to stem contraction in (44).

The verbalizer *-ay*, called a "factitive" or "causative" by Saeed (1993), is added to nouns and adjectives in order to derive verbs expressing an action involving or related to the meaning of the base. Table 10 lists some *-ay* stems and their radicals:

Table 10 Verbalizer *-ay* stems

1. BIYO 'water'	3. SUN 'poison'
2. BIYAY 'X waters Y'	4. SUMAY 'X poisons Y'
5. AF 'edge'	7. BIR 'iron'
6. AFAY 'X sharpens Y'	8. BIRAY 'X makes Y into iron'
9. WAYN 'big'	11. YAR 'small'
10. WAYNAY 'X makes Y big'	12. YARAY 'X makes Y small'
13. FOG 'far'	15. ADAG 'hard'
14. FOGAY 'X makes Y far'	16. ADKAY 'X makes Y hard'

-ay stems based on nouns are mainly transitive, like BIYAY 'X waters Y', as are *-ay* stems based on adjectival roots, as in WAYNAY 'X makes Y big'.

A causative suffix is a valency-increasing suffix which adds an agent-like role as a subject in order to express the cause of the event expressed by the base (Comrie, 1989; Dixon, 2000). The causative suffix in Somali is *-i*, shown in (46) :

FUQ 'X falls off'
FUJI 'X tears Y off'

(45) wuu fuqay

w=uu fuq–ø–ay
AUX=3SG:M:SBJV fall.off–3SG:M–PST
'It fell off'

(46) waan fujiay

w=aan=ø fuq–i–ø–ay

AUX=1SG:SBJV=3SG:M:ABS tear.off–CAUS–1SG–PST
'I ripped it off'

The base FUQ is a monovalent verb with a single patient role. In the causative stem, an agent role has been added as a subject, demoting the former subject to an object. There are certain phonological effects associated with the suffix *-i,* such as the palatalization of a final *g* or *q*, as we saw in (46). The causative suffix also triggers harmony in short monosyllabic radicals which end in *x*, *c*, or the glottal stop *ʔ*; with these radicals, the root vowel become *-i,* as in *bax* → *bixi* 'X takes Y out'.

Causative stems also take a distinct set of agreement suffixes. The conjugation of the past tense of a plain verb *kar* 'X cooks/boils' and the causative stem *kari* 'X cooks Y' are shown Table 11:

Table 11 Causative agreement suffixes

	kar 'X cooks/boil'	*kari* 'X cooks Y'
1SG/3SGM	kar–Ø–ay	kar–i–Ø–ay
2SG/3SGF	kar–t–ay	kar–i–s–ay
1pl	kar–n–ay	kar–i–n–ay
2pl	kar–t–een	kar–i–s–een
3pl	kar–Ø–een	kar–i–Ø–ay

Causative stems take *-s* rather than *-t* as agreement in 2SG, 3SGF, and 2PL forms. This change merely reflects diachronic developments, there are no regular synchronic rules which account for it.

1.2 THE SOMALI MIDDLE

The Somali middle suffix is *-at* and has two allomorphs, [-at] and [-sat]. The allomorph [-at] is the basic, elsewhere form, while [-sat] is lexically conditioned; the diachronic origin of this suffix is decipherable but beyond the scope of the thesis. The middle meaning may be cumulatively expressed along with imperative and infinitive by the portmanteau suffixes *-o/-so* and *-an/-san,* respectively.

The basic middle allomorph [-at] can be seen in the verb *qaadat* 'X takes Y for X's benefit' (based on *qaad* 'X takes Y') in (47); the corresponding middle imperative form is *qaado* 'take it for your benefit!' in (48):

(47) waan qaatay baabùurka

w=aan=ø	qaad–at–ø–ay	baabùur–ka
AUX=1SG:SBJV=3SG:M:ABS	take–MID–1SG–PST	car–PROX:M:ABS

'I took the car'

(48) qaado babùurka!

qaad–t–o	baabùur–ka
take–2SG–IMP:MID	car–PROX:M:ABS

'Take the car!'

The imperative has 2SG and 2PL forms with the suffixes *-o* and *-a*, respectively.

The verb *qaad* 'X takes Y' used the *-o* form of the imperative middle, the *-so* form is seen in *ʔaqriso* as in (49):

(49) ʔaqriso bùugga

ʔaqri–s–so	bùug–ka
read–2SG–MID:IMP	book–PROX:M:ABS

'Read the book!'

(50) bùug bay ʔaqrisatay

bùug–ø	b=ay	ʔaqri–sat–t–ay
book:ABS–INDEF	FOC=3SG:F:SBJV	read–MID–3SG:F–PST

'She read a book'

In (50) there is a *-sat* form of the middle in contrast to the plain *-at* form in (47). The imperative *-o/-so* stem is the traditional lexicographic form in many dictionaries; I will also use *-o/-so* middle stems as the lexicographic form of middle verbs in this thesis.

Infinitive middle stems are used with auxiliary verbs, like the verb WAD 'X drives Y' in (51):

(51) baabùurka cusúb bay wadan doontaa

baabùur–ka	cusúb	b=ay=ø	wad–an	doon–t–aa
car–PROX:M:ABS	new	FOC=3SG:F:SBJV=3SG:M:ABS	drive–INFIN:MID	AUX–3SG:F–PRES

'She will drive the new car'

(52) way radsan doonaan

w=ay=ø	rad–san	doon–ø–aan
AUX=3PL:SBJV=3SG:M:ABS	look.for–INFIN:MID	AUX–3PL–PRES

'They will look for food'

In (51) the verb *wad-an* 'drive' is in the infinitive middle form. The infinitive form of middle verbs occurs in the future tense construction, which uses the auxiliary *doon*; the auxiliary in these inflections takes regular subject and TAM inflection. In (52) the verb *rad-san* is in the infinitive middle form.

The [-at] and [-sat] allomorphs of the middle are subject to a series of synchronic phonological rules—voicing, stem contraction, regressive assimilation, and degemination. This sometimes obscures the presence of the middle suffix, as in (53), which shows the middle form of the verb:

(53) furáha baan qaatay

furó–ka	b=aan=ø	qaad–at–ø–ay
key:PROX:M:ABS	FOC=1SG:SBJV=3SG:M:ABS	take–MID–1SG–PST

'I took the key'

(54) furáha bay qaadatay

furó–ka	b=ay=ø	qaad–at–t–ay
key:PROX:M:ABS	FOC=3SG:SBJV=3SG:M:ABS	take–MID–3SG:F–PST

'She took the key'

Even though *-at* is evident in the interlinear gloss of (53), it doesn't surface in the actual wordform *qaatay*, but since it is evident in (54) as *qaadatay,* this is an indication that the suffix is there. The morphophonology of *-at* is beyond the scope of this thesis.

1.3 VOICE

Following Mel'čuk, this thesis approaches voice as a morphological operation that effects consistent changes to the mapping of semantic roles onto syntactic actants/arguments, a verb's diathesis. Crucially, for Mel'čuk voice is also an inflectional category. Somali suffix *-at* has been described both as a derivation (e.g. Saeed, 1995) and an inflection (e.g. Hayward, 1975). The status of *-at* as an inflection or a derivation is crucial to deciding its status as a voice. If *-at* is a voice inflection, rather than a derivation, it must meet certain criteria for regularity for an inflectional category—specifically, compositionality, predictability and productivity. In the following section I will review these criteria and then, in Chapters 3 and 4 of the thesis, examine the Somali data to see how they hold up against them.

1.3.1 VOICE AND DIATHESIS

I examine the status of *-at* using the diathesis-based approach to voice of Mel'čuk and Xolodovič (1970). The term "diathesis" in the traditional Greek grammar of Dionysius Thrax was intended to describe the change in the verbal morphological marking of Greek voice alternations, as the Greek term means 'disposition' (Klaiman, 1991). In Meaning-Text Theory (Mel'čuk &

Xolodovič, 1970), "diathesis" refers to the mapping between the semantic and syntactic levels of representation of a linguistic sign, shown in Figure 1:

Figure 1 Bivalent diathesis.

OPEN 'X moves Y from a closed position'

X	Y
I	II

Above the diathesis there is a lexicographic definition of the verb OPEN, which is a linguistic representation of the meaning of a lexeme, comprised of the information necessary for a dictionary definition (Mel'čuk, 2004). The definition of the verb OPEN expresses the participants involved in the event as variables (X, Y, Z). These variables represent semantic slots that map to syntactic argument positions; such mapping often is referred to as "semantic valency" (Mel'čuk, 2004). In the active voice, the verb OPEN, as in the clause 'Mary opens the door', reflects the diathesis given in Figure 1.The top row holds the semantic roles (semantic actants) represented by variables X and Y. The lower row holds the syntactic roles (deep syntactic actants—roughly speaking, the syntactic arguments of the verb), represented by Roman numerals I and II. The first column represents the mapping between the agent role, X to the syntactic role I, the "deep" subject; in the second column, the patient role Y is mapped to II, the deep object. The number of columns in the diathesis indicates the semantic valence of the verbal lexeme; when a semantic role is expressible syntactically, those roles are semantic actants.

According to Mel'čuk (1993), voices manipulate the basic diathesis through a number of possible processes. One is the PERMUTATION shown in the passive diathesis where the mapping between semantic actants and deep syntactic actants is rearranged. As shown in Figure 2 below:

Figure 2 Passive.

OPEN 'X moves Y from a closed position → BE OPENED

X	Y
I	II

→

X	Y
II	I

The verb OPEN in a passive diathesis, in Figure 2, is a converse form of the active/basic diathesis. The patient role Y is promoted and linked to a deep syntactic actant I and the agent role X is

demoted to be mapped to a deep syntactic actant II. Therefore, the patient role is mapped to a subject and the agent role to an object (oblique).

Another possible voice manipulation is REFERENTIAL IDENTIFICATION, modifying the basic diathesis to map more than one of the semantic actants onto a single participant. This is evident in morphological reflexives. For example, Lushootseed encodes reflexivity through the suffix *-but* in (56):

Lushootseed

(55) ʔuʔəɬtubš

ʔu–ʔəɬtx^{w}–bš ø
PFV–feed–1SG.OBJ 3SG.SUBJ
'S/he fed me'

(56) ʔuʔəɬtubut čəd

ʔu–ʔəɬtx^{w}–but čəd
PFV–feed–REF 1SG.SUB
'I fed myself'

(Hess 1995: 43)[3]

In (55) the verb has two participants which take on two semantic roles, expressed as a null third singular clitic 's/he' (Beck 2000) and a suffixal 1SG object clitic *-bš* 'me'. In (56) there is a single participant which takes on two semantic roles, expressed as a first singular subject clitic *čəd* 'I' and a suffixed object reflexive suffix *-but* 'myself'. Figure 3 below shows us the active and reflexive diatheses of the Lushootseed verb *ʔəɬtx^{w}* :

Figure 3 Reflexive

ʔƏɬTX^{w} 'X feeds Y'→ ʔƏɬTX^{w}BUT

X	Y
I	II

→

X=Y
I

In a reflexive diathesis, a single event participant fills the roles of two semantic actants (X and Y), and this participant is mapped to a single deep syntactic actant.

Reflexivity in some languages is encoded by a pronominal as in (57):

[3] The glossing here is from D. Beck (p.c.).

French

(57) Je peux me débrouilér
I MOD:1SG REF:1SG manage:INFIN
'I can manage'

In French the reflexive pronoun *me* functions in a similar manner as the suffix *-but*; however, pronominal reflexives are not considered voice because they do not involve alternations in verbal morphology: a diathesis-based approach to voice requires a bound morpheme to signal the modification of a diathesis.

There are, however, morphemes that signal modification of the diathesis that do not qualify as voices. Many such morphemes, in addition to modifying the basic diathesis, have additional effects on the propositional meaning. This is the case of an anti-causative like the verb FURAM 'Y moves from a closed position' in (59) in Somali:

FUR 'X moves Y from a closed position'
FURAM 'Y moves from a closed position'

(58) Maryan baa albàabka furtay
Maryán baa albàab–ka fur–t–ay
Maryan:SBJV FOC door–PROX:M:ABS open–3SG:F–PST
'Maryan opened the door'

(59) albaabka baa furmay
albàab–ka baa fur–m–ø–ay
door–PROX:M:SBJV FOC open–AC–3SG:M–PST
'The door opened'

The base in (58) shows a bivalent verb with *Maryan* in an agent role and 'door' in a patient role; however, the *-am* stem in (59) (the suffix undergoes stem contraction), only has a patient role. The diatheses of (58) and (59) are represented in Figure 4, below:

Figure 4: Anti-causative

FUR ‘ X moves Y from a closed position’ → FURAM ‘Y moves from a closed position’

X	Y
I	II

→

Y
I

In the monovalent anti-causative diathesis, the semantic inventory of the bivalent base is not preserved, making the modification of the diathesis of the radical unvoice-like.

1.3.2 INFLECTION

In a diathesis-based approach to voice, voice is considered to be an inflection. Mel’čuk (1991, 1993–2000) defines an inflection as a set of grammatical meanings belonging to a specific morphological category obligatorily marked on a wordform in a specific context. The values of an inflectional category must be in complementary distribution and categories must contain a minimum of two members, referred to as “grammemes” (Mel’čuk, 1993–2000). The category of TENSE in Somali, for example, has the values {PAST, PRESENT, FUTURE}. Tenses in Somali are in complementary distribution with one another, as shown in (60)–(62) below:

(60) waan qoray

w=aan=ø	qor–ø–ay
AUX=1SG:SBJV=3SG:M:ABS	write–1SG–PST

‘I wrote (it)’

(61) waan qoraa

w=aan=ø	qor– ø–aa
AUX=1SG:SBJV=3SG:M:ABS	write–1SG–PRES

‘I write (it)’

(62) waan qori doonaa

w=aan=ø	qor–i	doon–aa
AUX=1SG:SBJV=3SG:M:ABS	write–INFIN	AUX—1SG–PRES

‘I will write (it)’

The wordforms *qoray* in the past tense and *qoraa* in the present, as well as the periphrastic future inflection *qori doonaa*, belong to a single lexeme QOR ‘X writes Y’. According to Mel’čuk, an inflection by definition does not create new lexemes. Therefore, a stem and a base belonging to different lexical classes, as in the verb *bir-ay* ‘X makes Y into iron’ based on the noun *bir* ‘iron’, must belong to different lexemes.

To be considered inflectional, the members of a grammatical category must meet two conditions—obligatoriness and regularity (Mel'čuk, 1991, 1993–2000). The obligatoriness of a category entails that a particular lexeme in a specified context must always express some value of that category. For example, nouns used as syntactic arguments in Somali obligatorily express the category of definiteness: the value DEFINITE of the category is marked by one of the suffixes from the paradigm in Table 2 or Table 3, whereas any wordform that is not marked with one of these suffixes is considered to express the value INDEFINITE. In the case of a voice inflection, in Latin for instance, verbs obligatorily express either active or passive values. The active value is marked with the suffix *-ø* as in *amō–ø*: 'I love', while the passive value is marked with the suffix *-r* as in *amo-r* 'I am loved'. VOICE is thus obligatory because every verb used as the predicate of a simple clause in Latin expresses one of the two values of that category.

In order to be considered regular, inflectional categories must be compositional, have predictable meanings, and be productive (Mel'čuk, 1991). The principle of compositionality in meaning entails that the meaning of the individual parts of a complex linguistic sign add up to precisely the overall meaning of the whole (Mel'čuk, 2004)—that is, the meanings of the linguistic signs X and Y must add up to precisely XY, represented as 'XY' ≡ 'X'⊕ 'Y'. Thus, the inflected Somali form *lugó* 'legs' is the compositional combination of the lexical base *lúg* 'leg' and the inflectional suffix *-o* 'plural' ('leg' ⊕ 'plural' ≡ 'legs'). On the other hand, if the sum of the parts is not equivalent to the meaning of the whole, then this is a non-compositional relation: 'XY' ≢ 'X'⊕'Y'. For example, the Somali compound *luggoí* 'to have someone's time wasted' is formed from *lúg* 'leg' and *goí* 'cut'. This is non-compositional in that 'leg' ⊕ 'cut' ≢ 'to have someone's time wasted'; a compositional and a predictable meaning would have been 'leg cutting'. Another example would be *madaxwaynee* 'president': *madax* 'head' ⊕ *wayn* 'large' ⊕ *-ee* 'agentive' should mean 'something that enlarges the head'. However, *madaxwaynee* means 'head of state of a republic'. The combination of the morphemes here is obviously non-compositional because they don't add up to precisely the meaning of the whole.

An affix may participate in the construction of compositional linguistic signs by adding discrete units of meaning to its base, but that in itself does not make it regular. In addition to being compositional, a regular affix must also make a consistent or predictable semantic contribution to the meaning of a complex linguistic sign. If a suffix, for example the Somali past tense suffix *-ay*, consistently adds a single meaning (past tense) to a verb as in *qor* 'write' (qor ⊕ ay ≡ *qoray* 'I

wrote'), then by the same token one can predict that any verb to which *-ay* is added will be in the past tense. If a morpheme makes an inconsistent semantic contribution to a particular target class of base, then the stem is considered unpredictable. For instance, the English agentive suffix *-er* in many of its uses means, when applied to a verb meaning 'X', 'a person who Xs'. Thus, when applied to the verb *jog* gives us the word *jogger* 'a person who jogs'. Here, it has a predictable and compositional meaning; however, when *-er* is applied to a verb like *compute*, as in *computer*, it means 'an electronic device that computes'. In this case, it is still compositional because the meaning of 'electronic device that Xs' is attributable to the suffix *-er* and 'compute' to the verb *compute*. Nevertheless, even though this combination is compositional, it is unpredictable, since *-er* doesn't usually mean 'electronic device that Xs'. Derivational affixes are frequently unpredictable in this sense, having idiosyncratic lexicalized meanings when combined with their bases; the meaning of an inflectional affix should always be the same, or at least completely predictable from the semantic class of its target (Mel'čuk, 1993–2000).

Productivity, the last criterion for regularity, is the extent to which a morphological operation may apply to all members of its target class (Mel'čuk, 1991). Productivity is scalar and can range from productive (applies to most) to non-productive (doesn't apply to many). An inflection is by necessity highly productive. For this thesis, in order to determine whether the suffix *-at* is productive, I tested both found and constructed *-at* forms for acceptability with speakers. I discuss this in more detail in §4.2.3.

The properties of inflections proposed by Mel'čuk contrast with those typical of derivation, which he defines as a process that creates a new lexeme from a base (a radical or a stem) through a morphological operation such as affixation (Mel'čuk, 1993-2000) A derived stem expresses a different, albeit usually related, meaning than its base does. For example, the French diminutive suffix *-ette* added to the feminine nominal base *fille* 'girl' creates the lexeme *fillette* 'little girl', changing the basic meaning to add either a sense of endearment or the state or quality of being small. In addition to a change in the core meaning of the base, a derivation often changes the base's word class. For example, adding the vowel *a* to the first templatic slot of a verbal root in modern standard Arabic derives a verbal noun (masˁdar), as in √FTX 'open' > *fatx* 'victory'.

A derivation may be inflection-like in that there are regular (compositional and productive) derivations. In addition, there are grammatical categories with voice-like members called "derivatemes" (Mel'čuk, 1993-2000). These are voice-like in the sense that a morphological sign

triggers a change in the basic diathesis; however, they display unvoice-like behaviours such as altering the propositional meaning of the base (as in the anti-causatives discussed in §1.3.1 above). Derivatemes are different from grammemes since they violate the first condition of an inflectional category, obligatoriness. The French diminutive, for instance, is not obligatory because nouns in French can not be said to express the non-diminutive (i.e., we would not analyze *fille* as fille–*Ø* [girl–NONDIM] 'the not-little girl'). This contrasts with inflectional categories like French NUMBER, because nouns express the non-plural (SINGULAR)—thus, we have *fille–Ø* [girl–SG] as opposed to *fille–s* [girl–PL]. Although the plural suffix is not pronounced in spoken French, the difference in the two wordforms is seen through liaison and the accompanying determiners as in *la or les*.

Derivations are often non-compositional, though there are compositional derivations—for example the French diminutive in *fillette* 'little girl' is compositional in one of its senses in that it is composed of the noun *fille* 'girl' and the diminutive suffix *-ette* ('girl' ⊕ 'diminutive' ≡ 'diminutive girl'). However, the same suffix may be non-compositional when used with other bases, as in *pommette* 'cheekbones' composed of *pomme* 'apple' and the diminutive suffix ('apple' ⊕ 'diminutive' ≢ 'cheekbones'). By the same token, derivations can be productive, but can range from high to less productive or non-productive, unlike an inflection.

1.4 *-AT* IS A DERIVATIONAL MIDDLE

The suffix *-at* is not a voice, rather it is a derivation. Although *-at* falls under middle semantics to a degree (Chapter 2), it has unvoice-like properties. In Chapter 3, I show that *-at* has various diathetic effects, some of which maintain the basic valence (§3.1) and others alter the basic valence (§3.2). The valence-altering effects of *-at* are an unvoice-like property as voices should maintain the basic valence. Although those voices should maintain the basic valence, this should be consistent, unlike *-at*, there are three different valence maintaining effects. In Chapter 4, I show that the suffix *-at* does not behave as an inflection in showing a variety of derivational properties. These derivational properties include *-at* altering the part of speech of the base (§4.1) and showing frequent irregularity(§4.2). Testing the data reveals many non-compositional stems (§4.2.1) formed using *-at*. Likewise *-at* has highly unpredictable semantic effects with many radicals. (§4.2.2). Further investigation of a corpus and speaker acceptability of *-at* stems reveals that *-at* is largely unproductive (§4.2.3).

2 MIDDLE SEMANTICS

The morpheme *-at* is heterosemous, it adds a wide variety of meanings to the meanings of its base. With some bases, *-at* indicates that the action of the Actor is directed towards the Actor's body (e.g., QUBAYSO 'X washes X's body with water' from QUBAY (Ú) 'X washes Y's body with water'). With other bases, *-at* indicates a change in the mental or cognitive state of the Actor (OGO 'X comes to know Y' from OG 'X knows Y'). In other cases, *-at* is associated with spontaneous changes in the Actor or events in which the Actor undergoes translational motion or changes posture. For this thesis, I surveyed 460 *-at* stems, based in part on a 300-word corpus used in a study conducted by Saeed (1995)[4], and in part on words drawn directly from dictionaries (Yaasiin 1976; Zorc & Osman, 1993). Examination of the expanded corpus reveals that there is a wide variety of additional meanings associated with middle forms beyond those identified by Saeed. This kind of extreme heterosemy is typical of what are analyzed as middles in many languages (e.g., Lyons, 1969; Kemmer, 1993).

Kemmer (1993) attempts to show that even though middles are heterosemous within and across languages, they nonetheless express meanings within a middle semantic domain she refers to as "low elaboration of participants", an abstract semantic schema that covers a range of middle semantic classes ("middle situation types"). Middle situation types are considered to show low elaboration of participants in the sense that the semantic roles taken by the participant(s) are not distinct (Kemmer, 1993). Further, an event can be considered low elaboration when the undergoer of an event is coterminous with the actor of the event—that is, the actor is not an entirely distinct entity from the undergoer. "Canonical" middle situation types consist of a range of meanings such as: bodily action, where the affected entity is the body of the actor; posture and motion, where the body of the actor is the affected entity either resulting changing of body configuration or change in location; emotion and cognition, where only the internal state of the actor is affected; and spontaneous middle events, where there is no agent and the undergoer is affected by the event, experiencing a change of state.

4 Saeed (1995)'s study of -at semantics covers approximately 300 verbs; Saeed used the dictionaries Agostini et.al (1985), Abraham (1962), Yaasiin (1976), and Zorc & Osman (1993) to extract his data.

Kemmer's cross-linguistic analysis works well for many of the *-at* forms in the corpus, many middle forms in Somali expressing canonical middle situation types; however, further examination of the corpus shows that Somali verbs fall into additional "non-canonical" categories. As noted by Saeed (1995), many middle stems belong to a category he calls "inherent reciprocals" which he places in a new category referred to as *social, business, and financial interaction*. Examination of the corpus also reveals that many forms fall into an "Auto-benefactive" class and also into miscellaneous "Other" category of non-canonical stems. Table 12 below summarizes the semantic classification of the *-at* stems in the corpus:

Table 12 *-At* semantic classes

Middle class	Stems	
Canonical middles	215/460 (47%)	
	Bodily action	61/215 (28.4%)
	Posture & Motion	46/215 (21.4%)
	Spontaneous	61/215 (28.4%)
	Emotion & Cognition	47/215 (22%)
Non-canonical middles	245/460 (53%)	
	SBFI	65/245 (26.5%)
	Auto-benefactive	134/245 (54.7%)
	Other	46/245 (18.8%)
Total	460/460 (100%)	

As shown in Table 12, Kemmer's (1993) canonical middles make up 215/460 (47%) of the corpus; 61/215 (28.4%)of the canonical middles fall under the bodily action middle class, while 46/215 (21.4%) fall under the motion and posture class, 61/215 (28.4%) belong to the spontaneous middle class, and 47/215 (22%) belong to the emotion and cognition class. Non-canonical middles make up 245/460 (53%)—that is, over half—of the corpus. Of these, the social, business, and financial interaction (SBFI) type noted by Saeed (1995) account for 65/245 (26.5%) stems. The largest group of non-canonical stems is the auto-benefactive stems, which account for 134/245 (54.7%), while the miscellaneous Other class makes up 46/245 (18.8%).

Another factor brought to light by examining the corpus is that not all *-at* forms are based on extant verbal radicals—some are based on non-verbal radicals and others are unpaired (that is, they do not correspond to a non-middle verbal form). The 460 *-at* stems in the corpus thus fall into three formal classes: 1) *-at* stems based on verbal radicals (182/460 [39.5%]); 2) unpaired stems

(178/460 [38.7%]); 3) *-at* stems of non-verbal radicals (100/460 [21.7%]), as summarized inTable 13 below:

Table 13 Radical of *-at* stems

Total Middle stems	Stems
Verbal radicals	182/460 (39.6%)
Unpaired	178/460 (38.7%)
Non-verbal radicals	100/460 (21.7%)
Total	460/460 (100%)

The facts that there are nearly equal numbers of middle forms based on extant verbal radicals as there are unpaired and that there is a significant number of stems based on non-verbal radicals has important implications for the issue of productivity and the status of *-at* as a voice, issues I will return to in Chapter 4 below.

2.1 CANONICAL MIDDLE MEANINGS

Extensive cross-linguistic work by Kemmer (1993) examines events that are expressed using morphological markers that are called—or sometimes analyzed as—middles in a wide range of languages. According to Kemmer, events expressed by verbs bearing these markers seem to be categorizable into the semantic classes ("situation types") summarized in Table 14:

Table 14 Canonical middle situation types

Middle sematic classes	Definition	Examples
Bodily action	Grooming/body care	*lavo-r* 'wash' (Latin)
Motion & Posture	Motion/change of body posture	*snúa-sk* 'turn' (Old Norse), *ber-lutut* 'kneel' (Bahsa)
Emotion & Cognition	Events of effect on the mind'	*bán-kod* 'grieve' (Hungarian) *-i-sala* 'think over' (Pangwa)
Spontaneous	Events which occur suddenly without an apparent cause	*dinl-en* 'recover' (Turkish)

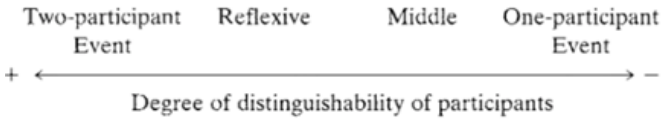
examples from (Kemmer, 1993: 17–20)

The bodily action situation type pertains to events of grooming and body care, and includes verbs expressing events such as washing, dressing, combing, etc. Motion entails a subject undergoing a change in body configuration while retaining the same overall location (e.g., Old Norse *snúa-**sk*** 'turn'). Posture middles express an entity changing the configuration of its body as in 'kneel down', 'sit down', etc. The stems in the emotion and cognition class express events in the mind of the Actor, affecting the Actor's emotional or cognitive state (e.g., Hungarian *bán-**kod*** 'grieve'; Pangwa *-**i**-sala* 'think over'). Spontaneous middles express events that occur suddenly with no

apparent causer; this class includes events such as *dinl-**en*** ‘recover’ in Turkish (Kemmer, 1993). As Kemmer (1993) remarks, middle stems are not restricted to membership in a single semantic class; one stem may be a part of one or more semantic classes within the larger semantic middle domain.

The four canonical middle classes all occupy a portion of a continuum Kemmer refers to as “degree of distinguishability of participants”. Kemmer (1993) bases this on the semantic transitivity scale of Hopper & Thompson (1980). Middles occupy the low end of this continuum, as shown in Figure 5 below:

Figure 5 Distinguishability of participants.



(Kemmer, 1993: 73)

The higher an event is on the transitivity scale, the more distinguishable the event participants are—thus, there is a positive correlation between transitivity and participant distinguishability (Kemmer, 1993). At the high end of the distinguishability scale, we find two-participant events, as in the Somali lexeme DIL ‘X hits Y’. We find the highest degree of elaboration at this end, as there are two participants with clearly definable and distinct semantic roles. Reflexives directly follow two-participant events: they have lesser elaboration since the event has a single participant which takes on two clearly distinct semantic roles. At the lowest end of the scale, we find single-participant events such as spontaneous middle events, as in DHAC ‘X falls’. It is low elaboration because the event lacks the participant role which brought about the change of state.

Bodily action middle events fall into the middle semantic domain because they have a participant lacking a clearly definable semantic role; the action of the Actor is directed back towards part of or its whole self, as in stems like that in (64):

Modern Standard Arabic

(63) xammamat alʔumu alwalada

xammam–at al–ʔum–u al–walad–a
bathe–3SG:F:PST DEF–mother–NOM DEF–boy–ACC
‘The mother bathed the boy’

(64) taxammama alwaladu

ta–xammam–a	al–walad–u
MID–bathe–3SG:M:PST	DEF–boy–NOM

'The boy bathed'

In (63) the verb expresses two participants—*ʔum* 'mother' and *walad* 'boy'— each of which takes on one of two semantic roles, agent and patient. The middle stem in (64) has a single participant, expressed as the subject (*walad* 'boy') which takes both semantic roles—agent and patient. According to Kemmer (1993) this event is low elaboration because the agent and patient roles are assigned to a single entity, rather than two distinct entities as in (63).

Motion and posture events fall into the middle domain because they typically express an event in which the actor is also the undergoer as in (66):

WAREEG 'X goes around'

WAREEGSO 'X turns X's body around in a circle'

(65) waan wareegay

w=aan	wareeg–ø–a
AUX=1SG:SBJV	goes.around–1SG–PRES

'I got out and about'

(66) waan wareegsaday

w=aan	wareeg—sat–Ø–ay
AUX=1SG:SBJV	goes.around—MID–1SG–PST

'I turned around'

The verb in (65) WAREEG expresses a single participant as the subject clitic *aan* 'I'. The middle stem in (66) also takes a single participant, however, the actor is initiator and the endpoint the body of the actor. This type of event is considered to show low elaboration because the role assigned to the actor entity and the event are not distinguishable, since the actor acts on itself.

Cognition and emotion middle events typically express a single participant taking on a single semantic role, as in the Arabic middle cognitive stem in (67):

Modern Standard Arabic

(67) tafakkarat albintu

ta–fakkar–at	al–bint–u
MID–think–3SG:F:PST	DEF–girl–NOM

'The girl pondered'

The verb in (67) expresses a single event participant, the subject *bint* 'girl' which takes a single semantic role. The actor (thinker) is the instantiator of the action, the endpoint is the mind of the actor. This type of event is considered low elaboration in the sense that the semantic role which the participant takes is not clearly definable as it is not entirely distinguishable from the event.

Spontaneous middle events express a single participant taking a patient role, as in the Somali stem GUBO in (69):

GUB 'X burns Y

GUBO 'X burns'

(68) guríga buu gubay

guri–ka	b=uu=ø	gub–ø–ay
house–PROX:M:ABS	FOC=3SG:M:SBJV=3SG:M:ABS	burn–3SG:M:PST

'He burnt the house'

(69) guíga baa gubtay

guri–ka	baa	gub–t–Ø–ay
house–PROX:M:ABS	FOC	burn–MID–3SG:M–PST

'The house burnt'

In (68) the radical GUB is bivalent, expressing an event with two event participants. The subject clitic *uu* 'he' takes an agent role and *guri* 'house' takes a patient role. In (69) the middle stem has a single event participant; the subject is *guri* 'house', but it is assigned a patient-like role. This type of event is considered to show low elaboration in the sense that the entity which brought about the change of state is missing from the event.

2.1.1 MIDDLES OF BODILY ACTION

The semantic class of bodily action includes actions where an entity maintains a certain physical appearance by either practicing bodily hygiene to maintain health (e.g., brushing teeth, washing) or meeting social norms (e.g., shaving). According to Kemmer (1993), the endpoint of actions expressed by bodily action stems is either a part of the actor's body or the body as a whole.

Within the bodily action class, there are three subclasses: *grooming, dressing,* and *other bodily actions*. Stems in the grooming sub-type of bodily action events are verbs such as SHANLAYSO in (71):

SHANLAY 'X combs Y's hair'

SHANLAYSO 'X combs X's hair Y'

(70) Naciimó bay timáha ú shanlaysay

Naciimó	b=ay=ø	timó–ka	ø=ú	shanlo–ay–s–ay
Naciimo:ABS	FOC=3SG:F:SBJV=3SG:M:ABS	hair–PROX:M:ABS	3SG:F:ABS=BEN	comb–VRB–3SG:F–PST

'She combed Naciima's hair'

(71) Maryan timaha bay shanlaysatay

Maryán	timo–ka	b=ay=Ø	shanlo–ay–sad–t–ay
Maryan:SBJV	hair–PROX:M:AB	FOC=3SG:F:SBJV=3SG:M:ABS	comb–VRB–MID–3SG:F–PST

'Maryam combed her hair'

In (70) the verb SHANLAY is bivalent, the clitic *=ay* 'she' expresses the agent role and *timáha* 'hair' expresses the patient role. *Naciimó* is a beneficiary, expressed as a complement of the verbal adposition *ú* 'benefactive'. The *-at* stem is also bivalent in (71). *Maryan* is the agent and *timáha* 'hair' expresses the patient role; however, the subject has both the roles of an agent and a beneficiary, since the affected body part 'hair' belongs to the agent. This stem demonstrates low elaboration of participants, as the participant expressed as a subject takes more than one semantic role. These sematic roles are not assigned to distinct entities, rather a single entity expresses them. The dressing subtype of bodily action events includes verbs such as XIRO in (73):

XIR_1 'X fastens long flexible object to Y by securing its ends together'
$XIRO_1$ 'X fastens long flexible object (clothing article) Y to the body of X so that its ends are secured together'.

(72) bàaldiga buu xaríg kú xiray

bàaldi–ka	b=uu=Ø	xaríg–Ø	Ø=kú	xir–Ø–ay
bucket–PROX:M:ABS	FOC=3SG:M:SBJV=3SG:M:ABS	rope:ABS–INDEF	3SG:M:ABS=INST	tie–3SG:M–PST

'he tied a rope around the bucket'

(73) sùunka buu xirtay

sùun–ka	b=uu=Ø	xir–ad–Ø–ay
belt–PROX:M:ABS	FOC=3SG:M:SBJV=3SG:M:ABS	tie–MID–3SG:M–PST

'He buckled the belt'

The radical XIR in (72) is a bivalent verb assigning the third singular clitic *=uu* 'he' the role of an agent and *bàaldi* 'bucket' that of a patient. The verbal adposition *kú* assigns an instrumental role to *xaríg* 'rope'. The *-at* stem in (73) also assign two semantic roles—to the clitic *=uu* 'he' and *súun* 'belt'. It expresses an event of dressing since objects this stem takes are articles of clothing such

as shoelaces, ties, and belts. The subject is both an agent and a beneficiary as the agent's body is also affected by the act of dressing. This stem shows low elaboration of participants, since the participant expressed as a subject takes more than one semantic role in the event.

The third subtype of bodily action stems includes verbs such as XAAQO in (75) below:

XAAQ 'X cleans dirt, dust, or litter from Y with a broom'
XAAQO 'X clear's X's throat'

(74) guriga buu xaaqay

guri–ka	b=uu	xaaq–ø–ay
house–PROX:M:ABS	FOC=3SG:M:SBJV	cleans–3SG:M–PST

'He swept the house'

(75) wuu xaaqaday

w=uu	xaaq–at–ø–ay
AUX=3SG:M:SBJV	clear.throat–MID–3SG:M–PST

'he cleared his throat'

In (74) the radical XAAQ is a bivalent verb assigning semantic roles to distinct entities—an agent role to the clitic *=uu* 'he' and a patient role to the noun *guri* 'house. The middle stem in (75) assigns a single role to a single participant, *=uu* 'he', the actor entity acting on itself. This event shows low elaboration in that the the actor and the undergoer are not clearly distinguishable entities.

Bodily action stems make up 61/460 (13%) of the 460 verbs examined; these are listed in Table 5 below:

Table 15 Bodily action middles

Grooming:
1. MAYDH (Ú) 'X washes Y's body with water'
2. MAYDHO 'X washes X's body with water'
3. QUBAY (Ú) 'X washes Y's body with water'
4. QUBAYSO 'X washes X's body with water'
5. TIDIC 'X braids Y (hair)'
6. TIDCO 'X braids X's Y (hair)'
7. XIIR 'X shaves Y (head)'
8. XIIRO 'X shaves Y (the head) of X'
9. SHANLAY 'X combs Y's hair'

10. SHANLAYSO ‘X combs Y the hair of X’

11. DUR ‘X injects Y’
12. DURO ‘X pierces Y (body) of X’

13. MAR ‘X passes along Y’
14. MARSO ‘X applies a substance Y (cream) to part of X’s body Z the body of X’

15. AFTIRO$_{DEP}$ ‘X wipes X’s mouth’

16. WEESAYSO$_{DEP}$ ‘X makes ablution to purify X’s body’

17. SUBAGAYSO$_{DEP}$ ‘X applies subag butter to X’s body (usually the hair)’

18. UUNSO$_{DEP}$ ‘X perfumes X’s self or X’s home with uunsi (incense)’

19. MALAAS$_{N}$ ‘red/white clay used to flatten hair’
20. MALAASO ‘X applies red/white clay on Y hair of X to flatten it’

21. KUUL $_{N}$ (Arabic √k7l) ‘type of eyeliner for eyes’
22. KUULO ‘X applies kuul to X’s eyes’

23. SIIN$_{N}$ ‘nasal mucus’
24. SIINSO ‘X blows X’s nose’

25. DIIB$_{N}$ ‘fragrance, scent’
26. DIIBSO ‘X puts diib on X’s body’

27. DIIF$_{N}$ ‘nasal mucus’
28. DIIFSO ‘X blows X’s nose’

29. CUSBUR$_{N}$ ‘henna’
30. CUSBURO ‘X applies henna on X’s body’

31. DHUKAY$_{N}$ ‘earwax’
32. DHUKAYO ‘X cleans earwax for X’s ears’

33. FINDHICIL$_{N}$ ‘toothpick’
34. FINDHICILO ‘X picks X’s teeth with a toothpick’

35. LUQ/LUQLUQ$_{N}$ ‘corner, alleyway’
36. LUQLUQO ‘X gargles or X washes X’s mouth’

37. RUMMAY$_{N}$ ‘a twig from the mustard tree (miswaak) used to brush teeth’

38. RUMMAYO ‘X uses rummay to clean X’s teeth’

Dressing:

1. LEBIS (Ú) ‘X puts clothing on Y’
2. LEBISO ‘X puts clothing on X’s body’

3. FEYD ‘X removes Y from covering’
4. FEYDO ‘X removes Y (clothing) so that part of X’s body is uncovered’

5. XEYDH ‘X lifts up Y’
6. XEYDHO ‘X lifts up Y the clothing on X’s body’ (so that X won't fall while walking or running)

7. QAYIR (Arabic √3yr) ‘X changes Y’
8. QAYIRO ‘X changes Y the clothing on X’s body’

9. XIR_1 ‘X fastens long flexible object to Y by securing its ends together’
10. $XIRO_1$ ‘X fastens long flexible object (clothing article) Y on the body of X so that its ends are secured together’ (belt, tie, shoelaces.)

11. SID ‘X supports the weight of Y while moving Y from one place to another’
12. SIDO ‘X wears an article of clothing Y’

13. XIR_2 'X places Y over an opening to cover it’ (door, jar lid)
14. $XIRO_4$ 'X puts Y clothing over X’s body to cover it’

15. GAL ‘X enters into a place Y’
16. GASHO ‘X puts an article of clothing Y on X’s body’

17. $QAAWISO_{DEP}$ ‘X strips X’s body’

18. $GARWAAXEEDSO_{DEP}$ ‘X drapes shawl or clothing around X’s body’

19. $GANBAYSO_{DEP}$ ‘X wear a ganbo on X’s head’

20. $SHUKAYSO_{DEP}$ ‘X wears a shuko (black dress/cloak/abaya)’

21. $ILLO_{DEP}$ ‘X puts on shoes’

22. $GARBASAAR_N$ ‘Somali style shawl’
23. GARBASAARO ‘X put a garbasaar on X’s body’

24. GUNUD$_{N}$ ‘knot’
25. GUNTO ‘X wraps clothing around X’s body by knotting it on the shoulder’

26. CIMAAMAD$_{N}$ ‘shawl for men’
27. CIMAAMADO ‘X wears a cimaamad’

28. INDOSAAB$_{N}$ ‘eye cover’
29. INDOSAABO ‘X covers X’s eyes’

30. GAASHAAN$_{N}$ ‘shield to protect body’
31. GASHAAMO ‘X puts on shield on X’s body’

32. INDHASHAREER$_{N}$ ‘face veil (only showing the eyes)’
33. INDHASHAREERO ‘X veils X’s face (with the exception of the eyes)’

34. XIJAAB$_{N}$ (Arabic √7jb) ‘hijaab’
35. XIJAABO ‘X wears a hijaab on X’s body’

36. XARRAGO$_{N}$ (Arabic 7rk) ‘fashion’
37. XARRAGO ‘X dress X’s body so that X is fashionable’

38. GARRAR$_{N}$ 'clothing where the material is knotted over the shoulder’
39. GARRARSO ‘X wears clothing on X’s body by knotting the clothing over the shoulder of X’

40. HU$_{N}$ ‘clothing’
41. HUWO/HUGSO ‘X puts on Y clothing on X’s body’

42. HAGOOG$_{N}$ ‘cloth/cover’
43. HAGOOGO ‘X covers the head of X with a cloth’

44. XANJEER$_{N}$ ‘carrying sling for a baby'
45. XANJEERO ‘X puts on a xanjeer on X’s body to carry a baby’

Other bodily action:

46. XAAQ ‘X cleans dirt, dust, or litter from Y with a broom’
47. XAAQO ‘X clear’s X’s throat’

48. LIBIQSO$_{DEP}$ ‘X blinks or winks’

49. JIMICSO$_{DEP}$ ‘X engages in movement of X’s skeletal muscles’

50. $DUCO_{DEP}$ ‘X’s muscle contracts’
51. $KURBO_{DEP}$ ‘X shivers from cold’
52. $JIRROORSO_{DEP}$ ' X tenses X's muscles; X endures pain'
53. $DHABAQSO_{DEP}$ ‘X (usually animal) drinks noisily’
54. $JIIQSO_{DEP}$ ‘X sucks noisily; X sucks X's teeth’
55. $HIINSO_{DEP}$ ‘X suck up the last amount of liquid from a vessel into X’s mouth'
56. $DABAALO_{DEP}$ ‘X swims’
57. $HUNQACO_{DEP}$ ‘X vomits’
58. $DAACO_{DEP}$ ‘X burps’
59. $NEEF_{N}$ ‘air’
60. NEEFSO ‘X breathes’
61. $HAAR_{N}$ ‘a mark’
62. HAARO ‘X marks X’s body’
63. $JIRRIQ_{N}$ ‘shrill, sharp noise’
64. JIRRIQSO ‘X grinds X’s teeth’

The proportions of the stems falling into the three semantic subclasses of bodily actions are shown in Table 16:

Table 16 Total bodily action middles

Class	Stem
Grooming	21/61 (34%)
Dressing	25/61 (41%)
Other bodily action	15/61 (25%)
Total	61/61 (100%)

Grooming event stems make up 21/61 (34%) and dressing event stems account for 25/61 (41%) of the bodily action middle forms Stems belonging to the other bodily action class account for 15/61 (25%).

2.1.2 MIDDLES OF MOTION AND BODY POSTURE

The motion and body posture class of canonical middles is sub-divided into two groups. The first group contains *non-translational motion* and *body posture* stems, stems which express actions that merely alter the configuration of the body, but don't necessarily result in a change of location (Kemmer, 1993). The second group is *translational motion*, which is comprised of stems expressing actions that result in the change of the location of the *whole self* (Kemmer, 1993). These classes all belong to the middle domain of Kemmer (1993) because the endpoint is part of the body or the whole body (or whole self) of the actor.

Verbs of non-translational motion express events where the subject undergoes a change in body configuration while retaining the same overall location (Kemmer, 1993). An example of this type of verb is FOORARSO in (77):

FOORAR 'X is in an inclined position'
FOORARSO 'X bows'

(76) hòos buu ú fooraraa

hòos	b=uu	ú	foorar–Ø–ay
down	FOC=3SG:M:SBJV	DAT	bow–3SG:M–PST

'He was bowing down or bending down'

(77) hòos buu ú foorarsaday

hòos	b=uu	ú	foorar–sat–Ø–ay
down	FOC=3SG:M:SBJV	DAT	bow–MID–3SG:M–PST

'He bowed down, bent down'

In (76) the radical is a stative verb with a single semantic role, expressed as the clitic *=uu* 'he'. The *-at* suffix creates an inchoative verb expressing the change of state of the body to a bowing position. The locative expression *hòos* 'down' doesn't indicate a new location, but rather the direction of the motion of the subject. The actor is both the instantiator and endpoint, as the actor acts on itself. This stem shows low elaboration because the actor and the undergoer of the event are the same entity.

Verbs expressing change of body posture are verbs like JEEFO in (79):

JEEF 'X is lying down X's body to sleep'
JEEFO 'X lies X's body down to sleep'

(78) wuu jeefay

w=uu jeef–ø–ay
AUX=3SG:M:SBJV lie.down–3SG:M–PST
'He was lying down to sleep'

(79) wuu jeefaday

w=uu jeef–at–ø–ay
AUX=3SG:M:SBJV lie.down–MID–3SG:M–PST
'He lay down to sleep'

In (78) the radical JEEF assigns a single semantic role, it is a stative verb describing the position of the subject, lying down. The *-at* stem in (79) is an inchoative verb, also assigning a single semantic role; the body of the subject undergoes a shift of configuration from a standing posture to a posture where the body is lying down. Therefore, with posture stems there are two changes, the new body configuration and the new location of the subject's body (Kemmer, 1993). The actor acts on itself, hence this stem shows low elaboration because the actor and the undergoer of the event are the same entity, rather than being distinct entities.

With translational motion verbs, the subject changes location by moving along a path; however, there is no change in the configuration of the subject's body (Kemmer, 1993). An example of a translational motion *-at* form is the unpaired stem $SIKO_{DEP}$ in (80):

*SIK

SIKO 'X slightly moves X's body'

(80) waan sikaday

w=aan sik–ad–ø–ay
AUX=1SG:SBJV move–MID–1SG–PST
'I slightly moved myself'

The stem in (80) is an unpaired form because it does not correspond to a bare radical. Here, it takes the clitic *=aan* 'I' as a subject and the event signifies the slight motion of the body along a path without altering the configuration of the body. This type of event belongs to the middle semantic domain because the actor and the undergoer of the event are a single entity.

Among the 460 verbs surveyed, motion and posture stems make up 46/460 (10%) of the stems. The list of these stems is given in Table 17:

Table 17 Motion & posture middles

Non-translational motion
1. JALEEC ‘X turns around to look at something’ 2. JALEECSO ‘X turns sideways’
3. WAREEG ‘X goes around’ 4. WAREEGSO ‘X turns around in a circle’
5. RAKOC (Arabic √rk3) ‘X is bowing (in prayer)’ 6. RAKOCO ‘X bows (in prayer)’
7. FOORAR ‘X is in an inclined position’ 8. FOORARSO ‘X bows’
9. LEEXO$_{DEPO}$ ‘X turns X’s body’
10. QOORANSO$_{DEP}$ ‘X looks at something by craning X's neck sideways’
11. TIIGSO$_{DEP}$ ‘X stretches out X’s body towards the ceiling’[5]
Change in body posture
1. JOOG ‘X remains at a specific location’ 2. JOOGSO ‘X causes the X’s body to be in a standing position’
3. FADHI ‘X is sitting down’ 4. FADHISO ‘X sits down’
5. DHACDIID ‘X is supine’ 6. DHACDIIDSO ‘X lies down on X’s back’
7. DHAMBACAAD ‘X is prone’ 8. DHAMBACAADSO ‘X lies down on X’s stomach’
9. JEEF ‘X is lying down to sleep’ 10. JEEFO ‘X lies down to sleep’
11. KADALOOB ‘X is squatting’ 12. KADALOOBSO ‘X squats down’
13. BARRAAQ ‘X is seated in an inappropriate way’ 14. BARRAAQSO ‘X seats X’s self in an inappropriate way’

[5] TIKSO in some regions

15. DHIIDHIIB ‘X is seated with the legs stretched out on the ground'
16. DHIIDHIIBSO ‘X sits down with X’s legs stretched out on the ground’

17. QALLOC ‘X is bent over’
18. QALLOCSO ‘X bends over’

19. CUKSO$_{DEP}$ (KÚ)‘X leans X’s body on Y something’

20. BARKO$_{DEP}$ ‘X puts X’s head on a Y pillow’

21. TU’O$_{DEP}$ X (a camel) squats down on its haunches’

22. DHABBACO$_{DEP}$ ‘X stretches out on stomach’

23. SEEXO$_{DEP}$ ‘X lies down’

24. GABBO$_{DEP}$ ‘X takes cover’

25. CANDHAAQSO$_{DEP}$ ‘X sits on the ground in a lazy or relaxed manner’

26. BARQO$_{N}$ ‘late morning’
27. BARQO ‘X is sleeping during the late morning’

28. HAR$_{N}$ ‘shade’
29. HARSO ‘X takes shelter in the shade’

Translational motion

1. LAAB ‘X folds or bends Y’
2. LAABO ‘X returns’

3. BAX ‘X moves from one point in space to another’
4. BAXSO$_2$ ‘X moves out of danger’

5. DEG ‘X moves to dwell in Y’
6. DEGO ‘X lowers X’s body’

7. TAG ‘X goes to a place Y'
8. TAGSO ‘X goes to a far-off place'

9. MERAYSO$_{DEP}$ ‘X paces around’

10. GALGALO$_{DEP}$ ‘X rolls around the ground’

11. TURONTURO$_{DEP}$ ‘X stumbles’

12. NOQO$_{DEP}$ ‘X returns’

13. DIGARROGO$_{DEP}$ ‘X relocates, moves, or changes the address of X’
14. GUURGUURO$_{DEP}$ ‘X moves on X’s hands and knees’
15. XAMMARO$_{DEP}$ ‘X moves on X’s chest (e.g. baby)’
16. DURDUURO$_{DEP}$ ‘X runs wildly (animals)’
17. SOCO$_{DEP}$ ‘X walks’
18. TAGTAGOSO$_{DEP}$ ‘X walks on tiptoes’
19. DHAQSO$_{DEP}$ ‘X hurries’
20. NUUXSO$_{DEP}$ ‘X moves X’s body’
21. SIKO$_{1DEP}$ ‘X slightly moves X’s body’
22. SIKO$_{2DEP}$ ‘X moves X’s body to barely escape a bad situation’
23. TILAB$_{N}$ ‘a step’[6]
24. TILABO ‘X takes a step’
25. SAF$_{N}$ ‘queue’
26. SAFO ‘X goes in a queue’
27. SULX$_{N}$ ‘slippery place’
28. SULXO ‘X slips’

The proportions of the motion and posture stems fall into the following semantic subclasses shown in Table 18:

Table 18 Total motion & posture middles

Class	stems
Non-translational	7/46 (15%)
Change in posture	18/46 (39%)
Translational	21/46 (46%)
Total	46/46 (100%)

[6] TALLAB in some regions

Non-translational motion stems make up 7/46 (15%), while change in posture stems make up 18/46 (39%). Translational motion is the largest class, accounting for 21/46 (46%) of the motion and posture stems.

2.1.3 MIDDLES OF SPONTANEOUS EVENTS

Middles in the class of spontaneous events take a single patient-like participant role (Kemmer,1993). The hallmark of spontaneous events is that they do not assign the semantic role of agent, as the event occurs with no apparent causer. According to Kemmer (1993), verbs in this class express not only actions, but also processes, and inchoative types of event also belong to this class. Kemmer (1993) finds spontaneous (including inchoative) events to be in the middle domain because the event lacks an agent role bringing about the change of state undergone by the subject.

Spontaneous middles express a change of state in the sole nominal argument; radicals may be stative and become inchoative when *-at* is added, as in OMANO in (82):

OMAN ‘X is thirsty’
OMANO ‘X becomes thirsty’

(81) wuu omanay

w=uu	on–an–Ø–ay
AUX=3SG:M:SBJV	thirst–STAT–3SG:M–PST

‘He was thirsty’

(82) wuu omanaday

w=uu	on–an–at–Ø–ay
AUX=3SG:M:SBJV	thirst–STAT–MID–3SG:M–PST

‘He became thirsty’

The radical in (81) is stative, describing the state of being thirsty; the derivational stative suffix *-an* creates a stative radical ‘be thirsty’ from the noun ON ‘thirst’. In (82), the middle stem expresses a change of change of state from not being to being thirsty. What brought about the change of state is not expressible as an argument of the *-at* stem; the event occurs in a spontaneous manner, hence, the verb falls under the heading of low elaboration.

A large proportion of spontaneous middles are inchoative stems like the unpaired form ILKAYSO$_{DEP}$ (83):

*ILKAY

ILKAYSO$_{DEP}$ ‘X grows teeth’

(83) way ilkaysatay

w=ay	ilkay–sat–t–ay
AUX=3SG:F:SBJV	grow.teeth–MID–3SG:F–PST

‘Her teeth grew’

In (83) the unpaired stem assigns a patient role to the clitic *=ay* ‘she’ and the stem signifies a physiological process which occurs without an agent. This event shows low elaboration because of the lack of the agent entity which brought about the change of state in the event.

Among the 460 verbs surveyed, spontaneous events make up 61/460 (13%) instances, these stems are listed in Table 19:

Table 19 Spontaneous middles

Spontaneous
1. RUX ‘X shakes Y’ 2. RUXMO ‘X’s body shakes’
3. QUB ‘X spills Y (water, leaves, fruits,)’ 4. QUBO ‘X is spilt or falls (leaves, fruits)’
5. WAAL ‘X causes Y to become insane 6. WAALO ‘X becomes insane’
7. OMAN ‘X is thirsty’ 8. OMANO ‘X becomes thirsty’
9. DHIN ‘X makes Y smaller in quantity’ 10. DHIMO ‘X dies’
11. DHAL ‘X gives birth to Y’ 12. DHALO ‘X is comes into being’
13. RAY ‘X triumphs Y’ 14. RAYSO ‘X recovers from an illness’
15. HAMUNSAN ‘X is gasping or yawning’ 16. HAMUNSANO ‘X comes to gasp or yawn’
17. DOOG2 ‘X conserves Y rainwater’ 18. DOOGSO ‘X receives abundant rain’
19. GUB ‘X burns Y 20. GUBO ‘X burns’
21. BARAARUG ‘X is awake’ 22. BARAARUG ‘X awakes up’
23. LUL ‘X shakes Y 24. LULO ‘X shakes’
25. DAADO$_{DEP}$ ‘X spills’

26. DIHALO$_{DEP}$ ‘X starves’
27. MERGO$_{DEP}$ ‘X chokes (e.g. on food)’
28. MUUQO$_{DEP}$ ‘X becomes visible’
29. HOOBO$_{DEP}$ ‘X becomes destroyed’
30. HAFO$_{DEP}$ ‘X drowns’
31. BALLARO$_{DEP}$ ‘X becomes wide or large’
32. BALQO$_{DEP}$ ‘X spills’
33. BURQO$_{DEP}$ ‘X pours out or gushes’
34. DAGIIGOXO$_{DEP}$ ‘X slips or slides down’
35. HABSO$_{DEP}$ ‘X collapses’
36. TUN ‘X hits Y; X grinds Y; X forges Y’
37. TUMO ‘X becomes addicted to going to night clubs and dances’
38. KAB ‘X reconstructs or repairs Y’
39. KABO ‘X becomes reconstructed or repaired’
40. NOL ‘X is alive’
41. NOLO ‘X becomes alive'
42. BUK ‘X is ill’
43. BUKO ‘X becomes ill’
44. OMAN ‘X is thirsty’
45. OMANO ‘X becomes thirsty’
46. BUURAN ‘X is fat’
47. BUURO ‘X becomes fat’
48. MAQAN ‘X is absent/missing’
49. MAQNO ‘X becomes absent/missing’
50. XIG ‘X is near Y’
51. XIGSO ‘X becomes closer to Y (someone or something)’
52. QAB ‘X is holding Y; X has Y’
53. QABO ‘X picks up Y; X comes to possess Y’
54. ILKAYSO$_{DEP}$ ‘X grows teeth’
55. NABRAYSO$_{DEP}$ ‘X gets pimples or X gets inflected’
56. GAABSO$_{DEP}$ ‘X makes Y shorter in length or volume’
57. LAHO$_{DEP}$ ‘X becomes consumed with desire’
58. CAARYAYSO$_{DEP}$ ‘X becomes rotten or gets moldy’
59. CALEEMAYSO$_{DEP}$ ‘X sprouts into leaves’
60. MAARAYSO$_{DEP}$ ‘X becomes rusted’
61. MALAXAYSO$_{DEP}$ ‘pus forms on X’s body’
62. QOLFAYSO$_{DEP}$ ‘a scab forms on X’s body’
63. GUULEEYSO$_{DEP}$ ‘X wins’
64. UBAXAYSO$_{DEP}$ ‘X plants flowers’

65. MIRAYSO$_{DEP}$ ‘X (plant) bears fruit’
66. NAQAYSO$_{DEP}$ ‘X grows green after rain’
67. GEDMO$_{DEP}$ ‘X becomes upside-down'
68. BAAHO$_{DEP}$ ‘X becomes hungry or in need’
69. SIBIBIX$_{N}$ ‘slippery place’
70. SIBIBIXO ‘X slips’
71. QARAX$_{N}$ ‘explosion’
72. QARXO ‘X explodes’
73. DAAB$_{N}$ ‘diarrhea in young animals caused by too much drinking of milk’
74. DAABO ‘X becomes sick or gets diarrhea’
75. CAQLI$_{N}$ (√3ql) ‘intellect, wisdom’
76. CAQLISO ‘X becomes intelligent or experienced’
77. DHARAB$_{N}$ ‘small water drops on plants’
78. DHARABSO ‘X gets covered with small water drops’
79. GARAAD$_{N}$ (√gar, ‘knowledge’) ‘maturity, understanding’
80. GARAADSO ‘X becomes mature’ (by reaching an age of maturity)
81. CARGAAR$_{N}$ ‘green color’
82. CARGAARO ‘X becomes green in color’
83. GUDUUD$_{N}$ ‘red color’
84. GUDUUDO ‘X becomes red in color’
85. CIIR$_{N}$ ‘grey color’
86. CIRAYSO ‘X turns pale; X’s hair turns grey’
87. ABAAR$_{N}$ ‘a dry place/drought’
88. ABAARSO ‘X becomes dry’
89. FOOG$_{ADJ}$ ‘far’
90. FOOGAN (stative verb)
91. FOOGO ‘X becomes far’
92. KULUL$_{ADJ}$ ‘hot’
93. KULULO ‘X becomes hot’
94. WAAYN$_{ADJ}$ ‘big’
95. WAAYNO ‘X grows, becomes big’
96. YAR$_{ADJ}$ ‘small’
97. YARO ‘X becomes small’

2.1.4 MIDDLES OF EMOTION AND COGNITION

Middles of emotion and cognition express events which affect the mind of the subject. These events are in the middle domain because the single participant lacks a clearly definable semantic role (Kemmer, 1993). Since the events are centered in the mind of the actor, it is difficult to distinguish between the actor and the event. Cognitive middle events include verbs of perception,

as in the unpaired stems FIIRSO$_{DEP}$ ‘X watches Y’, and DHEGEEYSO $_{DEP}$ ‘X listens to Y’. Emotion stems also include some inchoative types as in CARO ‘X becomes angry’.

Emotion events express states of mind centered on the feelings of the actor instead of their knowledge and reasoning. An example is the stem EEDAYSO in (85) below:

EEDAY ‘X blames Y’

EEDAYSO ‘X comes to blame Y’

(84) dáddka bay eedaysay

dádd–ka	b=ay=Ø	eed–ay–s–ay
people–PROX:M:ABS	FOC=3SG:F:SBJV=3PL:ABS	blame–VRB–3SG:F–PST

‘She was blaming the people’

(85) dáddka bay eedaysatay

dádd–ka	b=ay=Ø	eed–ay–sad–t–ay
people–PROX:M:ABS	FOC=3SG:F:SBJV=3PL:ABS	blame–VRB–MID–3SG:F–PST

‘She came to blame the people’

In (84) the base is a stative verb derived from the noun *eed* ‘blame’, the subject is the clitic *=ay* ‘she’ and the object is *dádd* ‘people’. Similarly, the *-at* stem in (85) is bivalent; however, *-at* creates an inchoative stem, signifying the change of state from the actor not blaming to blaming the people. The *-at* stem is a middle verb since the participant expressed as a subject takes a semantic role, the blamer, which is not clearly distinguishable from the event of blaming.

Cognitive events take place in the mind of the actor and involve states of knowledge and acts reasoning, such as OGO (87) below:

OG ‘X knows Y’

OGO ‘X comes to know Y’

(86) runta baan ogay

run–ta	b=aan=Ø	og–Ø–ay
truth–PROX:F:ABS	FOC=1SG:SBJV=3SG:F:ABS	know–1SG–PST

‘I knew the truth’

(87) runta baan ogaday

run–ta	b=aan=Ø	og–at–Ø–ay
truth–PROX:F:ABS	FOC=1SG:SBJV=3SG:F:ABS	know–MID–1SG–PST

‘I knew the truth’

In (86) the radical is a stative verb expressing the state of knowing the truth. In (87), the *-at* suffix creates an inchoative stem expressing the change of state from not knowing to knowing the truth. The event of being or becoming aware of something through observation or inquiry takes place in the mind of the actor, so there is no clear distinction between the actor role "the knower" expressed as a subject and the event of knowing. Thus, this stem shows under low elaboration. The *-at* stem could also have been classified as a spontaneous event due to the lack of control the subject has in experiencing the event. The possibility that a given form meets the definition of two different middle event types is allowed for by Kemmer (1993).

Among the surveyed 460 stems, emotion and cognition stems make up (47/460 [10%]) instances of the corpus. These stems are given in Table 20:

Table 20 Emotion & cognition middles

Emotion
1. MURAAD 'X is interested' 2. MURAADSO 'X is interested in X's self'
3. BAQ 'X is afraid' 4. BAQO 'X becomes afraid'
5. EEDAY 'X is blaming Y' 6. EEDAYSO 'X blames Y'
7. DHIB 'X bothers Y' 8. DHIBSO 'X bothers Y' (passive)
9. QUUS 'X becomes submerged in water' 10. QUUSO 'X feels intense despair'
11. BADHBADH 'X cheers up Y' 12. BADHBADHSO 'X cheers up X's self'
13. CABSO$_{DEP}$ 'X fears Y'
14. MADADDAALO$_{DEP}$ 'X amuses X's self'
15. MAHO$_{DEP}$ 'X feels desire'
16. FAAKIHAYSO$_{DEP}$ (ARB. √fkh 'fruit') 'X enjoys X's self'
17. KARAHSO$_{DEP}$ (Arabic √krh) 'X hates Y'
18. SHARAYSO$_{DEP}$ 'X considers Y bad or rejects Y'
19. JEECLAYSO$_{DEP}$ 'X wants or desire Y'

20. NECBAYSO$_{DEP}$ ‘X hates Y’

21. BAASAYSO$_{DEP}$ ‘X thinks of Y as unfortunate, or X expects the worst in Y’

22. SHUKANSO$_{DEP}$ ‘X seeks to gain the affection of Y for the purposes of marriage’

23. NASO$_{DEP}$ ‘X rests/relaxes X’s self’

24. RAXAYSO$_{DEP}$ ‘X is satisfied’

25. CARO $_{N}$ ‘anger, wrath’
26. CARO ‘X becomes angry’

27. LADAN$_{N}$ ‘good state’
28. LADNO ‘X is in a good state’

29. WAHSI$_{N}$ ‘laziness’
30. WAHSO ‘X is lazy’

31. DOOG$_{3\ N}$ 'effects of a wound'
32. DOOGO$_{2}$ ‘X re-experiences pain'

33. JACEEL$_{N}$ ‘love, desire’
34. JACELO ‘X comes to like Y’

Cognitive

1. RUMAY ‘X proves/shows Y to be true’
2. RUMAYSO ‘X believes Y to be true’

3. OG ‘X knows Y’
4. OGO ‘X finds out Y’

5. QARAW ‘X has a nightmare’
6. QARWO ‘X comes to have a nightmare’

7. XANUUN ‘X (a body part) hurts Y’
8. XANUUNSO ‘X feels pain’

9. MACNAYSO$_{DEP}$ (Arabic √m3n ‘meaning’) ‘X gives X’s meaning to something’

10. GARWAAQSO$_{DEP}$ ‘X remembers Y’

11. BARGARO$_{DEP}$ ‘X partially remembers or forgets Y’

12. CULULUBO$_{DEP}$ ‘X remembers Y’
13. GOCO $_{DEP}$ ‘X remembers or reminisces about Y’
14. HIBO $_{DEP}$ ‘X continuously thinks about Y’
15. AFGARO $_{DEP}$ ‘X understands Y’
16. BAWSO$_{DEP}$ ‘X learns through watching or listening'
17. NIYAYSO $_{DEP}$ ‘X forms an intention (i.e., decides to do something)’
18. DHEGEEYSO $_{DEP}$ ‘X listens to Y’
19. DAALACO$_{DEP}$ (Arabic dialect √6l3) ‘X watches Y for X’s self’
20. DAAWO$_{DEP}$ ‘X watches Y’ (northern dialect e.g. Djibouti)
21. FIIRSO$_{DEP}$ ‘X watches Y’
22. DADHAN$_{N}$ ‘taste’
23. DHADHANSO ‘X tastes Y’
24. XASUUS $_{N}$ ‘memory’
25. XASUUSO ‘X remembers Y’
26. GAR $_{N}$ ‘justice’
27. GARO ‘X comprehends or know Y’
28. GOʔAN $_{N}$ 'decision’
29. GOʔANSO ‘X makes a decision’
30. MIYIR $_{N}$ ‘consciousness’
31. MIYIRSO ‘X gains consciousness’
32. FOOL $_{N}$ ‘labor pain’
33. FOOLO ‘X is in labor or labor pain’
34. UR$_{N}$ ‘odor (bad)’
35. URSO ‘X smells Y’

Stems in this class fall into the two semantic classes shown in Table 21:

Table 21 Total emotion & cognition middles

Class	Stems
Emotion	23/47 (49%)
Cognitive	24/47 (51%)
Total	50/50 (100%)

Roughly even proportions are of the emotion class and the cognitive class.

2.2 NON-CANONICAL MIDDLES

Non-canonical middles are middle stems that do not fall into the middle semantic classes identified by Kemmer (1993), but which nevertheless conform to her notion of relatively low elaboration of participants and events. Non-canonical *-at* stems account for just over half, 245/460 (53%), of the forms in the corpus, and they belong to the three main semantic groups shown in Table 22:

Table 22 Non-canonical middles

Class	Stems
SBFI	65/245 (26.5%)
Auto-benefactive	134/245 (54.7%)
Other	46/245 (18.8%)
Total	245/245 (100%)

The social, business, and financial interaction class (SBFI) (§2.2.1) makes up 65/245 (26.5%) of stems and auto-benefactive stems (§2.2.2) are the largest of the non-canonical classes, making up 134/245 (54.7%) of stems. The miscellaneous Other class makes up the remaining 46/245 (18.8%).

The proportions of non-canonical stems based on the three different types of radical are shown in Table 23:

Table 23 Radical status of *-at* stems

Total Middle stems	Stems
Verbal radicals	182/460 (39.6%)
Unpaired	178/460 (38.7%)
Non-verbal radicals	100/460 (21.7%)
Total	460/460 (100%)

Stems are mostly based on verbal radicals or are unpaired (360/460 [78.3%]). Stems based on non-verbal radicals account for the remaining 21.7% of the forms.

2.2.1 SOCIAL, BUSINESS, AND FINANCIAL INTERACTION

A non-canonical class identified by Saeed (1995) is social, business, and financial interaction (SBFI). An example of this type of stem is, NABADAYSO$_{DEP}$ 'X greets Y by saying the Arabic expression "peace be upon you"'. This is a social type of event as greetings involve social engagement. The stem GANACSO$_{DEP}$ 'X does business', is an instance of business and financial interaction. According to Saeed (1995) the class of SBFI stems falls into the middle domain because these events imply some kind of reciprocity in that X interacts with Y and Y responds to X in some socially determined way.

Saeed (1993) categorizes SBFI as middle events because of the reciprocity between the actor and the undergoer, which implies that the action of Y in response to X is part of the event (meaning that Y becomes something of an actor) blurs the semantic roles of the two participants somewhat and lowers the elaboration of the participants in the event. As Saeed (1995) notes, according to Kemmer (1993), reciprocal events fall into the middle semantic domain. Prototypical reciprocal events are events where there are two participants, each performing the same action on the other—thus the action is bi-directional. This results in two events, one where the first participant is the agent and another where the first participant is the patient. Kemmer notes that many middle stems fall under the heading of *naturally reciprocal middles*. Naturally reciprocal events are events such as 'kissing', 'meeting', 'joining', where the core meaning of the verb requires the mutual participation of two or more participants. SBFI events are natural reciprocals as well, in that an actors X engages in an SBFI type of event with Y, and the response of Y is an inherent part of the meaning of the verb.

Reciprocal middles show low elaboration in that the actions of the two (or more) participants are integral components of the basic meaning, though, they are not distinguish as distinct events, rather, these multiple interactions are construed as a single event. For instance, the reciprocal middle verb WARSO in (88):

WAR$_N$ 'news, information'
WARSO 'X elicits news or information from Y'

(88) dáddka buu warsaday

dadd–ka	b=uu	war–sat–Ø–ay
people–PROX:M:ABS	FOC=3SG:M:SBJV	news–MID–3SG:M–PST

'He interviewed the people'

The verb in (88) takes two event arguments; the subject clitic *=uu* 'he' and *dádd* 'people'. This event is a natural reciprocal middle in that the event of interviewing involves two events; the event of the first participant asking the second participant a question, and the event of the second participant responding. This type of event shows low elaboration of events in that although there are two events taking place, the actions of the participants are not fully distinguished, rather they are construed as a single holistic event.

Contrast this with prototypical reciprocals, which have a higher degree of elaboration of events as in (90):

FIRI 'X looks at Y'

(89) Cali baa Maryán firiay

Áli	baa	Maryán	firi–Ø–ay
Ali:SBJV	FOC	Maryan:ABS	look–3SG:M–PST

'Ali looked at Maryan'

(90) Cali iyo Maryan baa iss firieen

Áli	iyo	Maryán	baa	iss	firi–Ø–een
Ali:SBJV	CONJ	Maryan:SBJV	FOC	RECIP	look–3PL–PST

'Ali and Maryan looked at each other'

In (89) the radical takes two event arguments, *Ali* is the actor and *Maryan* is the endpoint. In (90) the event is a prototypical reciprocal indicated by the pronominal clitic *iss* 'each other'. There are two event arguments, in one event *Ali* is the experiencer and *Maryan* is the endpoint, in the second event, *Maryan* is the experiencer and *Ali* is the endpoint. This event has a higher degree of elaboration of events compared to reciprocal middles, in that there are two distinct events, coded by a reciprocal pronominal, and the sentence could be accurately paraphrased as two clauses expressing separate events—'Ali looked at Maryan and Maryan looked at Ali'.

Reciprocal middles in this class include social-event stems such as XAMO in (91):

XAN_N 'gossip'

XAMO 'X gossips about Y'

(91) Maryan bay xamatay

Maryán	b=ay=ø	xan–at–t–ay
Maryan:ABS	FOC=3SG:F:SBJV=3SG:F:ABSq	gossip–MID–3SG:F–PST

'She gossips about Maryan'

In the *-at* stem in (91) expresses one event where the actor—clitic *ay* 'she' under takes the action of gossiping about the undergoer the *Maryan*. The *-at* stem also expresses another event, where an implied participant responds to the actors' action in engaging in the event, by either listening or also partaking in the gossiping. This stem shows low elaboration of events in that the first event and the second event are not clearly distinct events—rather, they are multiple interactions construed as a single event.

Other social events include the expressions of social gatherings such as KURAYSO 'X holds a gathering before delivering a child'. They also include events that pertain to the tribal society such as the unpaired stem MUUSANO 'X laments, cries, calls out for X's tribe' or family-related events such as the unpaired stem WALAALEYSO 'X considers Y as a sibling' and QARABAYSO 'X treats Y as X's own relative'. Further, these stems may also pertain to social hierarchy as in FILAYSO (*facayso*, in some regions) 'consider someone as equal or as a member of one's peer group'. These event types imply some reciprocation of feeling or action on the part of the patient/undergoer. There are instances of unpaired social stems which relate to games such as JARAYSO 'X plays Somali checkers' and GOOGGAALEYSO 'X poses a Somali riddle' (the person poses a riddle by saying *googga* 'I have a riddle' to someone), both of which imply the participation of a second person in the vent. These events are compatible with middle semantics, since there is low elaboration of events: they involve two events, but event one and event two are not distinct—rather, they are construed as a single event.

Business and/or financial interaction events include stems such as RUBISAARO$_{DEP}$ below (92):

RUBISAARO$_{DEP}$ 'X charges interest on a loan

(92) wuu rubisaartay

w=uu	rubisaar–t–ø–ay
AUX=3SG:M:SBJV	charge.interest–MID–3SG:M–PST

'He charged interest on a loan'

The verb RUBISAARO in (92) indicates a business/financial middle event; the actor expressed as a clitic *uu* 'he' carries out the action of charging interest on a loan. There is an implied second

participant who engages in the event in taking a loan from the first participant. Thus, there are two events: the action the actor participant takes and the response of the implied undergoer/recipient. This event is low elaboration, both events are construed as a single event; the response of the implied role 'Y getting an interest on loan' is a part of the meaning of the radical.

Other business and financial middle events are mostly unpaired stems such as ROGROGO$_{DEP}$ 'X participates in petty trading' and GEDDISO 'X exchanges or barters with Y'. These types of events also show low elaboration in that the first and second events are not distinct—rather they are construed as a single non-distinguishable event.

Among the 460 stems surveyed, there are 65 instances of verbs in the social, business, or financial interaction class. I subdivide this class into social events (46/65 [71%]) and business and finance events (19/65 [29%]). A List of stems is shown in Table 24:

Table 24 SBFI middles

Social	
1.	KURAYSO$_{DEP}$ 'X holds a baby shower (gathering before delivering a child)'
2.	MADDOYAYSO$_{DEP}$ 'X plays the children's game maddooyamaddooyo'
3.	TARAARAYSO$_{DEP}$ 'X holds a baby shower'
4.	WAALAYSO$_{DEP}$ 'X plays handclapping game'
5.	EEXO$_{DEP}$ 'X shows bias'
6.	MUUSANO$_{DEP}$ 'X laments, cries, calls out for tribe'
7.	KAASHO$_{DEP}$ 'X leans on Y for help'
8.	DEEXO$_{DEP}$ 'X talks a lot'
9.	GALAAFO$_{DEP}$ 'X drags along Y, X is a bad influence on Y'
10.	ASAAGOSO D$_{EP}$ 'X treats Y as a peer'
11.	HOOBSO $_{DEP}$ 'X shares milk while milking or when selling milk'
12.	BOOQO$_{DEP}$ 'X visits Y'
13.	DAMMIINO$_{DEP}$ 'X gets Y out of trouble'
14.	DHAWRTAYSO$_{DEP}$ 'X contributes food to a communal meal; X gives alms'
15.	ERGISO$_{DEP}$ 'X borrows something temporarily, take in trust'
16.	FILAYSO$_{DEP}$ 'X considers Y as a peer'
17.	QARDAYSO$_{DEP}$ (Arabic √qrd) 'X borrows Y from Z'

18. JARAYSO$_{DE}$P ‘X plays Somali checkers’
19. (KU)DAYO$_{DEP}$ ‘X imitates Y’
20. DHAXSO$_{DEP}$ ‘X gets married to Y’
21. SHIRAYSO$_{DEP}$ ‘X holds a meeting in order to slaughter an animal for family consumption during dry season’
22. NABADAYSO$_{DEP}$ ‘X greets Y by saying the Arabic expression ‘peace be upon you’
23. TOOGAYSO$_{DEP}$ ‘X takes turns to do Y’
24. CASABAYSO$_{DEP}$ ‘X declares that Y is a relative, X adopts Y as a relative’
25. QARABAYSO$_{DEP}$ ‘X treats Y as X's own relative’
26. WALAALEYSO$_{DEP}$ ‘X considers Y to be a sibling’
27. GOOGGAALEYSO$_{DEP}$ ‘X poses a riddle’
28. QOODEYSO$_{DEP}$ ‘X takes a turn'
29. QAYBSO$_{DEP}$ ‘X divides Y amongst people’
30. YOOBSO$_{DEP}$ ‘X (a group) gather together’
31. WARAYSO$_{DEP}$ ‘X interviews Y’
32. OGGLO$_{DEP}$ (Ú) ‘X gives consent to Y’
33. ALKUN $_{N}$ ‘girlfriend, fiancée’
34. ALKUMO ‘X gets engaged to Y, X asks for Y’s hand in marriage’
35. XAN$_{N}$ ‘gossip’
36. XAMO ‘X gossips about Y’
37. COD$_{N}$ ‘voice’
38. CODO ‘X speaks for X by making a request or appeal’
39. CUDUR-DAAR$_{N}$ ‘excuse’
40. CUDUR-DAARO ‘X makes an excuse for X’s self’
41. WEHEL$_{N}$ ‘companion’
42. WEHESHO ‘X takes Y as a companion’

43. GUUR$_{N}$ ‘marriage’
44. GUURSO ‘X marries Y’

45. GACAL$_{N}$ ‘beloved people’
46. GACALSO ‘X loves or cherishes Y’

47. QAREEN$_{N}$ ‘relatives, kin’
48. QAREENSO ‘X relies on Y due to their blood relationship’

49. ADOON$_{N}$ ‘slave’
50. ADOONSO ‘X enslaves Y’

51. WAR$_{N}$ ‘news, information, communication’
52. WARSO ‘X gets news or information from Y’

53. ABBAN$_{N}$ ‘friend, guest’
54. ABBANSO ‘X takes Y as a friend’

55. DANDAN$_{N}$ ‘loser; stupid person’
56. DANDANSO ‘X challenges Y’

57. DABEEB$_{N}$ ‘discussion or argument’
58. DABEEBO ‘X argues’

59. DAMIN$_{N}$ ‘security for, pledge’
60. DAMINO TR ‘X is security or responsible for Y’

Business and finance

1. DHAAF ‘X moves past Y’
2. DHAAFSO ‘X exchanges Y with Z and Z exchanges Y with X’

3. BEDDEL (Arabic √bdl) ‘X changes Y’
4. BEDDELO ‘X exchanges Y'

5. BAAYOCO$_{DEP}$ ‘X bargains the price of Y for X’s self’

6. MADAXFURO $_{DEP}$ ‘X pays a debt or ransom for Y’

7. ROGROGO$_{DEP}$ ‘X participates in constant bargaining’

8. XAAJEYSO $_{DEP}$ ‘X negotiates something with someone’

9. BEECSO $_{DEP}$ (Arabic √by3) ‘X sells Y a possession of X’

10. CARBUUNO $_{DEP}$ ‘X reserves or puts a deposit on Y’

11. GEDDISO$_{DEP}$ ‘X exchanges or barters Y’
12. RUBISAARO$_{DEP}$ ‘ X extracts interest on a loan; X makes a very high profit’
13. RUKUMO$_{DEP}$ ‘X makes a reservation’
14. MACMIILO$_{DEP}$ ‘X becomes a supplier a regular customer’
15. GANACSO$_{DEP}$ ‘X does business’
16. DEYN$_{N}$ ‘loan’
17. DEYNSO (KÁ) ‘Y takes a loan from X’
18. DHEX$_{N}$ ‘middle’
19. DHEXSO ‘X is in a business relationship with Y’
20. CANSHUUR$_{N}$ ‘taxes’
21. CANSHUURO ‘X pays taxes (or ransom) on Y’
22. IJAAR$_{N}$ ‘rent’
23. IJAARO ‘X rents Y’
24. SARRIF$_{N}$ ‘change (money)
25. SARRIFO ‘X gives Y some bills in exchange for coins’
26. BEEG$_{N}$ ‘grain measure’
27. BEEGSO ‘X gives Y an equal measure’

The proportions of stems in each of the semantic classes is shown in Table 25:

Table 25 Total SBFI middles

Class	Stems
Social	46/65 (71%)
Business and Finance	19/65 (29%)
Total	65/65(100%)

The stems are mostly in the social class of stems 46/65 (71%) business and finance class make up only 21/65 (29%).

2.2.2 AUTO-BENEFACTIVE

Identified for Somali in Saeed (1995), the class of auto-benefactive events covers actions an actor performs resulting in some benefit to the actor him/herself, including actions affecting

another participant serving the ultimate interests of the actor. According to Kemmer (1993), auto-benefactives are related to the middle domain because the actor takes two semantic roles in the event in that the actor is both an agent and something like a beneficiary, meaning that there is a low degree of elaboration of participants with respect to particular semantic roles.

Auto-benefactive stems express situations in which the subject of necessity takes a benefactive role; for situations where the subject's actions do not benefit the subject, the *-at* stem is ungrammatical. Consider the examples in (93) and (94) below:

FEERAY 'X irons Y clothing'
FEERAYSO 'X irons Y clothing for X's self

(93) Makiinada baa dhárka feeraysay

Makiinó–da	baa	dhár–ka	feeray–s–ay
machine–PROX:F:SBJV	FOC	clothing–PROX:M:ABS	iron–3SG:F–PST

'The machine ironed the clothing'

(94) *Makiinada baa dhárka feeraysatay

Makiinó–da	baa	dhár–ka	feeray–sat–t–ay
machine–PROX:F:SBJV	FOC	clothing–PROX:M:ABS	iron–MID–3SG:F–PST

Intended meaning: 'The machine ironed the clothing for itself'

The sentence in (93) is based on the plain stem FEERAY which allows for an inanimate, nonvolitional subject. The auto-benefactive stem, FEERAYSO des not allow for an inanimate subject because it also assigns a benefactive role. (94) is ungrammatical because the middle form FEERSAYSO here has an inanimate subject and an inanimate entity can not take a benefactive role in an event.

By the same token, FEERAYSO may not be used in a context where the subject is not also a beneficiary, as shown in (96):

(95) dhárka siaan ú gashto, waan feeraystay

dhár–ka	si=aan	ú	gal–at–o	waan
clothing–PROX:M:ABS	way=1SG	BEN	wear–MID–INFIN	AUX=1SG

feeray–sat–Ø–ay
iron–MID–1SG–PST
'In order for me to wear the clothing, I iron them for myself'

(96) *dhárka siaan ú gashto, waan feerayay

dhár–ka si=aan ú gal–at–o waan
clothing–PROX:M:ABS way=1SG BEN wear–MID–INFIN AUX=1SG

feeray–Ø–ay
iron–1SG–PST
Intended meaning: 'In order for me to wear the clothing, I iron them for myself'

In the context of (95) the subject of FEERAYSO irons the clothes for the subject's benefit (so the subject can wear them); (96), is ungrammatical because in the context of the utterance the subject is a beneficiary for the event but FEERAY does not assign a benefactive semantic role.

In the corpus there are 134/460 (29%) auto-benefactive stems; a list of these stems is given in Table 26 below:

Table 26 Auto-benefactive middles

Auto-benefactive
1. DHEEF (KÁ) X benefits from Y' 2. DHEEFSO 'X benefits X's self'
3. DAWAY 'X treats Y with medicine' 4. DAWAYSO 'X treats X with medicine'
5. DIIR 'X becomes warm' 6. DIIRSO 'X warms X's self'
7. WAYDII 'X asks Y to do something' 8. WAYDIISO 'X asks Y to do something for X's self'
9. MASABBID 'X makes a false statement about Y (a person)' 10. MASABBIDO 'X makes a false statement about Y (a person) for X's self'
11. SII 'X gives Y to Z' 12. SIISO'X gives Y to Z for X's self'
13. SHAQAY 'X works' 14. SHAQAYSO 'X works for X's self'
15. TABABAR 'X trains Y' 16. TABABARO 'X trains X's self'
17. SAMAY 'X does Y something' 18. SAMAYSO 'X does Y for X's self'
19. WAXAY 'X does Y'; 20. WAXAYSO 'X does Y for X's self'
21. REEB 'X excludes Y'

22. REEBO ‘X excludes Y for X’s self’

23. URUR ‘X assemble together’
24. URURSO ‘X collects Y for X’s self’

25. QAB ‘X has, possess Y’
26. QABSO ‘X catch, captures, or violates Y for X’s self’

27. HAY ‘X has, possesses, or holds Y’
28. HAYSO ‘X has, possesses, or holds Y for X’s self’

29. DIYAAR ‘X is prepared’
30. DIYAARSO ‘X prepares Y for X’s self’

31. SADAQAY ‘X give Y in alms/charity’
32. SADAQAYSO ‘X give Y in alms/charity for X’s self’

33. TAAGEER ‘X assists Y’
34. TAAGEERSO ‘X assists Y for X’s self’

35. SASAB ‘X smooth talks Y’
36. SASABO ‘X smooth talks Y for X’s self’

37. MAAXO$_{DEP}$ ‘X replenishes X’s self’

38. GAAFO$_{DEP}$ ‘X prepares X’ self’

39. FAROGASHO$_{DEP}$ ‘X interferes with Y for X’s self’

40. SUUBSO$_{DEP}$ ‘X makes Y for X’s self’

41. CISHO$_{DEP}$ ‘X repossesses Y’

42. IIBSO$_{DEP}$ ‘X buys Y for X’s self’

43. ILAALSO$_{DEP}$ ‘X gaurds Y for X’s self’

44. DHUMO$_{DEP}$ ‘X hides X’s self’

45. DALAB ‘X orders Y’
46. DALBO ‘X order Y for X’s self’

47. BAAR ‘X searches or investigates Y’
48. BAARO ‘X searches or investigates Y for X’s self’

49. DOOR (Ú) ‘X chooses Y for Z’
50. DOORO ‘X chooses Y for X’ self’

51. SAWIR ‘X draws Y’

52. SAWIRO ‘X draws Y for X’s self’

53. HABAY ‘X organizes Y’
54. HABAYSO ‘X organizes Y for X’s self’

55. TARJUM ‘X translates Y’
56. TARJUMO ‘X translates Y for X’s self’

57. AMAN ‘X confides in Y’
58. AMASO ‘X confides in Y for X’s self’

59. AMMAAN ‘X praises Y’
60. AMMAANSO ‘X praises Y for X’s self’

61. KIIL ‘X measures the weight of Y’
62. KIILO ‘X measures the weight of Y for X’s self’

63. AQRISO$_{DEP}$ ‘X reads Y for X’s self’

64. FAAG ‘X digs a hole on Y the ground’
65. FAAGO ‘X digs a hole on Y the ground for X’ self'

66. QOD ‘X digs Y’
67. QODO ‘X digs Y for X’s self’

68. LISS ‘X milks Y an animal’
69. LISSO ‘X milks Y an animal for X’ self'

70. QÀL ‘X slaughters Y’
71. QÀLO ‘X slaughters Y for X’s self'

72. DAAQ ‘X (animals) graze on Y’
73. DAAQO ‘X puts Y in a field of grass to graze on Z’

74. BIYAY ‘X waters Y’
75. BIYAYSO ‘X waters Y for X’s self’

76. JILAB ‘X fishes’
77. JILABO ‘X fishes for X’s self’

78. QOY ‘X makes Y moist’
79. QOYSO ‘X makes Y moist for X’s self’

80. DHIIQSO$_{DEP}$ ‘X milks Y an animal so that X gets milk’

81. FEERAY ‘X irons Y clothing’
82. FEERAYSO ‘X irons Y clothing for X’s self

83. AFDUB ‘X kidnaps Y’
84. AFDUBO ‘X wraps a cloth around the mouth of Y kidnaps Y for X’s self’

85. DABAC‘X prints Y’
86. DABACO ‘X prints Y for X’s self’

87. SHARAX ‘X decorates Y’
88. SHARAXO ‘X decorates Y for X’s self’

89. TOL ‘X sews Y’
90. TOLO ‘X sews Y for X’s self’

91. DAAHIRSO$_{DEP}$ ‘X purifies Y for X’s self’

92. ROOG ‘X turns Y over’
93. ROOGO ‘X turns Y over for X’s self’

94. DIIS ‘X presses Y down’
95. DIISO ‘X presses Y down for X’s self’

96. DOON ‘X wants, gets Y’
97. DOONO ‘X gets Y for X’s self’

98. FAAF ‘X spreads Y’
99. FAAFSO ‘X spreads Y for X’s self’

100. RIF ‘X plucks Y from the location it is growing’
101. RIFO ‘X plucks Y from the location it is growing for X’

102. DURUG ‘X moves X’s body’
103. DURUGSO ‘X moves Y for X’s self’

104. QAAD ‘X takes Y; X lifts Y’
105. QAADO ‘X borrows Y’

106. LAAB$_1$ ‘X partially closes Y’
107. LAABO$_1$ ‘X partially closes Y for X’s self’

108. DHIG$_2$ ‘X put Y down’
109. DHIGO$_2$ ‘X put Y down for X’s self’

110. XIR$_2$ 'X places Y over an opening to cover it’
111. XIRO$_2$ 'X places Y over the door in X’s home to cover it’

112. BAX ‘X moves from one point in space to another’
113. BAXSO$_1$ ‘X takes Y out of an enclosed space (e.g. bag, room, etc.) for X’s self’

114. GUR ‘X picks or gathers Y’
115. GURO ‘X picks or gathers Y for X’s self’

116. DIR ‘X sends Y’
117. DIRSO ‘X sends Y for X’s self’

118. GEEY ‘X takes Y somewhere’
119. GEEYSO ‘X takes Y somewhere for X’s self’

120. JIID ‘X pulls Y’
121. JIID ‘X pulls Y for X’s self’

122. KEEN ‘X brings Y’
123. KEENSO ‘X brings Y for X’s self’

124. RÙG ‘X scrubs Y’
125. RÙGO ‘X scrubs Y for X’s self’

126. RUSHAY ‘X sprays water on Y’
127. RUSHAYSO ‘X sprays water on Y for X’s self’

128. SAAR ‘X puts Y something on top of Z something else’
129. SAARO ‘X puts Y something on top of Z something else for X’s self’

130. SHUB ‘X pours water’
131. SHUBO ‘X pours water for X’s self’

132. SIBAQ ‘X dyes Y’
133. SIBAQO ‘X dyes Y for X’s self’

134. SOOC ‘X separates Y apart’
135. SOOCO ‘X separates Y apart for X’s self’

136. SUR ‘X hangs Y’
137. SURO ‘X hangs Y for X’s self’

138. XAMBAR ‘X carries Y’
139. XAMBARO ‘X carries Y for X’s self’

140. XARAY ‘to puts Y in storage’
141. XARAYSO ‘ X puts Y in storage for X’s self’

142. RACDAI ‘X chases Y’
143. RACDAYSO ‘X chases Y for X’s self’

144. RAR ‘X loads Y’

145. RARO ‘X loads Y for X’s self’

146. RIX ‘X pushes Y’

147. RIXO ‘X pushes Y for X’s self’

148. DABOL ‘X covers Y with a lid’

149. DABOLO ‘X covers Y with a lid for X’s self’

150. GOGOL ‘X spreads Y (cloth) over something’

151. GOGOLO ‘X spreads Y(cloth) over something for X’s self’

152. $ERYO_{DEP}$ ‘X fires/chases away Y’

153. $LEEXSO_{DEPO}$ ‘X turns Y to face X’

154. $XAYUUBSO_{DEP}$ ‘X snatches Y for X’s self’

155. $MAAGEERO_{DEP}$ ‘X encloses or encircles Y for X’s self’

156. $CAASHAQO_{DEP}$ ‘X fastens something securely to something else'

157. $LABEENAYSO_{DEP}$ ‘X adds cream’

158. XIR_3 ‘X brings two parts of Y together so as to block Y's opening or bring Y into a folded state’

159. $XIRO_3$ ‘X brings two parts of Y together so as to block Y's opening or bring Y into a folded state for X’s self’

160. XOQ ‘X scratches Y’

161. XOQO ‘X scratches Y for X’s self’

162. KULULAY ‘X makes Y hot’

163. KULULAYSO ‘X makes Y hot for X’s self'

164. YARAY ‘X makes Y small’

165. YARAYSO ‘X makes Y seem small so that Y is not taken seriously for X’s self’

166. DHUUQ ‘X sucks on Y something’

167. DHUUQSO ‘X make Y tighter’

168. FOOGAY ‘X causes Y to be far’

169. FOOGAYSO ‘X causes Y to be far for X’s self'

170. UUM ‘X creates Y’

171. UUMO ‘X creates Y for X’s self’

172. UNUG ‘X begins to make Y’

173. UNKO ‘X begins to make Y for X’s self’

174. JAB ‘X is damaged due to X being separated into two or more parts using force’

175. JABSO ‘X damages Y by causing Y to be separated into two or more parts, using force for X’s self’

176. AFAY ‘X sharpens Y’

177. AFAYSO ‘X sharpens Y for X’s self’

178. BAD ‘X increases in number’

179. BADSO ‘X increases Y for X’s self’

180. BOG ‘X finishes Y’

181. BOGO ‘X finishes Y for X’s self’

182. BUUX ‘X is full’

183. BUUXSO ‘X fills Y for X’ self’

184. CASAY ‘X makes Y red’

185. CASAYSO’ X makes Y red for X’s self’

186. DALAL ‘X melts’

187. DALALSO ‘X melts Y for X’s self’

188. DHAMAY ‘X finishes Y’

189. DHAMAYSO ‘X finishes Y for X’s self’

190. DHEG (KÚ) ‘X is stuck on Y’

191. DHEGSO (KÚ) ‘X sticks Y on a surface for X’s self’

192. DHIS ‘X builds Y’

193. DHISO ‘X builds Y for X’s self’

194. DHAWAY ‘ X makes Y near’

195. DHAWAYSO ‘X make Y near for X’s self’

196. DUB ‘X roasts Y’

197. DUBO ‘X roasts Y for X’s self’

198. SHIIL ‘X fries Y’

199. SHIILO ‘X fries Y for X’s self’

200. FUDUDAI ‘X facilitates Y’

201. FUDUDAISO ‘X facilitates Y for X’s self’

202. FUR ‘X opens Y’
203. FURO ‘X opens Y for X’s self

204. HAGAG ‘X is fixed’
205. HAGAGSO ‘X fixes Y for X’s self’

206. JAR ‘X cuts Y’
207. JARO ‘X cuts Y for X’s self’

208. KORDI ‘X increases Y’
209. KORDISO ‘X increases Y for X’s self’

210. KUF ‘X falls’
211. KUFSO ‘X makes Y fall, X violates Y’

212. SHID ‘X lights Y’
213. SHIDO ‘X lights Y for X’s self’

214. MADHOWAY ‘X blackens Y’
215. MADHOWAYSO ‘X blackens Y for X’s self’

216. QABOWJI ‘X makes Y cold’
217. QABOWJISO ‘X makes Y cold for X’s self’

218. KOR ‘X climbs Y’
219. KORSO ‘X raises Y (kids, animals) for X’s self’

220. $\text{FUQSO}_{\text{DEP}}$ ‘X rips Y for X’s self’

221. $\text{KARSO}_{\text{DEP}}$ ‘X cooks for X’s self’

222. DHAKKO_{N} ‘back of the neck’
223. DHAKKO ‘X hides X’s self’

224. DHAWR_{N} ‘protection’
225. DHAWRSO ‘X protects X’s self’

226. QASAB_{N} ‘force’
227. QASBO ‘X acquires something by force for X’s self’

228. QAR_{N} ‘edge’
229. QARSO ‘X hides Y for X’s self’

230. RAAD_{N} ‘footprints’
231. RAADSO ‘X looks for Y for X’s self’

232. TOG_{N} ‘target’

233. TOGSO/TOGO ‘X aims at Y in order to shoot it’
234. $UGAD_N$ ‘game, hunting animals’ 235. UGADSO ‘X hunts Y animals for X’s self’
236. $BEER_N$ ‘farm’ 237. BEERO ‘X farm for X’s self’
238. $DOOG1_N$ ‘land after the rain, fresh green grass’ 239. DOOGO1 ‘X benefits from rain’
240. $KAYD_N$ ‘storage/ reserve’ 241. KAYDSO ‘X stores Y for X’s self’
242. $HUUR_N$ ‘humidity’ 243. HUURSO ‘X makes Y humid’
244. $QURUX_N$ ‘beauty’ 245. QURUXSO ‘X makes Y beautiful’
246. DAQ ‘X washes Y’ 247. DAQO ‘X washes Y for X’s self’
248. FOLDAQ ‘X washes X’s face’ 249. FOLDAQO ‘X washes X’s face for X’s self’

The auto-benefactives listed here also include some inherently auto-benefactive verbs like DHEEFSO ‘X benefits X’s self’, which based on DHEEF (KÁ) X benefits from Y’, where benefit to the actor is a natural component of the radical. The *-at* stem nevertheless shows lower elaboration in that the actor takes two semantic roles—that is, the agent and beneficiary roles are not assigned to two distinct entities.

2.2.3 OTHER NON-CANONICAL MIDDLES

Examination of the corpus also turned up a number of stems that don’t fall into a consistent semantic class. This class is heterogenous, the stems within this class don’t necessarily conform to middle semantics. Some are completely out of the realm of middle semantics and some stems come close to the previously identified middle semantic classes.

An example of the stem that lacks middle semantic is QANJARUUFO $_{DEP}$ 'X pinches Y'[7] in (97):

(97) mukúlasha baan qanjaruufaday

mukulal–ta	b=aan	qanjaruuf–at–Ø–ay
cat–PROX:F:ABS	FOC=1SG:SBJV	pinch–MID–1SG–PST

'I pinched the cat'

The unpaired stem in (97), assigns two semantic roles, an agent role to the clitic *=aan* 'I' and a patient role to *mukulal* 'cat'. The agent pinches an entity with part of the agent's body, tightly gripping the skin of the cat using their finger and thumb. Although part of the body of the actor is involved in the event, this event is different from bodily action middles since the affected entity is not the actor's body. Thus, this event does not show low elaboration since two semantic roles, an agent and a patient, are assigned to distinct entities.

An example of a stem semantically closer to the middle semantic classes is CABO$_{DEP}$ 'X complains' in (98):

(98) wuu cabaday

w=uu	cabad–ø–ay
AUX=3SG:M:SBJV	complain–3SG:M–PST

'He complained'

The unpaired stem CABO assigns one semantic role to the subject clitic *=uu* 'he'. The actor performs an action which affects the actor's state of mind. Stems like CABO are close to emotion and cognition middle stems, though complaining is an action rather than a mental state. This type of event shows low elaboration in that the undergoer is the actor of the event; the actor role and the affected role are not distinguishable as distinct entities.

Further, stems like LEHO 'X becomes a possessor of Y' in (99) are closely related to the previous mentioned middle semantic classes:

(99) qasho cusub baan lehaday

qasho	cúsùb	b=aan	leh–at–ø–ay
job:ABS–INDEF	new	FOC=1SG:SBJV	get–MID–1SG–PST

'I got a new job'

[7] QANJEEDO in some regions

This event is an inchoative event the actor in that the actor becomes a possessor, and so the stem is like an inchoative middle. This type of event is low elaboration in the sense that it is not entirely clear that the actor is the direct cause of the event.

The Other class of *-at* stems accounts for 46/460 ([10%]) of stems. These stems are listed in Table 27 below:

Table 27 "Other" middles

Other middles
1. SHIIQ 'X becomes smaller in size, or amount'
2. SHIIQSO 'X chews Y'
3. KIRAY 'X rents out Y'
4. KIRAYSO 'X gives money for the use of Y'
5. GAD (KÁ) 'X sells Y to Z'
6. GADO 'X buys Y'
7. SHEEKAY(Ú) 'X tells a story to Y'
8. SHEEKAYSO 'X and Y tell each other stories'
9. CALAANJISO$_{DEP}$ 'X chews Y'
10. BAANSO$_{DEP}$ 'X eats nutritious food so that X can recover'
11. KABBO$_{DEP}$ 'X sips Y'
12. DHUNKO$_{DEP}$ 'X kisses Y'
13. QANJARUUFO $_{DEP}$[8] 'X pinches Y'
14. TAABO$_{DEP}$ 'X touches Y''
15. DHUFO$_{DEP}$ (KÚ) 'X injures Y the body of X'
16. GOOS$_{N}$ 'back teeth'
17. GOOSO 'X cuts Y using X's teeth'
18. FUUQ$_{N}$ 'sucking noise'
19. FUUQSO 'X sucks Y in short spurts from a vessel'
20. QURAAC$_{N}$ 'breakfast'
21. QURAACO 'X eats breakfast'

[8] QANJEEDO in some regions

22. SUXUR$_{N}$ ‘dawn meal (Ramadan)’
23. SUXURO ‘X eats dawn meal’

24. DANAY(Ú) ‘X acts in the interest of Y’
25. DANAYSO ‘X acts on X’s interest’

26. DHAYAL ‘X plays around or jokes’
27. DHAYALSO ‘X makes Y seem like a joke or a game’

28. FAL ‘X does Y something/ X bewitches Y’
29. FALO ‘X foretells future’

30. HUB ‘X is certain that some facts are true’
31. HUBSO ‘X confirms or verifies that Y is true’

32. YEEL ‘X accepts Y’
33. YEELO ‘X handles Y on X’s own terms’

34. DHIG1(Ú) ‘X causes Y learn to Z’
35. DHIGO1 ‘X learns Y’

36. BAAQ ‘X announces something’
37. BAAQO ‘X decides to stay in’

38. KADSO$_{DEP}$ ‘X waits for a person or event’

39. DUFSO$_{DEP}$ ‘X allures Y’

40. GARAWSO $_{DEP}$ ‘X agrees or accepts verdict Y’

41. ASHAHAADO$_{DEP}$ (Arabic √shhd ‘witness’) ‘X says the Islamic declaration of faith which commences with “Ashhadu...”’

42. ACUDUBILAYSO$_{DEP}$ (Arabic √i3d) ‘X seeks refuge in God by saying “AcudubilAlah min....”’

43. DURRAAMO$_{DEP}$ ‘X prays to Y’

44. CABO$_{DEP}$ ‘X complains’

45. AFGOOBADSO$_{DEP}$ ‘X pays lip service to Y’

46. ODDOROSO$_{DEP}$ ‘X predicts or forecasts Y’

47. HAJO$_{DEP}$ ‘X proves that X is right’

48. JALBEB$_{N}$ ‘amusement, play’
49. JALBEBO ‘X plays’

50. CIBAADO$_{N}$ ‘worship’
51. CIBAADAYSO ‘X worships’

52. DHAB$_{N}$ ‘certainty’
53. DHABAYSO ‘X takes action to feel certain’

54. CANAAN $_{N}$ ‘expression of disapproval’
55. CANAANO ‘X scolds Y’

56. DHAAR$_{N}$ ‘oath’
57. DHAARO ‘X takes an oath’

58. BAROOR $_{N}$ ‘high pitched wailing'
59. BAROORO ‘X produces a despairing wail’

60. QIR$_{N}$ ‘acknowledgement’
61. QIRO ‘X confesses to deed Y’

62. TALO$_{N}$ ‘plan’
63. TASHO ‘X plans’

64. RUGAYSO$_{DEP}$ ‘X lives somewhere’

65. HOIO$_{DEP}$ ‘X passes the night somewhere’

66. EKO$_{DEP}$ (KÚ) ‘X stays at Y a certain level’

67. LEH ‘X possesses Y’
68. LEHO ‘X becomes a possessor of Y’

69. YEL ‘X performs an action which brings forth Y something’
70. YELO ‘X comes to possess Y’

3 DIATHESIS ALTERING OPERATIONS

As we saw in the previous chapter, the suffix *-at* expresses meanings in the middle semantic domain; however, even though *-at* has middle semantics, this does not necessarily mean that it meets the criteria for being a voice. As discussed in § 1.3, a voice is an inflectional morpheme signaling a change in the basic diathesis while preserving the propositional meaning of the base (Mel'čuk,1993). If *-at* is a voice, then we expect the morpheme to have a diathetic effect on a base which preserves its valence. Further, a voice morpheme should have a single consistent diathetic effect on any base it attaches to.

In examining the diathetic effects of *-at* in the corpus, we find that it has both valence-maintaining effects (§3.1) and valence-altering effects (§3.2). While a voice is expected to have valence-maintaining effects (that is, the operation it performs on the diathesis does not change the number of semantic arguments), these effects are necessarily consistent across bases; however, *-at* has three different valence maintaining effects, depending on the stem it attaches to. Furthermore, according to Mel'čuk's definition of voice, a voice should not have valence-altering effects at all (that is, it does not add or remove semantic arguments). Therefore, the presence of valence-altering effects and the inconsistent valence maintaining effects of *-at* lead us to the conclusion that it is not a voice.

Examination of the corpus reveals that *-at* is associated with a variety of diathesis altering operations. Among the 182 stems based on verbal radicals, 38 instances (have a different diathesis than that of their base—that is, fewer than a quarter of the stems (20.9%) have a valence-altering effects and are even remotely voice-like. As summarized in Table 28, the effects on the base can be divided in the discussion below into diathetic operations that preserve the semantic valence of the base (valence-neutral) and operations which alter it (valence-altering):

Table 28 Diathesis altering operations

Operation	Number of stems
Valence-neutral	17/38 (44.8%)
Passive	1/17 (5.9%)
Reflexive	14/17 (82.4%)
Reciprocal	2/17 (11.8%)
Valence-altering	21/38 (55.3%)
Anti-causative	11/21 (52.4%)
Causative	7/21(33%)
Applicative	3/21(14.3%)
Total	38/38 (100%)

Valence-maintaining (17/38 [44.8%]) and valence-altering (21/38 [55.3%]) effects account for roughly equal proportions of the forms. The valence-maintaining category is dominated by reflexives (14/17 [82.4%]) and approximately half of the valence-altering effects are anti-causative (11/21 [542.4%]), the only one of the valence-altering that seems to be related to the middle semantic domains.

3.1 VALENCE-NEUTRAL OPERATIONS

Passive, reflexive, and reciprocal *-at* forms impose a specific diathetic operation on their base while preserving its semantic valence. As seen in §1.3, passives perform a permutation which results in demoting the subject of the base to an object and promoting base's object to subject. Reflexives impose referential identification between two event participants, resulting in two semantic roles of the base both being mapped to a subject relation. Reciprocals split the basic event into two sub-events; the two participants in the basic event have a converse relation to one another and both are realized as a (plural) subject. These diathetic operations are voice-like in that basic semantic valence is maintained (no semantic roles are lost or excluded from the meaning of the expression), as is the propositional meaning of the base. This is evident for the reflexive *-at* form TABABARO (101):

TABABAR 'X trains Y'
TABABARO 'X trains X's self'

(100) èeyga buu tababaray

èey–ka	b=uu	tababar–Ø–ay
dog–PROX:M:ABS	FOC=3SG:SBJV	train–3SG:M–PST

'He trained the dog'

(101) wuu tababartay

w=uu	tababar–at–Ø–ay
AUX=3SG:M:SBJV	train–MID–3SG:M–PST

'He trained himself'

The base in (100) is bivalent; the subject clitic *=uu* 'he' expresses the agent and the object *èey* 'dog' takes the patient role. The *-at* stem in (101) is also (semantically) bivalent: there is a single entity—expressed as the subject clitic *uu* 'he'—which takes two semantic roles, an agent and a patient role. Thus, with the stem TABABARO, *-at* has voice-like properties in that it preserves the semantic valence of the base and the propositional meaning of the radical.

Valence-neutral stems account for 17/39 (43.6%) of forms where *-at* has a diathetic effect. These can be subdivided into the three types summarized in Table 29 below:

Table 29 Valence-neutral stems

Operation	Number of stems
Passive	1/17 (5.9%)
Reflexive	14/17 (82.4%)
Reciprocal	2/17 (11.8%)
Total	17/17 (100%)

This group of stems largely consists of reflexives (14/17 [82.4%]). There are two instances of reciprocal stems (2/17 [11.8%]), while there is only a single instance of a passive stem.

Passives maintain the semantic valency of the base while realizing a simple permutation of its diathesis (Mel'čuk ,1993). The only passive *-at* stem is DHIBSO, given in (103):

DHIB 'X bothers Y'

DHIBSO 'X bothers Y'

(102) Cali dáddka buu dhibay

Áli	dádd–ka	b=uu=Ø	dhib–Ø–ay
Ali:SBJV	people–PROX:M:ABS	FOC=3SG:M:SBJV=3PL:ABS	bother–3SG:M–PST

'Ali, he bothered the people'

(103) daddka Cáli baay dhibsadeen

dádd–ka	Áli	b=ay=ø	dhib–sad–Ø–een
people–PROX:M:SBJV	Ali:ABS	FOC=3PL:SBJV=3SG:M:ABS	bother–MID–3PL–PST

'The people were bothered by Ali'

In the basic form shown in (102), *Ali* is the topic of the clause, *dáddka* 'the people' is a fronted object preceding the focus morpheme. The focus particle hosts the subject clitic *=ay* 'he', doubling the topic *Ali*. The *-at* stem in (103) has a converse mapping of semantic roles to syntactic relations in comparison to the basic clause . The subject in the *-at* stem is *daddka* 'the people', and *Ali* is demoted to an object. This can be represented as a diathetic operation as in Figure 6:

Figure 6 Passive

DHIB 'X bothers Y' → DHIBSO

X	Y
I	II

→

X	Y
II	I

The basic diathesis of the radical is bivalent, the agent role is expressed as a subject and the patient role is expressed as an object. The passive stem promotes the patient role to a subject and demotes the agent role to an object.

The second type of valence-neutral operation is the reflexive. A reflexive stem is a stem corresponding to a verbal radical with at least two semantic roles. The base is bivalent, but the reflexive stem is monovalent: there is a single event participant, which has both the agent-like and a patient-like role in the event. An example of a reflexive *-at* form is QUBAYSO in (105):

QUBAY(Ú) 'X washes the body of Y with water'

QUBAYSO 'X washes X's body with water'

(104) elmóha bay ú qubaysay

elmó–ka	b=ay	ø=ú	qubay–s–ay
children–PROX:M:ABS	FOC=3SG:F	SBJV=3PL:ABS=BEN	bathe–3SG:F–PST

'she bathed the children'

(105) Maryan baa qubaysatay

Maryán	baa	qubay–sad–t–ay
Maryan:SBJV	FOC	bathe–MID–3SG:F–PST

'Maryan bathed herself'

The verb QUBAY (Ú) in (104) is a phrasal verb, consisting of the main verb *qubay* 'shower' and the verbal adposition *ú* 'benefactive'. The base QUBAY(Ú) has two participants mapped to two

semantic roles expressed as the subject clitic *ay* 'she' and the object *elmó* 'kids'. In (105) the *-at* stem has a single participant *Maryan* as the subject; this participant takes both the agent-like and patient-like roles.

The difference between QUBAY (Ú) to QUBAYSO can be represented as a diathetic operation as in Figure 7:

Figure 7 Reflexive

QUBAY(Ú) 'X washes Y's body with water' → QUBAYSO

X	Y
I	II

→

X=Y
I

The basic diathesis of the radical is both semantically and syntactically bivalent: the agent role is expressed as a subject and the beneficiary/patient role is expressed as an object. The reflexive stem has both the agent and patient roles expressed as a single grammatical relation (X and Y are coreferential). The *-at* stem is thus syntactically monovalent. Reflexives maintain an agent role and a patient role, assigning both semantic roles to a single argument surfacing as a subject.

The third group of *-at* stems that impose a valence-neutral diathetic operation is the reciprocals. The base of a reciprocal stem is a verb expressing a single event with two participants, an agent performing an action on a patient. However, the reciprocal stem expresses an event comprised of two sub-events, one in which the first participant has an agent role and the second in which it has a patient role. Conversely, Y has a patient role in the first event and an agent role in the second.

An example of a reciprocal *-at* form is SHEEKAYSO in (107):

SHEEKAY (Ú) 'X tells a story to Y'
SHEEKAYSO 'X and Y tell each other stories'

(106) Maryan baa ilmáha ú sheekaysay

Maryán	baa	ilmó–ka	Ø=ú	sheekay–s–ay
Maryan:SBJV	FOC	kids–PROX:M:ABS	3PL:ABS=BEN	tell.story–3SG:F–PST

'Maryan told the kids a story'

(107) way sheekaysadeen

w=ay	sheekay–sat–Ø–een
AUX=3PL:SBJV	tell.story–MID–3PL–PST

'They told each other stories'

The base in (106) is a bivalent verb; the subject is *Maryan* and the object is *ilmaha* 'the kids'. The semantic valence of the base is maintained in the *-at* stem, although syntactically the *-at* stem in (107) is monovalent: there is a single syntactic argument expressed as the subject clitic *=ay* 'they'. The *-at* stem expresses an event with two sub-events—X tells Y a story and Y tells X a story—in each of which one participant takes the semantic role played by the other in the other subevent.

The difference between SHEEKAY(Ú) and SHEEKAYSO can be represented as a diathetic operation in, following Kulikov (2011):

Figure 8 Reciprocal.

SHEEKAY(Ú) 'X tells a story to Y' → SHEEKAYSO

X	Y
I	II

&

X	Y
II	I

=

X & Y
I

The basic diathesis of the radical is bivalent, the agent role is expressed as a subject and the theme role is expressed as an object; there is a single event. The reciprocal is bivalent, the agent is expressed as a subject, and the theme role is expressed as an object. In the first event, the X participant is the agent and the Y participant is the theme. The second event is the converse; the X participant is the theme and the Y participant is the agent. Both are expressed as part of a plural subject in the reciprocal form.

As noted in §1.3, only valency neutral operations that do not alter meaning are considered voices (Mel'čuk,1993); however, this is not the case for many stems like DEGO 'X lowers X's body' (based on DEG 'X moves to dwell in Y'), which is non-compositional: there is an extra meaning in the stem, that can't be traced back to the individual combination of the meanings of the *-at* suffix and the radical DEG. Many non-compositional *-at* stems are found among those with valence-maintaining diathetic effects—that is, cases where *-at* does more than simply alter valence. This problem will be discussed further in §4.2.1.

Stems where *-at* has a valence-maintaining effect are given in Table 30 (note that the stems listed below are also found in the discussion in Chapter 2):

Table 30 Valence-maintaining *-at* forms

Passive
1. DHIB 'X bothers Y'

2. DHIBSO ‘X bothers Y’

Reflexive

1. MAYDH (Ú) ‘X washes Y’s body with water’
2. MAYDHO ‘X washes Y’s body with water’
3. QUBAY (Ú) ‘X washes Y’s body with water’
4. QUBAYSO ‘X washes Y’s body with water’
5. LEBIS (Ú) ‘X puts clothing on the body of Y’
6. LEBISO ‘X puts clothing on the body of Y’
7. XAAQ ‘X cleans dirt, dust, or litter from Y with a broom’
8. XAAQO ‘X clear’s X’s throat’*[9]
9. LAAB ‘X folds or bends Y’
10. LAABO ‘X returns’*
11. BAX ‘X moves from one point in space to another’
12. $BAXSO_2$ ‘X moves out of danger’*
13. DEG ‘X moves to dwell in Y’
14. DEGO ‘X lowers X’s body’*
15. TAG ‘X goes to a place Y'
16. TAGSO ‘X goes to a far-off place'*
17. DHEEF (KÁ) X benefits from Y’
18. DHEEFSO ‘X benefits X’s self’
19. DAWAY ‘X treats Y with medicine’
20. DAWAYSO ‘X treats X with medicine’
21. DIIR ‘X becomes warm’
22. DIIRSO ‘X warms X’s self’
23. TABABAR ‘X trains Y’
24. TABABARO ‘X trains X’s self’
25. DANAY(Ú) ‘X acts in the interest of Y’
26. DANAYSO ‘X acts on X’s interest’

[9] Note that non-compositional stems are marked with an asterisk, as in XAAQO. With these stems there is still a reflexive diathetic effect, however, the meaning the stem is idiomatic. Further stems like XAAQO are problematic in that the propositional meaning has narrowed in an unpredictable manner.

27. BADHBADH ‘X cheers up Y’
28. BADHBADHSO ‘X cheers up X’s self’
Reciprocal
1. SHEEKAY(Ú) ‘X tells a story to Y’
2. SHEEKAYSO ‘X and Y tell each other stories’
3. BEDDEL (Arabic √bdl) ‘X changes Y’
4. BEDDELO ‘X exchanges Y'

3.2 VALENCE-ALTERING OPERATIONS

The second group of stems that show diathetic effects alters the semantic valence of the base, resulting either in the removal of a semantic role, as in anti-causatives, or the addition of a role, as in causatives and applicatives; in the latter cases, the additional role can be realized as a subject (resulting in a causative stem) or as an object (creating an applicative stem). The stems in this group are not voice-like according to Mel’čuk (1993) in that a voice is a change in the diathesis that maintains the propositional meaning of the base, and the addition of a semantic role constitutes a change in propositional meaning. Consider the stem GUBO in (109):

GUB ‘X burns Y

GUBO ‘X burns’

(108) guriga buu gubay

guri–ga	b=uu=ø	gub–ø–ay
guri–PROX:M:ABS	FOC=3SG:M:SBJV=3SG:M:ABS	burn–3SG:M–PST

‘he burnt the house’

(109) guriga baa gubtay

guri–ga	baa	gub–at–ø–ay
guri–PROX:M:ABS	FOC	burn–MID–3SG:M–PST

‘The house burnt’

The base in (108) is semantically and syntactically bivalent, assigning to the subject clitic *=uu* the role of agent and to the object *guri* ‘house’ the role of patient. In contrast, the *-at* stem in (109) is semantically and syntactically monovalent, assigning the subject *guri* a patient-like role. There is no causer/agent role in the meaning of GUBO. The *-at* stem thus reduces the semantic valence of

the radical from two semantic roles to a single semantic role. The removal of the agent role results in an unvoice-like modification of the propositional meaning.

Valence-altering stems account for 22/39 (56.4%) of the diathesis-altering stems, and the proportions of each type are summarized below in Table 31:

Table 31 Valence-altering *-at* stems

Operation	Number of stems
Anti-causative	11/21 (52.4%)
Causative	7/21 (33%)
Applicative	3/21 (14.3%)
Total	21/21 (100%)

This group of stems mainly has an anti-causative diathetic effect (11/21 [52.4%]). Causative diathetic effects are the second largest (7/21 (33%]), while the applicative stems are the least common type of diathetic effects in this group (3/21 [14.3%]).

Of the two possible types of valence-altering operations, valence-reducing and valence-increasing, valence-reducing stems all belong to the category of anti-causative. As discussed in §1.3, anti-causatives decrease the semantic valence of the base by removing the agent and expressing the object of the base as a subject. An anti-causative stem is monovalent, and assigns a single patient-like semantic role. An example of an anti-causative *-at* form is LULO 'X rocks' in (111):

LUL 'X rocks Y'
LULO 'X rocks'

(110) wiil baa kursíga lulay

wìil–ø	baa	kursí–ka	lul–ø–ay
boy:SBJV	FOC	chair–PROX:M:ABS	rock–3SG:M–PST

'A boy rocked the chair'

(111) kursiga baa luladay

kursí–ka	baa	lul–at–ø–ay
chair–PROX:M:SBJV	FOC	rock–MID–3SG:M–PST

'The chair rocked'

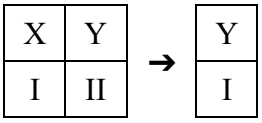
The base in (110) assigns two semantic roles, an agent-like role (expressed by *wìil* 'boy') and a patient-like role (kursi 'chair'). In (111), the *-at* stem only assigns a single semantic role, a patient-

like role (kursi ‘chair’) expressed as a subject. The event is spontaneous; hence an agent-role is not expressible with the *-at* stem.

The anti-causative can be represented as a diathetic operation in Figure 9:

Figure 9 Anti-causative diathesis.

LUL ‘X rocks Y’→ LULO ‘X rocks’



The basic diathesis of the radical is bivalent, the agent role is expressed as a subject and the patient role is expressed as an object. The anti-causative stem removes the agent role, only expressing a patient role as a subject.

Of the two possible types of valence-increasing operation, causativization and applicativization, both are attested. Causativization adds a new event-participant in an agentive role, a causer of the event expressed by the base; the new event-participant is expressed as the subject. An example of a causative *-at* form is JABSO in 86:

JAB ‘X is broken into pieces’

JABSO ‘Y breaks X into pieces for Y’s self’

(112) dariishada baa jabtay

dariishó–ta	baa	jab–t–ay
window–PROX:F:SBJV	FOC	break–3SG:F–PST

‘the window broke’

(113) dariisháda baan jabsaday

dariishó–ta	b=aan=ø	jab–sad– ø–ay
window–PROX:F:ABS	FOC=1SG:SBJV=3SG:F:ABS	break–MID–1SG–PST

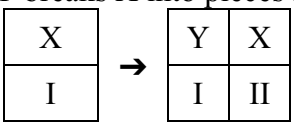
‘I broke the window for myself’

The base as shown in (112) has a single semantic argument *dariishada* ‘window’ which takes a patient role, expressed as a subject. In (113) the *-at* stem assigns two semantic roles: *dariishada* ‘window’ takes a patient role and *=aan* ‘I’ takes both an agent role and a beneficiary role. The agent is expressed as the subject of the causative, demoting the subject of the radical to an object.

The causative alternation can be represented as a diathetic operation as in Figure 10 :

Figure 10 Causative

JAB ‘X is broken into pieces’
→JABSO ‘Y breaks X into pieces for Y’s self’



The basic diathesis of the radical is monovalent with a single patient role expressed as a subject. The causative stem adds an agent expressed as a subject, demoting the subject of the radical to an object expressing a patient. The participant taking the agent role also benefits from the event, placing this in the middle semantic category of auto-benefactive (§2.2.2).

The third type of valence-altering diathetic operation is applicativization, which increases the valence of the base by adding an object. An applicative stem is bivalent, since there are two participants, one taking an agent-like role and the other a patient-like role. An example of an applicative *-at* form is HUBSO in (115) below:

HUB ‘X is certain that some facts are true’
HUBSO ‘X confirms or verifies that Y is true’

(114) waan hubaa

w=aan	hub–ø–aa
AUX=1SG:SBJV	certain–1SG–PRES

‘I am certain’

(115) wárka baan hubsaday

wár–ka	b=aan	hub–sad–Ø–ay
new–PROX:M:ABS	FOC=1SG:SBJV	certain–MID–1SG–PST

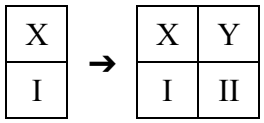
‘I confirmed the news’

In (114) the verb assigns a single semantic role, expressed as a subject clitic *=aan* ‘I’. In (115) the applicative stem has two semantic roles; the agent role expressed as the subject (*=aan* ‘I’) and the theme role (*wár* ‘news’). As with most *-at* stems, the meaning is non-compositional, shifting from a stative verb indicating certainty to a verb expressing the act of confirmation.

The applicative is represented by the diathetic operation below Figure 11:

Figure 11 Applicative

HUB ‘X is certain’→HUBSO ‘X verifies Y’



The basic diathesis is monovalent, there is a single agent-like role as a subject. The applicative stem adds a theme role as an object, maintaining the X role as a subject and increasing the valence of the base by one.

As with the valence-maintaining stems discussed in §3.1,there are valence-altering stems that involve non-compositional meanings, such as the anti-causative stem RAYSO in (117):

RAY (KA) 'X triumphs over Y'
RAYSO 'X recovers from an illness'*

(116) qóf baan ká rayay

qóf–ø	b=aan	ø=ká	ray–ø–ay
person:ABS–INDEF	FOC=1SG:SBJV	3SG:M:SBJV=ABL	triumph–1SG–PST

'I triumph over someone'

(117) waan raysaday

w=aan	ray–sad–ø–ay
AUX=1SG:SBJV	win–MID–1SG–PST

'I recovered from an illness'

The radical in (116) assigns two semantic roles, an agent-like role and a patient-like role, while the stem in (117) only assigns a patient role, hence it qualifies an anti-causative. However, the meaning of the *-at* stem is not strictly composed of the individual meanings of the suffix and the radical.

There are a large number of non-compositional stems among the valence-altering forms; these are marked with an asterisk in Table 32, which lists all the valence-altering stems in the corpus:

Table 32 Valence-altering stems

Anti-causatives
1. RUX 'X shakes Y'
2. RUXMO 'X's body shakes'
3. QUB 'X spills Y (water, leaves, fruits,)'
4. QUBO 'X is spilt or falls (leaves, fruits)'
5. WAAL 'X causes Y to become insane

6. WAALO ‘X becomes insane’

7. DHIN ‘X makes Y smaller in quantity’
8. DHIMO ‘X dies’*

9. DHAL ‘X gives birth to Y’
10. DHALO ‘X is comes into being’

11. RAY ‘X triumphs Y’
12. RAYSO ‘X recovers from an illness’*

13. DOOG$_2$ ‘X conserves Y rainwater’
14. DOOGSO ‘X receives abundant rain’

15. GUB ‘X burns Y
16. GUBO ‘X burns’

17. LUL ‘X shakes Y
18. LULO ‘X shakes’

19. KAB ‘X reconstructs or repairs Y’
20. KABO ‘X becomes reconstructed or repaired’

21. XANUUN ‘X (a body part) hurts Y’
22. XANUUNSO ‘X feels pain’

Causatives

1. JAB ‘X breaks into pieces’
2. JABSO ‘Y breaks X into pieces for Y’s self’

3. DAAQ ‘X (animals) graze on Y’
4. DAAQO ‘X puts Y in a field of grass to graze on Z’

5. BUUX ‘X is full’
6. BUUXSO ‘X fills Y for X’ self’

7. DALAL ‘X melts’
8. DALALSO ‘X melts Y for X’s self’

9. HAGAG ‘X is fixed’
10. HAGAGSO ‘X fixes Y for X’s self’

11. KUF ‘X falls’
12. KUFSO ‘X makes Y fall, X violates Y’

13. DHIG$_1$(Ú) ‘X causes Y learn to Z’

14. DHIGO$_{1}$ ‘X learns Y’
Applicatives
1. BAX ‘X moves from one point in space to another’ 2. BAXSO$_{1}$ ‘X takes Y out of an enclosed space (e.g. bag, room, etc.) for X’s self’
3. HUB ‘X is certain that some facts are true’ 4. HUBSO ‘X confirms or verifies that Y is true’
5. SHIIQ ‘X becomes smaller in size, or amount' 6. SHIIQSO ‘X chews Y’

4 -*AT* IS A DERIVATIONAL SUFFIX

As discussed in §1.3, a voice is a morpheme belonging to an inflectional category that results in the modification of the basic diathesis without altering the propositional meaning or changing the valence of the base (Mel'čuk,1993). However, we saw in Chapter 3 that the Somali *-at* has a voice-like effect on the diathesis of its base with only 38/182 (20.9%) of the stems in the corpus while in 21/38 (55.3%) of forms where *-at* changes valence it increases it rather than rather than just maintaining it. In addition, whereas a voice should have a single, consistent diathetic effect on its base, *-at* can have six different diathetic effects. These facts argue strongly against analyzing *-at* as a voice inflection and suggest that it behaves more like a derivation, which will often have a valence-altering effect on its base and which may vary in its effect from base to base.

Further examination of the corpus confirms that the suffix *-at* is in fact a derivation. Like many derivational affixes, *-at* can alter the part of speech of its base (§4.1). Additionally, where a voice is expected to be regular—that it is, it should be semantically compositional, predictable, and productive—a derivation may show varying degrees of irregularity. The Somali *-at*, as it turns out, shows a high degree of irregularity. Many *-at* stems are non-compositional (§4.2.1) and unpredictable (§4.2.2), and tests for the productivity of *-at* conducted with Somali native speakers (§4.2.3) show that *-at* is only moderately productive. Thus, *-at* falls short of the high degree of regularity required of an inflection.

4.1 -*AT* STEMS BASED ON NON-VERBAL RADICALS

The suffix *-at* is not an inflection because in many cases it changes the part of speech of a lexeme. As indicated in §1.3 inflected forms of a word all belong to the same lexeme, and a single lexeme has a single part of speech. Therefore, if an *-at* form has a different part of speech than its base, then the two must belong to different lexemes and the *-at* suffix can not be an inflection. As it turns out, with 100/460 (21.7%) stems, *-at* is added to a non-verbal radical and alters the lexical category of its base by creating a verb. The radicals involved tend to be nouns (96/100 [96%]), though a small number of them are adjectives (4/100 [4%]).

A verb formed with *-at* based on a noun is DHADHANSO in (119) below:

DHADHANN 'flavour'
DHADHANSO 'X tastes Y'

(118) baríis dhádhan leheen buu kariay

baríis	dhádhan	leheen	b=uu=ø	kari–ø–ay
rice:ABS	flavour:ABS	have:NEG	FOC=3SG:M:SBJV=3SG:M:ABS	cook–3SG:M–PST

'he cooked rice that has no taste'

(119) waan dhadhansaday

w=aan=ø	dhadhan–sat–ø–ay
AUX=1SG:SBJV=3SG:M:ABS	taste–MID–1SG–PST

'I tasted it'

In (118) the base *dadhan* 'flavour' is a noun. Here it takes the absolutive case and the indefinite suffix, and in other contexts it can also inflected for possession. In (119), the *-at* suffix derives a verb, DHADHANSO 'taste$_V$', from *dhadhan*. Like all verbs in simple clauses, it agrees with its subject and assigns case to the subject clitic *=aan* 'I'; it is also inflected for tense. DHADHANSO is thus clearly a different lexeme than DHADHAN, with a very different meaning and different inflectional possibilities.

An *-at* stem based on an adjectival radical is FOOGO, in (121) below:

FOOG$_{ADJ}$ 'far'

FOOGO 'X moves to a point far away'

(120) mèel foog buu aday

meel	foog	b=uu	ad–ø–ay
place:ABS	far	FOC=3SG:M:SBJV	go–3SG:M–PST

'he went to a far place'

(121) wuu foogaaday

w=uu	foog–ad–ø–ay
AUX=3SG:M:SBJV	become.far–MID– 3SG:M–PST

'he moved far'

The adjective FOOG 'far' in (120) does not inflect for tense and does not agree with anything in the clause. In (121), the *-at* suffix derives a verb, FOOGO 'X moves to a point far away', from FOOG; the derivative FOOGO agrees with its subject and assigns case to the subject clitic *=uu*; it is also inflected for tense. FOOGO thus differs in meaning and inflection from FOOG and so must be considered a separate lexeme.

A list of some of the stems in the corpus based on non-verbal radicals is given in Table 33 below (see Appendix A for a complete list):

Table 33 -*at* stems based on nonverbal radicals

Nominal bases
1. MALAAS$_N$ ‘red/white clay used to flatten hair’ 2. MALAASO ‘X applies red/white clay on Y hair of X to flatten it’
3. KUUL $_N$ (Arabic √k7l) ‘type of eyeliner for eyes’ 4. KUULO ‘X applies kuul to X’s eyes’
5. SIIN$_N$ ‘nasal mucus’ 6. SIINSO ‘X blows X’s nose’
7. DIIB$_N$ ‘fragrance, scent’ 8. DIIBSO ‘X puts diib on X’s body’
9. DIIF$_N$ ‘nasal mucus’ 10. DIIFSO ‘X blows X’s nose’
11. CUSBUR$_N$ ‘henna’ 12. CUSBURO ‘X applies henna on X’s body’
13. DHUKAY$_N$ ‘earwax’ 14. DHUKAYO ‘X cleans earwax for X’s ears’
15. FINDHICIL$_N$ ‘toothpick’ 16. FINDHICILO ‘X picks X’s teeth with a toothpick’
17. LUQ/LUQLUQ$_N$ ‘corner, alleyway’ 18. LUQLUQO ‘X gargles or X washes X’s mouth’
19. RUMMAY$_N$ ‘a twig from the mustard tree (miswaak) used to brush teeth’ 20. RUMMAYO ‘X uses rummay to clean X’s teeth’
Adjectival bases
1. FOOG$_{ADJ}$ ‘far’ 2. FOOGO ‘X becomes far’
3. KULUL$_{ADJ}$ ‘hot’ 4. KULULO ‘X becomes hot’
5. WAAYN$_{ADJ}$ ‘big’ 6. WAAYNO ‘X grows, becomes big’
7. YAR$_{ADJ}$ ‘small’ 8. YARO ‘X becomes small’

4.2 -*AT* IS IRREGULAR

If the suffix -*at* is an inflection, then it should be regular. Regularity, as discussed in §1.3 has three main requirements—compositionality, predictability, and productivity. An examination of the corpus shows that there are in fact many non-compositional -*at* stems (§4.2.1), there is a high rate of non-predictability (§4.2.2), and testing middle forms with Somali speakers shows that -*at* overall is not highly productive (§4.2.3). Taken together, this evidence suggests that -*at* is not an inflection and behaves more like a derivation.

4.2.1 COMPOSITIONALITY

Compositionality requires that the meaning of the individual parts of a complex linguistic sign add up to precisely the meaning of the whole (Mel'čuk, 1993). In the corpus, 14/182 (8%) stems based on verbal radicals show clear non-compositionality—that is, the change in meaning between the base and the -*at* form can not be attributed solely to "extra" meaning added by -*at*. An example can be found in the stem DHIMO 'die', shown in (123):

DHIN 'X makes Y smaller in quantity'
DHIMO 'Y dies'

(122) lacágta bay dhintay

lacág–ta	b=ay	dhin–t–ay
money–PROX:M:ABS	FOC=3SG:F:SBJV	decrease–3SG:F–PST

'She decreased the (amount of) money'

(123) waay dhimatay

w=ay	dhin–at–t–ay
AUX=3SG:F:SBJV	die–MID–3SG:F–PST

'she died'

If the -*at* stem were compositional, then the combination of -*at* with the radical DHIM 'X decreases Y' is expected to create a stem that preserves the meaning 'decrease' while adding some additional meaning that could be attributed solely to -*at*. However, that is not the case in (123), as the meaning of DHIMO no longer includes the meaning 'decrease' and there is no plausible meaning that the suffix -*at* can add to 'decrease' to get the meaning 'die'. This means that the stem DHIMO is semantically non-compositional in relation to the base DHIN.

A list of all non-compositional middle stems is shown in Table 34 below:

Table 34 Non-compositional *-at* stems

1. MAR ‘X passes along Y’ 2. MARSO ‘X applies a substance Y (cream) to part of X’s body Z the body of X’
3. TAG ‘X goes to a place Y' 4. TAGSO ‘X goes to a far-off place' (X is distant)
5. BAX ‘X moves from one point in space to another’ 6. $BAXSO_2$ ‘X moves out of danger’ (‘X flees’)
7. LAAB ‘X folds or bends Y’ 8. LAABO ‘X returns’
9. DHIN ‘X makes Y smaller in quantity’ 10. DHIMO ‘X dies’
11. RAY ‘X triumphs Y’ 12. RAYSO ‘X recovers from an illness’
13. TUN ‘X hits Y; X grinds Y; X forges Y’ 14. TUMO ‘X becomes addicted to going to night clubs and dances’
15. QUUS ‘X becomes submerged in water’ 16. QUUSO ‘X feels intense despair’
17. DHAAF ‘X moves past Y’ 18. DHAAFSO (KÁLA) ‘X exchanges Y with Z and Z exchanges Y with X’
19. GAD (KÁ) ‘X sells Y’ 20. GADO ‘X buys Y’
21. BEDDEL (Arabic √*bdl*) ‘X changes Y’ 22. BEDDELO ‘X exchanges Y'
23. SHIIQ ‘X becomes smaller in size, or amount' 24. SHIIQSO ‘X chews Y’
25. BAAQ ‘X announces something’ 26. BAAQO ‘X decides to stay in’
27. HUB ‘X is certain that some facts are true’ 28. HUBSO ‘X confirms or verifies that Y is true’

4.2.2 PREDICTABILITY

If a suffix is predictable, then one can predict from the meaning of a given base what the meaning of the combination of the base and that suffix will be. The suffix *-at* cannot be considered predictable due to the complex and often idiosyncratic relationships between the different polysemous meanings of *-at* seen in Chapter 2 and the semantic class of the bases that take *-at* with that meaning. Testing the data shows that only 33/182 (18%) of *-at* stems based on verbal radicals have meanings predictable from the base, while 149/182 (82%) have unpredictable or idiosyncratic meanings.

As discussed in Chapter 2, when combined with verbal radicals, the suffix *-at* expresses meanings in one of 6 middle semantic domains, as well as a heterogeneous set of meanings in the Other class. The Other class is, of course, heterogenous and inherently unpredictable, an unexpected feature for voices, as they should be predictable, so this is already an indication of some degree of unpredictability. The meanings associated with *-at* stems based on verbal radicals (182/460 [40%]) in the corpus are shown in Table 35:

Table 35 Middle semantics

Middle semantic domain	Number of stems
A -Bodily action	16/182 (9%)
B -Posture & Motion	17/182 (9.3%)
B_1 -Body Posture	10/17 (59%)
B_2 -Non-translational motion	3/17 (17%)
B_3 -Translational motion	4/17 (23.5%)
C- Spontaneous	21/182 (11.5%)
D -Emotion & cognition	10/182 (5.5%)
E -SBFI	2/182 (1%)
F -Auto-benefactive	103/182 (56.5%)
G -Other	13/182 (7%)
Total	182/182 (100%)

An example of a bodily action type stem is LEBISO ‘X dresses’, which is derived from LEBIS (Ú) ‘X dresses Y’. In these cases, *-at* expresses the meaning ‘X directs an action towards X’s body’ and the radicals that take this meaning seem generally to fall into the semantic class of grooming or dressing verbs. Within the bodily action domain (16/182 [9%] of stems based on verbal radicals), 7/16 (44%) stems are based on radicals in these two classes, and so the remainder of these forms would be considered predictable: there are a total of 9/16 (66%) bodily action stems that have either non-compositional meaning, or non-canonical meanings. Non-compositional stems include MARSO ‘X applies a substance Y (cream) to part of X’s body Z’ which is derived from MAR ‘X passes along Y’. In this form, the meaning of radical is not preserved, so the shift in meaning between radical and stem can not be solely attributed to *-at*. Non-canonical uses of *-at* are those where the meaning of the radical is preserved but *-at* adds some other component of meaning in addition to ‘X directs an action towards X’s body’—there are no instances of non-

canonical stems in this class. Forms of both types are considered unpredictable and the radicals are classified semantically as "miscellaneous" in the summary Table 37 below.

The posture and motion middle semantic domain (17/182 [9.3%] of stems based on verbal radicals) is subdivided into three sub-types: 1) change in posture; 2) non-translational motion; and 3) translational motion. An example of a change in posture type stem is FADHISO 'X sits down', which is derived from FADHI 'X is sitting down'. In these cases, *-at* expresses the meaning 'X changes the configuration of X's body resulting in a new location' and the radicals that take this meaning seem generally to fall into the semantic class of verbs expressing body posture. 10/17 (59%) stems in this group are based on verbs of this semantic class. Within the body posture class, there are no instances of stems that are non-compositional or non-canonical.

An example of a non-translational motion type stem is JALEECSO 'X turns X's neck around', which is derived from JALEEC 'X is turning X's neck around'. In these cases, *-at* expresses the meaning 'X changes the configuration of X's body maintaining the same location' and the radicals that take this meaning seem generally to fall into the semantic class of non-translational motion. 3/17 (17%) stems in this group are based on verbs of this semantic class. Within the non-translational class, 1/3 (33%) of the stems is classified as non-compositional. This is WAREEGSO 'X turns X's body around in a circle' based on WAREEG 'X moves from place to place', where the meaning of radical is not a type of non-translational motion (instead, the subject moves along a path). This is an unpredictable form and the radical is classified as "miscellaneous" in Table 37 below.

With translational motion stems, *-at* expresses the meaning 'X moves along a path' and the radicals that take this meaning seem generally to fall into the semantic class of translational motion. 4/17 (23.5%) stems in this group are based on radicals of this semantic class. 4/4 (100%) of these stems are non-compositional. There are no instances of non-canonical stems. This includes non-compositional stems like DEGO 'X lowers X's body' based on DEG 'X moves to dwell in Y', where the meaning of 'lower' is not a part of the meaning of the stem 'dwell'. These are unpredictable forms and the radicals are classified as "miscellaneous" in Table 37 below.

Spontaneous event stems (21/182 [11.5%] of the stems based on verbal radicals) include stems like NOLO 'X becomes alive', which is derived from NOL 'X is alive'. In these cases, *-at* expresses the meaning 'X spontaneously undergoes a change of state' and the radicals that take this meaning seem generally to fall into the semantic class of statives. Within the spontaneous *-at* stems, 9/21

(43%) are compositional stems that we can consider predictable. 12/21 (57%) are non-compositional stems like RAYSO ‘X recovers from an illness’ derived from RAY ‘X triumphs Y’, where the meaning of the base is not preserved in the stem. These are unpredictable forms and their radicals are classified as “miscellaneous” in Table 37.

An example of the emotion and cognition type of stem, which account for 10/182 (5.5%) of stems based on verbal radicals, is BAQO ‘X becomes afraid’ derived from BAQ ‘X is afraid’. In such cases, *-at* expresses the meaning ‘X’s emotional or cognitive state changes’. The radicals that take this meaning seem generally to fall into the class of verbs expressing emotional or cognitive states. Overall, only 4/10 (40%) of these stems are compositional while 6/10 (60%) are counted as non-compositional stems with radicals in the “miscellaneous” class in Table 37. This includes stems like RUMAYSO ‘X believes Y to be true’ derived from RUMAY ‘X proves/shows Y to be true’, where the meaning of the base is not maintained in the stem.

An example of a SBFI type stem (which account for 2/182 [1%] of stems based on verbal radicals) is BEDDELO ‘X exchanges Y’ based on BEDDEL (Arabic √bdl) ‘X changes Y’. In these cases, *-at* expresses a meaning ‘X engages in a mutual social, business, or financial interaction with someone’. One out of the two radicals that take this meaning seem to fall into the semantic class of SBFI verbs. Within the SBFI stems, only the stem BEDDELO ‘X exchanges Y’, 1/2 (50%) is compositional . While the other stem DHAAFSO (KÁLA) ‘X exchanges Y with each other’ derived from DHAAF ‘X moves past Y’, 1/2 (50%), is non-compositional and non-canonical. This is an unpredictable form and its radical is classified as miscellaneous in Table 37.

Auto-benefactive stems account for over half the *-at* forms based on verbal radicals (103/182 [56.5%]); however, there appears to be no single semantic class of radicals associated with this middle semantic domain. A few radicals seem to belong to the SFBI semantic class, but otherwise they are heterogenous and their radicals are counted as “miscellaneous” in Table 37.

The semantic classes of radicals corresponding to the various middle semantic domains expressed by *-at* are summarized in Table 36:

Table 36 Middle stem & radical class

Semantic class	Associated middle semantic domain
Grooming and dressing	A Bodily action
Body posture	B1 Body posture
Non-translational motion	B2 Non-translational motion
Translational motion	B3 Translational motion
Stative	C Spontaneous
Emotion & cognition	D Emotion and cognition
SBFI	E SBFI

The proportion of stems based on radicals from these classes that correspond to the 6 middle semantic domains is shown in Table 36. The cells for the predicted semantic class of radical for each middle semantic domain are shaded:

Table 37 Middle stem classes by radical class

Semantic domain	class 1	class 2–4	class 5	class 6	class 7	misc.	total
A	7/16 (44%)	—	—	—	—	9/16 (66%)	16/182 (9%)
B	—	12/17 (70%)	—	—	—	5/17 (30%)	17/182 (9.3%)
C	—	—	9/21 (43%)	—	—	12/21 (57%)	21/182 (12%)
D	—	—	—	4/10 (40%)	—	6/10 60%)	10/182 (5.5%)
E	—	—	—	—	1/2 (50%)	1/2 (50%)	2/182 (1%)
F	—	—	—	—	11/103 (11%)	92/103 (89%)	103/182 (57%)
Other	—	—	—	1/13 (7.7%)	4/13 (30.8%)	8/13 (61.5%)	13/182 (7%)
Total	7/182 (4%)	12/182 (7%)	9/182 (5%)	5/182 (3%)	16/182 (9%)	133/182 (73%)	182/182 (100%)

Among the bodily action (A) *-at* stems, only 44% are based on radicals belonging to the predicted semantic class of grooming and dressing verbs. The most predictable *-at* forms are the posture and motion (B) stems, 70% of which are formed on radicals from the predicted classes 2–4. For spontaneous (C) stems, only 43% are based as predicted on stative radicals. For emotion and cognition (D) stems, only 4/10 (40%) radicals belong to the predicted semantic class 4. SBFI (E) stems seem to be more predictable, 1/2 (50%) of these stems are based on SFBI radicals, though this is a very small group of stems. As noted above, auto-benefactive stems (F) don't have a typical radical semantic class, though (11/103 [11%]) of their radicals belong to class 5 (statives); the remaining stems (92/103 [89%]) have radicals in the miscellaneous class. The absence of a "typical" semantic class of radical for auto-benefactive stems means all of these have to be

considered unpredictable. It is worth noting that the auto-benefactive group accounts for 103/182 (56.5%) of the *-at* stems based on verbal radicals, meaning that the largest single group of *-at* forms is 100% unpredictable.

Thus, of the stems based on verbal radicals, only 33/182 (18%) express a particular meaning of *-at* that can be predicted from the meaning of their radicals. The remainder (149/182 [82%]) seem to be unpredictable. It might be possible that further, more fine-grained semantic analysis could uncover a higher degree of predictability; however, it seems unlikely that speakers could learn a system based on overly intricate and abstract organizational principles. Instead, it is more likely that speakers learn lexicalized meanings of individual combinations of *-at* and various radicals. Lexicalization of meaning, of course, is the hallmark of derivation, and the opposite of what we would expect from an inflection.

4.2.3 PRODUCTIVITY

If *-at* is regular then it should not only be compositional and predictable, it should also be productive. Mel'čuk (1991) defines productivity as the extent to which a morphological operation may apply to all members of its target class. The degree of applicability to a target class ranges from productive (applies to all or most) to non-productive (doesn't apply to many). An inflection is necessarily 100% productive for its target class, or nearly so, any exceptions typically being idiosyncratic or semantically motivated, whereas a derivation can range from completely productive to entirely non-productive.

The fact that *-at* is not productive in the sense of being a morphological operation applied to all or most members of a target class is suggested by the large number of unpaired *-at* forms mentioned in Chapter 2: a unpaired is etymologically the result of the application of an operation to a base which is no longer in independent use in the language. An unpaired stem cannot be a productive use of an affix simply because there is no base to which a speaker can apply the morphological operation in question. Instead, such forms must be learned and memorized. In the original corpus used for this thesis 178/460 (39%) *-at* forms are unpaired, suggesting that *-at* is at the lower end of the scale of productivity (for a full list of these, see

Appendix B: Unpaired stems

According to Mel'čuk's definition, if an affix is highly productive, speakers should recognize most if not all combinations of that affix with members of its target class, and we would expect many attestations of predicted combinations in a sufficiently large corpus. In order to test these criteria, I built a new, slightly larger corpus by gathering all verbal radicals (506 verbal radicals, the target class of *-at*) from two Somali dictionaries (Yaasiin, 1976; Zorc & Osman, 1993). I then went through this list to check to see whether the dictionary also contained *-at* forms based on these radicals. Radicals that had an *-at* form were rated as "attested" (182/506 [36%] stems) and radicals that lacked an *-at* form were rated "unattested" (324/506 [64%]).

This corpus was then used to test the acceptability of *-at* forms with Somali speaking consultants. The consultants were recruited by word of mouth through the Somali Canadian Women and Children's Association (SCWCA) in Edmonton, Alberta—a community center that provides various support programs to Somali immigrants. I recruited consultants by going to the SCWCA, informing staff and members about my research, and asking whether or not they were interested in participating. In the end, there was a total of five female consultants with ages ranging from 34–55 years (a mean of 41 years), having resided in Canada for 1–3 years. Prior to living in Canada, these consultants lived in Somalia, where they were born and raised. All consultants were Somali-dominant speakers who speak relatively little English. Three consultants received secondary school education in Somalia thus are literate in Somali, while the other two have no formal education and are illiterate. Three were from northern regions of Somaliland (e.g. Borama) and one was from the central region (Galcayo), and one was from the southern region (Xamar).

The study took place at the SCWA. The center provided me a quiet room where I interviewed each consultant individually. Prior to the experiment, I conducted a practice task, where I demonstrated the acceptability task for the consultants.[10] The practice task was as follows: (1) the experimenter pronounced a regular (and attested) lexeme in isolation (e.g., WAD 'X drives Y'); (2) the experimenter pronounced the lexeme in combination with the *-at* suffix (WAD–O 'X drives Y for X's self'); (3) the experimenter used the *-at* stem in a sentence (*waan wadtay gaariga* 'I drove the car'); (4) then the speakers were asked if the stem is acceptable. In the actual experiment, consultants listened to me pronounce a radical. Then they constructed the radical in combination

10 I am a fluent Somali speaker, though, unlike the consultants, I learned Somali from multilingual parents, I didn't grow up in a society with dominant Somali speakers, and I also speak other languages.

with the suffix and then shared the acceptability status of the stem. They had the option of producing a sentence if they hesitated.

I measured acceptability by presenting each of the 506 verbal radicals in isolation to consultants over multiple sessions, checking roughly 100 verbs per session, sessions ranging from 1–2 hours, breaks included. Upon hearing each radical, the consultant created a corresponding *-at* stem, then evaluated the stem as either acceptable, unacceptable, or odd but understandable . The task was in conducted in Somali and I asked things like 'does it sound good?', 'do you say that?', etc., in order to evaluate their responses.

Forms rated as "acceptable" were forms that speakers said they recognize and use. A speaker was judged to have accepted a form based on immediate responses such as "yes that is fine." Forms rated as "odd but understandable" were forms that speakers understood but had never heard before. Consultants were judged to find a form to be "odd but understandable" when they hesitated but ultimately had responses such as "I understand it, but it is awkward." Forms rated as "unacceptable" were forms that speaker didn't recognize and wouldn't use. Consultants were judged to have found a form to be unacceptable when they didn't hesitate and immediately rejected the forms by responding "that is not possible" or "that is wrong." Measuring the exact degree to which a form is interpreted as either "odd but understandable" or "unacceptable" ideally requires more control, as it is possible that some forms were misinterpreted by the experimenter as belonging to the wrong category. There was universal agreement among the speakers about the forms I classified as "acceptable." All of the forms from the corpus that were drawn from the dictionaries were rated as "acceptable" by all consultants; all of the unattested, constructed forms were rated as "odd but understandable" or "unacceptable."

There was no variation among the speakers for *-at* stems rated as Type 1 (acceptable); speakers were in complete agreement about these forms. However, there was some variation when it came to Type 2 and Type 3 scores. Some stems were rated "odd but understandable" by some speakers and "unacceptable" by others. In these cases, the opinion of the majority was used for the purposes of classifying the form. The full list of forms organized by speaker acceptability is given in Appendix C. The evaluation of *-at* stems are shown in Table 38:

Table 38 Acceptability of *-at* stems

Type	Speaker Judgement	Number of stems
1	Acceptable	182/506 (36%)
2	Odd but understandable	169/506 (33%)
3	Unacceptable	155/506 (31%)

182/506 (36%) of the stems were rated as acceptable by speakers; this group corresponded exactly to the set of *-at* stems attested in the dictionary. A total of 169/506 (33%) of stems were rated as odd but understandable, while 155/506 (31%) of the stems were rated as unacceptable; all of the stems in these two groups were unattested and constructed by speakers. In order for an affix to be considered productive enough to be an inflection, all or most forms with that affix would have to be of Type 1, given that an inflected form is expected for each lexeme in a target class (i.e., there should be an *-at* form for all Somali verbs just as there is past tense form for all Somali verbs). We would not expect an inflection to receive many Type 2 ratings. If speakers rate many of the unattested forms constructed for this study as "unacceptable" (Type 3), this indicates that the affix is non-productive.

As only 36% of stems were rated as Type 1, this suggests that the suffix -at is not highly productive. All constructed forms (representing 64% of the radicals) were judged as odd or unacceptable. This is significant in that this is the pattern we would expect for an unproductive suffix or a suffix with low productivity: dictionary forms would be acceptable while constructed forms would be rejected or judged to be odd. Forms would be judged acceptable because they are learned, lexicalized forms stored in the lexicon, while constructed forms are nonce forms based on a morphological operation that is not in common use. A productive suffix should apply to most radicals in the dictionary and allow for the easy creation of novel forms.

The productivity of an affix in combination with bases of its target class is a matter of degree. The distinction between inflection and derivation, however, is categorical. If the suffix *-at* were an inflection, then all of the forms would be rated as Type 1. That is not the case, as only 36% of radicals in combination with *-at* were rated as grammatical and were attested forms. Therefore, *-at* is not productive enough to be an inflection. Rather, the suffix *-at* fits the profile of a rather non-productive derivation.

5 CONCLUSION: *-AT* IS NOT A VOICE

As we've seen in the preceding chapters, the suffix *-at*, traditionally labeled "middle voice," is not a voice—instead, *-at* fits the profiles of a derivational suffix. Although the suffix *-at* has middle semantic effects on the base (Chapter 2), *-at* does not behave as an inflection and shows a variety of unvoice-like properties, one of which is that it has inconsistent diathetic effects on its base (Chapter 3). We saw in Chapter 4 that *-at* has the properties of a derivation in that, in many cases, it alters the part of speech of its base (§ 4.1) and it shows signs of irregularity (§4.2) including the production of many non-compositional stems (§4.2.1), having unpredictable meanings when combined with radicals (§4.2.2), and being largely unproductive (§4.2.3).

The suffix *-at* is heterosemous, adding a wide range of meanings to the base. Despite this heterosemy, *-at* stems largely conform to the middle domain referred to as "low elaboration of events" by Kemmer (1993). As mentioned in §2.1, *-at* has several of the canonical middle meanings posited by Kemmer, though examining the corpus reveals that *-at* also extends to additional non-canonical meanings (§2.2), although these also share the underlying meaning of low elaboration of events and so can be classified as falling into the middle semantic domain. Further examination shows, however, that several *-at* forms express a number of miscellaneous "Other" meanings that do not belong to Kemmer's middle semantic domain (§2.2.2).

While *-at* is associated with middle semantics, expressing meanings within a particular semantic class is not sufficient ground for deciding it is a voice. A voice is a morpheme belonging to an inflectional category that results in the modification of the basic diathesis without altering the propositional meaning or changing the semantic valence of the base (Mel'čuk, 1993)—that is, whether or not something is a voice is determined by the diathetic and other effects it has on its base. Thus, if *-at* is a voice, then *-at* should have a single consistent diathetic effect when added to a base, and the effect should preserve the base's valence. Examining the diathetic effects of *-at* in the corpus reveals that only a very small proportion of stems based on verbal radicals (38/182 [20.9 %]) show any kind of diathetic effect of *-at*. Among those stems, *-at* has both valence-maintaining (17/38 [44.7%]) and valence-altering effects (21/38 [55%]). Therefore, for only 17/182 (9.4%) of the stems based on verbal radicals is *-at* even remotely voice-like. Further examination of the corpus reveals that the valence maintaining effects of *-at* are in fact inconsistent across bases (§3.1): the valence preserving changes *-at* engenders include examples of reflexivization, passivization, and reciprocalization. Reflexive *-at* stems are the largest such group, making up

14/17 (82.4%) stems, while reciprocal stems account for 2/17 (11.8%) and passives for 1/17 (5.9%). This kind of confluence of passive, reflexive, and reciprocal in a single morpheme is also found in other languages (e.g. Spanish and Russian) where Kemmer analyzes these affixes in question as middles. This raises the question of whether or not middles in these languages, given their inconsistent diathetic effects, are properly analyzed as voices, or as single voices, a topic that certainly merits further consideration.

The fact that the suffix *-at* can affect three different valence-maintaining changes on the base is a failure to meet the requirements of a voice inflection. That fact that it can also alter (increase or decrease) the semantic valence of its base (§3.2) suggest that *-at* is, in fact, more like a derivation, which can have valence-altering and idiosyncratic effects on the base. A closer inspection of the corpus confirms this. Like many derivational affixes, *-at* alters the part of speech of the base with 100/460 (21.7%) of stems, creating verbs from non-verbal radicals (§4.1). Furthermore, where a voice is expected to be regular—semantically compositional, predictable, and productive—I demonstrate in §4.2 that *-at* is not regular, suggesting strongly that it is a derivation.

A semantically compositional stem expresses a meaning that is exactly the sum of the meanings of both the base and suffix. Examining the corpus shows there are 14/182 (8%) non-compositional meanings associated with *-at* stems (§4.2.1). Likewise, a suffix is semantically predictable if one can predict what the meaning of a particular combination of the base and suffix will be. For a suffix with a single meaning, this is simply the sum of the meaning of the base and the suffix. For a suffix like *-at*, which has complex heterosemous meanings, predictability means that the particular meaning of *-at* used with a given base should be predictable from the semantic class of the base. Examination of the corpus indicates that *-at* is not predictable in this sense. In fact, testing shows that only 33/182 (18%) of *-at* stems based on verbal radicals have meanings predictable from the base, while 149/182 (81.9%) have unpredictable or idiosyncratic meanings.

Inflections are also productive, and particular inflections are actively produced (or producible) by speakers—thus, there should be limited numbers of fossilized forms like unpaired forms. Unpaired forms are inflectional forms that have no uninflected counterpart and so are not productive uses of an affix in that there is no base which speakers can apply the morphological operation to begin with. In the corpus, 178/460 (39%) stems are unpaired, suggesting that *-at* is at the lower end of the scale of productivity. A productive suffix also applies to all or most members

of its target class. If *-at* is productive, then it should apply to all verbal radicals and should lend itself easily to the production of novel forms that speakers may not have heard before, but which are understood and accepted. When speaker judgements of acceptability are sought (§4.2.3), *-at* stems not attested in dictionaries but created from verbal radicals reveals that *-at* is not productive. Speakers evaluated only those *-at* forms found in dictionaries (182/506 [36%]) as acceptable, while 100% of the novel forms (324/506 [64%] of the radicals tested) were judged by speakers to be odd or unacceptable. If *-at* were an inflection, then the novel forms should have been accepted by speakers.

The tests for regularity in Chapter 4 give results that are consistent with the claim that *-at* forms are highly lexicalized, a hallmark of a derivation. The lexical class-changing and idiosyncratic, non-compositional semantic effects of *-at* reflect lexicalized meanings that require separate lexical entries for the stems that show these effects: these *-at* stems are separate lexemes and, hence, speakers must learn and memorize them. Furthermore, the significantly low number of stems (33/182 [18%]) for which the particular meaning of *-at* can be predicted from the semantic class of the base also indicates that speakers would have to learn lexicalized meanings of individual combinations of *-at* and various radicals. The prevalence of unpaired stems and the consistent failure of speakers to accept *-at* forms that are not listed in the dictionary both indicate that *-at* forms are learned rather than produced, showing that the Somali middle is not productive and therefore can not be analyzed as expressing an inflectional category of verbs.

All of this evidence together, suggests that *-at* is not an inflection and behaves more like a derivation. In fact, the association of *-at* with the middle semantic domain seems to suggest that synchronically there are several homophonous derivational *-at* suffixes which may be descended diachronically from a more productive middle voice *-at. Although the middle semantic domain in Somali manifests as a derivation, in other languages, it may be expressed in different ways, sometimes as voice, and in other cases as a voice-like derivateme or something altogether unvoice-like. This suggests that the term “middle” refers to a semantically driven concept that shouldn’t be necessarily linked to the term “voice,” as is traditionally assumed in descriptive and theoretical grammars.

REFERENCES

Abraham, R. C. (1962). *Somali-English Dictionary.* London: University of London Press.

Agostini, F., Puglielli, A., & Siyaad, C. M. (1985). *Dizionario somalo-italiano [Somali-italian dictionary].* Rome: Gangemi.

Beck, D. (2000). Semantic agents, syntactic subjects, and discourse topics: How to locate Lushootseed sentences in space and time. *Studies in Language, 24*(2), 277–317.

Comrie, B. (1989). *Language universals and linguistic typology: Syntax and morphology* (2nd ed.). Oxford: Basil Blackwell.

Dixon., R. M. (2000). A typology of causatives: Form, syntax, and meaning. In R. M. Dixon, & A. Y. Aikhenvald (Eds.), *Changing Valency: Case Studies in Transitivity* (pp. 29–83). Cambridge: Cambridge University Press.

Hayward, R. J. (1975). Middle Voice verb forms in Eastern Cushitic. *Transactions of the Philological Society , 74*(1), 203 - 224.

Hess, T. (1995). *Lushootseed reader with introductory grammar* (Vol. 1). Missoula:: University of Montana Occasional Papers in Linguistics.

Hopper, P. a. (1980). Transitivity in Grammar and Discourse. . *Language, 56*, 251-299.

Keenadiid, Y. C. (1976). *Qaamuuska Af-Soomaaliga [Somali Dictionary].* Muqdisho: Wasaaradda Hiddaha iyo Tacliinta Sare, Akademiyaha Dhaqanka, Guddiga Af-Soomaaliga [Mogadishu: Somali Language Commission of the National Academy and Cultures].

Kemmer, S. (1993). *The Middle Voice.* Amsterdam: J. Benjamins Pub. Co.

Klaiman, M. H. (1991). Inverse voice systems:Apachean languages. In M. H. Klaiman, *Grammatical voice.* (pp. 175-181). Cambridge: Cambridge University Pres.

Kulikov, L. (2011). Voice Typology. In J. J. Song (Ed.), *The Oxford Handbook of Linguistic Typology* (pp. 368-398). Oxford: Oxford University Press.

Lyons, J. (1969). *Introduction to Theoretical Linguistics.* London: Cambridge University Press.

Mel'čuk, I., & Žolkovskij, A. K. (1970). K postroeniju dejstvujuščej modeli jazyka (Smysl-Tekst) — A propos d'un modèle cybernétique de la langue (Sens-Texte). In A. J. Greimas (Ed.), *Signe, Langage, Culture* (pp. 159-194). Paris/ The Hague: De Gruyter Mouton.

Mel'čuk, I. (1991). Toward a universal calculus of inflectional categories: On Roman Jakobson's Trail. In L. R. Waugh, & S. Rudy (Eds.), *New Vistas in Grammar: Invariance and Variation* (pp. 85-109). Amsterdam/Philadelphia: J. Benjamins Pub. Co.

Mel'čuk, I. (1993). The Inflectional Category of Voice: Towards a More Rigorous Definition. In B. Comrie, & M. Polinsky (Eds.), *Causativity and Transitivity* (pp. 1-46). Amsterdam/Philadelphia:: J. Benjamins Pub. Co.

Mel'čuk, I. (1993–2000). *Cours de morphologie générale* (Vols. 1-5). Montréal: Presses de l'Université de Montréal.

Moreno, M. M. (1955). *Il Somalo della Somalia. Grammatica e Testi del Benadir, Darod e Dighil [The Somali of Somalia. Grammar and Texts from Bendair, Darod, and Dighil].* Rome: Istituto Poligrafico dello Stato.

Saeed, J. I. (1993). *Somali Reference Grammar* (2nd ed.). Wheaton, Maryland: Dunwoody Press.

Saeed, J. I. (1995). The Semantics of Middle Voice in Somali. *African Languages and Cultures, 8*(1), 61-85.

Zorc, D. R., & Osman, M. M. (1993). *Somali-English Dictionary with English Index.* Wheaton MD: Dunwoody Press.

APPENDIX A: NONVERBAL BASED -*AT* STEMS

Nominal bases

1. MALAAS$_N$ ‘red/white clay used to flatten hair’
2. MALAASO ‘X applies red/white clay on Y hair of X to flatten it’

3. KUUL $_N$ (Arabic √k7l) ‘type of eyeliner for eyes’
4. KUULO ‘X applies kuul to X’s eyes’

5. SIIN$_N$ ‘nasal mucus’
6. SIINSO ‘X blows X’s nose’

7. DIIB$_N$ ‘fragrance, scent’
8. DIIBSO ‘X puts diib on X’s body’

9. DIIF$_N$ ‘nasal mucus’
10. DIIFSO ‘X blows X’s nose’

11. CUSBUR$_N$ ‘henna’
12. CUSBURO ‘X applies henna on X’s body’

13. DHUKAY$_N$ ‘earwax’
14. DHUKAYO ‘X cleans earwax for X’s ears’

15. FINDHICIL$_N$ ‘toothpick’
16. FINDHICILO ‘X picks X’s teeth with a toothpick’

17. LUQ/LUQLUQ$_N$ ‘corner, alleyway’
18. LUQLUQO ‘X gargles or X washes X’s mouth’

19. RUMMAY$_N$ ‘a twig from the mustard tree (miswaak) used to brush teeth’
20. RUMMAYO ‘X uses rummay to clean X’s teeth’

21. GARBASAAR$_N$ ‘Somali style shawl’
22. GARBASAARO ‘X put a garbasaar on X’s body’

23. GUNUD$_N$ ‘knot’
24. GUNTO ‘X wraps clothing around X’s body by knotting it on the shoulder’

25. CIMAAMAD$_N$ ‘shawl for men’
26. CIMAAMADO ‘X wears a cimaamad’

27. INDOSAAB$_N$ ‘eye cover’
28. INDOSAABO ‘X covers X’s eyes’

29. GAASHAAN$_N$ ‘shield to protect body’
30. GASHAAMO ‘X puts on shield on X’s body’

31. INDHASHAREER$_N$ ‘face veil (only showing the eyes)’

32. INDHASHAREERO ‘X veils X’s face (with the exception of the eyes)’

33. XIJAAB$_N$ (Arabic √7jb) ‘hijaab’
34. XIJAABO ‘X wears a hijaab on X’s body’

35. XARRAGO$_N$ (Arabic 7rk) ‘fashion’
36. XARRAGO ‘X dress X’s body so that X is fashionable’

37. GARRAR$_N$ 'clothing where the material is knotted over the shoulder’
38. GARRARSO ‘X wears clothing on X’s body by knotting the clothing over the shoulder of X’

39. HU$_N$ ‘clothing’
40. HUWO/HUGSO ‘X puts on Y clothing on X’s body’

41. HAGOOG$_N$ ‘cloth/cover’
42. HAGOOGO ‘X covers the head of X with a cloth’

43. XANJEER$_N$ ‘carrying sling for a baby'
44. XANJEERO ‘X puts on a xanjeer on X’s body to carry a baby’

45. NEEF$_N$ ‘air’
46. NEEFSO ‘X breathes’

47. HAAR$_N$ ‘a mark’
48. HAARO ‘X marks X’s body’

49. JIRRIQ$_N$ ‘shrill, sharp noise’
50. JIRRIQSO ‘X grinds X’s teeth’

51. BARQO$_N$ ‘late morning’
52. BARQO ‘X is sleeping during the late morning’

53. HAR$_N$ ‘shade’
54. HARSO ‘X takes shelter in the shade’

55. TILAB$_N$ ‘a step’[11]
56. TILABO ‘X takes a step’

57. SAF$_N$ ‘queue’
58. SAFO ‘X moves X’s body to join a queue’

59. SULX$_N$ ‘slippery place’
60. SULXO ‘X slips’

61. SIBIBIX$_N$ (regional differences) ‘slippery place’

[11] TALLAB in some regions

62. SIBIBIXO ‘X slips’

63. QARAX$_{N}$ ‘explosion’
64. QARXO ‘X explodes’

65. DAAB$_{N}$ ‘diarrhea in young animals caused by too much drinking of milk’
66. DAABO ‘X becomes sick or gets diarrhea’

67. CAQLI$_{N}$ (√3ql) ‘intellect, wisdom’
68. CAQLISO ‘X becomes intelligent or experienced’

69. DHARAB$_{N}$ ‘small water drops on plants’
70. DHARABSO ‘X gets covered with small water drops’

71. GARAAD$_{N}$ (√gar, ‘knowledge’) ‘maturity, understanding’
72. GARAADSO ‘X becomes mature’ (by reaching an age of maturity)

73. CARGAAR$_{N}$ ‘green color’
74. CARGAARO ‘X becomes green in color’

75. GUDUUD$_{N}$ ‘red color’
76. GUDUUDO ‘X becomes red in color’

77. CIIR$_{N}$ ‘grey color’
78. CIRAYSO ‘X turns pale; X’s hair turns grey’

79. ABAAR$_{N}$ ‘a dry place/drought’
80. ABAARSO ‘X becomes dry’

81. CARO $_{N}$ ‘anger, wrath’
82. CARO ‘X becomes angry’

83. LADAN$_{N}$ ‘good state’
84. LADNO ‘X is in a good state’

85. WAHSI$_{N}$ ‘laziness’
86. WAHSO ‘X is lazy’

87. DOOG$_{3\ N}$ 'effects of a wound'
88. DOOGO$_{2}$ ‘X re-experiences pain'

89. JACEEL $_{N}$ ‘love, desire’
90. JACELO ‘X comes to like Y’

91. DHADHAN$_{N}$ ‘taste’
92. DHADHANSO ‘X tastes Y’

93. XASUUS $_{N}$ ‘memory’
94. XASUUSO ‘X remembers Y’

95. GAR $_{N}$ ‘justice’

96. GARO ‘X comprehends or know Y’

97. GOʔAN $_{N}$ 'decision’

98. GOʔANSO ‘X makes a decision’

99. MIYIR $_{N}$ ‘consciousness’

100. MIYIRSO ‘X gains consciousness’

101. FOOL $_{N}$ ‘labor pain’

102. FOOLO ‘X is in labor or labor pain’

103. UR$_{N}$ ‘odor (bad)’

104. URSO ‘X smells Y’

105. ALKUN $_{N}$ ‘girlfriend, fiancée’

106. ALKUMO ‘X gets engaged to Y, X asks for Y’s hand in marriage’

107. XAN$_{N}$ ‘gossip’

108. XAMO ‘X gossips about Y’

109. COD$_{N}$ ‘voice’

110. CODO ‘X speaks for X by making a request or appeal’

111. CUDUR-DAAR$_{N}$ ‘excuse’

112. CUDUR-DAARO ‘X makes an excuse for X’s self’

113. WEHEL$_{N}$ ‘companion’

114. WEHESHO ‘X takes Y as a companion’

115. GUUR$_{N}$ ‘marriage’

116. GUURSO ‘X marries Y’

117. GACAL$_{N}$ ‘beloved people’

118. GACALSO ‘X loves or cherishes Y’

119. QAREEN$_{N}$ ‘relatives, kin’

120. QAREENSO ‘X relies on Y due to their blood relationship’

121. ADOON$_{N}$ ‘slave’

122. ADOONSO ‘X enslaves Y’

123. WAR$_{N}$ ‘news, information, communication’

124. WARSO ‘X gets news or information from Y’

125. ABBAN$_{N}$ ‘friend, guest’

126. ABBANSO ‘X takes Y as a friend’

127. DANDAN$_{N}$ ‘loser; stupid person’

128. DANDANSO ‘X challenges Y’

129. DABEEB$_N$ ‘discussion or argument’

130. DABEEBO ‘X argues’

131. DAMIN$_N$ ‘security for, pledge’

132. DAMINO ‘X is security or responsible for Y’

133. DEYN$_N$ ‘loan’

134. DEYNSO (KÁ) ‘Y takes a loan from X’

135. DHEX$_N$ ‘middle’

136. DHEXSO ‘X is in a business relationship with Y’

137. CANSHUUR$_N$ ‘taxes’

138. CANSHUURO ‘X pays taxes (or ransom) on Y’

139. IJAAR$_N$ ‘rent’

140. IJAARO ‘X rents Y for X’

141. SARRIF$_N$ ‘change (money)

142. SARRIFO ‘X gives Y some bills in exchange for coins’

143. BEEG$_N$ ‘grain measure'

144. BEEGSO ‘X gives Y an equal measure’

145. DHAKKO$_N$ ‘back of the neck’

146. DHAKKO ‘X hides X’s self’

147. DHAWR$_N$ ‘protection’

148. DHAWRSO ‘X protects X’s self’

149. QASAB$_N$ ‘force’

150. QASBO ‘X acquires something by force for X’s self’

151. QAR$_N$ ‘edge’

152. QARSO ‘X hides Y for X’s self’

153. RAAD$_N$ ‘footprints’

154. RAADSO ‘X looks for Y for X’s self’

155. TOG$_N$ ‘target’

156. TOGSO/TOGO ‘X aims at Y in order to shoot it’

157. UGAD$_N$ ‘game, hunting animals’

158. UGADSO ‘X hunts Y animals for X’s self’

159. BEER$_N$ ‘farm’

160. BEERO ‘X farm for X’s self’

161. DOOG1$_N$ ‘land after the rain, fresh green grass’

162. DOOGO1 ‘X benefits from rain’

163. KAYD$_N$ ‘storage/ reserve’

164. KAYDSO ‘X stores Y for X’s self’

165. HUUR$_N$ ‘humidity’

166. HUURSO ‘X makes Y humid’

167. QURUX$_N$ ‘beauty’

168. QURUXSO ‘X makes Y beautiful’

169. GOOS$_N$ ‘back teeth’

170. GOOSO ‘X cuts Y using X’s teeth’

171. FUUQ$_N$ ‘sucking noise’

172. FUUQSO ‘X sucks Y in short spurts from a vessel’

173. QURAAC$_N$ ‘breakfast’

174. QURAACO ‘X eats breakfast’

175. SUXUR$_N$ ‘dawn meal (Ramadan)’

176. SUXURO ‘X eats dawn meal’

177. JALBEB$_N$ ‘amusement, play’

178. JALBEBO ‘X plays’

179. CIBAADO$_N$ ‘worship’

180. CIBAADAYSO ‘X worships’

181. DHAB$_N$ ‘certainty’

182. DHABAYSO ‘X takes action to feel certain’

183. CANAAN$_N$ ‘expression of disapproval’

184. CANAANO ‘X scolds Y’

185. DHAAR$_N$ ‘oath’

186. DHAARO ‘X takes an oath’

187. BAROOR$_N$ ‘high pitched wailing'

188. BAROORO ‘X produces a despairing’

189. QIR$_N$ ‘acknowledgement’

190. QIRO ‘X confesses to Y something’

191. TALO$_N$ ‘plan’

192. TASHO ‘X plans’

Adjectival bases

1. FOOG$_{ADJ}$ ‘far’
2. FOOGO ‘X becomes far’

3. KULUL$_{ADJ}$ ‘hot’
4. KULULO ‘X becomes hot’

5. WAAYN$_{ADJ}$ ‘big’
6. WAAYNO ‘X grows, becomes big’

7. YAR$_{ADJ}$ ‘small’
8. YARO ‘X becomes small’

APPENDIX B: UNPAIRED STEMS

1.	AFTIRO$_{DEP}$ ‘X wipes X’s mouth’
2.	WEESAYSO$_{DEP}$ ‘X makes ablution to purify X’s body’
3.	SUBAGAYSO$_{DEP}$ ‘X applies subag butter to X’s body (usually the hair)’
4.	UUNSO$_{DEP}$ ‘X perfumes X’s self or X’s home with *uunsi* (incent)’
5.	QAAWISO$_{DEP}$ ‘X strips X’s body’
6.	GARWAAXEEDSO$_{DEP}$ ‘X drapes shawl or clothing around X’s body’
7.	GANBAYSO$_{DEP}$ ‘X wear a ganbo on X’s head’
8.	SHUKAYSO$_{DEP}$ ‘X wears a shuko (black dress/cloak/abaya)’
9.	ILLO$_{DEP}$ ‘X puts on shoes’
10.	LIBIQSO$_{DEP}$ ‘X blinks or winks’
11.	JIMICSO$_{DEP}$ ‘X engages in movement of X’s skeletal muscles’
12.	DUCO$_{DEP}$ ‘X’s muscle contracts’
13.	KURBO$_{DEP}$ ‘X shivers from cold’
14.	JIRROORSO$_{DEP}$ ' X tenses X's muscles; X endures pain'
15.	DHABAQSO$_{DEP}$ ‘X (usually animal) drinks noisily’
16.	JIIQSO$_{DEP}$ ‘X sucks noisily; X sucks X's teeth’
17.	HIINSO$_{DEP}$ ‘X suck up the last amount of liquid from a vessel into X’s mouth'
18.	DABAALO$_{DEP}$ ‘X swims’
19.	HUNQ$_{AC}$O$_{DEP}$ ‘X vomits’
20.	DAACO$_{DEP}$ ‘X burps’
21.	LEEXO$_{DEPO}$ ‘X turns X’s body’
22.	QOORANSO$_{DEP}$ ‘X looks at something by craning X's neck sideways’
23.	TIIGSO$_{DEP}$ ‘X stretches out X’s body towards the ceiling’[12]
24.	CUKSO$_{DEP}$ (KÚ)‘X leans X’s body on Y something’
25.	BARKO$_{DEP}$ ‘X puts X’s head on a Y pillow’
26.	TU’O$_{DEP}$ X (a camel) squats down on its haunches’

[12] TIKSO in some regions

27. DHABBACO$_{DEP}$ ‘X stretches out on stomach’

28. SEEXO$_{DEP}$ ‘X lies down’

29. GABBO$_{DEP}$ ‘X takes cover’

30. CANDHAAQSO$_{DEP}$ ‘X sits on the ground in a lazy or relaxed manner’

31. MERAYSO$_{DEP}$ ‘X paces around’

32. GALGALO$_{DEP}$ ‘X rolls around the ground’

33. TURONTURO$_{DEP}$ ‘X stumbles’

34. NOQO$_{DEP}$ ‘X returns’

35. DIGARROGO$_{DEP}$ ‘X relocates, moves, or changes the address of X’

36. GUURGUURO$_{DEP}$ ‘X moves on X’s hands and knees’

37. XAMMARO$_{DEP}$ ‘X moves on X’s chest (e.g. baby)’

38. DURDUURO$_{DEP}$ ‘X runs wildly (animals)’

39. SOCO$_{DEP}$ ‘X walks’

40. TAGTAGOSO$_{DEP}$ ‘X walks on tiptoes’

41. DHAQSO$_{DEP}$ ‘X hurries’

42. NUUXSO$_{DEP}$ ‘X moves X’s body’

43. SIKO$_{1DEP}$ ‘X slightly moves X’s body’

44. SIKKO$_{2DEP}$ ‘X moves X’s body to barely escape a bad situation’

45. DAADO$_{DEP}$ ‘X spills’

46. DIHALO$_{DEP}$ ‘X starves’

47. MERGO$_{DEP}$ ‘X chokes (e.g. on food)’

48. MUUQO$_{DEP}$ ‘X becomes visible’

49. HOOBO$_{DEP}$ ‘X becomes destroyed’

50. HAFO$_{DEP}$ ‘X drowns’

51. BALLARO$_{DEP}$ ‘X becomes wide or large’

52. BALQO$_{DEP}$ ‘X spills’

53. BURQO$_{DEP}$ ‘X pours out or gushes’

54. DAGIIGOXO$_{DEP}$ ‘X slips or slides down’

55. HABSO$_{DEP}$ ‘X collapses’

56. ILKAYSO$_{DEP}$ ‘X grows teeth’

57. NABRAYSO$_{DEP}$ ‘X gets pimples or X gets infected’

58. GAABSO$_{DEP}$ ‘X makes Y shorter in length or volume’

59. LAHO$_{DEP}$ ‘X becomes consumed with desire’

60. CAARYAYSO$_{DEP}$ ‘X becomes rotten or gets moldy’

61. CALEEMAYSO$_{DEP}$ ‘X sprouts into leaves’

62. MAARAYSO$_{DEP}$ ‘X becomes rusted’

63. MALAXAYSO$_{DEP}$ ‘pus forms on X’s body’

64. QOLFAYSO$_{DEP}$ ‘a scab forms on X’s body’

65. GUULEEYSO$_{DEP}$ ‘X wins’

66. UBAXAYSO$_{DEP}$ ‘X plants flowers’

67. MIRAYSO$_{DEP}$ ‘X (plant) bears fruit’

68. NAQAYSO$_{DEP}$ ‘X grows green after rain'

69. GEDMO$_{DEP}$ ‘X becomes upside-down'

70. BAAHO$_{DEP}$ ‘X becomes hungry or in need’

71. CABSO$_{DEP}$ ‘X fears Y’

72. MADADDAALO$_{DEP}$ ‘X amuses X’s self’

73. MAHO$_{DEP}$ ‘X feels desire’

74. FAAKIHAYSO$_{DEP}$ (ARB. √fkh ‘fruit’) ‘X enjoys X’s self’

75. KARAHSO$_{DEP}$ (Arabic √*krh*) ‘X hates Y’

76. SHARAYSO$_{DEP}$ ‘X considers Y bad or rejects Y’

77. JEECLAYSO$_{DEP}$ ‘X wants or desire Y’

78. NECBAYSO$_{DEP}$ ‘X hates Y’

79. BAASAYSO$_{DEP}$ ‘X thinks of Y as unfortunate, or X expects the worst in Y’

80. SHUKANSO$_{DEP}$ ‘X seeks to gain the affection of Y for the purposes of marriage’

81. NASO$_{DEP}$ ‘X rests/relaxes X’s self’

82. RAXAYSO$_{DEP}$ ‘X is satisfied’

83. MACNAYSO$_{DEP}$ (Arabic √m3n ‘meaning’) ‘X gives X’s meaning to something’

84. GARWAAQSO$_{DEP}$ ‘X remembers Y’

85. BARGARO$_{DEP}$ ‘X partially remembers or forgets Y’

86. CULULUBO$_{DEP}$ ‘X remembers Y’

87. GOCO $_{DEP}$ ‘X remembers or reminisces about Y’

88. HIBO $_{DEP}$ ‘X continuously thinks about Y’

89. AFGARO $_{DEP}$ ‘X understands Y’

90. BAWSO$_{DEP}$ ‘X learns through watching or listening'

91. NIYAYSO $_{DEP}$ ‘X forms an intention (i.e., decides to do something)’

92. DHEGEEYSO $_{DEP}$ ‘X listens to Y’

93. DAALACO$_{DEP}$ (Arabic *dialect √6l3)* ‘X watches Y for X’s self’

94. DAAWO $_{DEP}$ ‘X watches Y’ (northern dialect e.g. Djibouti)

95. FIIRSO$_{DEP}$ ‘X watches Y’

96. KURAYSO$_{DEP}$ ‘X holds a baby shower (gathering before delivering a child)’

97. MADDOYAYSO $_{DEP}$ ‘X plays the children’s game *maddooyamaddooyo’*

98. TARAARAYSO $_{DEP}$ ‘X holds a baby shower’

99. WAALAYSO $_{DEP}$ ‘X plays handclapping game’

100. EEXO $_{DEP}$ ‘X shows bias’

101. MUUSANO $_{DEP}$ ‘X laments, cries, calls out for tribe’

102. KAASHO $_{DEP}$ ‘X leans on Y for help’

103. DEEXO $_{DEP}$ ‘X talks a lot’

104. GALAAFO $_{DEP}$ ‘X drags along Y, X is a bad influence on Y’

105. ASAAGOSO $_{DEP}$ ‘X treats Y as a peer’

106. HOOBSO $_{DEP}$ ‘X shares milk while milking or when selling milk'

107. BOOQO$_{DEP}$ ‘X visits Y’

108. DAMMIINO$_{DEP}$ ‘X gets Y out of trouble’

109. DHAWRTAYSO$_{DEP}$ ‘X contributes food to a communal meal; X gives alms’

110. ERGISO$_{DEP}$ ‘X borrows something temporarily, take in trust’

111. FILAYSO$_{DEP}$ ‘X considers Y as a peer’

112. QARDAYSO $_{DEP}$ (Arabic √qrd) ‘X borrows Y from Z’

113. JARAYSO$_{DEP}$ ‘X plays Somali checkers’

114. (KU)DAYO$_{DEP}$ ‘X imitates Y’

115. DHAXSO$_{DEP}$ ‘X gets married to Y’

116. SHIRAYSO$_{DEP}$ ‘X holds a meeting in slaughtering (an animal) for family consumption during dry season’

117. NABADAYSO$_{DEP}$ ‘X greets Y by saying the Arabic expression ‘peace be upon you’

118. TOOGAYSO$_{DEP}$ ‘X take turns to do Y’

119. CASABAYSO$_{DEP}$ ‘X declares that Y is a relative, X adopts Y as a relative’

120. QARABAYSO$_{DEP}$ ‘X treats Y as X's own relative’

121. WALAALEYSO$_{DEP}$ ‘X considers Y to be a sibling’

122. GOOGGAALEYSO$_{DEP}$ ‘X poses a riddle’

123. QOODEYSO$_{DEP}$ ‘X takes a turn'

124. QAYBSO$_{DEP}$ ‘X divides Y amongst people’

125. YOOBSO$_{DEP}$ ‘X (a group) gather together’

126. WARAYSO$_{DEP}$ ‘X interviews Y’

127. OGGLO$_{DEP}$ (Ú) ‘X gives consent to Y’

128. BAAYOCO$_{DEP}$ ‘X bargains the price of Y for X’s self’

129. MADAXFURO $_{DEP}$ ‘X pays a debt or ransom for Y’

130. ROGROGO$_{DEP}$ ‘X participates in constant bargaining’

131. XAAJEYSO $_{DEP}$ ‘X negotiates something with someone’

132. BEECSO $_{DEP}$ (Arabic √by3) ‘X sells Y a possession of X’

133. CARBUUNO $_{DEP}$ ‘X reserves or puts a deposit on Y for X’s self’

134. GEDDISO$_{DEP}$ ‘X exchanges or barters Y’

135. RUBI-SAARO$_{DEP}$ (quarter-put) ‘ X extracts interest on a loan; X makes a very high profit’

136. RUKUMO$_{DEP}$ ‘X makes a reservation’

137. MACMIILO$_{DEP}$ ‘X becomes a supplier a regular customer’

138. GANACSO$_{DEP}$ ‘X does business’

139. MAAXO$_{DEP}$ ‘X replenishes X’s self’

140. GAAFO$_{DEP}$ ‘X prepares X’ self’

141. FAROGASHO$_{DEP}$ ‘X interferes with Y for X’s self’

142. SUUBSO$_{DEP}$ ‘X makes Y for X’s self’

143. CISHO$_{DEP}$ ‘X repossesses Y’

144. IIBSO$_{DEP}$ ‘X buys Y for X’s self’

145. ILAALSO$_{DEP}$ ‘X gaurds Y for X’s self’

146. DHUMO$_{DEP}$ ‘X hides X’s self’

147. AQRISO$_{DEP}$ ‘X reads Y for X’s self’

148. DHIIQSO$_{DEP}$ ‘X milks Y an animal so that X gets milk’

149. DAAHIRSO$_{DEP}$ ‘X purifies Y for X’s self’

150. ERYO$_{DEP}$ ‘X fires/chases away Y’

151. LEEXSO$_{DEPO}$ ‘X turns Y to face X’

152. XAYUUBSO$_{DEP}$ ‘X snatches Y for X’s self’

153. MAAGEERO$_{DEP}$ ‘X encloses or encircles Y for X’s self’

154. CAASHAQO$_{DEP}$ ‘X fastens something securely to something else’

155. LABEENAYSO$_{DEP}$ ‘X adds cream’

156. FUQSO$_{DEP}$ ‘X rips Y for X’s self’

157. KARSO$_{DEP}$ ‘X cooks for X’s self’

158. FIIQSO$_{DEP}$ ‘X slurps up liquid Y’

159. CALAANJISO$_{DEP}$ ‘X chews Y’

160. BAANSO$_{DEP}$ ‘X eats nutritious food so that X can recover’

161. KABBO$_{DEP}$ ‘X sips Y’

162. DHUNKO$_{DEP}$ ‘X kisses Y’

163. QANJARUUFO $_{DEP}$[13] ‘X pinches Y’

164. TAABO$_{DEP}$ ‘X touches Y’

165. DHUFO$_{DEP}$ (KÚ) ‘X injures Y the body of X’

166. KADSO$_{DEP}$ ‘X waits for a person or event’

[13] QANJEEDO in some regions

167. DUFSO$_{DEP}$ ‘X allures Y’

168. GARAWSO $_{DEP}$ ‘X agrees or accepts verdict Y’

169. ASHAHAADO$_{DEP}$ (Arabic √shhd ‘witness’) ‘X says the Islamic declaration of faith which commences with “Ashhadu...”’

170. ACUDUBILAYSO$_{DEP}$ (Arabic √i3d) ‘X seeks refuge in God by saying “AcudubilAlah min....”’

171. DURRAAMO$_{DEP}$ ‘X prays to Y’

172. CABO$_{DEP}$ ‘X complains’

173. AFGOOBADSO$_{DEP}$ ‘X pays lip service to Y’

174. ODDOROSO$_{DEP}$ ‘X predicts or forecasts Y’

175. HAJO$_{DEP}$ ‘X proves that X is right’

176. RUGAYSO$_{DEP}$ ‘X lives somewhere’

177. HOIO$_{DEP}$ ‘X passes the night somewhere’

178. EKO$_{DEP}$ (KÚ) ‘X stays at Y a certain level’

APPENDIX C: ACCEPTABILITY JUDGMENTS

Type 1: "Acceptable"

Items	*Type 1* (182/506 [35.9%])
179. MAYDH (Ú) 'X washes Y's body with water' MAYDHO 'X washes X's body with water'	180.5/5 (100%)
181. QUBAY (Ú) 'X washes Y's body with water' QUBAYSO 'X washes X's body with water'	182.5/5 (100%)
183. TIDIC 'X braids Y (hair)' TIDCO 'X braids X's Y (hair)'	184.5/5 (100%)
185. XIIR 'X shaves Y (head)' XIIRO 'X shaves Y (the head) of X'	186.5/5 (100%)
187. SHANLAY 'X combs Y's hair' SHANLAYSO 'X combs Y the hair of X'	188.5/5 (100%)
189. DAQ 'X washes Y' DAQO 'X washes Y for X's self'	190.5/5 (100%)
191. DUR 'X injects Y' DURO 'X pierces Y (body) of X'	192.5/5 (100%)
193. FOLDAQ 'X washes X's face' FOLDAQ 'X washes X's face for X's self'	194.5/5 (100%)
195. MAR 'X passes along Y' MARSO 'X applies a substance Y (cream) to part of X's body Z the body of X'	196.5/5 (100%)
197. LEBIS (Ú) 'X puts clothing on Y' LEBISO 'X puts clothing on X's body'	198.5/5 (100%)
199. FEYD 'X removes Y from covering' FEYDO 'X removes Y (clothing) so that part of X's body is uncovered'	200.5/5 (100%)
201. XEYDH 'X lifts up Y' XEYDHO 'X lifts up Y the clothing on X's body' (so that X won't fall while walking or running)	202.5/5 (100%)
203. QAYIR (Arabic √*3yr*) 'X changes Y' QAYIRO 'X changes Y the clothing on X's body'	204.5/5 (100%)
205. XIR_1 'X fastens long flexible object to Y by securing its ends together' $XIRO_1$ 'X fastens long flexible object (clothing article) Y on the body of X so that its ends are secured together' (belt, tie, shoelaces.)	206.5/5 (100%)

207. SID ‘X supports the weight of Y while moving Y from one place to another’ SIDO ‘X wears an article of clothing Y’	208.5/5 (100%)
209. XIR$_2$ 'X places Y over an opening to cover it’ (door, jar lid) XIRO$_4$ 'X puts Y clothing over X’s body to cover it’	210.5/5 (100%)
211. GAL ‘X enters into a place Y’ GASHO ‘X puts an article of clothing Y on X’s body’	212.5/5 (100%)
213. XAAQ ‘X cleans dirt, dust, or litter from Y with a broom’ XAAQO ‘X clear’s X’s throat’	214.5/5 (100%)
215. JALEEC ‘X turns around to look at something’ JALEECSO ‘X turns sideways’	216.5/5 (100%)
217. WAREEG ‘X goes around’ WAREEGSO ‘X turns X’s body around in a circle’	218.5/5 (100%)
219. RAKOC (Arabic √rk3) ‘X is bowing (in prayer)’ RAKOCO ‘X bows (in prayer)’	220.5/5 (100%)
221. FOORAR ‘X is in an inclined position’ FOORARSO ‘X bows’	222.5/5 (100%)
223. JOOG ‘X remains at a specific location’ JOOGSO ‘X causes the X’s body to be in a standing position’	224.5/5 (100%)
225. FADHI ‘X is sitting down’ FADHISO ‘X sits down’	226.5/5 (100%)
227. DHACDIID ‘X is supine’ DHACDIIDSO ‘X lies down on X’s back’	228.5/5 (100%)
229. DHAMBACAAD ‘X is prone’ DHAMBACAADSO ‘X lies down on X’s stomach’	230.5/5 (100%)
231. JEEF ‘X is lying down to sleep’ JEEFO ‘X lies down to sleep’	232.5/5 (100%)
233. KADALOOB ‘X is squatting’ KADALOOBSO ‘X squats down’	234.5/5 (100%)
235. BARRAAQ ‘X is seated in an inappropriate way’ BARRAAQSO ‘X seats X’s self in an inappropriate way’	236.5/5 (100%)
237. DHIIDHIIB ‘X is seated with the legs stretched out on the ground' DHIIDHIIBSO ‘X sits down with X’s legs stretched out on the ground’	238.5/5 (100%)
239. QALLOC ‘X is bent over’ QALLOCSO ‘X bends over’	240.5/5 (100%)
241. LAAB ‘X folds or bends Y’ LAABO ‘X returns’	242.5/5 (100%)

243. BAX ‘X moves from one point in space to another’ BAXSO$_2$ ‘X moves out of danger’	244.5/5 (100%)
245. DEG ‘X moves to dwell in Y’ DEGO ‘X lowers X’s body’	246.5/5 (100%)
247. TAG ‘X goes to a place Y' TAGSO ‘X goes to a far-off place'	248.5/5 (100%)
249. RUX ‘X shakes Y’ RUXMO ‘X’s body shakes’	250.5/5 (100%)
251. QUB ‘X spills Y (water, leaves, fruits,)’ QUBO ‘X is spilt or falls (leaves, fruits)’	252.5/5 (100%)
253. WAAL ‘X causes Y to become insane WAALO ‘X becomes insane’	254.5/5 (100%)
255. OMAN ‘X is thirsty’ OMANO ‘X becomes thirsty’	256.5/5 (100%)
257. DHIN ‘X makes Y smaller in quantity’ DHIMO ‘X dies’	258.5/5 (100%)
259. DHAL ‘X gives birth to Y’ DHALO ‘X is comes into being’	260.5/5 (100%)
261. RAY ‘X triumphs’ RAYSO ‘X recovers from an illness’	262.5/5 (100%)
263. HAMUNSAN ‘X is gasping or yawning’ HAMUNSANO ‘X comes to gasp or yawn’	264.5/5 (100%)
265. DOOG$_2$ ‘X conserves Y rainwater’ DOOGSO ‘X receives abundant rain’	266.5/5 (100%)
267. GUB ‘X burns Y GUBO ‘X burns’	268.5/5 (100%)
269. BARAARUG ‘X is awake’ BARAARUG ‘X awakes up’	270.5/5 (100%)
271. LUL ‘X shakes Y LULO ‘X shakes’	272.5/5 (100%)
273. TUN ‘X hits Y; X grinds Y; X forges Y’ TUMO ‘X becomes addicted to going to night clubs and dances’	274.5/5 (100%)
275. KAB ‘X reconstructs or repairs Y’ KABO ‘X becomes reconstructed or repaired’	276.5/5 (100%)
277. NOL ‘X is alive’ NOLO ‘X becomes alive'	278.5/5 (100%)
279. BUK ‘X is ill’ BUKO ‘X becomes ill’	280.5/5 (100%)

281. OMAN ‘X is thirsty’ OMANO ‘X becomes thirsty’	282.5/5 (100%)
283. BUURAN ‘X is fat’ BUURO ‘X becomes fat’	284.5/5 (100%)
285. MAQAN ‘X is absent/missing’ MAQNO ‘X becomes absent/missing’	286.5/5 (100%)
287. XIG ‘X is near Y’ XIGSO ‘X gets closer to Y’	288.5/5 (100%)
289. QAB ‘X is holding Y; X has Y’ QABO ‘X picks up Y; X comes to possess Y’	290.5/5 (100%)
291. MURAAD ‘X is interested’ MURAADSO ‘X is interested in X’s self’	292.5/5 (100%)
293. BAQ ‘X is afraid’ BAQO ‘X becomes afraid’	294.5/5 (100%)
295. EEDAY ‘X is blaming Y’ EEDAYSO ‘X blames Y’	296.5/5 (100%)
297. DHIB ‘X bothers Y’ DHIBSO ‘X bothers Y’	298.5/5 (100%)
299. QUUS ‘X becomes submerged in water’ QUUSO ‘X feels intense despair’	300.5/5 (100%)
301. BADHBADH ‘X cheers up Y’ BADHBADHSO ‘X cheers up X’s self’	302.5/5 (100%)
303. RUMAY ‘X proves/shows Y to be true’ RUMAYSO ‘X believes Y to be true’	304.5/5 (100%)
305. OG ‘X knows Y’ OGO ‘X finds out Y’	306.5/5 (100%)
307. QARAW ‘X has a nightmare’ QARWO ‘X comes to have a nightmare’	308.5/5 (100%)
309. XANUUN ‘X (a body part) hurts Y’ XANUUNSO ‘X feels pain’	310.5/5 (100%)
311. SHEEKAY(Ú) ‘X tells a story to Y’ SHEEKAYSO ‘X and Y tell each other stories’	312.5/5 (100%)
313. KIRAY ‘X rents out Y’ KIRAYSO ‘X gives money for the use of Y’	314.5/5 (100%)
315. GAD (KÁ) ‘X sells Y to Z’ GADO ‘X buys Y’	316.5/5 (100%)
317. DHAAF ‘X moves past Y’ DHAAFSO ‘X exchanges Y with Z and Z exchanges Y with X’	318.5/5 (100%)

319. BEDDEL (Arabic √*bdl*) 'X changes Y' BEDDELO 'X exchanges Y'	320.5/5 (100%)
321. DHEEF (KÁ) X benefits from Y' DHEEFSO 'X benefits X's self'	322.5/5 (100%)
323. DAWAY 'X treats Y with medicine' DAWAYSO 'X treats X with medicine'	324.5/5 (100%)
325. DIIR 'X becomes warm' DIIRSO 'X warms X's self'	326.5/5 (100%)
327. WAYDII 'X asks Y to do something' WAYDIISO 'X asks Y to do something for X's self'	328.5/5 (100%)
329. MASABBID 'X makes a false statement about Y (a person)' MASABBIDO 'X makes a false statement about Y (a person) for X's self'	330.5/5 (100%)
331. SII 'X gives Y to Z' SIISO'X gives Y to Z for X's self'	332.5/5 (100%)
333. SHAQAY 'X works' SHAQAYSO 'X works for X's self'	334.5/5 (100%)
335. TABABAR 'X trains Y' TABABARO 'X trains X's self'	336.5/5 (100%)
337. SAMAY 'X does Y something' SAMAYSO 'X does Y for X's self'	338.5/5 (100%)
339. WAXAY 'X does Y'; WAXAYSO 'X does Y for X's self'	340.5/5 (100%)
341. REEB 'X excludes Y' REEBO 'X excludes Y for X's self'	342.5/5 (100%)
343. URUR 'X assembles Y together' URURSO 'X collects Y for X's self'	344.5/5 (100%)
345. QAB 'X has, possess Y' QABSO 'X catch, captures, or violates Y for X's self'	346.5/5 (100%)
347. HAY 'X has, possesses, or holds Y' HAYSO 'X has, possesses, or holds Y for X's self'	348.5/5 (100%)
349. DIYAAR 'X is prepared' DIYAARSO 'X prepares Y for X's self'	350.5/5 (100%)
351. SADAQAY 'X give Y in alms/charity' SADAQAYSO 'X give Y in alms/charity for X's self'	352.5/5 (100%)
353. TAAGEER 'X assists Y' TAAGEERSO 'X assists Y for X's self'	354.5/5 (100%)
355. SASAB 'X smooth talks Y' SASABO 'X smooth talks Y for X's self'	356.5/5 (100%)

357. DALAB ‘X orders Y’ DALBO ‘X order Y for X’s self’	358.5/5 (100%)
359. BAAR ‘X searches or investigates Y’ BAARO ‘X searches or investigates Y for X’s self’	360.5/5 (100%)
361. DOOR (Ú) ‘X chooses Y for Z’ DOORO ‘X chooses Y for X’ self’	362.5/5 (100%)
363. SAWIR ‘X draws Y’ SAWIRO ‘X draws Y for X’s self’	364.5/5 (100%)
365. HABAY ‘X organizes Y’ HABAYSO ‘X organizes Y for X’s self’	366.5/5 (100%)
367. TARJUM ‘X translates Y’ TARJUMO ‘X translates Y for X’s self’	368.5/5 (100%)
369. AMAN ‘X confides in Y’ AMASO ‘X confides in Y for X’s self’	370.5/5 (100%)
371. AMMAAN ‘X praises Y’ AMMAANSO ‘X praises Y for X’s self’	372.5/5 (100%)
373. KIIL ‘X measures the weight of Y’ KIILO ‘X measures the weight of Y for X’s self’	374.5/5 (100%)
375. FAAG ‘X digs a hole on Y the ground’ FAAGO ‘X digs a hole on Y the ground for X’ self'	376.5/5 (100%)
377. QOD ‘X digs Y’ QODO ‘X digs Y for X’s self’	378.5/5 (100%)
379. LISS ‘X milks Y an animal’ LISSO ‘X milks Y an animal for X’ self'	380.5/5 (100%)
381. QÀL ‘X slaughters Y’ QÀLO ‘X slaughters Y for X’s self'	382.5/5 (100%)
383. DAAQ ‘X (animals) graze on Y’ DAAQO ‘X puts Y in a field of grass to graze on Z’	384.5/5 (100%)
385. BIYAY ‘X waters Y’ BIYAYSO ‘X waters Y for X’s self’	386.5/5 (100%)
387. JILAB ‘X fishes’ JILABO ‘X fishes for X’s self’	388.5/5 (100%)
389. QOY ‘X makes Y moist’ QOYSO ‘X makes Y moist for X’s self’	390.5/5 (100%)
391. FEERAY ‘X irons Y clothing’ FEERAYSO ‘X irons Y clothing for X’s self	392.5/5 (100%)
393. AFDUB ‘X kidnaps Y’ AFDUBO ‘X wraps a cloth around the mouth of Y kidnaps Y for X’s self’	394.5/5 (100%)

395. DABAC ‘X prints Y’ DABACO ‘X prints Y for X’s self’	396.5/5 (100%)
397. SHARAX ‘X decorates Y’ SHARAXO ‘X decorates Y for X’s self’	398.5/5 (100%)
399. TOL ‘X sews Y’ TOLO ‘X sews Y for X’s self’	400.5/5 (100%)
401. ROOG ‘X turns Y over’ ROOGO ‘X turns Y over for X’s self’	402.5/5 (100%)
403. DIIS ‘X presses Y down’ DIISO ‘X presses Y down for X’s self’	404.5/5 (100%)
405. DOON ‘X wants, gets Y’ DOONO ‘X gets Y for X’s self’	406.5/5 (100%)
407. FAAF ‘X spreads Y’ FAAFSO ‘X spreads Y for X’s self’	408.5/5 (100%)
409. RIF ‘X plucks Y from the location it is growing’ RIFO ‘X plucks Y from the location it is growing for X’	410.5/5 (100%)
411. DURUG ‘X moves X’s body’ DURUGSO ‘X moves Y for X’s self’	412.5/5 (100%)
413. QAAD ‘X takes Y; X lifts Y’ QAADO ‘X borrows Y’	414.5/5 (100%)
415. $LAAB_1$ ‘X partially closes Y’ $LAABO_1$ ‘X partially closes Y for X’s self’	416.5/5 (100%)
417. $DHIG_2$ ‘X put Y down’ $DHIGO_2$ ‘X put Y down for X’s self’	418.5/5 (100%)
419. XIR_2 'X places Y over an opening to cover it’ $XIRO_2$ 'X places Y over the door in X’s home to cover it’	420.5/5 (100%)
421. BAX ‘X moves from one point in space to another’ $BAXSO_1$ ‘X takes Y out of an enclosed space (e.g. bag, room, etc.) for X’s self’	422.5/5 (100%)
423. GUR ‘X picks or gathers Y’ GURO ‘X picks or gathers Y for X’s self’	424.5/5 (100%)
425. DIR ‘X sends Y’ DIRSO ‘X sends Y for X’s self’	426.5/5 (100%)
427. GEEY ‘X takes Y somewhere’ GEEYSO ‘X takes Y somewhere for X’s self’	428.5/5 (100%)
429. JIID ‘X pulls Y’ JIID ‘X pulls Y for X’s self’	430.5/5 (100%)
431. KEEN ‘X brings Y’ KEENSO ‘X brings Y for X’s self’	432.5/5 (100%)

433. RÙG ‘X scrubs Y’ RÙGO ‘X scrubs Y for X’s self’	434.5/5 (100%)
435. RUSHAY ‘X sprays water on Y’ RUSHAYSO ‘X sprays water on Y for X’s self’	436.5/5 (100%)
437. SAAR ‘X puts Y something on top of Z something else’ SAARO ‘X puts Y something on top of Z something else for X’s self’	438.5/5 (100%)
439. SHUB ‘X pours Y’ SHUBO ‘X pours Y for X’s self’	440.5/5 (100%)
441. SIBAQ ‘X dyes Y’ SIBAQO ‘X dyes Y for X’s self’	442.5/5 (100%)
443. SOOC ‘X separates Y apart’ SOOCO ‘X separates Y apart for X’s self’	444.5/5 (100%)
445. SUR ‘X hangs Y’ SURO ‘X hangs Y for X’s self’	446.5/5 (100%)
447. XAMBAR ‘X carries Y’ XAMBARO ‘X carries Y for X’s self’	448.5/5 (100%)
449. XARAY ‘to puts Y in storage’ XARAYSO ‘ X puts Y in storage for X’s self’	450.5/5 (100%)
451. RACDAI ‘X chases Y’ RACDAYSO ‘X chases Y for X’s self’	452.5/5 (100%)
453. RAR ‘X loads Y’ RARO ‘X loads Y for X’s self’	454.5/5 (100%)
455. RIX ‘X pushes Y’ RIXO ‘X pushes Y for X’s self’	456.5/5 (100%)
457. DABOL ‘X covers Y with a lid’ DABOLO ‘X covers Y with a lid for X’s self’	458.5/5 (100%)
459. GOGOL ‘X spreads Y (cloth) over something’ GOGOLO ‘X spreads Y(cloth) over something for X’s self’	460.5/5 (100%)
461. XIR_3 ‘X brings two parts of Y together so as to block Y's opening or bring Y into a folded state’ $XIRO_3$ ‘X brings two parts of Y together so as to block Y's opening or bring Y into a folded state for X’s self’	462.5/5 (100%)
463. XOQ ‘X scratches Y’ XOQO ‘X scratches Y for X’s self’	464.5/5 (100%)
465. KULULAY ‘X makes Y hot’ KULULAYSO ‘X makes Y hot for X’s self’	466.5/5 (100%)

467. YARAY ‘X makes Y small’ YARAYSO ‘X makes Y seem small so that Y is not taken seriously for X’s self’	468.5/5 (100%)
469. DHUUQ ‘X sucks on Y something’ DHUUQSO ‘X make Y tighter’	470.5/5 (100%)
471. FOOGAY ‘X causes Y to be far’ FOOGAYSO ‘X causes Y to be far for X’s self’	472.5/5 (100%)
473. UUM ‘X creates Y’ UUMO ‘X creates Y for X’s self’	474.5/5 (100%)
475. UNUG ‘X begins to make Y’ UNKO ‘X begins to make Y for X’s self’	476.5/5 (100%)
477. JAB ‘X is damaged due to X being separated into two or more parts using force’ JABSO ‘X damages Y by causing Y to be separated into two or more parts, using force for X’s self’	478.5/5 (100%)
479. AFAY ‘X sharpens Y’ AFAYSO ‘X sharpens Y for X’s self’	480.5/5 (100%)
481. BAD ‘X increases in number’ BADSO ‘X increases Y for X’s self’	482.5/5 (100%)
483. BOG ‘X finishes Y’ BOGO ‘X finishes Y for X’s self’	484.5/5 (100%)
485. BUUX ‘X is full’ BUUXSO ‘X fills Y for X’ self’	486.5/5 (100%)
487. CASAY ‘X makes Y red’ CASAYSO’ X makes Y red for X’s self’	488.5/5 (100%)
489. DALAL ‘X melts’ DALALSO ‘X melts Y for X’s self’	490.5/5 (100%)
491. DHAMAY ‘X finishes Y’ DHAMAYSO ‘X finishes Y for X’s self’	492.5/5 (100%)
493. DHEG (KÚ) ‘X is stuck on Y’ DHEGSO (KÚ) ‘X sticks Y on a surface for X’s self’	494.5/5 (100%)
495. DHIS ‘X builds Y’ DHISO ‘X builds Y for X’s self’	496.5/5 (100%)
497. DHAWAY ‘ X makes Y near’ DHAWAYSO ‘X make Y near for X’s self’	498.5/5 (100%)
499. DUB ‘X roasts Y’ DUBO ‘X roasts Y for X’s self’	500.5/5 (100%)
501. SHIIL ‘X fries Y’ SHIILO ‘X fries Y for X’s self’	502.5/5 (100%)

503. FUDUDAI ‘X facilitates Y’ FUDUDAISO ‘X facilitates Y for X’s self’	504.5/5 (100%)
505. FUR ‘X opens Y’ FURO ‘X opens Y for X’s self	506.5/5 (100%)
507. HAGAG ‘X is fixed’ HAGAGSO ‘X fixes Y for X’s self’	508.5/5 (100%)
509. JAR ‘X cuts Y’ JARO ‘X cuts Y for X’s self’	510.5/5 (100%)
511. KORDI ‘X increases Y’ KORDISO ‘X increases Y for X’s self’	512.5/5 (100%)
513. KUF ‘X falls’ KUFSO ‘X makes Y fall, X violates Y’	514.5/5 (100%)
515. SHID ‘X lights Y’ SHIDO ‘X lights Y for X’s self’	516.5/5 (100%)
517. MADHOWAY ‘X blackens Y’ MADHOWAYSO ‘X blackens Y for X’s self’	518.5/5 (100%)
519. QABOWJI ‘X makes Y cold’ QABOWJISO ‘X makes Y cold for X’s self’	520.5/5 (100%)
521. KOR ‘X climbs Y’ KORSO ‘X raises Y (kids, animals) for X’s self’	522.5/5 (100%)
523. SHIIQ ‘X becomes smaller in size, or amount' SHIIQSO ‘X chews Y’	524.5/5 (100%)
525. DANAY(Ú) ‘X acts in the interest of Y’ DANAYSO ‘X acts on X’s interest’	526.5/5 (100%)
527. DHAYAL ‘X plays around or jokes’ DHAYALSO ‘X makes Y seem like a joke or a game’	528.5/5 (100%)
529. FAL ‘X does Y something/ X bewitches Y’ FALO ‘X does Y for X’s self’	530.5/5 (100%)
531. HUB ‘X is certain that some facts are true’ HUBSO ‘X confirms or verifies that Y is true’	532.5/5 (100%)
533. YEEL ‘X accepts Y’ YEELO ‘X handles Y on X’s own terms’	534.5/5 (100%)
535. $DHIG_1$(Ú) ‘X causes Y learn to Z’ $DHIGO_1$ ‘X learns Y’	536.5/5 (100%)
537. BAAQ ‘X announces something’ BAAQO ‘X decides to stay in’	538.5/5 (100%)
539. LEH ‘X possesses Y’ LEHO ‘X becomes a possessor of Y’	540.5/5 (100%)

541. YEL ‘X performs an action which brings forth Y something’ YELO ‘‘X comes to possess Y’	542.5/5 (100%)

Type 2: “Understandable but odd”

Items	Type 2 (169/506) [33.4%])
1. ARUN ‘X kneels down (talking to a camel)’ ARUNO ‘X kneels down for X’s self’	4/5 (80%)
2. BARWAQAY ‘X makes Y fertile’ BARWAQAYSO ‘X makes Y fertile for X’s self’	3/5 (60%)
3. GARAN ‘X makes a complaint’ GARANSO ‘X makes a complaint’	3/5 (60%)
4. GOBAY ‘X makes a circle’ GOBAYSO ‘X makes a circle for X’s self’	3/5 (60%)
5. GOI ‘X cuts Y’ GOISO ‘X cuts Y for X’s self’	5/5 (100%)
6. LIS ‘X sharpens Y’ LISO ‘X sharpens for Y for X’s self’	3/5 (60%)
7. MIS ‘X weighs Y’ MISO ‘X weighs Y for X’s self’	5/5 (100%)
8. MURWAD ‘X respects Y’ MURWADSO ‘X respects Y for X’s self’	3/5 (60%)
9. MUSMARAY ‘X nails Y’ MUSMARAYSO ‘X nails Y for X’s self’	5/5 (100%)
10. NAAX ‘X becomes fat’ NAAXO ‘X becomes fat’	5/5 (100%)
11. OOD ‘X obstructs Y; X makes a fence’ OODSO ‘X obstructs Y; X makes a fence for X’s self’	4/5 (80%)
12. QALLAL ‘X is dry’ QALLALO ‘X becomes dry’	5/5 (100%)
13. QAABAY ‘X shapes Y’ QAABAYSO ‘X shapes Y for X’s self’	3/5 (60%)
14. QOBOB ‘X pins Y’ QOBOBO ‘X pins Y for X’s self’	3/5 (60%)
15. RADAQ ‘X grinds Y’ RADAQSO ‘X grinds Y for X’s self’	5/5 (100%)
16. RAHAN ‘X gives Y as deposit’ RAHANSO ‘X gives Y as deposit for X’s self’	3/5 (60%)
17. ROOG ‘X turns Y upside down’ ROOGSO ‘X turns Y upside down for X’s self’	3/5 (60%)
18. SALAN ‘X greets Y’ SALANO ‘X greets Y for X’s self’	3/5 (60%)
19. SALAX ‘X strokes Y’ SALAXSO ‘X strokes Y for X’s self’	3/5 (60%)
20. SARAX ‘X frees Y’ SARAXSO ‘X free Y for X’s self’	3/5 (60%)
21. SHARCIYAY ‘X legalizes Y’ SHARCIYAYSO ‘X legalizes Y for X’s self’	4/5 (80%)
22. SOX ‘X curls, twists Y’ SOXSO ‘X curls, twists for X’s self’	3/5 (60%)

23.	SUMAD ‘X marks Y’ SUMADO ‘X marks Y for X’s self’	3/5 (60%)
24.	TAHNIYADAY ‘X congratulates Y’ TAHNIYADAYSO ‘X congratulates Y for X’s self’	4/5 (80%)
25.	TAQ ‘X puts Y in line’ TAQSO ‘X puts Y in line for X’s self’	3/5 (60%)
26.	TAR ‘X increases Y’ TARSO ‘X increases Y for X’s self’	3/5 (60%)
27.	TU ‘X is knelt down while addressing a camel’ TUO ‘X comes to kneel down while addressing a camel’	3/5 (60%)
28.	USKUGAY ‘X makes Y dirty’ USKUGAYSO ‘X makes Y dirty for X’s self’	3/5 (60%)
29.	WAC ‘X calls Y’ WACO ‘X calls Y for X’s self’	5/5 (100%)
30.	WAD ‘X drives Y’ WADO ‘X drives Y for X’s self’	5/5 (100%)
31.	XAL ‘X cleans Y’ XALO ‘ X cleans Y for X’s self’	3/5 (60%)
32.	YAXYAX ‘X is embarrassed’ YAXYAXO ‘X becomes embarrassed’	3/5 (60%)
33.	ABALGUD ‘X rewards Y’ ABALGUDSO ‘X rewards Y for X’s self’	4/5 (80%)
34.	ALIF ‘X stripes Y; mark sheep with the letter Arabic letter (alif)’ ALIFO ‘X strips Y for X’s self’	5/5 (100%)
35.	AROR ‘X goes to drink water (animals)’ ARORSO ‘X make Y drink water (animals)’	3/5 (60%)
36.	ASARAR ‘X contradicts Y’ ASARARSO ‘X contradicts Y for X’s self’	3/5 (60%)
37.	AWAWI ‘X talks in sheep’ AWAWISO ‘X talks in sheep for X’s self’	3/5 (60%)
38.	BADAX‘X mixes milk and water’ BADAXSO ‘X mixes milk and water for X’ self’	3/5 (60%)
39.	BALBALAY ‘X builds a shed’ BALBALAYSO ‘X builds a shed for X’s self’	3/5 (60%)
40.	BEINAY ‘X contradict/deny Y’ BEINAYSO ‘X contradict/deny Y for X’s self’	4/5 (80%)
41.	BEL ‘X is deprived of Y’ BELO ‘X becomes deprived of Y’	3/5 (60%)
42.	BELBELL ‘X is set on fire’ BELBELLO ‘X becomes set on fire’	3/5 (60%)
43.	BOB ‘X is robbed; X is plundered’ BOBO ‘X becomes robbed; X becomes plundered’	3/5 (60%)
44.	BUB ‘X flees away’ BUBO ‘X flees away for X’s self’	3/5 (60%)
45.	BUDHAY ‘X clubs Y’ BUDHAYSO ‘X clubs Y for X’s self’	5/5 (100%)
46.	BUQ ‘X makes great noise’ BUQSO ‘X get Y to make a great noise’	3/5 (60%)
47.	BUU ‘X boasts’ BUUSO ‘X boasts for X’s self’	3/5 (60%)
48.	CALAQ (Arabic √3lq) ‘X hanges Y’ CALAQO ‘X hanges Y for X’s self’	4/5 (80%)

49.	DACAN ‘X is robbed’ DACANO ‘X becomes robbed’	3/5 (60%)
50.	DAG ‘X is kept in false security’ DAGSO ‘X keeps Y in false security’	3/5 (60%)
51.	DALDAL ‘X loads Y’ DALDALO ‘X loads Y for X’s self’	5/5 (100%)
52.	DAMAC ‘X intends something’ DAMACO ‘X intends something for X’s self’	3/5 (60%)
53.	DAXAL ‘X inherits Y’ DAXALO ‘X becomes a heir to Y’	4/5 (80%)
54.	DHAN ‘X drinks milk’ DHANSO ‘X drinks milk for X’ self’	3/5 (60%)
55.	DHARUUR ‘X filters Y’ DHARUURSO ‘X filters Y for X’s self’	3/5 (60%)
56.	DHUB ‘X makes Y accurate’ DHUBO ‘X makes Y accurate for X’s self’	5/5 (100%)
57.	DILAC ‘X is torn; X bursts’ DILACSO ‘X tears Y for X’s self’	5/5 (100%)
58.	DOXB ‘X is plastered’ DOXBO ‘X becomes plastered’	3/5 (60%)
59.	FAQ ‘X has a private chat with Y’ FAQO ‘X has a private chat with Y for X’s self’	3/5 (60%)
60.	FAR ‘X instruct/commands Y’ FARO ‘X instructs/commands Y for X’s self’	3/5 (60%)
61.	GAAD ‘X catches Y off guard’ GAADO ‘X catches Y off guard for X’s self’	4/5 (80%)
62.	GABAY ‘X sings; recites (a verse/poem)’ GABAYSO ‘X sings; recites (a verse/poem) for X’s self’	3/5 (60%)
63.	GAMA? ‘X is falling asleep’ GAMA?O ‘X becomes asleep’	3/5 (60%)
64.	GAN ‘X aims at Y’ GANO ‘X aims at Y for X’s self’	3/5 (60%)
65.	GARIR ‘X is shivering; trembling’ GARIRO ‘X comes to shiver; tremble’	3/5 (60%)
66.	GATANUR ‘X sows Y slowly’ GATANURSO ‘X sows Y slowly for X’s self’	3/5 (60%)
67.	GEDBAX ‘X is frank with Y’ GEDBAXSO ‘X is frank with Y for X’s self’	3/5 (60%)
68.	GOLAB ‘X sifts Y(flour)’ GOLABSO ‘X sifts Y(flour) for X’s self’	3/5 (60%)
69.	GOMOD ‘X is sore as a result of friction’ GOMODO ‘X becomes sore as a result of friction’	3/5 (60%)
70.	GOROR ‘X bleeds from nose’ GORORO ‘X comes to bleed from nose’	3/5 (60%)
71.	HADIL ‘X copies Y’ HADILO ‘X copies Y for X’s self’	3/5 (60%)
72.	HAFAR ‘X calumniates’ HAFARO ‘X becomes calumniated’	3/5 (60%)
73.	HAGAF ‘X gardens’ HAGAFO ‘X gardens for X’s self’	4/5 (80%)
74.	HANDARAF ‘X moves in a fast pace’ HANDARAFO ‘X comes to move in a fast pace’	3/5 (60%)
75.	HANIB ‘X marks Y on the neck’ HANIBO ‘X marks Y on the neck for X’s self’	3/5 (60%)

76.	HAUD ‘X closes Y’ HAUDSO ‘X closes Y for X’s self’	3/5 (60%)
77.	HEJI ‘X take Y by force’ HEJISO ‘X takes Y force for X’s self’	3/5 (60%)
78.	HIL ‘X feels nostalgic’ HILO ‘X comes to feels nostalgic’	4/5 (80%)
79.	HOD ‘X falls off; come off (e.g the skin of animals)’ HODO ‘X comes to fall off’	3/5 (60%)
80.	HUNUG ‘X gets a nosebleed’ HUNUGO ‘X comes to get a nosebleed’	3/5 (60%)
81.	HURDAN ‘X kicks Y with heel’ HURDANSO ‘X kicks Y with heel for X’s self’	3/5 (60%)
82.	HURGUF ‘X shakes off dust of Y’ HURGFSO ‘X shakes off dust of Y for X’s self’	4/5 (80%)
83.	HURUNSHAY ‘X burn Y to ashes’ HURUNSHAYSO ‘X burn Y to ashes for X’s self’	4/5 (80%)
84.	IID ‘X celebrates’ IIDO ‘X celebrates for X’s self’	3/5 (60%)
85.	INDAY ‘X observes Y’ INDAYSO ‘X observes Y for X’s self’	4/5 (80%)
86.	INGEEG ‘X is dry’ INGEEGO ‘X becomes dry’	3/5 (60%)
87.	JANEED ‘X is away from the expected course’ JANEEDO ‘X becomes away from the expected course’	3/5 (60%)
88.	JAQ ‘X sucks Y (children & animals) JAQSO ‘X sucks Y for X’s self’	4/5 (80%)
89.	KABADAY ‘X travels’ KABADAYSO ‘X travels for X’s self’	3/5 (60%)
90.	KARAN ‘X defends Y’ KARANSO ‘X defends Y for X’s self’	3/5 (60%)
91.	KASHIF ‘X defames Y’ KASHIFSO ‘X defames Y for X’s self’	4/5 (80%)
92.	KAWIR ‘X launches’ KAWIRO ‘X launches Y for X’s self’	3/5 (60%)
93.	LABAY ‘X doubles Y’ LABAYSO ‘X doubles Y for X’s self’	5/5 (100%)
94.	LASO ‘X finishes Y’ LASOSO ‘X finishes Y for X’s self’	3/5 (60%)
95.	LIBID ‘X disappears’ LIBIDSO ‘X makes Y disappear for X’s self’	3/5 (60%)
96.	MACASH ‘X obtains a living’ MACASHSO ‘X gives a living to Y’	3/5 (60%)
97.	MAL ‘X cultivates Y’ MALO ‘X cultivates Y for X’s self’	4/5 (80%)
98.	MAR ‘X ties a she camel’ MARO ‘X ties a she camel for X’s self’	3/5 (60%)
99.	MAROOJI ‘X twists Y’ MAROOJISO ‘X twists Y for X’s self’	4/5 (80%)
100.	MOS ‘X heaps or pile up sand around hut to preserve it from water’ MOSO ‘X heaps or pile up sand around hut to preserve it from water for X’s self’	3/5 (60%)
101.	MUDDAY ‘X specifies a time or a date’ MUDDAYSO ‘X specifies a time or a date for X’s self’	3/5 (60%)

102.	MUDXAY ‘X strips Y off (skin)’ MUDXAYSO ‘X strips Y off (skin) for X’s self’	4/5 (80%)
103.	QABIL ‘X resists Y’ QABLO ‘X resists Y for X’s self’	3/5 (60%)
104.	QANAN ‘X claim something’ QANANSO ‘X claim something for X’s self’	3/5 (60%)
105.	QASIR ‘X fines Y’ QASIRO ‘X fines Y for X’s self’	3/5 (60%)
106.	QAWAY ‘X deceives Y’ QAWAYSO ‘X deceives Y for X’s self’	3/5 (60%)
107.	QULUB ‘X is sad’ QULUBO ‘X becomes sad’	3/5 (60%)
108.	QUSHUC ‘X does Y with sincerity’ QUSHUCO ‘X comes to do Y with sincerity’	3/5 (60%)
109.	QUURI ‘X snoors’ QUURISO ‘X snoors for X’s self’	3/5 (60%)
110.	RAAR ‘X prepares Y a place in a house or a tree’ RAARO ‘X prepares Y a place in a house or a tree for X’s self’	5/5 (100%)
111.	RAJAY ‘X hopes for something’ RAJAYSO ‘X hopes for something for X’s self’	4/5 (80%)
112.	RAQ ‘X is stooping down to drink water’ RAQO ‘X comes to stoops down to drink water’	3/5 (60%)
113.	RUG ‘X persistently nibbles Y’ RUGO ‘X persistently nibbles Y for X’s self’	4/5 (80%)
114.	SABAY ‘X floats’ SABAYSO ‘X floats Y for X’s self’	3/5 (60%)
115.	SAFAY ‘X cleans Y’ SAFAYSO ‘X cleans Y for X’s self’	4/5 (80%)
116.	SAHAL ‘X is easier’ SAHALO ‘X takes Y easily’	3/5 (60%)
117.	SAÏD ‘X sprinkles Y’ SAÏDO ‘X sprinkles Y for X’s self’	3/5 (60%)
118.	SEM ‘X touches Y’ SEMSO ‘X touches Y for X’s self’	3/5 (60%)
119.	SHEKAL ‘X puts fetter(shackles) on feet’ SHEKALSO ‘X puts fetter(shackles) on feet for X’s self’	3/5 (60%)
120.	SILEC ‘X tortures Y’ SILECSO ‘X tortures Y for X’s self’	3/5 (60%)
121.	SINIF ‘X introduces Y’ SINFO ‘X introduces Y for X’s self’	3/5 (60%)
122.	SOL ‘X broils Y’ SOLO ‘X becomes broiled’.	3/5 (60%)
123.	SUJUD ‘X is prostrating’ SUJUDO ‘X comes to prostrate’	3/5 (60%)
124.	TAAG ‘X raises Y’ TAAGSO ‘X raises Y for X’s self’	3/5 (60%)
125.	TACAB ‘X work in one’s own farm’ TACABO ‘X work in one’s own farm for X’s self’	3/5 (60%)
126.	TACSIYADAY ‘X pay condolences to Y’ TACSIYADAYSO ‘X pay condolences to Y’	3/5 (60%)
127.	TAFSIIR (Arabic √fsr) ‘X explains the Quran’ TAFSIIRSO ‘X explains the Quran for X’s self’	4/5 (80%)
128.	TAKOOR ‘X segregates Y’ TAKOORSO ‘X segregates Y for X’s self’	3/5 (60%)
129.	TONTON ‘X boxes with Y’ TONTONSO ‘X boxes with Y for X’s self’	3/5 (60%)

130.	TOOB ‘X cups Y’ TOOBSO ‘X cups Y for X’s self’	3/5 (60%)
131.	TUB ‘X piles up Y’ TUBO ‘X piles up Y for X’s self’	3/5 (60%)
132.	TUHUN ‘X is suspecting of Y’ TUHUNO ‘X becomes suspecting of Y’	3/5 (60%)
133.	TUKUB ‘X is walking with difficulty’ TUKUBO ‘X comes to walk with difficulty’	4/5 (80%)
134.	TUDH ‘X softens Y’ TUDHO ‘X softens Y for X’s self’	3/5 (60%)
135.	TUUR ‘X throws Y’ TUURO ‘X throws Y for X’s self’	4/5 (80%)
136.	WABAYAY ‘X poisons Y’ WABAYAYSO ‘X poisons Y for X’s self’	3/5 (60%)
137.	WALAQ ‘X stirs Y’ WALAQO ‘X stirs Y for X’s self’	5/5 (100%)
138.	XAASID ‘X is jealous of Y’ XAASIDSO ‘X is jealous of Y for X’s self’	3/5 (60%)
139.	XIISAY ‘X is interested in Y’ XIISAYSO ‘X is interested in Y for X’s self’	3/5 (60%)
140.	XISSAD ‘X judges Y’ XISSADO ‘X judges Y for X’s self’	3/5 (60%)
141.	XOG ‘X gets Y by force’ XOGSO ‘X gets Y by force for X’s self’	4/5 (80%)
142.	XOR ‘X throws Y’ XORSO ‘X throws Y for X’s self’	3/5 (60%)
143.	YALALAQ ‘X attacks Y’ YALALAQO ‘X is attacked’	3/5 (60%)
144.	YAS ‘X looks down on Y’ YASO ‘X looks down on Y for X’s self’	4/5 (80%)
145.	MIR ‘X filters Y’ MIRO ‘X filters Y for X’s self’	5/5 (100%)
146.	AAY ‘X is getting benefit from Y’ AAYO ‘X comes to get future benefit from Y’	3/5 (60%)
147.	ABAABUL ‘X organizes Y’ ABAABULO ‘X organizes Y for X’s self’	5/5 (100%)
148.	ABAX ‘X is lean’ ABAXO ‘X becomes lean’	3/5 (60%)
149.	ABBAAR ‘X heads in a direction’ ABBAARSO ‘X heads in a direction for X’s self’	3/5 (60%)
150.	BAAD ‘X blackmails Y’ BAADSO ‘X blackmails Y for X’s self’	3/5 (60%)
151.	BIIR ‘X joins Y’ BIIRO ‘X joins Y for X’s self’	3/5 (60%)
152.	CURI ‘X writes Y’ CURISO ‘X writes Y for X’s self’	3/5 (60%)
153.	DUS ‘X is sinking’ DUSO ‘X comes to sink’	3/5 (60%)
154.	KAAR ‘X feels minor pain’ KAARO ‘X comes to feels minor pain’	3/5 (60%)
155.	KOROR ‘X increases Y’ KORORSO ‘X increases for X’s self’	3/5 (60%)
156.	MAADAY ‘X entertains Y with comedy’ MAADAYSO ‘X entertains Y with comedy for X’s self’	3/5 (60%)
157.	MAARAY ‘X manages a situation’ MAARAYSO ‘X manages a situation for X’s self’	3/5 (60%)

158.	MIRIR ‘X rusts’ MIRIRO ‘X becomes rusted’	3/5 (60%)
159.	NABADGUUR ‘X is a dessert’ NABADGUURO ‘X becomes a dessert’	3/5 (60%)
160.	OOG ‘X starts a fire’ OOGO ‘X starts a fire for X’s self’	3/5 (60%)
161.	RAAF ‘X conscripts Y someone into the army’ RAAFO ‘X conscripts Y someone into the army for X’s self’	3/5 (60%)
162.	RAAG ‘X is late’ RAAGO ‘X becomes late’	4/5 (80%)
163.	SABATABAX ‘X spares Y’ SABATABAXSO ‘X spares Y for X’s self’	3/5 (60%)
164.	SARDHAY ‘X takes a nap’ SARDHAYSO ‘X takes a nap for X’s self’	3/5 (60%)
165.	SEEG ‘X misses Y’ SEEGSO ‘X misses Y for X’s self’	3/5 (60%)
166.	SOCDAAL ‘X travels’ SOCDAALSO ‘X travels for X’s self’	3/5 (60%)
167.	XABAAL ‘X buries Y’ XABAALSO ‘X buries Y for X’s self’	3/5 (60%)
168.	XASAY ‘X puts Y away’ XASAYSO ‘X puts Y away for X’s self’	4/5 (80%)
169.	QUN ‘X is straight’ QUNSO ‘X makes Y straight for X’s self’	3/5 (60%)

Type 3: “Unacceptable”

Items		Type 3 (155/506 [30.6%])
1.	AAD ‘X goes’ AADO ‘X goes for X’s self’	5/5 (100%)
2.	AAS ‘X buries Y’ AASO ‘X buries Y for X’s self’	4/5 (80%)
3.	AFUR ‘X eats breakfast’ AFURO ‘X eats breakfast’	4/5 (80%)
4.	AFUUF ‘X blows Y’ AFUUFSO ‘X blows Y for X’s self’	5/5 (100%)
5.	AH ‘X is Y’ AHO ‘X becomes Y’	5/5 (100%)
6.	AMAR ‘X commands Y’ AMARO ‘X commands Y for X’s self’	5/5 (100%)
7.	AMMAKAAG ‘X is surprised’ AMMAKAAGO ‘X becomes surprised’	4/5 (80%)
8.	AQBAL ‘X accepts Y’ AQBALO ‘X accepts Y’	3/5 (60%)
9.	AQTUL ‘X kills Y’ AQTULO ‘X kills Y for X’s self’	4/5 (80%)
10.	ARAG ‘X sees Y’ ARAGO ‘X sees Y for X’s self’	5/5 (100%)
11.	BAABAʔ ‘X is destroyed’ BAABAʔSO ‘X becomes destroyed’	5/5 (100%)
12.	BEEL ‘X loses Y’ BEELO ‘X comes to lose Y’	5/5 (100%)
13.	BOOD ‘X jumps BOODO ‘X jumps	5/5 (100%)
14.	BURBUR ‘X is crumpled’ BURBURO ‘X becomes crumpled’	5/5 (100%)

15.	CAB ‘X drinks Y’ CABO ‘X drinks Y for X’s self’	5/5 (100%)
16.	CAABUD ‘X adorns/worships Y’ CAABUDO ‘X adorns/worships Y for X’s self’	5/5 (100%)
17.	CADAB ‘X torments Y’ CADABO ‘X torments Y for X’s self’	5/5 (100%)
18.	CAI ‘X curses Y’ CAISO ‘X curses Y for X’s self’	5/5 (100%)
19.	CAJIN ‘X kneads/bakes Y’ CAJINSO ‘X kneads/bakes Y for X’s self’	4/5 (80%)
20.	CARAR ‘X runs’ CARAR ‘X runs for X’s self’	5/5 (100%)
21.	CASHAY ‘X eats dinner’ CASHAYSO ‘X eats dinner’	5/5 (100%)
22.	CAWAY ‘X spends the night somewhere’ CAWAYSO ‘X spends the night somewhere for X’s self’	5/5 (100%)
23.	CIIL ‘X becomes angry’ CIILO ‘X becomes angry’	5/5 (100%)
24.	CIYAAR ‘X plays’ CIYAARO ‘X plays for X’s self’	5/5 (100%)
25.	CUN ‘X eats Y’ CUNO ‘X eats Y for X’s self’	5/5 (100%)
26.	DAAH ‘X is late’ DAAHO ‘X becomes late’	5/5 (100%)
27.	DAAL ‘X is tired’ DAALO ‘X becomes tired’	5/5 (100%)
28.	DAAR ‘X turns on Y’ DAARO ‘X turns on Y for X’s self’	3/5 (60%)
29.	DAB ‘X catches Y in a trap’ DABO ‘X catches Y in a trap for X’s self’	3/5 (60%)
30.	DABBALDEG ‘X is in a festive mood’ DABBALDEGO ‘X becomes in a festive mood’	5/5 (100%)
31.	DABIB ‘X purges Y’ DABIB ‘X purges Y for X’s self’	5/5 (100%)
32.	DABOGAL ‘X puts Y under surveillance’ DABOGASHO ‘X puts Y under surveillance for X’s self’	4/5 (80%)
33.	DAF ‘X snatches Y’ DAFO ‘X snatches Y’	3/5 (60%)
34.	DAGAL (LA) ‘X fights with Y’ DAGALO (LA) ‘X fights with Y for X’s self’	5/5 (100%)
35.	DAʔ ‘X pours down (rain/snow,etc.)’ DAʔO ‘X comes to pour down (rain/snow,etc.)’	5/5 (100%)
36.	DEDEG ‘X rushes Y’ DEDEGO ‘X rushes Y for X’s self’	5/5 (100%)
37.	DHAAF ‘X pass Y’ DHAAFO ‘X pass Y for X’s self’	5/5 (100%)
38.	DHAAN ‘X is better than Y at something’ DHAANO ‘X becomes better than Y at something’	5/5 (100%)
39.	DHAC ‘X falls’ DHACSO ‘X drops Y for X’s self’	4/5 (80%)
40.	DHAWAAQ ‘ X announces Y’ DHAWAAQO ‘ X announces Y for X’s self’	5/5 (100%)
41.	DHEEL ‘X plays’ DHEELO ‘X plays for X’s self’	5/5 (100%)

42. DHEH X says Y' DHEHO X says Y for X's self'	5/5 (100%)
43. DHEREG 'X is satisfied' DHEREGO 'X becomes satisfied'	5/5 (100%)
44. DHOOF 'X travels' DHOOFO 'X travels for X's self'	5/5 (100%)
45. DHUUX 'X eats to the bone marrow' DHUUXSO 'X eats to the bone marrow for X's self'	5/5 (100%)
46. DIIR X peels Y' DIIRO X peels Y for X's self'	3/5 (60%)
47. DIL 'X hits/kills Y' DILO 'X hits/kills Y for X's self'	5/5 (100%)
48. DHUTI 'X limps' DHUTISO 'X limps for X's self'	5/5 (100%)
49. DUUL 'X flies' DUULO 'X flies for X's self'	5/5 (100%)
50. EEG 'X sees Y' EEGO 'X sees Y for X's self'	5/5 (100%)
51. FAAF 'X spreads Y' FAAFO 'X is spread'	3/5 (60%)
52. FAAN 'X brag' FAANO 'X brag for X's self'	5/5 (100%)
53. FAHAN 'X understands Y' FAHANSO 'X understands Y for X's self'	5/5 (100%)
54. FARAX 'X is happy' FARAXO 'X becomes happy'	4/5 (80%)
55. FARAY 'X makes food spoil by touching with the fingers' FARAYSO 'X makes food spoil by touching with the finger for X's self'	4/5 (80%)
56. FAKAR 'X thinks' FAKARSO 'X thinks for X's self'	5/5 (100%)
57. FEER 'X punches Y' FEERSO 'X punches Y for X's self'	5/5 (100%)
58. FUL 'X climb/mounts/rides Y' FULO 'X climb/mounts/rides Y for X's self'	5/5 (100%)
59. FUUD 'X drinks/smokes' FUUDO 'X drinks/smokes for X's self'	5/5 (100%)
60. GAAR 'X reaches Y' GAARO 'X reaches Y for X's self'	5/5 (100%)
61. GARAAC 'X knocks/beats Y' GARAACSO 'X knocks/beats Y for X's self'	5/5 (100%)
62. GOOB 'X looks for Y' GOOBSO 'X looks for Y for X's self'	5/5 (100%)
63. GUD 'X circumcises Y' GUDO 'X is circumcised'	5/5 (100%)
64. GUDUB 'X passes Y' GUDUBSO 'X passes Y for X's self'	4/5 (80%)
65. HAAD 'X flies; X moves fast' HAADO 'X flies; X moves fast for X's self'	5/5 (100%)
66. HABAAR 'X wishes bad fortune for Y' HABAARO 'X wishes bad fortune for Y for X's self'	5/5 (100%)
67. HADAL 'X speaks' HADALO 'X speaks for X's self'	5/5 (100%)

68. HAR ‘X stays behind’ HARO ‘X stays behind for X’s self’	5/5 (100%)
69. HEL ‘X finds or acquires Y’ HEL ‘X finds or acquires Y for X’s self’	5/5 (100%)
70. HILMAAM ‘X forgets Y’ HILMAAMO ‘X is forgotten’	5/5 (100%)
71. HINDIS ‘X sneezes’ HINDISO ‘X sneezes for X’s self’	5/5 (100%)
72. HURUD ‘X sleeps’ HURUDO ‘X sleeps for X’s self’	5/5 (100%)
73. HURUF ‘X frowns’ HURUFO ‘X becomes frowning’	5/5 (100%)
74. ILBAX ‘X is more urban’ ILBAXSO ‘X becomes more urban’	5/5 (100%)
75. ILOW ‘X forgets’ ILOWSO ‘X forgets Y for X’s self’	5/5 (100%)
76. INKAR ‘X curses Y’ INKARSO ‘X curses Y for X’s self’	5/5 (100%)
77. INKIR ‘X denies/ refuses Y’ INKIRSO ‘X denies/ refuses Y for X’s sefl’	5/5 (100%)
78. JAWAAB ‘X responds’ JAWAABO ‘X responds for X’s sefl’	5/5 (100%)
79. JEED (SOO) ‘X is wake’ JEEDO (SOO) ‘X becomes wake’	5/5 (100%)
80. JEX ‘X tears Y’ JEXSO ‘X tears Y for X’s self’	3/5 (60%)
81. JIR ‘X exists’ JIRO ‘X comes to existence’	5/5 (100%)
82. KAADI ‘X urinates’ KAADISO ‘X urinates for X’s sefl’	5/5 (100%)
83. KABAY ‘X hit Y with shoes’ KABAYSO ‘X hits Y with shoes for X’s self’	5/5 (100%)
84. KADEED ‘X irritates Y’ KADEEDSO ‘X irritates Y for X’s self’	4/5 (80%)
85. KAFTAN ‘X jokes’ KAFTANSO ‘X jokes for X’s self’	5/5 (100%)
86. KAR ‘X is able’ KARO ‘X becomes able’	5/5 (100%)
87. KIBIR ‘X is proud’ KIBIRO ‘X becomes proud’	5/5 (100%)
88. LAD ‘X kicks Y' LADO ‘X kicks Y for X’s self'	5/5 (100%)
89. LALAD X is hung or suspended’ LALADSO X is hung or suspended’	3/5 (60%)
90. LEF ‘X licks Y’ LEFSO ‘X licks Y for X’s self’	5/5 (100%)
91. LEGDAN ‘X wrestles with Y’ LEGDANSO ‘X wrestles with Y for X’s self’	4/5 (80%)
92. LEGED ‘X makes Y a tree fall’ LEGEDO ‘X makes Y a tree fall for X’s self’	5/5 (100%)
93. LIQ ‘X swallows Y’ LIQSO ‘X swallows Y for X’s self’	5/5 (100%)
94. MAAG ‘X intends something negative’ MAAGSO ‘X intends something negative for X’s self’	5/5 (100%)
95. MALAY (Ú) ‘X thinks Y’ MALAYSO (Ú) ‘X thinks Y for X’s self’	4/5 (80%)

96.	MANTAG ‘X vomits’ MANTAGO ‘X vomits for X’s self’	5/5 (100%)
97.	MAQAL ‘X hears Y’ MAQALO ‘X listens Y for X’s self’	5/5 (100%)
98.	MIIRBEEL ‘X is unconscious’ MIIRBEELO ‘X becomes unconscious’	4/5 (80%)
99.	MOOD ‘X thinks’ MOODO ‘X thinks for X’s self’	5/5 (100%)
100.	MUQUR ‘X dives’ MUQURO ‘X dives for X’s self’	5/5 (100%)
101.	MURAN (LA) ‘X argues with Y’ MURANSO (LA) ‘X argues with Y for X’s self’	5/5 (100%)
102.	NAX ‘X is shocked’ NAXO ‘X becomes shocked’	5/5 (100%)
103.	NEEFTUUR ‘X breathes heavily’ NEEFTUURO ‘X breathes heavily’	5/5 (100%)
104.	NUUG ‘X absorbs Y’ NUUGO ‘X absorbs Y for X’s self’	5/5 (100%)
105.	OI ‘X cries’ OIO ‘X cries’	5/5 (100%)
106.	OLOL ‘X burns Y’ OLOLSO ‘X burns Y for X’s self’	5/5 (100%)
107.	OOL ‘X is in Y a place’ OOLO ‘X becomes in Y a place’	5/5 (100%)
108.	OROD ‘X runs’ ORODO ‘X runs for X’s sefl’	5/5 (100%)
109.	QADAY ‘X has lunch’ QADAYSO ‘X had lunch for X’s self’	5/5 (100%)
110.	QANIIN ‘X bites Y’ QANIINSO ‘X bites Y for X’s self’	5/5 (100%)
111.	QARQAR ‘X shivers’ QARQARO ‘X shivers’	5/5 (100%)
112.	QATAL ‘X misleads’ QATALO ‘X misleads for X’s sefl’	5/5 (100%)
113.	QOSOL ‘X laughs’ QOSOLO ‘X laughs’	5/5 (100%)
114.	QUFAC ‘X coughs’ QUFACO ‘X coughs’	5/5 (100%)
115.	QURUN ‘X is rotten’ QURUNO ‘X becomes rotten’	5/5 (100%)
116.	RAAC ‘X accompanies Y’ RAACO ‘X accompanies Y for X’s self’	5/5 (100%)
117.	RID ‘X drop Y’ RIDO ‘X drop Y for X’s self’	5/5 (100%)
118.	ROOR ‘X runs’ ROORO ‘X runs for X’s self’	5/5 (100%)
119.	RUUG ‘X chews Y’ RUUGO ‘X chews Y for X’s self’	5/5 (100%)
120.	SAFAR ‘X travels’ SAFARO ‘X travels for X’s self’	5/5 (100%)
121.	SABAR (KÁ) ‘X gives up pursuing Y’ SABARO (KÁ) ‘X gives up pursuing Y for X’s self’	5/5 (100%)
122.	SAMAX ‘X pardons Y’ SAMAXSO ‘X pardons Y for X’s self’	3/5 (60%)
123.	SAR ‘X cuts Y’ SARO ‘X cuts Y for X’s self’	5/5 (100%)

124.	SARQAN ‘X is drunk’ SARQANO ‘X becomes drunk’	5/5 (100%)
125.	SHAKI ‘X has doubts’ SHAKISO ‘X has doubts for X’s self’	5/5 (100%)
126.	SHIIR ‘X is smelly’ SHIIRO ‘X becomes smelly	5/5 (100%)
127.	SHIISH ‘X aims at a target’ SHIISHO ‘X aims at a target for X’s self’	4/5 (80%)
128.	SHIR ‘X has a meeting’ SHIRO ‘X has a meeting for X’s self’	5/5 (100%)
129.	SIN ‘X aligns two Y things’ SINSO ‘X aligns two Y things for X’s self’	4/5 (80%)
130.	SUʔAL ‘X askes Y’ SUʔALO ‘X askes Y for X’s self’	5/5 (100%)
131.	SUG ‘X waits for Y’ SUGO ‘X waits for Y for X’s self’	5/5 (100%)
132.	SUX ‘X faints’ SUXO ‘X faints’	5/5 (100%)
133.	TAHRIIB ‘X illegally enter a country’ TAHRIIBO ‘X illegally enter a country for X’s self’	3/5 (60%)
134.	TAR ‘X benefits’ TARO ‘X benefits’	5/5 (100%)
135.	TIR ‘X erases Y’ TIRO ‘X erases Y for X’s self’	3/5 (60%)
136.	TUF ‘X spits’ TUFO ‘X spits for X’s self’	5/5 (100%)
137.	TUS ‘X points Y something out to Z’ TUSO ‘X points Y something out to Z for X’s self’	3/5 (60%)
138.	JEED (Ú) ‘X sees Y’ JEED (Ú) ‘X sees Y for X’s self’	5/5 (100%)
139.	ULAY ‘X beats Y with a stick’ ULAYSO ‘X beats Y with a stick for X’s self’	5/5 (100%)
140.	UMMUL ‘X gives birth’ UMMULO ‘X gives birth’	5/5 (100%)
141.	WARAN ‘X announces Y’ WARANSO ‘X announces Y for X’s self’	5/5 (100%)
142.	WAY ‘X does not find Y’ WAYSO ‘X does not find Y’	5/5 (100%)
143.	WERAR ‘X attacks Y’ WERARSO ‘X attacks Y for X’s sefl’	5/5 (100%)
144.	XALALAY ‘X makes Y permissible (religiously)’ XALALAYSO ‘X makes Y permissible (religiously) for X’s self’	3/5 (60%)
145.	XIRIIR (LA) ‘X contacts and keeps ties with Y’ XIRIIRSO (LA) ‘X contacts and keeps ties with Y for X’s self’	5/5 (100%)
146.	XUKUM ‘X governs, administers Y’ XUKUNSO ‘X governs, administers Y for X’s self’	5/5 (100%)
147.	YAAB ‘X is astonished’ YAABO ‘X becomes astonished’	5/5 (100%)
148.	YAAC ‘X runs away’ YAACO ‘X runs away for X’s self’	5/5 (100%)
149.	RAB ‘X wants Y’ RABO ‘X wants Y’	5/5 (100%)

150. SÀR ‘X cuts Y’ SÀR ‘X cuts Y for X’s self’	5/5 (100%)
151. TAB ‘X misses Y’ TABSO ‘X misses Y’	5/5 (100%)
152. TOOS ‘X wakes up’ TOOSO ‘X becomes a wake’	4/5 (80%)
153. YEER ‘X produces sound’ YEERO ‘X produces sound’	5/5 (100%)
154. UDGONAY ‘X perfumes Y’ UDGONAYSO ‘X perfumes Y for X’s self’	3/5 (60%)
155. XUMAY ‘X ruins Y’ XUMAYSO ‘X ruins Y for X’s self’	3/5 (60%)