

TOPICS IN CHEMEHUEVI MORPHOSYNTAX:
LEXICAL CATEGORIES, PREDICATION AND CAUSATION

by

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LIST OF ABBREVIATIONS

aff	affirmative
agr	agreement
anim	animate
anter	anterior aspect
appl	applicative
caus	causative affix
cont	continuous aspect
cop	copula
dem	demonstrative
des	desiderative
dim	diminutive
emph	emphatic
excl	exclusive
fact	factual mood
FV	final vowel
fut	future tense
gen	genitive case
habit	habitual aspect
imm	immediate aspect
imper	imperative
inanim	inanimate
incl	inclusive
ind	indicative mood
instr	instrumental
invis	invisible
loc	locative
neg	negation
nom	nominative case
nomin	nominalization
NPN	non-possessed noun marker
mom	momentaneous aspect
obj	object
obl	oblique case
part	partitive case
pass	passive
past	past tense
perf	perfective
pl	plural
poss	possessive marker
pres	present tense
pres.prt	present participle

prog	progressive aspect
prt	participle
pst.prt	past participle
ptcl	particle
punc	punctual
rec	reciprocal
RED	reduplication
rel.pro	relative pronoun
res	resultative aspect
sev	several
sg	singular
stat	stative
subj	subject
SubjRel	subject relative clause
subord	subordinator
top	topic
usit	usitative tense
vis	visible

ABSTRACT

This dissertation is an application of the framework of Distributed Morphology to the morphosyntax of Chemehuevi, an endangered Southern Numic language of the Uto-Aztecan family. Following one of the central claims of DM, I argue that word formation in Chemehuevi happens in the syntax and provide evidence for this claim from the formation of lexical categories, as well as from the morphosyntax of the Chemehuevi causative verbs. I frame my discussion of lexical categories around the Root Hypothesis (Marantz 1997, Arad 2005), a notion that there are no underived nouns, verbs, or adjectives in the grammar, but roots that receive interpretation and assignment to a ‘part of speech’ depending on their functional environment. I show that Chemehuevi nouns and verbs are formed when roots are incorporated into nominal or verbal functional heads, many of which are overtly represented in the language. I also demonstrate that there is no distinct class of adjectives in Chemehuevi, and that roots with adjectival meanings are derived into stative verbs or nominalizations, depending on their function.

My discussion of predication in Chemehuevi centers around the previously unexplained distribution of the enclitic copula *-uk*, which under my analysis is viewed as an overt realization of a functional head *Pred* (based on Baker 2003), which is obligatory in the formation of nominal and adjectival, but not verbal predicates.

Another major theme of the dissertation is the notion that word-formation from roots differs from word-formation from derived words, known as the Low vs. High Attachment Hypothesis (Marantz 2000, Travis 2000, etc.). This approach explains the differences between compositional and non-compositional word formation by the

distance between the root and functional head(s) attached to it. On the basis of Chemehuevi causatives, I show that causative heads attached directly to the root derive words that exhibit morphophonological and semantic idiosyncrasies, such as allomorphy and availability of idiomatic meanings, while high attachment heads derive words that are fully compositional. This locality constraint on interpretation of roots is explained in terms of phase theory, and I present evidence from Chemehuevi showing that what constitutes a phase may be subject to parametric variation.

Each chapter of the dissertation contains a section for non-linguistic audience where I provide a summary of the main points in non-theoretical terms and connect them to practical applications for the purposes of language learning and revitalization.

CHAPTER ONE

INTRODUCTION

1.1 What is this dissertation about?

I believe that our understanding of human mind and language cannot be complete without a study of every existing language. The imminent death of an estimated half of the world languages gives linguists a sense of urgency, since an undocumented language is lost forever with the death of its last speaker. Such loss is catastrophic for the native community for whom a traditional language is as much part of identity as their land, ancestry, and religion. It is also an irreplaceable loss for linguists, for whom language is a window into the human mind.

This dissertation is devoted to the study of the Chemehuevi language, a highly endangered Southern Numic language, currently spoken by a handful of people in Arizona and California. I had the opportunity to conduct fieldwork with one of the last speakers of the Chemehuevi language, Johnny Hill Jr., as well as work directly with all existing Chemehuevi materials. I was also privileged to meet several Chemehuevi elders and language activists, and their dedication to the Chemehuevi language and culture became an inspiration for me. To a theoretical linguist, conducting research in the field is an incredible opportunity. So often theoretical linguistics is removed from actual language speakers and focuses mainly on the language competence of an idealized speaker, purposefully abstracted from the social and cultural aspects of language use. As

speakers of mainstream languages, we often lose sight of how central language is to our identity, and how completely and mutually dependent it is on the culture of its speakers. In the case of endangered languages, there is an added sense of responsibility to preserve the precious linguistic material and aid the native community in their language preservation efforts. While the focus of this work is mainly theoretical, I would like to emphasize that in its core this work is about the way words and sentences are built in Chemehuevi, and it is my hope that the descriptive sections and especially examples of Chemehuevi sentences will be useful to anyone interested in the Chemehuevi language. Also at the end of each theoretical chapter, there are notes for community use, where I summarize the main points in non-theoretical terms and connect them to practical applications.

From the theoretical standpoint, the main goal of this dissertation is to demonstrate using the example of the Chemehuevi language, that all basic language units, such as words, phrases and sentences are constructed by a single generative mechanism -- syntax. Traditionally, it has been assumed that words and sentences are formed separately, by two distinct modules of the human language faculty. In that view, words are built in the lexicon, a mental storage where a word's meaning and pronunciation are listed, and where some word formation takes place. Sentences, on the other hand, are built in syntax. In recent years, a framework known as Distributed Morphology has been developed to bring word and sentence formation together (Halle & Marantz 1993; Harley & Noyer 1998, 1999; Marantz 1997, 2000, 2001; Embick and Noyer 1999). I apply this framework to the Chemehuevi data and aim to demonstrate that Distributed Morphology

provides an accurate explanation of the complex morphosyntactic processes in this language, and the data points toward answering deep theoretical questions about the nature of word formation and interaction between concepts on the one hand and lexical categories on the other.

One of the central themes of this work is a hypothesis that word morphology should be viewed in terms of roots on one side and functional elements on the other (known as the Root Hypothesis (Arad 2005)), where the former carry lexical meaning, and the latter provide grammatical information and facilitate interaction between words in sentential contexts. Chemehuevi word formation provides solid support for the Root Hypothesis, and as I show in Part I of this dissertation, the dichotomy between roots and functional elements provides a uniform and straightforward account for the formation of lexical categories in the language and the existing fluidity between them. In chapters 2, 3 and 4 we will take a close look at how nouns, verbs and adjectives are derived from roots in the Chemehuevi language, how lexical categories differ from each other and what they have in common.

I also show that the Chemehuevi lexical categories differ in principled ways in the formation of predicates. Chapter 5 addresses several puzzles related to predicate formation in the language by nominals/adjectives on the one hand and verbs on the other. I provide support to Baker's (2003) proposal that nominal and adjectival predicates are formed with the help of a functional head *Pred*, whereas verbs form predicates independently.

Part II of this dissertation applies an approach known as the Low vs. High Attachment Hypothesis to the study of the Chemehuevi causative verbs. Chemehuevi has productive causatives that belong to two groups: the ones in which the causative element is added to a verbal stem and the ones in which it is attached directly to the root. The two kinds of Chemehuevi causative verbs differ systematically and these differences are reflected in all components of the grammar -- in pronunciation, meaning and structure. Traditionally, the two groups were viewed as lexical vs. syntactic causatives, their differences stemming from the place of their origin (i.e., lexicon vs. syntax). I argue that these features can be naturally accounted for in a non-Lexicalist framework, showing that both types are built by syntax and the differences come from the distance of the causative functional head from the root. Following Marantz (2000) and Arad (2005), I explain this locality constraint on interpretation of roots in terms of Phase Theory. However, contrary to their conclusions about the definition of phase as the first functional head attached to the root, I show that at least in Chemehuevi phase is defined by the Voice head and is thus subject to crosslinguistic variation.

In the sections below, I provide background information on the Chemehuevi Indian Tribe and an overview of the Chemehuevi language, including a brief language description, as well as a survey of previous work done on this language.

1.2 The Chemehuevi Indian Tribe

1.2.1 Background information

The Chemehuevi language is a Southern Numic language of the Shoshonean branch of the Uto-Aztecan family, traditionally spoken by the Chemehuevi Indians. Currently the Chemehuevi reside primarily on the Colorado Indian Tribes Reservation (CRIT) in Parker, Arizona, and on the Chemehuevi Reservation, located in the eastern parts of San Bernardino and Riverside Counties in California, with twenty-five miles of its boundary along the shores of Lake Havasu. There are some tribal members also living on the Agua Caliente, Cabazon, and Morongo reservations.

According to the registration of the Chemehuevi and Colorado River Indian Tribes Reservations, the tribe currently has about four hundred members. In 1994, there were three fluent speakers of Chemehuevi on the Chemehuevi Reservation and ten in CRIT (*Ethnologue*, 2006). Today there are only three fully fluent speakers of the Chemehuevi language in CRIT (Penfield, p.c.), and all of them are over fifty years old. This makes Chemehuevi a moribund language, which faces extinction within one generation of speakers.

Figure 1. Chemehuevi Indian Reservation and Colorado Indian Tribes Reservation
(from www.expedia.com, 2006)



1.2.2 Brief history of the tribe

The Chemehuevi, whose name possibly comes from a Mohave term dealing with fish, call themselves the *Nüwü* or 'people'. Their traditional lands were situated along the Colorado River between Nevada and Yuma, Arizona. An Arizona historian Thomas Edwin Farish (1918) writes that Chemehuevis traditionally lived on the east bank of the Colorado River, from Bill Williams Fork to Needles, and west towards Providence

mountains, California, their main place of residence being Chemehuevi Valley, which stretches along the Colorado River. He mentions that it is unclear how they came to live on this formerly Yuman territory. The first mention of the Chemehuevi is by Francisco Garces, who passed through their country, traveling from the Yuma to the Mohave in 1775–76. He found the Chemehuevis in the desert southwest, west and northwest of the Mohave. Here are his recollections of the tribe:

They wore Apache moccasins, antelope skin shirts, and a white headdress like a cap, ornamented with the crest feathers of a bird, probably the roadrunner. They were very swift of foot, were friends of the Ute, Yavapai Tejua, and Mohave, and when the latter “break their weapons,” (keep the peace), so do they also. It is said that they occupied at this time the country between the Beñemé (Panamint and Serrano) and the Colorado “on the north side” as far as the Ute, and extending to another river North of the Colorado, where they had their fields. They made baskets, and... all carried a crook besides their weapons,” which was used for pulling gophers, rabbits, etc., from their burrows.

(Ferish 1918:315)

Naturally, the Chemehuevi language was noted as distinct from that of the other Colorado River tribes, because it was a Uto-Aztecan language surrounded by Yuman languages. Farish describes Chemehuevis as a “wandering people, traveling great distances on hunting and predatory excursions,” and although they lived mainly on the

natural products of the desert, they also farmed where possible. Like the other Colorado River tribes they had no canoes, but used rafts made of bundles of reeds (Farish 1918). They mostly hunted small game such as rabbit, lizards and other reptiles; plants such as wild grass, chia, and pine nuts also provided a nutritional balance in their diet. Chemehuevis were also known for their basket weaving skills.

Gronski (2004) states that in the period from 1776 till 1857 the Chemehuevi Indians begin to migrate from Nevada, Utah, and Arizona to California because of a complication with the Yuman tribes, who were living in the area next to theirs. In 1857, Lieutenant Joseph C. Ives conducted an expedition and noted that the Chemehuevi Indians were neighbors of the Mohave Indians. Both tribes were living on Cottonwood Island as well as in the Chemehuevi Valley. In 1870s and late 1880s, the Chemehuevi were forced into Indian reservations, particularly to the Oasis at Twenty Nine Palms. The CRIT reservation was established on March 3, 1865 for the Indians who lived on the Colorado River. The Mohave have inhabited the area for centuries, while members of the Chemehuevi, Hopi, and Navajo tribes were relocated to the reservation later.

Access Genealogy Indian Tribes (2004) offers the following census information. The number of Chemehuevis was estimated by Leroux about 1853 at 1,500, probably an excessive estimate for the whole tribe; in 1866 Thomas estimated their population at 750. Kroeber (1967) estimates the Chemehuevi population before the European contact only between 500 and 800. He states that the federal census of 1920 reported 320 Chemehuevi, 260 of them in California (Kroeber 1967:595).

1.3 The Chemehuevi language

As noted above, the Chemehuevi language is a Southern Numic language of the Shoshonean branch of the Uto-Aztecan family. The closest relatives are three other Southern Numic languages: Southern Paiute, Ute, and Kawaiisu.

The dialectal differences within the Chemehuevi language are an interesting subject and require attention in future work. Laird (1976:277) identifies at least three dialects of Chemehuevi, Northern, Desert, and Southern. There were also some differences between the Chemehuevi dialects spoken in the Chemehuevi Valley and at the Oasis at Twenty-Nine Palms. Another source of variation is its closeness to Southern Paiute, and the fact that in the past many Chemehuevis were fluent in both languages. In fact, Kroeber (1967) considers Southern Paiute and Chemehuevi to be “dialects of remarkable uniformity” (593)). However, since the tribes identify themselves as two distinct entities, and there are many differences between the two languages, today Southern Paiute and Chemehuevi are treated as separate languages, not dialects of the same language.

1.3.1 Previous work on the Chemehuevi language

The linguistic work on the Chemehuevi language is quite sparse and falls mainly into two types: collections of lexical items and texts, recordings by anthropological linguists and analytical work done in 1970s.

In the first group of materials, the most extensive are the unpublished field notes of John Peabody Harrington, collected at the National Museum of Natural History, by the Smithsonian Institution. In fact most of these transcriptions were done by Harrington's assistant and wife at that time Carobeth Tucker Harrington, who later married her Chemehuevi consultant George Laird. Carobeth started her Chemehuevi interviews on the Colorado River Indian Tribes reservation in 1919; later both she and George Laird moved first to Santa Fe and later to Washington DC to work under Harrington's supervision. He proofread and edited Carobeth's notes and later submitted them to the Bureau of American Ethnology. As they appear today, these field notes contain sixteen microfilm reels of Chemehuevi vocabulary, grammar and twenty-eight texts from traditional Chemehuevi mythology. Carobeth Laird, who continued collecting Chemehuevi myths until George Laird's death in 1940, later published some of these stories and brief notes on the Chemehuevi language in her books, *The Chemehuevis* (1976) and *Mirror and Pattern: George Laird's World of Chemehuevi Mythology* (1984).

Another source of Chemehuevi documentation is Roy Major's (1969) and Guy Tylor's (1972) collections of recordings of oral history with several Chemehuevi speakers. Both collected word lists, personal narratives, songs and traditional stories in both English and the native language. Major's collection is currently archived at the Arizona State Museum, as well as at the CRIT Library. Tylor's recordings are also archived at the CRIT library.

The next group of published materials on the Chemehuevi language originated in the 1970s. In 1979 Margaret Press published a grammar of Chemehuevi, *Chemehuevi: A*

Grammar and Lexicon, in which she provides a sketch of Chemehuevi phonology and syntax presented within the framework of early generative grammar. This book also contains a Chemehuevi-English and English-Chemehuevi Lexicon, and is based on Press's fieldwork with a Chemehuevi consultant Mary Hanks Molino.

In 1978, Pamela Munro published two theoretical articles, one on aspects of Chemehuevi quotatives (1978a) and their place among Uto-Aztecan quotatives, and the other on Chemehuevi passives, imperatives and imperfectives (1978b).

Press's grammar and the works of Carobeth Laird have become the basis for an XML based *Online Chemehuevi Dictionary* that is currently being compiled by Dirk Elzinga (http://linguistics.byu.edu/faculty/elzingad/chemehuevi_dictionary/). The Dictionary has over 3000 entries, and a part of the on-going project is addition of sound files and ethnographic information to each lexical entry.

Another invaluable source of information on Southern Numic languages in general is Edward Sapir's (1930) grammar of Southern Paiute, a close relative of Chemehuevi. The two languages are mutually intelligible and differ with respect to several phonological rules, some aspects of tense/aspect morphology, shifts in their pronominal systems, and some vocabulary (Press 1979:2). Sapir's grammar is a great reference source for all Southern Numic languages and is helpful in understanding the underlying grammatical processes.

In this dissertation, I use all of the above sources for the linguistic data, as well as materials I collected in 2005-2006, during interviews with one of the remaining fluent

Chemehuevi speakers Johnny Hill Jr¹. Mr. Hill is the youngest known speaker and is fully fluent, having learned Chemehuevi from his monolingual grandmother. He is one of the advocates for documentation and revitalization of the Chemehuevi language, and a vital member of the CRIT language documentation project. I used two methods of obtaining data from my consultant: elicitation and grammaticality judgments of constructed sentences. All interviews are audio recorded and transcribed in the practical orthography approved by the Chemehuevi Indian Tribe.

1.3.2 Brief language description

This section is a brief introduction on the Chemehuevi sound system and word formation. It is designed to provide background linguistic information on the language, and is purposely limited in scope (see Press 1979 for more detailed information on the language).

1.3.2.1 Sound inventory

The sound system of Chemehuevi is quite complex compared to other related languages. According to Press (1979), Chemehuevi consonants include: stops /ʔ/, /p/, /t/, and /k/ (with allophones [k], [q] and palatalized [k^y]); fricatives /v/, /s/, /ɣ/ (spelled *g*), and /h/; affricates /ts/ or /č/, depending on the speaker; nasals /m/, /n/, /ŋ/ and their glottalized

¹ I use the following abbreviations for the sources of data throughout the dissertation: JHJ (Johnny Hill Jr.), JPH&CL (J.P. Harrington and C. Laird), OCD (Online Chemehuevi Dictionary).

counterparts /mʔ/, /nʔ/, /ŋʔ/; approximants /w/ and /j/ and their glottalized counterparts /wʔ/ and /jʔ/; the trill /r/, and labialized velars /k^w/, /ɣ^w/ and /ŋ^w/.

Vowels can be either short (/i/, /ü/, /u/, /a/, /o/) or long (/ii/, /üü/, /uu/, /aa/, /oo/), and there is a number of diphthongs (/üi/, /ui/, /oi/, /ai/, /ia/, /üa/, /ua/, /oa/, /aü/, /au/, however it is unclear whether these are just vowel clusters or true diphthongs.

One of the key features of Chemehuevi vowels is that all word final vowels are either voiceless or completely omitted, depending on the dialect. Press (1979:13) states that final voiceless vowels were widely attested in Harrington-Laird's materials, as well as in Southern Paiute, but never surfaced in the dialect she documented. In the speech of my consultant, the word final vowels are omitted. Examples in (1) illustrate this process:

- (1) a. /aipa-tci-Ø/ => [aipač]
 boy-NPN-nom
 'boy (nom.)'
- b. /aipa-tci-a/ => [aipači]
 boy-NPN-obl
 'boy (obl.)'

Primary stress is assigned to the second mora in a word (*pungkún* 'my dog'). For the purpose of stress assignment, long vowels are considered bimoraic since the stress falls on the second mora (cf. *huú* 'arrow'). Secondary stress is assigned to all even-numbered vowels starting with the fourth vowel segment:

- (2) /na-ravasü- tu'i-vüü/ => [na-rávasú-tu'í-vü]
 self-dry-caus-past
 'dried oneself'

(Press 1979:28)

1.3.2.2 The Chemehuevi orthography

There are several writing systems used by linguists in their work on Chemehuevi. The orthography in Harrington's field notes differs from that of Press and *The Online Chemehuevi Dictionary*. Needless to say, this inconsistency can cause potential problems for both community members and linguists. In this dissertation I use the writing system approved by the Chemehuevi tribal community as the official orthography. It is the same system used by Dr. Elzinga in *The Online Chemehuevi Dictionary*.

Table #1 summarizes writing systems used to describe Chemehuevi sounds, with the emphasis on the correspondences between each system.

(3) Table #1. Chemehuevi orthography (based on Elzinga (p.c))

Chemehuevi orthography	Harrington, Laird (unpublished field notes)	Press (1979)	Corresponding sounds (IPA)
a	a	a	a
aa	ā	aa	a:
c	not attested	not attested	š
g	g	g	ɣ
gw	gw, g ^w	gw, g ^w	ɣ ^w
h	h	h	h
i	i	i	i
ii	ī	ii	i:
k	k	k	k
kw	kw, k ^w	kw, k ^w	kw
m	m	m	m
n	n	n	n
ng	ŋ	ng	ŋ
o	o	o	o
oo	ō	oo	o:
p	p	p	p
r	r	r	r
s	s	s	s
t	t	t	t
ts	ts	c	ts

tc	ts	c	č
u	u	u	u
uu	ū	uu	u:
ü	ə	ɨ	ɨ
üü	ə̄	ɨ ɨ	ɨ:
v	v	v	v
w	w	w	w
y	j	j	j
‘	‘	ʔ	ʔ

In this dissertation, any examples taken from Harrington, Laird, Press, etc., are converted into the official orthography for the sake of uniformity.

1.3.2.3 Word formation: nouns

Common nouns in Chemehuevi are formed from a noun root with or without affixes. Some nouns, like *paa* ‘water’, *kani* ‘house’ and *tua* ‘son’, consist of just the nominal stem; nothing is added to them in the nominative case (i.e., there is a zero nominative morpheme), and nothing is deleted when they are compounded or possessed. Most nouns, however, consist of a root and a non-possessed noun marker (henceforth, NPN marker), traditionally referred to as an “absolute” marker (Press 1979)². Press states that the basic forms of the absolute are /-tsi-/, /-tsü-/, /-pü-/ and /-pi-/, with the last two having variants /-mpü-/ ~ /-vü-/ and /-mpi-/ ~ /-vi-/, respectively, predictable from nasalization and spirantization (Press 1979:36). Below are several examples illustrating the NPN markers in Chemehuevi:

² The term ‘absolute’ in the Uto-Aztecan literature in general is different from the ‘absolute’ case marker elsewhere, since the languages are not Ergative-Absolute.

- (4) a. aipa-**tsi** 'boy'
 b. na'üntsi-**tsi** 'girl'
 c. maapü-**tsi** 'old woman'
- (5) a. a-**tsü** 'bow, gun'
 b. hüpüki-**tsü** 'hole'
- (6) a. tüvi-**pü** 'dirt'
 b. nünga-**pü** 'chest'
 c. paga-**pü** 'shoe'
- (7) a. tühiya-**vü** 'deer hide'
 b. na'nka-**vü** 'ear'
- (8) a. huku-**mpü** 'dust'
 b. huvitunu-**mpü** 'radio'
- (9) a. tüka-**pi** 'food'
 b. atamu-**pi** 'car'
 c. kukwa-**pi** 'wood'
- (10) a. süna-**vi** 'coyote'
 b. tukwo-**vi** 'meat'
 c. nopa-**vi** 'egg'
- (11) a. tawa-**mpi** 'tooth'
 b. ago-**mpi** 'tongue'
 c. aso-**mpi** 'salt'

The NPN marker disappears when the noun is possessed or compounded.

Consider the examples in (12): in (12a) the noun is marked with the NPN suffix *-tsi* with a zero nominative, in (12b) this marker disappears since the noun appears in its possessed form; in (12c) the NPN marker is present since the noun is a direct object, followed by a regular oblique marker *-a-*; in (12d) the NPN marker is again retained with a prepositional phrase:

kinship terms. The possessive suffixes *-wa-*, *-‘aa-* and *-akaa-* require the presence of an overt possessor in the sentence, in the form of a separate pronominal suffix.

(15) a. paü-**wa**-n
blood-poss-1sg
‘my blood’

b. tüvi-**wa**-n
land-poss-1sg
‘my land’

c. huvaa-**wa**-uk
sap-poss-3sg
‘its sap’

(16) a. sagwi-**‘aa**-n
guts-poss-1sg
‘my guts’

b. nangka-**‘aa**-ik
leaf-poss-3sg
‘its leaf’

(17) pi-piso’o-**akaa**-m
RED-child-poss-3pl
‘their children’

(Press 1979:39-40)

The possessive suffix that marks other kind of possession is *-vi*; it does not have any restrictions:

(18) nangka-**vi**-n
leaf-poss-1sg
‘my leaf’

(Press 1979:40)

1.3.2.3.2 Number

In Chemehuevi, there is a distinction between animate and inanimate plural nouns.

Inanimate nouns usually do not vary in number, but the ones that do (like the body parts in (19) below), employ reduplication to form plural forms (Press 1979:54).

- (19) a. mo'ovü 'hand' => **mo**-mo'ovü 'hands'
 b. pu'ivi 'eye' => **pu**-pu'ivi 'eyes'

In contrast, the plurals of some animate nouns can be formed with productive plural markers *-wü* and *-mü*:

- (20) a. tüvatsi 'wolf' => tüvatsi-**wü** 'wolves'
 b. poo'avi 'flea' => poo'avi-**mü** 'fleas'
 c. tuuk 'cougar' => tuku-**wü** 'cougars' (Press 1979:54)

Some animate nouns use both reduplication and plural markers:

- (21) maapütsi 'old lady' => **ma**-maapütsi-**wü** 'old ladies' (Press 1979:54)

Other animate nouns differentiate between dual and plural by adding a suffix for 'two and more' and reduplicating for 'three and more':

- (22) aivatsi 'youth' => aiva-**wü** 'youth-pl'
 => **a**-aiva-**wü** 'several-youth-pl' (Press 1979:54)

1.3.2.3.3 Case Marking

Chemehuevi nouns can be marked with two cases: nominative and oblique³. The nominative case is a zero morpheme; the oblique case is realized as *-a* or *-ya* when preceded by vowel /a/. Press (1979) gives the following distribution to case marking: the nominative case marks subjects of matrix sentences and objects of imperatives; the oblique case is used for direct and indirect objects, objects of postpositions, possessor nouns, and subjects of embedded clauses (52-53). The paradigm is illustrated below: in a transitive sentence (23a), the subject is marked nominative and the object oblique; similar situation is attested with a ditransitive sentences in (23b).

- (23) a. Manga-k maapü-tci-Ø kani-Ø-a patca-ga-ntü.
 3sg/anim/vis-cop woman-NPN-**nom** house-NPN-**obl** clean-be-prt
 ‘The woman cleaned the house’.
- b. Manga-k aipa-tci-Ø pungku-tci-a tüka-pi-a maga-ka-tü.
 3sg/anim/vis- boy-NPN-nom dog-NPN-obl food-NPN-obl give-perf-prt
 ‘The boy gave the dog food’. (JHJ)

The next two examples are an imperative sentence with objects marked nominative (24), and an embedded sentence (bracketed) with an oblique subject (25):

- (24) Aipa-tci-Ø wampakwi-tci-Ø punikai-tu’i-ngu.
 boy-NPN-nom scorpion-NPN-nom see-**caus-imp**
 ‘Show the boy the scorpion’. (Press 1979:92)
- (25) John-Ø [Ann-i karütüa-ya küawi tanga-kai-na] pututcuga-yü.
 John-nom Ann-obl chair-obl yesterday kick-perf-nomin know-pres
 ‘John knows Ann kicked the chair yesterday’.

³ Carnie (p.c.) points out that the term ‘oblique’ is typically reserved for non-structural cases, and the Chemehuevi ‘oblique’ case is often structural, a counterpart of what we call ‘accusative’ case in other languages. It also appears in truly oblique situations (marking objects of prepositions, for example). I preserve the term ‘oblique’ to refer to this case for the sake of uniformity since all previous work on the Chemehuevi language uses this term, but basically it is the non-nominative case, sometimes structural, sometimes not.

(Press 1979:115)

1.3.2.4 Word formation: verbs

In this section I will discuss such morphological aspects of the Chemehuevi verbs as number agreement, tense and aspect morphology, and combination with light verbs.

In Chemehuevi, the verb must agree in number with the subject. In (26a) the *singular* subject appears with an unmarked verb; in (26b) the subject is *dual animate* and the verb appears with the marker *-m*; in (26c) the subject is plural and the verb is marked by ‘real’ plural marker *-ka*, used for both animate and inanimate nouns.

- (26) a. Nüü nukwi-vü.
 1sg.nom run-past
 ‘I ran’. (Press 1979:106)
- b. Wahayugaisu-'um Ann Johnn-i-wa nukwi-vüü-**m**.
 both-3pl Ann.nom John-obl-with run-past-pl
 ‘Both Ann and John were running/ ran’. (Press 1979:106)
- c. Wii honono'o-**ka**-yü.
 knife fall-pl-pres
 ‘The knives are falling.’ (Press 1979:78)

The tense morphemes indicate whether the action described by the verb happened in the past (*-vüü* and *-mpüü*), future (*-vaa* and *-mpaa*)⁴, remote past *-pügai*, or present (*-yüü*, *-ya* or zero depending on the verb class). The examples below demonstrate the use of some of these tense markers:

- (27) Utusampa-n tuka-mi-**mpü**.
 always-1sg eat-habit-past

⁴ The choice of allomorphs for the past and future morphemes depends on the presence of spirantized or nasal feature on the verb stem, resulting in *-vüü* and *-vaa* in the former and *-mpüü* and *-mpaa* in the latter case.

‘I always used to eat’. (Press 1979:70)

(28) Nüü-(k) nukwi-**vü**.
1sg-cop run – past
‘I ran’. (Press 1979:66)

(29) Mang nukwi-**yü**.
3sg.anim.vis run-pres
‘He runs/ is running’. (Press 1979:65)

(30) Nüü-k pagü-tsi-a tüka-**vaa**-ntü.
1sg-cop fish-NPN-obl eat-fut-nomin
‘I will eat fish’. (Press 1979:113)

Chemehuevi also has a rich aspectual system. Press lists the following aspect markers:

(31) Table #2. Aspect makers in Chemehuevi (based on Press 1979)

Aspect	Morpheme	Examples
momentaneous/ punctual achievement	-ngu -ku reduplication	mutcu- ngu ‘get strong’ (67) wü’i- ku -vü ‘fell’ (68) ka -karü ‘sit down’ (67)
continuative/ imperfective	-ni’i	tüka- ni’i ‘be eating while doing something else (68)
iterative	reduplication+ glottalization	puni ‘look’ => pu -mpuni’i ‘look repeatedly’ (68)
perfective	-ma’aku -maü	tüka- ma’aku ‘finish eating’ tüka- maü ‘finish eating’ (69)
resultative/ perfective	-kai~-kwai~ -ngkwai	puni-vü ‘looked’ => puni- kai -vü ‘saw’ (69)
cessative/ non-completive telic	-maupa	tüka- maupa ‘to stop eating’ (69)
usitative/ past habitual	-mi	tüka-mi-mpü ‘used to eat’ (70)

There is also a variety of predicators, analyzed in this dissertation as light verbs, which can be suffixed to verbal stems. A representative sample is in (32)-(34):

(32) Directionals

- a. -gi 'come to'
- b. -wa'i 'go to'

(33) Modals

- a. -maga 'try to'
- b. -suawagai 'want to'
- c. -musu 'try in vain'
- d. -tütu'ani 'seem to'
- e. -tüvitcu 'want to'
- f. -guu 'would'
- g. -guu-pu 'should'
- h. -ngkuu 'could'

(34) Verb creating light verbs

- a. -gai 'be, have'
- b. -tu 'make'
- c. -tu'a 'become'

(35) Valency changing light verbs

- b. -ngkü 'transitivizer'
- c. -tu'i 'causative'
- d. -tü 'passive'

We will examine some of these light verbs in more detail in chapter 3.

1.3.2.5 Pronominal system

Pronouns in Chemehuevi are classified according to Number (singular, dual, plural), Person (1, 2, 3), Exclusivity (of the addressee), Proximity (within the arm's reach/ beyond it/ invisible), and Animateness (animate/ inanimate). Independent pronoun forms are summarized below:

(36) Table #3. Independent pronouns in Chemehuevi (Press 1979:44)

	sg	dual	pl	
1	nüü/ nüüni	tami	nümi tawü	incl excl
2	ümi		mümi	
3	anim	inga manga unga	imü mamü umü	here visible invisible
	inanim	itsü/ika/i- marü/maka/ma- urü/uka/u- Nom/oblique/postpositions		here visible invisible

Only animate pronouns vary in number between singular and plural. The only independent pronouns that have nominative and oblique forms are 1 person singular (*nüü/nüüni*) and 3 person inanimate pronouns (*itsü/ika, marü/maka, urü/uka*); the rest are invariant between the two cases. All personal pronouns have suffixal forms used when the independent pronoun is omitted from the sentence and its referent is understood from the context. The underlying suffix forms for each pronoun are given below:

(37) Table #4. Pronominal enclitics in Chemehuevi (Press 1979:46)

	sg	dual	pl	
1	-nV ⁵	-tami	-tawü -nümi	incl excl
2	-ukV - ? -mV		-wV -wümV	subject subj-imperf object
3	anim	-inga -anga -unga	-imü -amü -umü	here visible invisible
	inanim	-ika -aka -uka		here visible invisible

⁵ The word final vowel in these forms never surfaces, since nothing ever follows it, but according to Press (1979) the vowel is underlyingly there.

Only second person pronominal suffixes have different forms for subject and object. Both independent and suffixal forms can act as pronouns or determiners.

To illustrate the use of pronouns, consider the examples in (38)-(40): pronominal arguments can appear either as independent pronouns (examples in (a)) or as suffixes (examples in (b)). In the case of suffixes, the subject marker must attach to the first word in the sentence provided it is a lexical category. It can attach to any constituent: verb (38b), direct object (39b), or negative particle (40b), except to the subject itself. In (39) and (40) *ung* and *ang* are determiners.

- (38) a. Nüü nukwi-vü.
1sg run-past
'I ran'.
b. Nukwi-vüü-**n**.
run-past-1sg
- (39) a. John nüüni wihi-a maga-vü.
John 1sg.obl knife-obl give-past
'John gave me a knife'.
b. Wihi-a-**ung** nüüni maga-vü John ung..
knife-obl-3sg 1sg.obl give-past John that
- (40) a. Aipatsi ang kats nukwi-vüü-wa.
boy that not run-past-neg
'That boy didn't run'.
b. Kats-**ang** aipatsi ang nukwi-vüü-wa.
not-3sg boy that run-past-not

(Press 1979:120)

If the direct object is a full noun, it is marked by an oblique marker /-a-/, followed by the subject marker (39b). It is extremely interesting that the subject marker has this flexibility of attaching to either a verb or the direct object or even a negative particle, whichever comes first in the sentence. It is a second position clitic, known in the literature as a 'Wackernagel' clitic, which attaches to the first phonological word of the sentence (see Anderson 2005 for an overview).

Ditransitive sentences show a similar pattern: each argument can appear independently with the subject marked with the nominative case and the two objects in the oblique (41a), or one of the objects can be suffixed to the first word in the sentence following the subject marker (41b):

- (41) a. Ann ung pagu-tsi-a nüüni maga-vü.
 Ann.nom that fish-NPN-obl 1sg.obl give-past
 ‘Ann [that one] gave me a fish’.
- b. Pagü-tsi-a-**unga-n** maga-vü Ann ung.
 fish-NPN-obl-3sg-1sg give-past Ann.nom that
 ‘Ann [that one] gave me a fish’.

(Press 1979:121)

Now consider a transitive sentence, in which both subject and object are overt and the subject marker is doubling the overt subject. In (42), the subject *John* is marked with nominative case and the object *Ann* has the oblique marker /-i-/: also the verb itself carries the enclitic /-a-/⁶ and the subject marker.

- (42) Tanga-vü-**a-ing** John Ann-i.
 kick-past-obj-3sg John.nom Ann-obl
 ‘John kicked Ann’.

(Press 1979:76)

When the word order is reversed and the object appears sentence initially, the oblique marker appears on the direct object, together with the subject marker, and the verb only carries the tense morphology:

- (43) Puku-tsi-**a-n** tanga-vü.
 dog-NPN-obl-1sg kick-past
 ‘I kicked the dog’.

(Press 1979:36)

⁶ The exact nature of enclitic *-a-* is unclear (Press 1979:77), but it may be an object marker.

Thus, to summarize the use of pronominal subject markers: they are (i) second position clitics, (ii) can attach to any lexical category, provided it is not the subject NP, (iii) can co-occur with the subject NP, i.e., participate in clitic doubling. Pronominal object markers (i) follow the pronominal subject marker, (ii) can attach to any lexical category except the object NP they refer to, (iii) it is unclear whether they can double.

1.3.2.6 Word order

The underlying word order is Chemehuevi is SOV, with the direct object following the indirect object in ditransitive sentences, as illustrated in (44) and (45) below.

	S		DO		V
(44)	Mango-k	aipa-tci	tukwa-vi-a	tüka-ka-tü.	
	3sg.anim.vis-cop	boy-NPN.nom	meat-NPN-obl	eat-perf-nomin	
	'The boy ate the meat'.				

	S		IO		DO		V
(45)	Mango-k	aipa-tci	pungu-tci-a	tüka-pi-a	maga-ka-tü.		
	3sg.anim.vis-cop	boy-NPN.nom	dog-NPN-obl	food-NPN-obl	give-perf-nomin		
	'The boy gave the dog food'.						(JHJ)

However, the word order in Chemehuevi is flexible within a sentence and depends largely on the information structure, i.e., topic/focus (Press 1979:117). The focused element (if not the subject) is fronted and is followed by the pronominal suffix agreeing with the subject of the sentence. Compare the sentences in the pairs below: any element, a verb, a direct object, or even a negative particle, can be fronted, and its meaning is slightly focused.

(46) a. Nukwi-vüü-n nüü.
 run-past-1sg 1sg
 'I ran'.

b. Nüü nukwi-vü.
 1sg run-past
 ‘I ran’.

(47) a. Wihi-a-unga nüüni maga-vü John unga.
 knife-obl-3sg.anim.invis 1sg.obl give-past John.nom 3sg.anim.invis.nom
 ‘John gave me *a knife*’.

b. John nüüni wihi-a maga-vü.
 John.nom 1sg.obl knife-obl give-past
 ‘*John* gave me a knife’.

(48) a. Katcu-ang aipa-tci ang nukwi-vüü-wa
 not-3sg.anim.vis boy-NPN.nom 3sg.anim.vis run-past-neg
 ‘That boy *did not* run’.

b. Aipa-tci ang katcu nukwi-vüü-wa
 boy-NPN.nom 3sg.anim.vis not run-past-neg
 ‘*That boy* did not run’.

(Press 1979:120)

1.4 The organization of the dissertation

The dissertation is organized in the following way. Part I is devoted to the study of lexical categories and word formation in Chemehuevi with focus on noun (chapter 2), verb (chapter 3), and adjective formation (chapter 4). In chapter 5, I consider how lexical categories in the language form predicates. Part II focuses on the study of the Chemehuevi causatives, with chapter 6 presenting the Chemehuevi data and the theoretical background on morphological causatives and with chapter 7 discussing my analysis of the Chemehuevi causatives.

PART ONE

ROOTS AND LEXICAL CATEGORIES IN CHEMEHUEVI

CHAPTER TWO

LEXICAL CATEGORIES IN CHEMEHUEVI: NOUNS

In this chapter, I introduce the theoretical framework of Distributed Morphology (henceforth, DM) and lay down the foundation for the discussion of word formation in Chemehuevi. I begin with general principles of DM and summarize its treatment of word and sentence formation. I will then discuss the Root Hypothesis and its applications to word morphology on the basis of English and Hebrew. Later in the chapter, I turn to the formation of Chemehuevi nouns, with detailed discussion of non-possessed and possessed nouns. I claim that nouns in Chemehuevi are derived through the incorporation of roots into a noun-forming functional head ‘little’ n^0 , which has an overt phonological realization in the language.

2.1 Theoretical background: DM on roots and functional categories

2.1.1 Principles of Distributed Morphology

The framework of Distributed Morphology was introduced in the early 1990s by Halle and Marantz (1993, 1994), as an alternative to the existing lexicalist approaches to morphology represented in the work of Lieber (1980), Kiparsky (1982), Di Sciullo and Williams (1987) among others. The very term, Distributed Morphology (hereafter DM), illustrates the main postulate of the framework: morphological composition does not

happen in a separate component of the grammar, typically construed as the lexicon. In fact, in DM there is no lexicon in a sense of a single storage of sound-meaning correspondences. The tasks performed by the lexicon in lexicalist theories are ‘distributed’ through several components of the grammar. Three such components (*Lists* in the Figure 2) are identified: the Lexicon, the Vocabulary and the Encyclopedia. Crucially, the Lexicon is a set of bundles of morphosyntactic features which serve as input to syntax and are relevant only to the principles of syntax. These are not ‘words’ or ‘morphemes’ in the traditional senses of the terms as they lack phonological content. In other words, syntax does not manipulate words or morphemes with both phonological and semantic content, but abstract syntactic and semantic formatives like Root, [sg]/[pl], Det, v_{CAUS} , etc. The phonological realization of these features or feature combinations does not appear until late in the derivation. Phonological exponents are encoded in the Vocabulary, defined as a set of Vocabulary Items, each of which provides “the set of phonological signals available in the language for the expression of abstract morphemes” (Harley and Noyer 1999:5). The last piece of the puzzle is the Encyclopedia, which relates roots to meanings that are irrelevant for the computational system and are understood to be a part of extralinguistic knowledge.

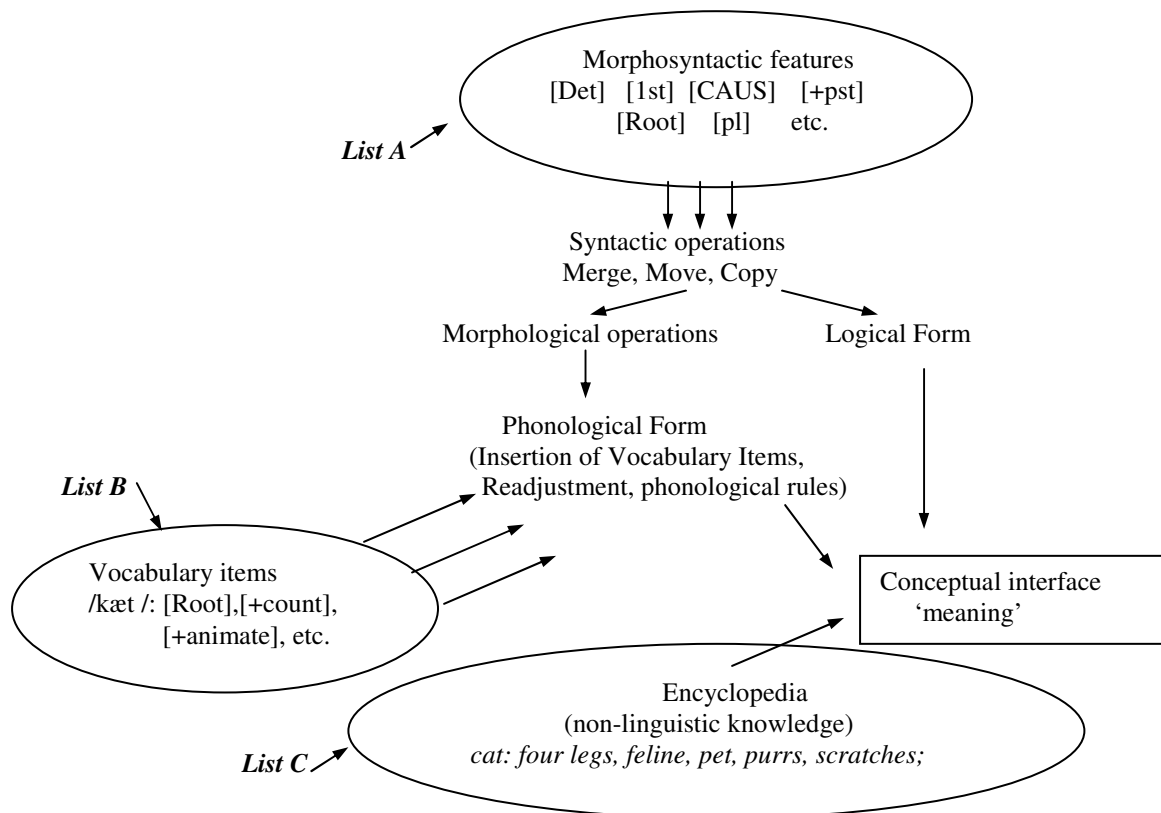
DM brings word formation and sentence formation together: both are generated by a single generative mechanism - syntax. Syntactic operations, such as Move and Merge, combine morphosyntactic features into morphosyntactic structures according to the principles of Universal Grammar. Each bundle of morphosyntactic and semantic features corresponds to a terminal node in the structure and can undergo such syntactic

operations as head-to-head movement to be adjoined to a terminal node in another position or merger of structurally adjacent nodes, among the few. These terminal nodes, i.e., bundles of features, receive phonological content after syntactic operations, at the point of Spell-Out when vocabulary insertion takes place. The morphological component of the grammar is part of Spell-Out; it is “part of a mapping procedure that takes a syntactic structure as its input and incrementally alters that structure in order to produce a phonological form” (Bobaljik 2008:296). After this point, Vocabulary Items (from List B in the diagram below) are matched with the bundles of features at each terminal node, and those that are the closest match are inserted into the structure. For example, the plural marker in English /-s/ will be inserted in the terminal node with the bundles of features [NUM][pl]. All Vocabulary Items (henceforth, VIs) whose meaning is not predictable from their morphosyntactic structural description require Encyclopedia Entries (List C), which connect the output of the grammar to non-compositional meanings. Thus, the root *dog* will have the following information linked to it in the Encyclopedia: *four legs, canine, sometimes bites, etc.* (Harley and Noyer 1993:3). When all Merge and Move operations are completed and the bundles of features are shipped to LF⁷, at the point of Conceptual Interface, morphemes receive special meanings from the Encyclopedia depending on their syntactic context. For example, the verb *kick* in the context of *to ___ the bucket* receives from the Encyclopedia the special meaning ‘die’, *cat* in the context of

⁷ For DM, LF does not express lexical meaning. It is “a level of representation which exhibits certain meaning-related structural relations like quantifier scope” (Harley and Noyer 1999:9).

let the__ out of the bag is interpreted as ‘secret’, etc. Harley and Noyer (1999) illustrate how such grammar works with the schema in repeated (1) below.

(1) Figure 2. The structure of the grammar in DM (Harley and Noyer 1999:3)



2.1.2 DM on roots and functional categories

Within DM, the traditional distinction between roots/stems and affixes receives special attention. Both roots and affixes are Vocabulary Items, i.e., “they connect morphosyntactic feature bundles with phonological feature complexes” (Halle & Marantz 1993:113). Whereas the morphosyntactic features are supplied by Universal Grammar,

roots are language-specific. Like Saussurean signs, roots have their phonological form and their meaning(s). Marantz (2003:7) claims that in DM roots can have multiple, context-dependent meanings (cf. the root ‘-ceive’ in *conceive*, *deceive*, *receive*, *perceive*, etc.); but they cannot have multiple phonological forms, i.e., suppletive allomorphs. He explains this property of roots by the fact that phonological features are part of the linguistic system per se and form a kind of label for each root, whereas the root meanings are part of the extra-linguistic, encyclopedic knowledge and cannot be used to create labels for roots. He states that “the internal semantic structure of roots (atoms for construction, along with the universally available grammatical features), whatever it may be and however it interacts with the syntax/morphology, is nothing like the internal structure of words and sentences and thus cannot be decomposed or composed in the grammar” (Marantz 2001:8).

Harley and Noyer (1998) suggest that root/affix distinction can be viewed in terms of two different kinds of morphemes, f-morphemes and l-morphemes, corresponding to the traditional distinction between functional and lexical categories. F-morphemes, by definition, are “morphemes for which there is no choice as to Vocabulary insertion”, i.e., their syntactic and semantic features are linked to a unique phonological expression. L-morphemes, on the other hand, can compete for the same slot at the Spell-Out (Harley & Noyer 1998:7).

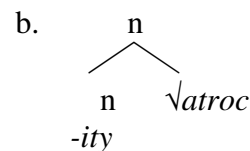
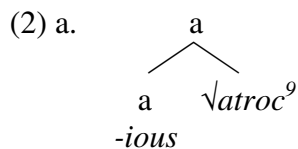
As with all morphemes, neither the phonological form of roots nor their meanings are relevant for the purposes of syntax. Syntax manipulates only placeholders for roots,

marked with a root symbol $\sqrt{\quad}$ in syntactic derivations (adopted from Pesetsky 1995)⁸.

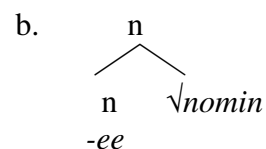
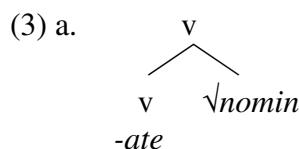
These abstract roots receive phonological content at Spell-Out by Vocabulary Insertion, and semantic content from the Encyclopedia.

This abstract view of roots is the foundation for another important principle of DM, known as the L-Morpheme Hypothesis (Marantz 1997, Embick 1997, 1998, Harley 1995, etc.), also known as the Root Hypothesis (Arad 2005), which suggests that lexical categories such as nouns, verbs and adjectives are derived from the combination of a root/l-morpheme with a category-defining f-morpheme. For example, root $\sqrt{\text{dance}}$ will be interpreted as a verb when its nearest c-commanding f-morphemes are verbal functional elements *v*, Aspect and Tense, but as a noun in the environment of a Determiner, or (in later versions of the theory (Marantz 2000)) a nominal functional head ‘little’ *n*. This view of lexical categories captures the ability of roots to appear in a language as different lexical categories depending on their morpho-syntactic environment. English provides many examples of this flexibility, among which is a root like $\sqrt{\text{grow}}$ that can surface as a verb *grow-s*, a participle *grow-ing*, or a noun/nominalization *grow-th*. Marantz (2000) also argues that word pairs like *atrocious* and *atrociousness* provide evidence for word formation from roots: the root $\sqrt{\text{atroc}}$ yields an adjective *atroc-ious* in the adjectival environment, and a noun *atroc-ity* in a nominal environment.

⁸ There is an alternative view suggesting that roots may be specified semantically in the numeration because there is evidence that sometimes there are features on roots that influence their syntactic behavior (Embick 2000, Pfau 2000, among others).



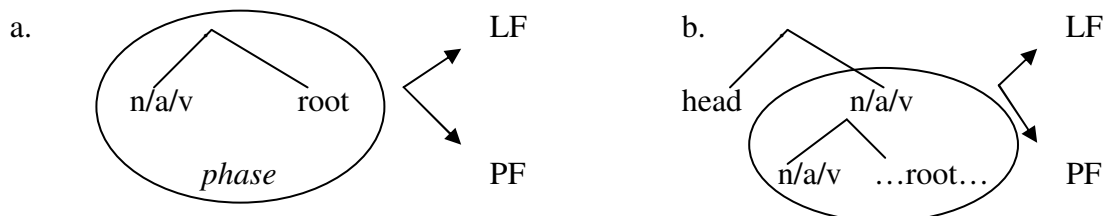
Similar derivations hold for a pair like *nominate* and *nominee*, with the root $\sqrt{\text{nomin}}$ as the base for the word formation. The output depends on the functional environment the root appears in, verbal in the case of *nominate* and nominal in the case of *nominee*.



Marantz (2001) argues that derivationally, the combination of root and its c-commanding head determine the edge of a cyclic domain (a “phase” in Chomsky’s (1998) terminology). This content is shipped off to LF and PF for phonological and semantic interpretation, where the meaning of the root in the context of the functional head (be it ‘little’ n, v, or a) is negotiated using “Encyclopedic” knowledge. Functional heads that attach outside of the category forming n/a/v (as in (4b) below) take as complements a structure in which the root’s meaning and pronunciation has already been negotiated, and that is why no special meanings are available.

⁹ In all trees throughout this dissertation, the phonological forms are inserted into the terminal nodes for the ease of exposition; in reality the VIs containing phonological exponents do not appear in syntactic derivation till after Spell-Out.

(4) Availability of special meaning (based on Marantz (2001:8))



To illustrate that special meanings are available to roots, but not ‘words’ formed from them, Marantz (2000) compares the pair of words *donor* and *donator* and concludes that *don-or* is formed from the root $\sqrt{\text{don}}$ and thus can have special meanings like *blood donor* or *organ donor*; whereas *donat-or* is derived not from the root but from the verb *donate* and these special ‘blood’ and ‘organ’ interpretations are unavailable.

(5) a. $[[\sqrt{\text{don}}]_n \text{ or}]$

b. $[[[\sqrt{\text{don}}]_v \text{ ate}]_n \text{ or}]$

This line of reasoning that separates root-based word formation from word-based formation finds further development in the work of Travis 2000, Pylkkanen 2002, Arad 2005, Harley 1995, 2006a, Svenonius 2005 among others and is known as the Low vs. High Attachment Hypothesis which is becoming influential in the study of verbal morphology, as we will see in chapters 3, 6 and 7.

English word formation provides some valuable evidence in favor of roots as the basic elements of words. However, as Arad (2005) points out, the majority of words in English (like nouns *dog*, *tree* and *chair*) do not demonstrate evidence of overt decomposition into roots and f-morphemes. In her book on word formation in Hebrew,

she provides strong evidence in favor of the (universal) Root Hypothesis, which she defines as “the existence of atomic cores of sound and meaning, from which all words are built” (14).

2.1.3 Arad (2005) on roots and lexical categories in Hebrew

Arad builds her argument for the Root Hypothesis based on two facts about Hebrew word formation: (i) root and word creating morphology are clearly distinguished in Hebrew; (ii) word formation from roots and from derived words is also distinct, both morphologically and semantically (Arad 2005:13).

Hebrew roots are composed of three consonants that must be combined with verbal, adjectival or nominal pattern morphology to be pronounceable. This pattern morphology includes slots for the consonants of the root, as well as a particular syllabic structure and inherent vowels¹⁰. Arad shows in example (6) repeated below that Hebrew roots are underspecified not only phonologically, but also semantically, since words derived from the same root can have a variety of lexical meanings, even though they share a common semantic core (13). The root \sqrt{gdl} is the core for the following words, all of which have something to do with size; however, the semantic relation between the derived words is not always straightforward:

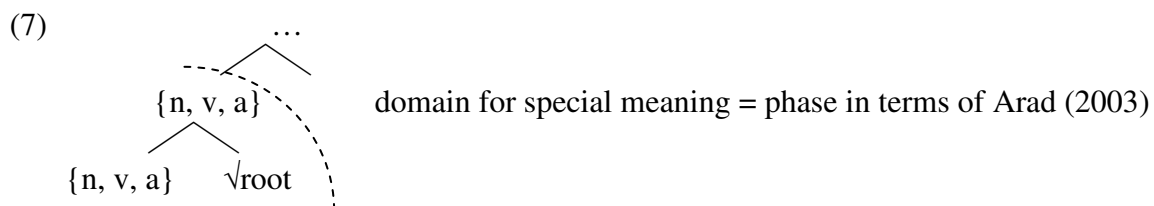
¹⁰ For an alternative ‘word-based’ approach to Hebrew morphology, see Bat-El (1994, 2003), Ussishkin (1999, 2005).

(6)	\sqrt{gdl}		
	Pattern	Words	
a.	CaCaC (v)	gadal	'grow'
b.	CiCCeC (v)	gidel	'raise'
c.	hiCCiC (v)	higdil	'enlarge'
d.	CaCoC (a)	gadol	'large'
e.	CoCeC (n)	godel	'size'
f.	miCCaC (n)	migdal	'tower'
g.	CCuCa (n)	gdula	'grandiosity'

(Arad 2005:13)

Arad argues that roots are *underspecified potentialities*: even though the words derived from the same root share some lexical core meaning, their semantics are not computed compositionally. The reason for the availability of these special meaning lies in the fact that all words in (6) are root-derived and as such lie within the same *phase* (in terms of Chomsky 1998, 1999), which Arad (following Marantz 2000) defines as the first category head merging with the root. She writes, "...the first category head merging with the root defines a phase, that is, a stage in the derivation where the element built by the computational system is spelled out both semantically and phonologically" (748). The output of this derivation is sent off for phonological and semantic interpretation, and thus any further word-formation occurs beyond the boundary of the phase and has no access to the root and to the domain of special meaning. That is why, explains Arad, denominal verbs in Hebrew can only have meanings based on the nouns they are formed from.

Arad's definition of a phase as "*any* head that creates a semantic or phonological domain" is a lot stronger than Chomsky's original proposal that includes little *v*, *C* and possibly *D* as heads that define phases. I will show on the basis of the Chemehuevi data that this definition of phase is too strong and requires refining at least for Chemehuevi.



Arad (2005) also brings attention to another pattern in Hebrew that may have crosslinguistic implications: the overt expression of verbal morphology is obligatory, whereas the overt expression of nominal morphology is often optional (15). For example, there are nouns in Hebrew that are exempt from pattern morphology and are built from syllabic roots, not from consonantal roots as the majority of nouns and all verbs. Most of these nouns are borrowings from other languages, like *televizya* ‘television’, *telefon* ‘telephone’, etc. In these nouns there is no predictable pattern of prefixes, or vowels, since the vocalic content is derived from the source language. What is particularly interesting, however, is that when borrowed syllabic roots form verbs, the vocalic pattern morphology is required. So even though the noun is *telefon*, the corresponding verb is *tilfen* ‘to telephone’ (35): the consonants of the syllabic root remain the same, but the vowels are those from the corresponding verbal pattern. Arad explains this asymmetry by the fact that verbal features (tense, aspect) are present in the syntax, while nominal features (like person and number agreement) can be inserted post-syntactically (Embick 2000, Bobaljik 2000). In terms of Hebrew this means that features present in syntax are obligatorily spelled-out, i.e., verbs and nouns formed from roots are formed based on the pattern morphology because they acquire their nominal character in the syntax. But in the case of nouns formed from the syllabic stems, not from roots, their nominal features are

omitted in the syntax. Arad reports that a similar asymmetry is attested between borrowed verbs and nouns in Russian. Borrowed nouns like *kofe* ‘coffee’ or *metro* ‘subway’ do not decline, i.e., do not show case/gender agreement; however, borrowed verbs like *parkovat* ‘to park’, *praktikovat* ‘to practice’, *telefonirovat* ‘to telephone’, *kserit* ‘to xerox’ must carry overt markers of a verbal conjugation (-*ova* in the first three verbs, -*i* in the last one).

Overall, Arad’s discussion of roots and functional heads that derive them is highly relevant for Chemehuevi, a language in which roots have much flexibility in the formation of lexical categories and where there are a number of overt category-forming functional heads. However, as we will see from the sections below, Arad’s generalization about nominal morphology being *optionally* present in syntax does not work for Chemehuevi, since one of the distinctive features of nominal morphology in the language is the necessary presence of non-possessed noun (henceforth, NPN) markers on the majority of nouns. In the next section, I will show in detail that NPN markers are part of derivational morphology and derive nouns from roots in Chemehuevi.

2.2 Lexical categories in Chemehuevi: Nouns

2.2.1 Non-Possessed Noun marker – a noun-forming functional morpheme little n^0

In this section, we will take a closer look at the noun-forming functional morphemes in Chemehuevi. Recall from chapter 1, that most common nouns in Chemehuevi consist of a root and an NPN marker, which deletes if the noun has a possessive marker or is incorporated, but is preserved when number or case morphemes are added to the noun. There is a small number of nouns that do not have an NPN marker and nothing is deleted from them when they are possessed or incorporated. On the basis of these facts we can say that there are five classes of nouns in Chemehuevi depending on the NPN marker that they take: *-tsi-*, *-tsü-*, *-pü-*, *-pi-*, and zero. The allomorphs *-pü-* and *-pi-* have variants *-mpü-* ~ *-vü-* and *-mpi-* ~ *-vi-*, respectively, predictable from nasalization and spirantization¹¹ (Press 1979:36). The Chemehuevi noun classes are exemplified in the data below:

(8) Class 1 NPN *-tsi*

- a. aipa-**tsi** ‘boy’
- b. na’üntsi-**tsi** ‘girl’
- c. maapü-**tsi** ‘old woman’

(9) Class 2 NPN *-tsü*

- a. a-**tsü** ‘bow, gun’
- b. hüpüki-**tsü** ‘hole’

¹¹ Both processes are morpho-phonological: [+nasal] and [+sprnt] are features of the root and do not always correspond to the presence of nasal or spirantized consonants in the root, but spread these features to the phonemes following the root.

(10) Class 3 NPN *-pü*

- a. **tüvi-pü** 'dirt'
- b. **nünga-pü** 'chest'
- c. **paga-pü** 'shoe'

NPN *-pü* [+sprnt]

- a. **tühiya-vü** 'deer hide'
- b. **na'nka-vü** 'ear'

NPN *-pü* [+nasal]

- a. **huku-mpü** 'dust'
 - b. **huvitunu-mpü** 'radio'
- (11) Class 4 NPN *-pi*

- a. **tüka-pi** 'food'
- b. **atamu-pi** 'car'
- c. **kukwa-pi** 'wood'

NPN *-pi* [+sprnt]

- a. **süna-vi** 'coyote'
- b. **tukwo-vi** 'meat'
- c. **nopa-vi** 'egg'

NPN *-pi* [+nasal]

- a. **tawa-mpi** 'tooth'
- b. **ago-mpi** 'tongue'
- c. **aso-mpi** 'salt'

(12) Class 5 NPN /Ø/

- a. **paa-Ø** 'water'
- b. **kani-Ø** 'house'
- c. **tua-Ø** 'son'

In terms of Distributed Morphology, we can view the Chemehuevi NPN marker as a functional morpheme, a little n^0 that forms a non-possessed noun out of a root in its complement position. This functional morpheme has several allomorphs that are considered to be Vocabulary Items with the following insertion possibilities:

(13) Vocabulary Items for an NPN marker/little n^0 (to be continued)

- a. $-tsi \Leftrightarrow n^0 / [\sqrt{\text{Root}}]_{[\text{Class 1}] ___}$

- b. -tsü <> n⁰ / [√ Root [Class 2]___]
- c. -pü <> n⁰ / [√ Root [Class 3]___]
- d. -pi <> n⁰ / [√ Root [Class 4]___]
- e. -∅ <> n⁰ / [√ Root [Class 5]___]

The cases of spirantization and nasalization within classes 3 and 4 are treated through the application of readjustment rules, phonological rules that apply to morphemes after Vocabulary insertion (Halle and Marantz 1993). These are common morpho-phonological processes that affect the initial consonant of morphemes following roots that have a [+sprnt] or [+nasal] feature. The readjustment rules have a representation like the one in (14) below, and will result in alternations *pü ~ vü ~ mpü* and *pi ~ vi ~ mpi* within the NPN marker/ functional head n⁰.

- (14) a. p → v / √ Root [+SPRNT]___
 b. p → mp / √ Root [+NASAL]___

The fact that the NPN marker is subject to morpho-phonological allomorphy supports Arad's observation that root+ n⁰ is a phase: since both occur within a phase, the regular word-domain phonological rules of the language apply. However, later in this dissertation we will see that Arad's definition of a phase is too strong and in Chemehuevi constituents larger than root plus the first category forming head can belong to the same phase (see chapter 3 and 7 for more on this).

2.2.2 Possessive marker – allomorph of little n^0

As the very term Non-Possessed Noun marker indicates, this morpheme occurs only with non-possessed nouns. In fact, when nouns appear in possessive constructions, the NPN marker does not surface. There are two cases to consider: nouns that occur with inalienable and alienable possession. In Chemehuevi, as in many other Native American languages, some nouns always have to appear with an overt possession marker. These are restricted to inalienably or inherently possessed nouns such as body parts, plant parts, and kinship terms which take one of the possessive suffixes *-wa-*, *-‘aa-*, or *-akaa-* and require the presence of an overt possessor in the sentence. As the data below indicate, the NPN markers are deleted in these cases and importantly the possessive marker is followed by a pronominal clitic that shows agreement with the Possessor (examples in (15b) through (19 b)).

(15) a. **paü-pi**
 blood-NPN
 ‘blood’

 b. **paü-wa-n**
 blood-poss-1sg
 ‘my blood’

(16) a. **huva-vü**
 sap-NPN
 ‘sap’

 b. **huvaa-wa-uk**
 sap-poss-3sg
 ‘its sap’

(17) a. **sagwi-vü**
guts-NPN
'guts'

b. **sagwi-'aa-n**
guts-poss-1sg
'my guts'

(18) a. **nangka-vü**
leaf-NPN
'leaf'

b. **nangka-'aa-ik**
leaf-poss-3sg
'its leaf'

(19) a. **piso'o-tsi**
child-NPN
'child'

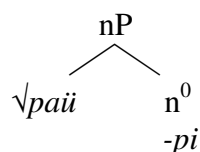
b. **pi-piso'o-akaa-m**
RED-child-poss-3pl.anim
'their children'

(Press 1979:39-40)

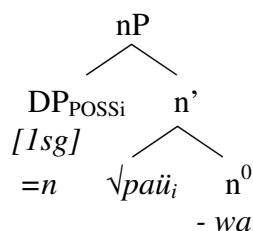
If the NPN marker and the obligatory possessive marker are in complementary distribution, we can claim that they occupy the same structural position. I claim that they are allomorphs of little n^0 , one appearing in non-possessed contexts and the other in case of possessed nouns. Consider the derivation of a non-possessed noun in (20a): the root is a complement of a noun-forming functional head little n^0 that does not have a specifier. In (20b), however, the same noun is inalienably possessed, and a possessive allomorph of little n^0 is inserted. The difference between the two allomorphs is in the presence/absence of the specifier: the possessive little n^0 projects a specifier, occupied by the possessor DP. For this particular noun this allomorph is spelled-out as *-wa*. The agreement suffix, being

an enclitic, attaches to the existing nominal stem at PF as a linearization requirement (we will return to the details of this process later in the section).

(20) a. paü-pi ‘blood’



b. paü-wa-n ‘my blood’



Such analysis of inalienable possessive constructions as NPs is consistent with the data from Hungarian (Szabolcsi 1994) in which the possessor appears in Spec-NP of the possessed noun. The fact that the possessor is obligatory in the inalienable possessive constructions is accounted for by Vergnaud and Zubizarreta’s (1992) analysis. Under this analysis, the possessor and the possessed noun are in a predicate-argument relation marked as coindexation between the two nouns. Interestingly, there are clear parallels between this predicate analysis of inalienable possession and Baker’s (2003) analysis of predicative properties of verbs on the one hand and nouns and adjectives on the other (see chapter 5 for the complete review). Baker argues that verbs can form predicates due to the fact that verbs can project specifiers. In the case of the inalienable possession, a similar effect is in place: the presence of the specifier of nP enables the predicate-

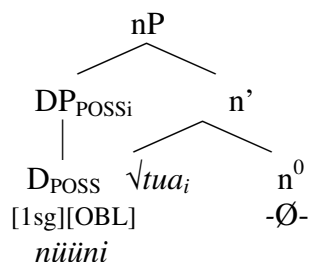
argument relation between the possessed noun and the possessor. Within the framework of DM a similar treatment has been proposed for a verbal functional head little *v* by Harley and Noyer (1998). They maintain that little $v_{DO/CAUS}$ has a specifier, which enables it to have an external argument, but little v_{BECOME} does not project a specifier and is the basis for forming unaccusative verbs. In their later work, Harley and Noyer (2000) develop a formalism for dealing with selectional properties of roots in terms of licensing: roots are listed with a set of licensing requirements, features that indicate what functional heads or other environments a particular VI co-occurs with (more on this in chapter 3). Overall, this approach can not only account for the deletion of NPN markers in possessive contexts, but also for the fact that possessors are obligatory in some possessive constructions. I assume the same is true for inalienably possessed ‘noun’ roots in Chemehuevi; their licensing requirements include the variety of n^0 head which projects a specifier. Alienable nouns do not have this licensing requirement and occur with the ‘unaccusative’ n^0 head.

Consider example (21) below: the possessor DP, DP_{POSS} *nüüini* ‘my’, originates within the nP in the predicate-argument relationship (represented by the co-indexation) between itself and the possessed noun *tua* ‘son’. Since the possessor is a pronoun in this case, I assume it is a D^0 head that besides person and number features has the oblique case feature. The NPN marker/ n^0 head that forms the nP is phonologically null in the case of the root \sqrt{tua} ‘son’. After Vocabulary Insertion, we have the linearized string *nüüini tua* ‘my son’.

(21) a. *nüüni tua*
 1sg.obl son
 ‘my son’

(Press 1979:59)

b.



Press (1979) indicates that there are other ways of saying (21): either by suffixing the pronominal to the possessed noun (22a), or by clitic doubling (i.e., using the clitic and the independent pronoun), as in (22b).

(22) a. *tua-n*
 son-1sg
 ‘my son’

b. *nüüni tua-n*
 1sg.obl son-1sg
 ‘my son’

(Press 1979:59)

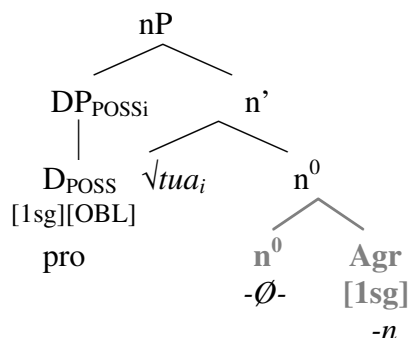
In these examples, the possessed noun bears the enclitic *-n* which agrees with the D_{POSS} in number and person. Recall from chapter 1 that the same pronominal forms are used as pronouns or determiners (see Tables #3 and #4 in chapter 1), and both pronouns and demonstrative determiners in Chemehuevi have an option of surfacing either as independent pronouns or enclitics. I propose that the independent forms are D heads, present in syntax as in example (21) above, while the phonologically dependent ones are agreement markers inserted post-syntactically as disjointed morphemes (Embick 2000,

Bobaljik 2008)¹². Embick (2000) formulates the principle of *Feature Disjointness* in the following way: “Features that are phonological, or purely morphological, or arbitrary properties of vocabulary items, are not present in the syntax; syntacticosemantic features are not inserted in morphology” (188). Agreement features on nouns and adjectives are a typical example of disjointed (also known as ‘dissociated’) morphological features; conjugation and declension class features that must be memorized with particular noun or verb classes are also examples of disjointed features.

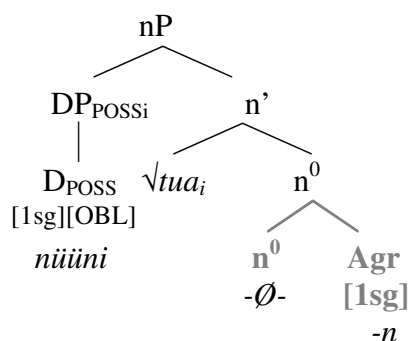
If we accept this dual analysis of pronominal forms, the derivation for the examples in (22) above will have the following representation. The affixal possessive marker will be inserted postsyntactically as a disjointed Agr node, and I assume the possessive D head is a pro in (22a). As for the clitic-doubling case, the features on D are interpreted and have a phonological realization, and the Agr node is again inserted in the morphological component of the grammar (shaded part of the derivations in (23)).

¹² One way to account for clitic doubling is to assume a pronominal argument analysis à la Baker (1995) in which the independent pronoun is an adjunct and the clitic is in the argument position. However, Chemehuevi is not a pronominal argument language: full DPs appear in argument positions.

(23) a. Enclitic form of pronominal agreement marker



b. Clitic doubling



This structural distinction between the D determiner (whether possessive or demonstrative) present in the syntax and the agreement morphology inserted after syntax helps to understand why in Chemehuevi you can literally say ‘the his mother’. Examples (24a) and (b) illustrate this point: in both cases there possessed noun is followed by a possessive agreement marker and the demonstrative determiner, cliticized in the morphology.

(24) a. pia-anga-anga
 mother-3sg.anim.vis-3sg.anim.vis
 ‘his mother, that one’

b. tsi’aka-’ami-unga
 opponent-2sg-3sg.anim.invis
 ‘your opponent, that one’

(JPH&CL, *The Crow is Made Black*, 15)

In the case of alienable possession, there is no overt possessive marker, but the NPN marker is also deleted and only agreement morphology follows the root:

(25) a. *nia-vi*¹³
 name-NPN
 ‘name, n.’ (OCD)

b. *Mangay-uk nia-anga Bill.*
 3sg/anim/vis-cop name-3sg/anim/vis Bill
 ‘His name is Bill’.

c. *Nümiy-ak nia-nümi avaatü.*
 1pl/excl-cop name-1pl/excl many
 ‘Our names are many’.

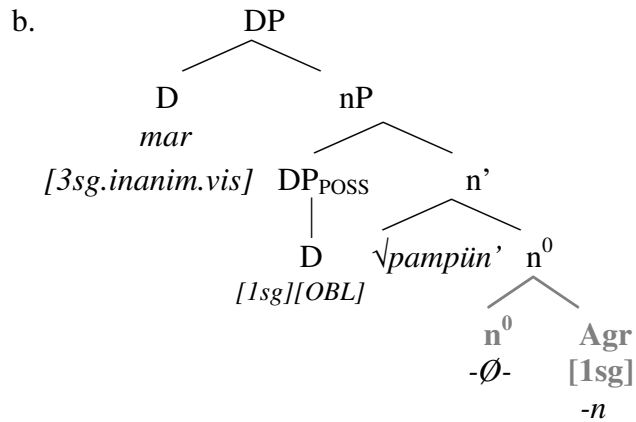
d. *Mamü-uk nia-amü avanayu.*
 3pl/anim/vis-cop name-3pl/anim/vis many
 ‘Their names are many’. (Guy Tyler)

Similarly to the inalienable possessive constructions, the alienable possessive NPs can occur with demonstrative determiners. In other words, their syntactic structures are identical to the inalienable possessive phrases. I assume that the only difference between the two is the absence of the predicate-argument relation between the possessor and the possessed nP and the corresponding absence of a licensing requirement on the root.

Consider the example (26) below: the demonstrative pronoun *mar* ‘that inanimate visible’ is a D determiner taking a possessive nP as a complement.

(26) a. *mar pampün’i-n*
 3sg.inanim.vis pot-1sg
 ‘that pot of mine’ (Press 1979:60)

¹³ The same root also occurs with verbal particles: *niya* ‘call’, *nia-ga* ‘have a name’(OCD)



In terms of Vocabulary Items, the little n^0 will have the following additional entries reflecting the distribution of suffixes in possessive contexts:

(27) Vocabulary Items for an NPN marker/little n^0 (continued)

- a. $-wa \langle \rangle n^0_{[+poss]} / [nP \text{ Possessor } [\sqrt{\text{Root}}_{\text{Class } 6_}]]$
- b. $-aa \langle \rangle n^0_{[+poss]} / [nP \text{ Possessor } [\sqrt{\text{Root}}_{\text{Class } 7_}]]$
- c. $-akaa \langle \rangle n^0_{[+poss]} / [nP \text{ Possessor } [\sqrt{\text{Root}}_{\text{Class } 8_}]]^{14}$
- d. $-\emptyset \langle \rangle n^0_{[+poss]} / \text{elsewhere}$

2.2.3 Roots vs. nouns: derivational vs. inflectional morphology

The Chemehuevi data shows that the NPN marker is not present when the noun root is incorporated into a verbal head, since only roots can incorporate, not derived stems. In the examples below the roots *siina-*, *kukwa-* and *huku-* appear as nouns when followed by

¹⁴ Classes 6,7 and 8 of roots are the ones that require inalienable possession.

an NPN marker (examples 28a, 29a, 30 a) but can also be incorporated into a light verb (28b) or lexical verbs (29b) and (30b):

(28) a. **süna'a-vi**
 coyote-NPN
 'coyote'

b. **süna'a-rükaw'i-tsi**
 coyote-turn-aspect
 'turning into a coyote'

(29) a. **kukwa-pi**
 stick-NPN
 'stick'

b. **kukwa-tapoka-ga**
 stick-chop-imperf
 'chopping wood'

(Press 1979:35-36)

(30) a. **huku-mpü**
 dust-NPN
 'dust'

b. **huku-nüa-ga**
 dust-wind blowing-imperf
 'dust wind blowing'

(OCD)

Also predictably, the NPN marker is retained when the noun appears as a part of a post-positional phrase:

(31) **pungku-tsi-wa'**
 dog-NPN-with
 'with a/the dog'

(Press 1979:35-36)

The NPN marker is also retained when the noun is pluralized (32 a and b) and when the case morphology appears on a noun (33):

(32) a. **süna'a-vi** 'coyote' => **süna'a-vi-mü** 'coyotes'
 coyote-NPN coyote-NPN-pl

b. sügupi-**tsi** ‘lizard’ => sügüpi-**tsi-wü** ‘lizards’
 lizard-NPN lizard-NPN-pl

(Press 1979:35-36)

(33) Pungku-**tsi-a-n** tanga-vü.
 dog-NPN-obl-1sg kick-past
 ‘I kicked the dog’.

(Press 1979:35-36)

To summarize, the presence of the NPN marker, one of the instantiations of ‘little’ n^0 , indicates that the root has been derived into a noun. Such word can then attract the corresponding inflectional morphology (case and number for the Chemehuevi nouns), as well as interact with postpositions. Derivational morphology, however, occurs only with roots (the NPN marker itself being derivational); that is why the NPN marker does not appear when the root is incorporated. The Chemehuevi data on noun formation presents special interest because the noun forming functional head little n^0 has several overt realizations: a variety of NPN markers and possessive markers.

2.3 Conclusion

To conclude this chapter, I’d like to refer back to Arad’s view of roots as *underspecified potentialities*. In Chemehuevi we find many words based on roots that are hard to define precisely. Only when these roots appear in the context of category-forming functional morphemes do they acquire precise meanings. For example, roots $\sqrt{nüa-}$ and $\sqrt{üwa-}$ never appear independently and can have meanings only in the context of verbal or nominal functional elements as in *nüa-ga* ‘wind blowing’, *nüa-rü* ‘wind’ or *üwa-ga* ‘raining’, *üwa-rü* ‘rain (n)’.

The same is true of words derived from the root $\sqrt{tüka}$, roughly translated as ‘eat’. In the context of the NPN marker *-pi* it forms a noun ‘food’, and this is the only word in (34) that has a non-compositional, arbitrary meaning, which is predicted because it is root-derived. Judging from the morphemes that follow *tüka-* in examples (33c) through (34e), they are derived from the verbal stem *tüka-* ‘to eat’: we find an applicative transitivizer *-ngkü* in (34c), a present participle ending *-ga* in (34d), and nominalizing suffix *-tüa*, roughly translated as ‘a place for doing x’ in (34e) (as well as in examples (38 a and b) below). Some of the further derived words can have quite complex meanings that are nevertheless predictable from the meaning pieces of morphemes they are built from.

- (34) a. $\sqrt{tüka}$ -
‘eat’
- b. *tüka-pi*
eat-NPN
‘food’
- c. *tüka-ngkü-a-vi*
eat-appl-obj-NPN
‘boarder, the one who eats it’
- d. *tüka-ga*
eat-pres.prt
‘eating’
- e. *tüka-tüa*
eat-place
‘table’

As we will see in chapter 3 on the Chemehuevi verbs, many verbal functional heads are also overtly realized and make Chemehuevi morphology even more transparent.

2.4 Notes for community use: How to form words in Chemehuevi

In this chapter, I showed that within every word in Chemehuevi we can identify the core or root that carries the main meaning and pronunciation of the word and all words related to it. Often the root is not pronounceable by itself and needs some ending to be added to it to become a noun or a verb. One direct application to learning Chemehuevi words is identifying what words with similar pronunciation and meaning have in common and grouping these words together. Take the words listed below, for example. They all have *huvi-* in common, the root whose meaning is connected to ‘singing’. *Huvi-* cannot be pronounced by itself and appears in many related words, as in the examples in (35) below.

(35) a. **huviavi**
‘song’

b. **huviagantü**
‘the owner of the song’

c. **huvitu**
‘to sing’

d. **huvitunumpi**
‘radio’

(OCD)

Similarly, the root *ampaga* appears in several words having to do with ‘speaking’.

- (36) a. **ampaga**
‘talk, speak’
- b. **ampagapü**
‘language’
- c. **ampagarü**
‘speaker’
- d. **ampagatu’ikamü**
‘council’, literally ‘the ones that make talk’
- e. **ampagangküavi**
‘spokesman’, literally ‘the one that says it for someone’

It might be helpful to learn all related words together in one list. Not only it will be easier to remember them, since their pronunciation and meanings are related, but it might also help the learner to identify different endings surrounding the root and find parallels in how endings build words. To illustrate, let us take the words for ‘sitting’ and ‘lying down’ with roots *karü* and *havi*. To form words describing the action of sitting or lying down, we add the ending *-ga* to the root:

- (37) a. **karü-ga**
‘sitting’
- b. **havi-ga**
‘lying down’

To name the object or place where one can sit or lie down, the ending *-tüa* is added:

- (38) a. **karü-tüa**
sit-place
‘chair’

- b. **havi-tüa**
 lie-place
 ‘bed’ (OCD)

If you want to mention someone or something doing the sitting or lying down, you need ending *-tü* with its variants *-rü*, *-ntü* or *-tcü*, depending on the word.

- (39) a. **karü-rü**
 ‘one who sits, sitter’
 b. **havi-tcü**
 ‘that which lies; said e.g., of an elongated mountain or mountain chain, a fallen tree, hail lying on the ground, etc.’ (OCD)

One can also build many words with so called instrumental ending that connects the core meaning of the action or activity to the object that is used in this activity, like ‘saddle’ and ‘radio’ in examples below, connected to the core meaning of ‘sitting’ and ‘singing’.

- (40) a. **karünumpü**
 ‘saddle’
 b. **huvitunumpü**
 ‘radio’ (OCD)

In this chapter, I also talked about the formation of nouns in Chemehuevi, words that name people, animals and objects. One feature that distinguishes Chemehuevi from English, for example, is that many Chemehuevi nouns have similar endings, and we can group nouns together according to which endings are added to the root. Below I include several groups of nouns that share the same endings. These lists can be expanded for the purposes of learning.

- (41) Nouns ending in *-tsi*
- aipa-**tsi** 'boy'
 - na'üntsi-**tsi** 'girl'
 - maapü-**tsi** 'old woman'
- (42) Nouns ending in *-tsü*
- a-**tsü** 'bow, gun'
 - hüpüki-**tsü** 'hole'
- (43) Nouns ending in *-pü*
- tüvi-**pü** 'dirt'
 - nünga-**pü** 'chest'
 - paga-**pü** 'shoe'
- (44) Nouns ending in *-vü*
- tühiya-**vü** 'deer hide'
 - na'nka-**vü** 'ear'
- (45) Nouns ending in *-mpü*
- huku-**mpü** 'dust'
 - huvitunu-**mpü** 'radio'
- (46) Nouns ending in *-pi*
- tüka-**pi** 'food'
 - atamu-**pi** 'car'
 - kukwa-**pi** 'wood'
- (47) Nouns ending in *-vi*
- süna-**vi** 'coyote'
 - tukwo-**vi** 'meat'
 - nopa-**vi** 'egg'
- (48) Nouns ending in *-mpi*
- tawa-**mpi** 'tooth'
 - ago-**mpi** 'tongue'
 - aso-**mpi** 'salt'
- (49) Nouns with no ending
- paa 'water'
 - kani 'house'
 - tua 'son'

Notice that same idea of the root applies to how we use nouns in Chemehuevi: for example, to say that something belongs to someone and it is a fairly close relation (like your relative, pet, or a body part), we substitute the regular noun ending for a possessive ending followed by an ending identifying whose relation this is. So in (50b), the root *paü-* is followed by an obligatory possessive marker *-wa* and further by an ending *-n* referring to ‘I’, the person whose blood it is.

(50) a. *paü-pi*
‘blood’

b. *paü-wa-n*
‘my blood’

(51) a. *sagwi-vü*
‘guts’

b. *sagwi-’aa-n*
‘my guts’

(52) a. *pi-so’o-tsi*
‘child’

b. *pi-pi-so’o-akaa-m*
‘their children’

(Press 1979:39-40)

(53) a. *tua*
‘son’

b. *tua-n*
‘my son’

In chapter 3, I discuss in detail how to form sentences describing possession and form verbs in general, and you can look there for more information.

CHAPTER THREE

LEXICAL CATEGORIES IN CHEMEHUEVI: VERBS

In this chapter, I discuss the formation of verbs in Chemehuevi with a focus on functional heads that derive verbs from roots. I claim that Chemehuevi verb-forming functional heads fall into two groups: those that attach directly to the root and those that attach to a derived verbal stem. I show that low and high attachment verbal heads differ with respect to phase boundaries, and claim that in Chemehuevi the first phase is deliniated by the Agent-projectingVoice head.

This chapter also provides plentiful evidence from Chemehuevi for the complex syntax of verbs. I identify several ‘flavors’ of verbal functional head ‘little’ *v* and show that many of the instantiations of this head are overtly represented in the language. I will also consider in detail possessive and existential locative verbs to provide further evidence that Chemehuevi verbs are derived from roots by a variety of functional heads.

3.1 Theoretical background: Verbal functional projections and complex syntax of verbs

It is well established in the literature that verbs have complex syntax (Hale and Keyser 1993, Travis 1994, Kratzer 1996, Chomsky 1995a, Harley 1995)¹⁵. The idea comes from

¹⁵ For an alternative view see the Lexicalist approach to verbal syntax and semantics (Jackendoff 1990, Grimshaw 1990, Levin and Rappaport 1994 among others)

the fact that different verbs have different subcategorization requirements or argument structures, and often the same verb (like *melt* or *crash* in English) can act as both transitive and unaccusative. Hale and Keyser (1991, 1993, 1997, 1998, etc.) have developed a theory of argument structure based on the observation that argument structures of verbs across natural languages are extremely limited in their structure and typologically restricted. These restrictions include the following: (i) theta roles are limited in number and assigned in a deterministic fashion; (ii) the relationship between theta roles and resulting syntactic structures is fixed across languages; (iii) there are distinct limits on branching (binary) and depth of projection (two levels maximum), which result from highly restricted relations between category types (head, intermediate and maximal projections) and arguments (complements, specifiers). Hale and Keyser derive these constraints on argument structure from the relatively simple combinatoric possibilities of the elements involved: (i) lexical categories N, V, P, A, and (ii) their syntactic projection. They argue that thematic relations are restricted because “only V and P take complements, and only P and A, projecting predicates, license specifiers (H&K 1993:30). The empirical support for these claims come from the study of denominal and de-adjectival verbs, particularly unergative verbs (*laugh, sneeze, dance*, etc.), location verbs (*shelve, corral, box*), and inchoatives (*clear, narrow, lengthen*). All these verbs involve incorporation and their formation is governed by syntactic principles. Unergative verbs involve incorporation of N into V (as in *dance*), location verbs are formed by a chain of incorporation of N into P into V₂ into V₁ (as in *to corral horses*), and

de-adjectival verbs are formed by head-movement of A to V₂ to V₁ (as in *to clear the table*). The corresponding derivations are presented below:

(1) Table #5. Derivations for different kinds of verbs (based Hale and Keyser 1993).

Unergative verbs <i>to dance</i>	Location verbs <i>to corral horses</i>	de-adjectival verbs <i>to clear the table</i>
<p>The diagram shows a syntax tree for the unergative verb 'to dance'. The root node is V*, which branches into V₁ and NP. NP branches into N, which is the word 'dance'. An arrow indicates the movement of the head from V* to V₁.</p>	<p>The diagram shows a syntax tree for the location verb 'to corral horses'. The root node is V*, which branches into V₁ and VP. VP branches into NP_a (the word 'horses') and V'. V' branches into V₂ and PP. PP branches into P and NP. NP branches into N_b, which is the word 'corral'. Arrows indicate the movement of the head from V₂ to V₁ and from V' to V₂.</p>	<p>The diagram shows a syntax tree for the de-adjectival verb 'to clear the table'. The root node is (V*), which branches into (V₁) and VP. VP branches into NP (the words 'the table') and V'. V' branches into V₂ and AP. AP branches into A, which is the word 'clear'. Arrows indicate the movement of the head from A to V₂ and from V' to V₁.</p>

Hale (2000) applies this theory of argument structure to Uto-Aztecán (Tohono ‘O’odham) verbs, and observes that whereas de-adjectival verbs (verbs derived from adjectives, like the ones in (2)) can participate in inchoative–causative alternations, denominal verbs (verbs of creation or production like the ones in (3) below) cannot form causative verbs, instead they form applicatives (even though both suffixes *-jid* and *-cud* are associated with causative meaning).

(2) Tohono O’odham

- a. s-wegī ‘red’
- b. wegī ‘redden, become red’
- c. wegī-jid ‘redden, make red’

(3) Tohono O’odham

- a. ki: ‘house’
- b. ki:-t ‘build/make a house’
- c. ki:-cud ‘make a house for x’, ‘*have x build a house’

Hale’s answer to these differences in argument structure is that de-adjectival verbs productively participate in inchoative-causative alternations because adjectives “force the appearance of a specifier” (163). A lexical category adjectives “must be attributed to, or predicated of something” and thus require an argument of which they are predicated (161). This argument, an NP in the Spec position in Hale’s analysis, in turn becomes the surface subject of the intransitive verb and the object of the causative verb. Noun-based verbs cannot participate in the same alternation because nouns do not project specifiers, hence excluding the presence of an internal subject, necessary for the causative alternation, from the configuration. In other words, denominal verbs in O’odham behave just like unergative verbs in English: we cannot **laugh the child* or **smile the baby* because verbs *laugh* and *smile* are formed by incorporation of a noun *laugh* and *smile* into a verbal functional head, and since nouns do not project specifiers there is no internal subject that can become a potential surface object of a causative construction.

(4) Table #6. Derivation of de-adjectival and de-nominal verbs (based on Hale 2000:164-166)

De-adjectival verbs: <i>make x red</i>	De-nominal verbs: <i>make house for x</i>
<p>The diagram shows a syntax tree for a de-adjectival verb. The root node is V, which branches into a specifier DP (-jid) and a head V. The head V branches into a specifier DP (object) and a head V. This second head V branches into a specifier V and a head A (wegi 'red'). An arrow points from the A node back to the first DP node (-jid).</p>	<p>The diagram shows a syntax tree for a de-nominal verb. The root node is V, which branches into a specifier DP (benefactor) and a head V. The head V branches into a specifier V (-cud) and a head N (ki: 'house'). An arrow points from the N node back to the first V node (-cud).</p>

Hale also discusses a group of O’odham verbs that are derived from roots (a theme that is further developed in the next section) and that behave like denominal verbs

in that they cannot be further causativized and when transitivized, yield applicative verbs. The argument structure of verbs is predictable from the specifier-head and/or head-complement structure of the categories they are derived from. As we will see in chapters 4 and 5, Baker (2003) also develops a theory of lexical categories based on the ability to project specifiers, but he reaches conclusions different from Hale and Keyser, particularly with respect to adjectives.

3.1.1 Flavors of ‘little’ v

The idea that verbs have a complex syntax is further developed within the framework of DM. First of all, we find a version of the split-VP view of verbal syntax, with the basic premise that the syntax of a verb does not depend on theta-grids, but rather on the functional/aspectual structure into which the verb is inserted. Under this view, within each verb there are two verbal heads, ‘little’ v and ‘big’ V, each capable of projecting syntactic structure and taking arguments. Whereas the ‘big’ V head is a locus of ‘lexical’ meaning of the verb (or an L-morpheme in terms of Harley and Noyer 2000), ‘little’ v is a purely functional head, encoding structural/grammatical potential of the verb. Secondly, it has been argued (Harley 1995, Harley and Noyer 2000, Folli and Harley 2002, 2003) that ‘little’ v can come in different ‘flavors’, v_{DO} , v_{CAUS} , v_{BECOME} , and v_{BE} . These functional verbs differ with respect to their ability to project a specifier and thus select an external argument. v_{DO} and v_{CAUS} always introduce an argument (Agent or Causer, respectively) and form eventive verbs. Folli and Harley (2002, 2003) argue that v_{DO}

requires an animate Agent subject, while v_{CAUS} only requires the subject to be a possible Cause, either animate or inanimate. They also show that the two heads have different selectional restrictions: the complement of v_{DO} can be a nominal Incremental Theme, whereas v_{CAUS} must take a saturated state as its complement, creating a resultative structure. This distinction explains the ungrammaticality of **The sea ate the beach*, in which the selectional requirements of v_{CAUS} are not met, and grammaticality of *The sea ate the beach away*, in which v_{CAUS} has a small clause [$_{SC}$ *the beach away*] as a complement. The agentive *John ate an apple*, will be possible and will have v_{DO} , as predicted.

As for the two other functional verbs, v_{BECOME} and v_{BE} have no specifiers and do not project external arguments. In addition, v_{BECOME} forms eventive verbs and v_{BE} , stative verbs. Harley and Noyer (2000) present a useful summary of corresponding ‘frames’ for each ‘little’ v head, the basis of which is (i) the availability of a specifier and thus an external argument and (ii) whether the head is eventive or stative. Table #7 summarizes the options:

(5) Table #7. Varieties of ‘little’ v (based on Harley and Noyer 2000)

	Specifier (agentive)	No specifier
eventive	v_{DO} , v_{CAUS} <i>destroy, grow</i> (trans) <i>jump, frighten</i>	v_{BECOME} <i>learn, grow</i> (intrans), <i>arrive</i>
stative		v_{BE} <i>be tall, know</i>

Harley and Noyer (2000) make an important point about the selectional properties of Vocabulary Items: roots are listed “with a set of licensing requirements”, features that indicate what functional heads or other environments a particular VI co-occurs with.

Under such a view, a transitive verb like *destroy* will have a feature [+CAUS] to ensure that it appears as the complement of ‘little’ v_{CAUS} , and since v_{CAUS} projects a specifier, *destroy* always has an external argument. This system also allows for some items to be underspecified for a particular syntactic element. For example, the VI *open* is specified as [$\pm v$] to indicate that it can be a verb or an adjective depending on the syntactic environment, and it is also specified as [$\pm CAUS$] since it can be both a transitive and intransitive verb. Stative verbs like *love* and *fear* are specified for [+BE] and eventive verbs like *eat* and *jump* for [-BE]; consequently if a verb is marked [-BE] and [-CAUS] it is licensed for ‘little’ v_{BECOME} as is the case of eventive verb *arrive*. Such feature system allows syntax to generate any verbal structure without positing unnecessary doubling of VIs (as transitive *open* and intransitive *open*, for example). It also lays a foundation for deriving lexical categories from roots and functional elements, a system that is very promising for languages like Chemehuevi.

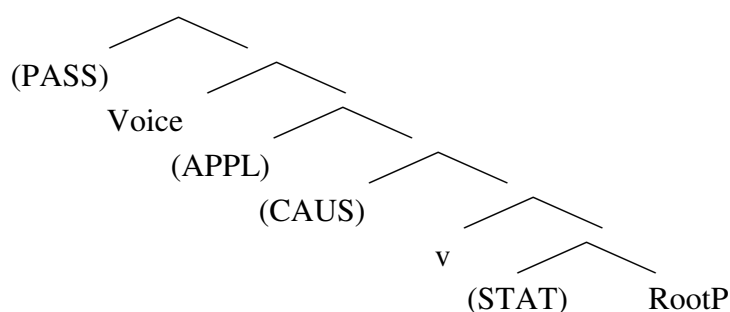
3.1.2 Low vs. high attachment of functional heads

Recall from our earlier discussion of roots that within DM word formation occurs in two places: within the domain of the root (delimited by the category-forming functional head c-commanding it) and outside of this domain. Functional heads that attach directly to the root, i.e., low in the structural tree, are considered low-attachment; those heads that attach above the category-forming heads are considered high-attachment. Several properties follow directly from these structural differences. As Harley (2006a) puts it, “Attachment

of a morpheme to a higher functional projection results in regular morphology and compositional meaning, while attachment of the same morpheme to a lower projection (often the root), results in some allomorphy and potential meaning drift” (37). This idea has been developed in the study of morphological causatives by Harley 1995, 2006a, Travis 2000, Pylkkanen 2002, Arad 2005, and Svenonius 2005, and we will turn our attention to these in chapters 6 and 7.

Marantz (2001) also applies this hypothesis to several verbal projections and demonstrates that their distance from the root can be determined on the basis of (i) availability of special meanings, (ii) presence of allomorphy, (iii) relative order of verbal heads. Based on observations from several languages and theoretical work of several linguists (including Kratzer (1996), Pylkkanen (2002) among others), he offers the following view of verbal functional heads in the Universal Grammar (the ones in parentheses are optional).

(6) Structure of the VP = vP (based on Marantz 2001:4)



Several distinctions need explanation. First, Marantz separates ‘little’ v from Voice: the former forms verbs from roots and may be involved with Case on the object,

while the latter projects an external argument (following Kratzer 1996)¹⁶. One of his arguments for this separation involves the applicative head APPL. He writes:

“Benefactive applicative constructions that relate a benefactive argument to a vP meaning occur lower than the external argument (thus the external argument, not the benefactive argument, becomes the syntactic subject). The external argument should therefore be introduced after the benefactive applicative argument in such constructions” (Marantz 2001:5).

This view differs from earlier discussed approach with flavors of ‘little’ v, where v_{CAUS} and v_{DO} derive verbs from roots *and* project an external argument. Secondly, Marantz follows Pytkkanen’s (2002) claim that CAUS introduces a causing event without projecting an argument, based on the fact that in some languages (Japanese and Finnish among the few) there are causative verbs without an external Causer (more on this in chapter 6).

Finally, Marantz compares passive verbs with stative/adjectival verbs, and argues that passive is an “outer construction” or high attachment head, i.e., it appears above ‘little’ v, whereas stative is a low attachment head. This property of the two functional heads is well exemplified by the data from Chichewa repeated below. Recall that only heads attached directly to the root can produce idiomatic/special meaning. In the data below the stative (7b, 8b), but not passive affix (7a, 8a), is involved in sentences with idiomatic meaning.

¹⁶ A similar approach is Koizumi’s (1995) split VP hypothesis.

(7) Chichewa

- a. Chimanga chi- ku- **gul -idwa** ku-msika.
 corn AGR-PROG-buy-PASS at-market
 ‘Corn is being bought at the market.’
- b. Chimanga chi- ku- **gul -ika** ku-msika.
 corn AGR-PROG-buy-STAT at-market
 ‘Corn is cheap at the market.’ < *idiomatic*

(8) Chichewa

- a. Chaka chatha chimanga chi- na- **lim -idwa**.
 year last corn AGR-PROG-cultivate-PASS
 ‘Last year corn was cultivated.’
- b. Chaka chatha chimanga chi- na- **lim -ika**.
 year last corn AGR-PROG-cultivate-STAT
 ‘Last year corn was bountiful.’ > *idiomatic*

(Marantz 2001:4)

Marantz examines other properties of STAT and PASS heads and argues that they differ in a principled manner, i.e., depending on the distance from the root.

(9) Table #8. Properties of passive and stative functional heads (based on Marantz 2001)

Characteristics	PASS - high	STAT – low
Can create idioms	No	Yes <i>The die is cast.</i>
May attach to applicative morpheme	Yes <i>The men were baked a cake.</i>	No %The men are baked a cake. (* on stative interpretation.)
May attach to causative morpheme	Yes <i>These flowers were grown by farmers.</i>	No % <i>These tomatoes are grown.</i> (* on ‘cultivated’ reading)
“Meaning” is independent of root	Yes The flowers are being grown/bathed/stunned.	No <i>These children are grown/bathed/stunned.</i> (meaning is connected to aspectual class of root)
Trigger stem allomorphy	No	Yes

Such a well-articulated structure of vP is not without merits, especially in a language where roots and functional heads can be seen overtly. In the following section, we will examine several verbal heads in Chemehuevi, and will see that some of them attach directly to roots, while others attach to verbal stems, i.e above the category forming ‘little’ v.

3.2 Chemehuevi verbs

In Chemehuevi, there is a variety of light verbs that can be suffixed either to roots or to verbal stems (items derived from incorporation of a root into a verbal functional head ‘little’ v). It is useful to distinguish them according to the type of complement they take: a root or a verbal stem, particularly because in some cases it influences the morphology of the resulting word. Press (1979) mentions two groups of functional verbs in Chemehuevi: the first group includes items that suffix to roots to form verbs (10), and the second group is made up of the ones that suffix to verbal stems and change their valence (11).

(10) Verb forming light verbs

- | | |
|-------------|--|
| a. –tu | ‘make, cause’ (with variants <i>–tsu</i> , <i>–ru</i> , <i>–ntu</i>) |
| b. –tu’a | ‘become’ (with variants <i>–tsu’a</i> , <i>–ru’a</i> , <i>–ntu’a</i>) |
| c. –tükaw’i | ‘turn into’ (with variants <i>–tsükaw’i</i> , <i>–rükaw’i</i> , <i>–ntükaw’i</i>) |
| d. –gai | ‘be’, ‘have’ |
| e. –wai | ‘get’ |

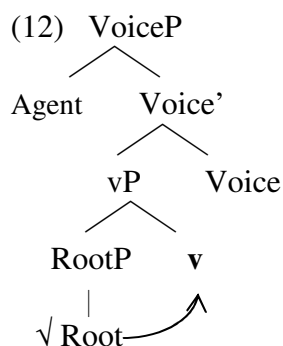
(11) Valence changing light verbs

- | | |
|----------|------------------------------|
| b. –ngkü | ‘transitivizer, benefactive’ |
|----------|------------------------------|

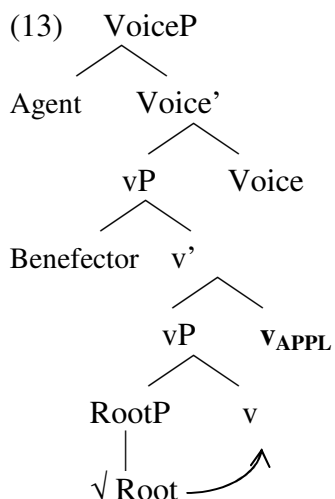
- | | | |
|----------|-------------|--------------------|
| c. -tu'i | ‘causative’ | |
| d. -tü | ‘passive’ | (Press 1979:70-72) |

In the sections that follow, we will consider each group in some detail. It is also useful to shift towards a different terminology consistent with the theoretical discussion in the previous section: since verb forming light verbs attach directly to the root I will categorize them as ‘low attachment’, and the functional verbs that in traditional terminology are referred to as valence changing, will be ‘high attachment’, since they attach to the stem -- not to the root-- and appear higher in the morpho-syntactic derivation.

I would also like to propose a synergetic view of verbal syntax that combines flavors of ‘little’ v (a lá Harley 1995) with the split Voice hypothesis (Pylkkanen 2002). Here are several arguments in favor of such a view. There are two indications that in Chemehuevi Voice is split from vP, i.e., the external argument is introduced above the category-forming ‘little’ v. First of all, Chemehuevi has causative verbs without a Causer (more on this in section 3.2.2), a feature that implies that the head introducing the causative event and the one projecting an external argument are separate entities, as is illustrated in the diagram below.



Secondly, the Benefactive argument appears below the Agent, an indication that the Agent-projecting head is above the Applicative head (more on this in section 3.2.2):



However, I argue that flavors of verb-forming ‘little’ *v* need to be maintained because for one thing they have overt realizations in the language. Here is the essence of the proposal: roots incorporate into a ‘little’ *v* of a certain kind, be it v_{BE} , v_{BECOME} , v_{CAUS} or v_{DO} . Functional heads v_{BE} and v_{BECOME} cannot combine with a Voice projection, hence there is no external argument, and the only participant in those sentences is an internal argument and is interpreted as Theme/Patient. v_{CAUS} and v_{DO} both require a Voice projection (except for the causatives without a Causer), but differ in the animacy of the external argument: v_{DO} must have an animate Agent, whereas v_{CAUS} is compatible with any subject that is a possible Causer, either animate or inanimate (Folli and Harley 2002, 2003).

(14) Table #9. Flavors of ‘little’ v and Voice projection in Chemehuevi

a. v _{CAUS}	b. v _{DO}	c. v _{BECOME}	d. v _{BE}
<pre> VoiceP / \ Agent Voice' / \ vP Voice / \ RootP v_{CAUS} √Root </pre>	<pre> VoiceP / \ Agent Voice' / \ vP Voice / \ RootP v_{DO} √Root </pre>	<pre> vP / \ RootP v_{BECOME} / \ Patient √Root </pre>	<pre> vP / \ RootP v_{BE} / \ Patient √Root </pre>

As for the Voice projection, it is a locus of the passive vs. active alternation: when it has a [+passive] feature, no argument is projected and passive morphology is inserted, but when the feature is [-passive], the external argument is projected. This analysis accounts for the traditional alternation of the ‘active vs. passive voice’ as well as for the observation that passive morphology suppresses the external argument.

Another point that deserves discussion in connection to verbal syntax is the definition of a phase. Recall that Marantz (2000) and Arad (2003, 2005) define phase as the root and the first functional head merged with it (i.e., the ‘little’ n, a, or v). For them, all derivation taking place above this domain should result in regular morpho-phonology and semantics, hence the impossibility of subject idioms, for example. Since in Chemehuevi the Agent/external argument is introduced by Voice, a functional head separate from ‘little’ v, I propose (following McGinnis 2000, 2001 and Pylkkanen 2002) that it is Voice that defines the first phase in Chemehuevi. As a consequence, all word formation below Voice (including aP, nP and crucially vP formation) is subject to

semantic and morpho-phonological idiosyncrasies; all derivations above Voice are regular and compositional.

There is one point of similarity between analyses identifying ‘little’ *v* as the marker of the first phase in English (as in the works of Marantz), and Voice as the marker of a phase in Chemehuevi. Both project the external argument, but in English ‘little’ *v* is bundled with Voice (in terms of Pylkkanen 2002), consequently introducing both the event and the Agent, while in Chemehuevi ‘little’ *v* is separate from Voice, thus making an extra point of distinction between verb formation and introduction of an argument. If we accept that languages of the world exhibit one of these options (Voice bundling vs. no Voice bundling), the size of the first phase becomes predictable from the Voice bundling parameter of the language.

We will see support for this proposal in the sections below, in the behavior of verbal and adjectival nominalizations in chapter 4, as well as in the study of the Chemehuevi causatives in chapters 6 and 7. With these points in mind let us turn to the examination of verbal functional heads in Chemehuevi.

3.2.1 Chemehuevi low attachment functional verbs

The Chemehuevi verb-forming light verbs, low attachment CAUS¹⁷, BECOME, TURN INTO, GET and BE/HAVE suffix to items that in the English translation look like

¹⁷ There are two varieties of CAUS in Chemehuevi: a low attachment and a high attachment discussed in more detail in chapter 7.

nominals. However, because in most cases the NPN markers are not present we can conclude that these light verbs attach to roots and form root-derived verbs. Because the first three of the light verbs mentioned in (92) begin with /t/, they are subject to morpho-phonological allomorphy: /t/ alternates with a palatalized [ts], nasalized [nt], and spirantized [r] depending on the presence of a palatalizing front vowel or the corresponding feature of the root ([+nasal] or [+sprnt]). I take the presence of root-conditioned allomorphy as evidence that the light verbs in Table #10 below attach directly to the root.

(15) Table #10. Chemehuevi verb-forming light verbs, Part One (data from Press 1979, JPH&CL, and JHJ)

Light verb	Root-derived verb	Corresponding nominal
CAUS	a. huvi- tu song-cause ‘sing’ c. muvi- tsu beak-cause ‘make a beak’ e. atsü- ru bow-cause ‘make a bow’ g. kwasu- ntu dress-cause ‘make a dress’	b. huvi-a-vi song-clitic-NPN ‘song’ d. muvi-tsi beak-NPN ‘beak’ f. atsü ‘bow’ h. kwasu ‘dress’
BECOME	i. wa’aro-vi- tsu’a ¹⁸ horse-NPN-become ‘become a horse’	j. wa’aro-vi horse-NPN ‘horse’

¹⁸ This is one of the few examples when a fully formed noun is incorporated. Press (1979) suggests that it happens because NPN markers are subject to relexicalization (37), and in some cases are part of the stem.

	k. pa'aa- ru'a worm-become 'become wormy' m. küma- ntu'a different-become 'become different'	l. pa'aa-vi pa'aa-NPN 'worm' n. küma-ntsi different-NPN 'different one'
TURN INTO	o. tusu- tükaw'i-tsi flour-turn-PresPrt 'turning x into flour' q. muhu- ntükaw'i-tsi owl-turn-PresPrt 'turning x into an owl' s. angaa- rükaw'i-tsi ant-turn-PresPrt 'turning x into an ant'	p. tusu-pü flour-NPN 'flour' r. muhu-mpi-tsi owl-NPN-NPN 'owl' t. angaa-vi ant-NPN 'ant'
GET	u. nagami- wai sick-get-pres 'get sick' w. ha'üpü-ya- wai good-be-get 'get happy'	v. nagami-tcü sick-nomin 'sick one' x. ha'ü- 'good, <i>root.</i> '

The next two light verbs, BE and HAVE, have the same phonological realization *-gai* (or *-ga* due to vowel deletion before several suffixes including nominalizer *-tü* and its allomorphs)¹⁹, however, the HAVE verbs require the nasalized variant of the nominalizer *-ntü*, and the BE verbs the spirantized *-rü*. We will consider the factors conditioning this allomorphy later in the chapter.

¹⁹ The underlying form of these suffixes is *-kai*, but in most cases [k] is spirantized and surfaces as [ʎ], spelled *g*, due to the wide spread consonant alternation present in Chemehuevi. The form *-kai* (or *-ka* before present participle suffixes) is attested in *ontokariü* 'brown', for example.

(16) Table #11. Chemehuevi low attachment functional verbs, Part Two (data from Press 1979, JPH&CL, and JHJ)

BE	<p>a. üvüü-nüwü-a-gai-yu bad-person-clitic-be-while 'being a mischievous person'</p> <p>c. pa'aa-gai-yu worm-be-while 'being wormy'</p> <p>e. tosa-ga-rü white-be-nomin 'white'</p>	<p>b. nüwü 'person'</p> <p>d. pa'aa-vi pa'aa-NPN 'worm'</p> <p>f. <i>tosa</i>- 'white, root'</p>
HAVE	<p>g. puha-gai-yu spiritual power-have-while 'having spiritual power, being a doctor'</p> <p>i. kani-ga-ntü house-have-nomin 'having a house'</p> <p>k. pavi-ga-ntü older brother-have-nomin 'having an older brother'</p> <p>m. patci-ga-ntü older sister-have-nomin 'having an older sister'</p> <p>o. onto-ka-rü pu'i-ga-ntü brown-be-nomin eye-have-nomin 'having brown eyes'</p>	<p>h. puha-ga-ntü spiritual power-have-nomin 'doctor, having spiritual power'</p> <p>j. kani 'house'</p> <p>l. pavi 'older brother'</p> <p>n. patci 'older sister'</p> <p>p. pu'i-vi eye-NPN 'eye'</p>

Based on the data in Tables #10 and #11 it is evident that in Chemehuevi the functional verb-forming head, 'little' *v*, has the following flavors that have a distinct overt realization²⁰: *v*_{CAUS}, *v*_{TURN}, *v*_{BECOME}, *v*_{GET}, *v*_{BE}. This functional head takes RootPs as complements and forms verbs through the incorporation of the root into the functional

²⁰ I assume that there is also 'little' *v*_{DO} that forms agentive verbs and is a phonologically null head.

verbal head. The first two varieties of ‘little’ *v* are the heads that can be further selected by Voice, and this is how they acquire Agents as arguments. The last three forms of ‘little’ *v* form intransitive verbs, with no Agent and no Voice projection.

All of these low attaching heads are subject to root-conditioned allomorphy:

v_{CAUS} has variants $-tu \sim -ru \sim ntu \sim tsu$; v_{TURN} alternates between $-tükawi \sim -rükawi \sim -ntükawi$; v_{BECOME} has variants $-tua \sim -rua \sim tsua \sim ntua$. This is a strong argument that the Chemehuevi *vP* below Voice is a phase, since the features on the root can be accessible to functional heads only within the same phase.

(17) Table #12. Chemehuevi low attachment functional heads - derivation

a. v_{CAUS}	b. v_{TURN}	c. $v_{\text{BECOME}}, v_{\text{GET}}$	d. v_{BE}
kwasu-ntu dress- v_{CAUS} ‘make a dress’	tusu-tükaw’i flour-turn ‘turn x into flour’	pa’aa-ru’a worm-become ‘become wormy’	pa’aa-gai worm-be ‘be wormy’

In each case the root is incorporated into the verbal functional head and it affects the phonological realization of this head by the value of its features. The root \sqrt{kwasu} has an inherent [+nasal] feature and the little v_{CAUS} is spelled out as $-ntu$; the root $\sqrt{pa'aa}$ has a [+spirantized] feature and little v_{BECOME} is spelled out as $-ru'a$.

Throughout the literature on Chemehuevi, the light verb *-gai* (alternating with *-kai*) is translated as both ‘be’ and ‘have’ and often it is hard to tease apart the two meanings, particularly when the words are taken out of context. Consider the next three sets of examples: *-gai/-kai* appears in both cases and in the first case it means ‘have’, but in the second – ‘be’.

- (18) a. puha-**gai**-yu
 spiritual power-have-while
 ‘having spiritual power, being a doctor’
 (JPH&CL, *Measuring Worm Being a Doctor*, 1)
- b. kani-**gai**
 house-have
 ‘have a house, dwell’ (Press 1979:63)
- (19) a. manai-**kai**-yu
 dodger-be-while
 ‘being a dodger’
 (JPH&CL, *Coyote’s Going to Get Antsi Seed as Gift*, 9)
- b. ha’ütü-na’intcitci-**gai**
 good-girl-NPN-be
 ‘being a good girl’ (Press 1979:63)
- (20) a. paa-**gai**-vaa
 water-be-fut
 ‘there will be water’ (JPH&CL, *The Two Date Worm Girls*, 14)
- b. kani-**gai**-mü-umü
 house-have-anim/pl-3pl/anim/invis
 ‘the house-owners’ (JPH&CL, *The Horned Owl*, 24)

The difference between the two verbs surfaces when *-gai* is followed by the nominalizer *-tii*: BE verbs require the spirantized version of this nominalizer *-rü*, but HAVE verbs take the nasalized version *-ntü*. The first group is represented by color and other adjectival verbs in (21); the second by predicative possessive constructions in (22).

(21) BE

a. tosa-**ga-rü**
white-be-nomin
'white'

b. 'oasia-**ka-rü**-mü
yellow-be-nomin-anim
'yellow, animate'

(JPH&CL, *The Crow is Made Black*, 5)

c. angka-**ga-rü**-mü
red-be-nomin-anim
'red, animate'

(JPH&CL, *The Crow is Made Black*, 6)

d. tupa-**ga-rü**-mü
black-be-nomin-anim
'black, animate'

(JPH&CL, *The Crow is Made Black*, 7)

e. 'aü-**ga-rü**
new-be-nomin
'new'

(JPH&CL, *The Horned Owl*, 4)

f. 'aa-**ga-rü**
quiet-be-nomin
'quiet'

(JPH&CL, *The Horned Owl*, 2)

(22) HAVE (all inalienable)

a. Nüü-k tcaka'i'-**ga-ntü**.
1sg-cop younger brother-have-nomin
'I have a younger brother'.

b. Nüü-k pungku-**ga-ntü**.
1sg-cop dog-have-nomin
'I have a dog'.

c. Hu-mang mi'aupitci kani-**ga-ntü**²¹.
that/invis-3sg small house-have-nomin
'He has a small house'.

d. Hu-mang mutchu-ntü angavi-**ga-ntü**.
That/invis-3sg/anim strong-nomin arm-have-nomin

²¹ Inalienable nouns in Chemehuevi include kinship terms, body parts, as well as pets and dwellings.

‘He has strong arms’.

- e. Mamü-k waha pisotci-**ga-ntü**.
 3pl/anim/vis-cop two child-have-nomin
 ‘They have two children’. (JHJ)

Where do these features come from? It is unlikely that the same morpheme *-gai* could be [+nasal] in one context and [+spirnt] in the other. Either there are two different ‘little’ *vs* that are accidentally homophonous and have different features, or some other element introduces the nasalization. It could be the root, but as the data in (23)-(25) below illustrates this is not the case. In example (23a), the root spreads the spirantization feature to the following root (*tua > rua*); nevertheless, the corresponding possessive construction in (23b) exhibits nasalization (*tü > ntü*).

- (23) a. pungku-**rua**-tsi (pungku ‘dog’ + tua ‘son’), [+spirnt]
 dog-son-NPN
 ‘puppy’
- b. pungku-**ga-ntü**
 dog-have-nomin
 ‘having a dog’

Similarly, in (24a) the root has [+spirnt] feature that affects the morpheme following the root (*tua > rua*), but the corresponding possessive construction in (24b) has a nasal feature, attested in other possessive phrases (*tü > ntü*).

- (24) a. pa’aa-**rua**
 worm-become
 ‘become wormy’
- b. pa’aa-**ga-ntü**
 worm-have-nomin
 ‘having worms (in his body)’ (OCD)

Finally, in example (25a) the root has no features that may affect the following morpheme and the causative affix remains unaffected; however the possessive in (25b) contains the nasalized *-ntü* as expected.

- (25) a. **huvi-tu**
 song-caus
 ‘sing’
- b. **huvi-a-ga-ntü**
 song-poss-have-nomin
 ‘owner of the song’ (OCD)

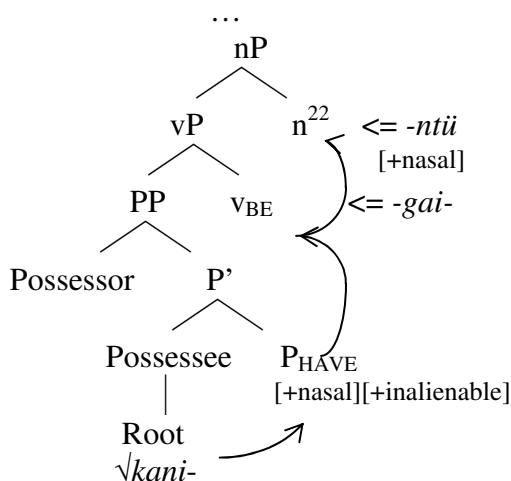
In fact, nasalization invariably surfaces in all possessive predicative constructions, regardless of the features of the root. In other words, in these possessive constructions there is an element that does not have an overt realization but has a nasalization feature that percolates up the derivation and affects any higher morphemes that are subject to morpho-phonological allomorphy. I suggest that this element is a postpositional functional head P_{HAVE} that takes a Possessee as a complement and has a Possessor in its specifier. Harley (1995) has argued for such a decompositional analysis of English verbs ‘give’ and ‘have’ and showed that depending on which verbal functional head P_{HAVE} merges with, in English we get either the verb ‘give’ ($V_{CAUS}+P_{HAVE}$) or the verb ‘have’ ($V_{BE}+P_{HAVE}$). In the Chemehuevi examples, not only the functional heads incorporate, but so does the root of the possessed element: $\sqrt{Possessee} + P_{HAVE} + V_{BE}$. In the example below, the root *kani-* ‘house’ successively incorporates into a P_{HAVE} and then ‘little’ v_{BE} (spelled-out as *-gai* at Vocabulary Insertion) and is further nominalized by the nominalizer, realized as *-ntü* due to the [+nasal] feature on the P_{HAVE} .

(26) Partial derivation of a possessive nominal predicate

- a. Nüü-k kani-ga-ntü.
 1sg-cop house-have-nomin
 ‘I have a house’.

(JHJ)

b.



A question might arise of whether features can spread from one head to the other even when they are not adjacent, since usually feature percolation is local and features spread from the immediately preceding morphemes. However, in some cases the feature can spread further on, as the nasalization feature in the example (27) below: root \sqrt{hoko} is marked [+nasal] and the feature spreads not only to the immediately following morphemes *-tü* in (27a) and *-gai*²³ in (27b), but also to *-tu'i* in (27b). As long as all head involved are positioned below the Agent-projecting Voice head, the features of the root or the possessive element can spread up.

- (27) a. hoko-**ntü**
 big-nomin
 ‘big’

²² Chemehuevi possessive predicates are nominalized relative clauses and projected by the ‘little’ n head; more on that in chapter 4.

²³ This is a case of historical process: nasalization no longer affects *-gai* in Press’s (1979) data or in the speech of my consultant.

- b. hoko-**ngai-ntu**'i-ngu
 big-be-caus-mom
 'made her big'

(JPH&CL, *Bluebirds Went To War With Wolf*, 4)

Furthermore, in Chemehuevi there is a group of possessive constructions that can be characterized as existential locatives and they contain an element that might be an overt realization of P_{HAVE} (see Freeze (1992) for the original proposal). In the *Online Chemehuevi Dictionary* these occur with the morpheme *-agantü* 'place where there is, place with'. Consider the following group of examples: in all of them the root is followed by suffix *-a* that can be roughly translated as a possessive marker.

- (28) kukwa-**a-ga-ntü**
 wood-poss-be-nomin
 'place that has wood'
- (29) napay-**a-ga-ntü**
 slope-poss-be-nomin
 'slopy, having slopes' (OCD)
- (30) namü-kani-**a-ga-ntü**-na
 first-house-poss-be-nomin-nomin
 'the place with the first house' (JPH&CL, *The Horned Owl*: 15)
- (31) awüwüga-**a-ga-ntü**
 clay bank.pl-poss-be-nomin
 'place that has clay banks'
- (32) nantapü-**a-ga-ntü**
 mescal plant-poss-be-nomin
 'place where there is mescal, Turtle Mountains (place name)'
- (33) mono-mpaa-**a-ga-ntü**
 bunch grass-water-poss-have-nom
 'place having bunchgrass and water, Vontrigger Springs (place name)' (OCD)

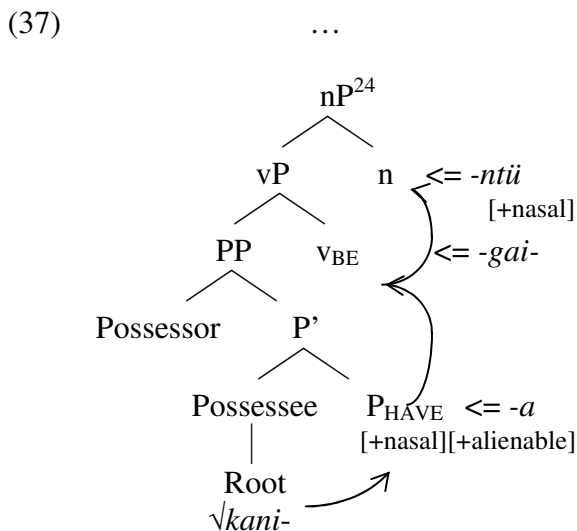
A similar element is attested in Ute and Southern Paiute. Sapir characterizes this morpheme *-a* in Southern Paiute as ‘nominal possessive suffix’ (1930:151) that indicates alienable possession, and lists several participial examples similar to the Chemehuevi ones in (28)-(33) above. Ute has a ‘locative possessive’ construction (*Ute Reference Grammar*, 1980:276) with the same structure. A representative example from each language is presented in (34)-(36) below:

(34) Southern Paiute
 qani-**a-γantī**
 house-possessed-having
 ‘camp’ (Sapir 1930: 152)

(35) Ute
 kani-**aağa-tü**
 house-have-nomin
 ‘place with houses’ (*Ute Reference Grammar*, 1980: 276)

(36) Chemehuevi
 kani-**a-ga-ntü-pa**
 house-poss-be-nomin-at
 ‘at where there are houses’ (JPH&CL, *The Horned Owl*: 25)

Even though in each language the morpheme-by-morpheme analysis of these words are different, they all contain the same underlying structure: possessive *-a* + *-ga* ‘be, have’ + participle *-tü* (spelling differs depending on the language orthography).



As to the question why P_{HAVE} has an overt realization with the existential locatives, but not with the regular possessive constructions, the answer might lie in the fact the former are instances of alienable possession, whereas the latter are inalienable, hence the features on the P_{HAVE} in the diagrams (26b) and (37) above.

(38) VIs for P_{HAVE}

a. $-a \langle \rangle P_{HAVE[+nasal]} / [+alienable]$

b. $-\emptyset \langle \rangle P_{HAVE[+nasal]} / \text{elsewhere}$

Support for the incorporated postposition analysis of *have* in Chemehuevi comes from the fact that postpositional phrases in Chemehuevi can function as verbs of motion (Press 1979), i.e., there is evidence that postpositions can be incorporated into a verbal head. In the examples below a postposition is followed by a functional element $-tua$, alternating with $-ntua$ and $-rua$, possibly corresponding to the light verb ‘become’. These

²⁴ We will consider the full derivation of possessive nominal predicates in chapter 5.

verbs are derived through successive incorporation of a root into a P_{LOC} and a verbal functional head that licenses the verbal morphology (imperative marker *-ngu*).

(39) Tükatüa-**ruka-tua**-ngu.
 table-under-become-imper
 ‘Go under the table’. (Press 1979:83)

(40) Maha-vü-a ma-**va’a-ntua**-ngu.
 tree-NPN-obl that-on-become-imper
 ‘Get on top of that tree’. (Press 1979:82)

In this section, I have demonstrated that Chemehuevi verbs have complex syntax: they are formed by the incorporation of roots into verbal functional heads, several of which are pronounced in Chemehuevi. The heads discussed in this section are subject to root-conditioned allomorphy because they attach directly to the roots. In the next section, we turn to high attachment verbal heads.

3.2.2 Chemehuevi high attachment functional verbs

In the next group are bound light verbs that affix to verbal stems (as opposed to roots) and modify the verb’s argument structure. These are the high attachment causative v_{CAUS} , the applicative v_{APPL} , and the passive v_{PASS} . All three are associated with a change in the number of arguments of the base verb. If paired with a Voice projection, the causative head v_{CAUS} is associated with the presence of an additional external argument Causer (examples (41)-(44)):

CAUS *-tu'i*

- (41) Nüü-k John-i puusi tukuavi maga-**tu'i**-vü.
 1sg-cop John-obl cat-obl meat-obj give-caus-past
 'I made John give the cat meat'. (Press 1979:67)
- (42) Maru-k tüka-pi manga-y piso-tsi-a nagamü-**tu'i**-ka-tü.
 3sg.inanim.vis food-NPN.nom 3sg.anim.vis-obl child-NPN-obl sick-caus-perf-nomin
 'The food made the child sick'. (JHJ)
- (43) Manga-k pavi-ing manga-y nanga-ya-**tu'i**-ka-tü.
 3sg.anim.vis-cop brother-3sg.anim.here 3sg.anim.vis-obl angry-be-caus-perf-nomin
 'His brother made him angry'. (JHJ)
- (44) Ann Johni na-ha'üsu-**tu'i**-ngu-**tu'i**-vü.
 Ann John.obl refl-good-caus-mom-caus-past
 'Ann made John like her/himself'. (Press 1979: 49)

In some cases v_{CAUS} only introduces a causing event without an external Causer, in which case the Voice projection is empty, as in the examples (45)-(46) below.

- (45) Iva asi-huvi-**tu**-wa.
 here salt song-caus-pres
 'Salt song is going on'. (JHJ)
- (46) Sünawa-vi kani-gai-mi-yü yunakaimü-wa'i-vü,
 coyote-NPN.nom house-have-usit-past company-with-3sg/poss
 'Coyote was dwelling with his company
 tüvi-pü-a tügü-**tu'i**-kwa'i-k^ya.
 earth-NPN-obl hungry-caus-away-perf
 when it was hungry times on earth'.
 (JPH&CL, *Gila Monster Gets Killed*: 1)

Chapters 6 and 7 will be devoted to the study of the Chemehuevi causative verbs, so here we will only consider them very briefly. For the purposes of this discussion, the following observations will suffice: (i) there is intervening verbal morphology between the root and causative head (example (43)), (ii) it is possible to have re-iterating

causatives (example (44)), and (iii) this high causative head does not have allomorphs. All of these indicate that v_{CAUS} attaches to verbal stems, not roots (see chapter 7 for a detailed discussion).

The applicative and passive verbs, however, deserve some more discussion here. The applicative head v_{APPL} projects an additional argument, the Benefactor. Notice that the applicative morpheme can be added to both transitive and unergative verbs (like *smile* in (47)), the fact that suggests that the Chemehuevi applicative head is a High applicative in the terms of Pylkkanen (2002), i.e., it attaches above the vP, adds another participant, the Benefactor, to the event introduced by the verb, and denotes “a relation between an event and an individual” (19).

APPLICATIVE, or Transitivity -*ngkü*

- (47) Manga puusi-a kiyasui-**ngkü**-ka.
 3sg.anim.vis.nom cat-obl smile-appl-perf
 ‘He is smiling at the cat’. (Press 1979:66)
- (48) Nüü-k manga-ya mavatciki-**ngkü**-vü.
 1sg-cop 3sg.anim.vis-obl clap-appl-past
 ‘I slapped him.’ (Lit. ‘I clapped at him’) (Press 1979:66)
- (49) Piwa-ya-vü mai-**ngkü**-yü pü-rua-’ungwa ‘urua-vaa-na.
 wife-obl-poss say-appl-past road-to-3sg.anim.invis walk/sg-fut-nomin
 ‘He told his wife which way she should go’. (JPH&CL, *The Horned Owl*: 3)
- (50) Tünia-**ngkü**-yü-’ungwa kuma-ya-vü ya’ai-kai-na.
 tell-appl-pres-3sg/anim/invis husband-obl-poss dead-perf-nomin
 ‘She told her about her husband’s death’. (JPH&CL, *The Horned Owl*: 4)
- (51) Mamau’u-ya-ung^wa-ya namü-maravoaa-**ngkü**.
 woman-obl-3sg/anim/invis-obl first-cure-appl
 ‘The woman, he cured first’.

(JPH&CL, *The Horned Owl*: 13)

Another indication that the applicative head is high is that it attaches above the low causative head, spelled out as *-ru'i* in example (52) below:

- (52) huvi-ya-**ru'i-ngkü**-mi^ya-'ung^wa
 song-obl-caus-appl-usit-3sg.anim.invis
 'she would make a song for him' (JPH&CL, *Gila Monster Gets Killed*: 7)

As for the functional head forming passive, it forms an intransitive verb from a transitive verbal stem and its presence makes it impossible to mention an overt Agent. It is realized as Voice functional head that has [+pass] features, Voice_{PASS}. None of the sentences below have an Agent, even though the verbs are transitive (*hit, bewitch, tie*). It can attach either directly to the verb (53)-(54), or be separated from it by some intervening verbal morphology (55)-(56). Notice that aspect markers can surface either before or after the passive head and in some cases both (55).

PASSIVE, or Intransitivizer *-tü*

- (53) Haita'-umü tü'ani-ka-ga'i-uk^wa-ya,
 then-3pl/anim/invis gamble-perf-while-3sg/inanim/invis-obl
 'While they were gambling,

Ponog^wai-ya'-ung^wa k^waha-**tü**.
 Blue Beetle-obl-3sg/anim/invis hit-pass
 the Blue Beetle was beaten'.

(JPH&CL, *The Crow is Painted Black*: 16)

- (54) Haita'-ung^wa Ponog^wai-ya-ung^wa k^waha-**tü**-kai-yu...
 then-3sg/anim/invis Blue Beetle-obl-3sg/anim/invis hit-PASS-perf-while
 'Then he, the Blue Beetle, having been beaten...'

(JPH&CL, *The Crow is Painted Black*: 17)

- (55) ...puh^wa-voa-ka-**tü**-kai-na-nga-aika maru'^wa-va'-aika,"
 spiritual power-towards-perf-pass-perf-nomin-3sg/anim/vis resemble-at
 '...that he has been bewitched, it might be.'

(JPH&CL, *The Crow is Painted Black*: 3)

- (56) "Kotsiak^ai to-tümaa-ngkü-yaaka,"
 (cry of a bird) RED-close-appl-bird cry
 "Close it up,"

mai-ngu 'ünga'api-tci kukwa-pima witsa-ka-**tü**.
 say-mom baby-NPN.nom wood-to tie-perf-pass
 said a baby that was tied to a pole'.

(JPH&CL, *The Horned Owl*: 18)

The passive head is also attested following the high causative head, another indication that Voice_{PASS} subcategorizes for verbal stems, not roots.

- (57) Atapü-tsi-a tupa-ga-**tu**'^wi-**tü**-pü.
 crow-NPN-obl black-be-caus-pass-pst
 'Crow's being made black'.

(JPH&CL, *The Crow is Painted Black*: 1)

- (58) Nanagaru'apü-tsi-a tuka-**tu**'i-**tü**-na-'umü-vü katsu-'umü
 anything-NPN-obl eat-caus-pass-nomin-3pl/anim/invis-poss neg-3pl/anim/invis
 'Anything that they were given to eat, they

tuka-ka-wa'i-k^wa Sünawa-vi-a yuma-'kai-mü,
 eat-anim.pl-neg-3sg.here.inanim coyote-NPN-obl partner-be/have-pl/anim
 did not eat, the Coyote's company.'

(JPH&CL, *The Crow is Painted Black*: 16)

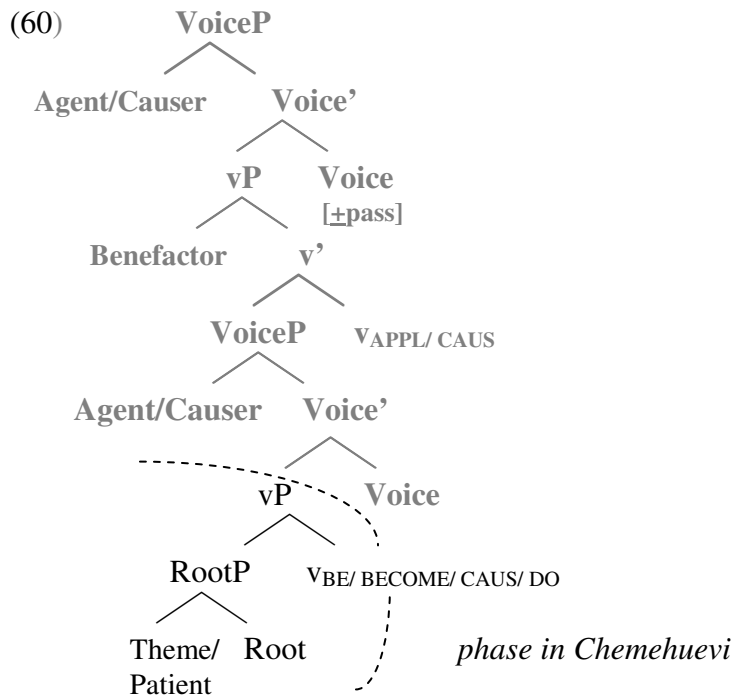
Also notice that the passive morpheme *-tü* does not undergo any of the morpho-phonological processes that can affect morphemes with the initial /t/, like the nominalizer *-tü* with allomorphs *-ntü*, *-rü* and *-tcü* that surface depending on the presence of [+nasal], [+spirnt] features of the preceding morpheme or a front vowel. The explanation follows from my definition of a phase: as a spellout of Voice, passive *-tü* lies outside of the domain of idiosyncratic phonology.

Based on these data and observations, I suggest the following structures for the Chemehuevi high attachment functional verbs.

(59) Table #13. Chemehuevi high attachment functional verbs

a. v_{CAUS}	b. v_{APPL}	c. $VoicE_{PASS}$
nanga-ya- tu'i angry-be-caus 'y make x angry'	kiyasui- ngkü smile-appl 'y smile for x'	witsa-ka- tü tie-perf-pass 'x was tied'

The relative order of verbal functional morphemes in Chemehuevi is presented in the diagram below (the shaded projections are optional, i.e., in case of non-agentive verbs v_{BE} /BECOME no Voice is projected, and high v_{APPL} or v_{CAUS} are also options in the language that are not always activated). However, for a verb to be formed the lower vP has to be present, with the root incorporated into a 'little' v, and the lower Voice projection is also a possibility, as Chemehuevi has causativized agentive verbs (like the one in 41). The phase boundary is marked just above the first vP.



In terms of Vocabulary Insertion, the high attachment verbal heads will have the following representation:

(61) VIs for the high attachment verbal heads:

a. -tu'i $\langle \rangle$ v_{CAUS} (to be revised in chapter 7)

b. -ngkü $\langle \rangle$ v_{APPL}

c. -tü $\langle \rangle$ Voice / [+pass]

d. \emptyset $\langle \rangle$ Voice / elsewhere

3.3 Conclusion

In this chapter we have focused on functional heads that derive verbs in Chemehuevi. We have examined two types of heads, those that attach directly to roots and those that select for some functional material above the root. Such an approach, known as the Low vs. High Attachment Hypothesis, successfully accounts for systematic differences between root-derived and non-root derived words. We have also seen plentiful support for a complex syntax of verbs: not only there are different flavors of verbal functional head ‘little’ *v* in Chemehuevi resulting in agentive, eventive and stative verbs, but there are also several layers in the composition of possessive and locative verbs. We have also provided further evidence that in Chemehuevi the phase contains *vP* and only material above Voice lies outside the first phase.

Overall, Chemehuevi provides a fruitful ground for research on verbal morphology because many of the functional heads are pronounced and there are transparent morpho-phonological processes that help distinguish between root-derived and stem-derived verbs. In the next chapter we will take a close look at another lexical category – Chemehuevi adjectives -- with a focus on the functional heads that derive them.

3.4 Notes for community use: How to build verbs in Chemehuevi

Recall from our discussion in chapter 2 that in Chemehuevi many related words share the same core meaning and pronunciation, defined as the word's root. We saw that nouns are formed when the root appears with a certain ending, like *-tsi* in *pungku-tsi* 'dog' or *-vi* in *siina'a-vi* 'coyote'. There are certain endings in Chemehuevi that can turn the root into a verb, a word that describes an action or activity. In (62), I list these special endings that can be added to the core.

(62) Endings that form verbs in Chemehuevi

- a. *-tu* 'make, cause' (with variants *-tsu*, *-ru*, *-ntu*)
- b. *-tu'a* 'become' (with variants *-tsu'a*, *ru'a*, *ntu'a*)
- c. *-tükaw'i* 'turn into' (with variants *-tsükaw'i*, *-rükaw'i*, *-ntükaw'i*)
- d. *-gai* 'be', 'have' (with variant *-kai*)
- e. *-wai* 'get'

To illustrate this process, I group several words that share the same root in (63) through (68): the core concept, listed in bold, is followed by a variety of endings, some of which turn it into a noun, others making a verb.

- (63) a. **pa'aa**-vi
 'worm'
- b. **pa'aa**-rua
 'become wormy'
- c. **pa'aa**-ga-ntü
 'the one having worms' (OCD)
- d. **pa'aa**-gai-yu
 'being wormy'

- (64) a. **huvi-a-vi**
‘song’
- b. **huvi-tu**
‘make a song, sing’
- c. **huvi-a-ga-ntü**
‘the one having a song, owner of the song’ (OCD)
- (65) a. **hoko-ntü**
‘big’
- b. **hoko-ngai-ntu’i-ngu**
‘made someone/something big’ (JPH&CL, *Bluebirds Went To War With Wolf*, 4)
- (66) a. Itch-uk **kani**.
‘This is a house’.
- b. Nüü-k **kani-ga-ntü**.
‘I have a house’. (JHJ)
- c. **kani-gai-mü-umü**
‘the house owners’ (JPH&CL, *The Horned Owl*, 24)
- d. **kani-tsu**
‘make/build a house’
- (67) a. **muhu-mpi-tsi**
‘owl’
- b. **muhu-ntükaw’i-tsi**
‘turning someone into an owl’
- (68) a. **angaa-vi**
‘ant’
- b. **angaa-rükaw’i-tsi**
‘turning someone into an ant’

Sometimes it is useful to learn whole structures together from a list of words that have similar endings, since the same rules of formation apply to all of them. Once you

learn the structure, it will be easier to insert any new compatible word into it. Take expressions of possession, like the ones in (69) below: in all of these the root in bold is followed by the ending *-gantü* which literally means ‘the one that has’.

(69) a. Nüük **tcaka’i’**-gantü.
‘I have a younger brother’.

b. Nüük **pungku**-gantü.
‘I have a dog’.

c. Nüük mi’aupitci **kani**-gantü.
‘I have a small house’.

d. Nüük mutchu-ntü **angavi**-gantü.
‘I have strong arms’.

e. Nüük waha **pisotci**-gantü.
‘I have two children’.

(based on JHJ)

In this chapter, I also discuss endings that can be added to existing verbs to add something to their meaning, like *-ngkü*, a part of the word that indicates the something is being done for someone.

(70) kiyasui-ngkü
‘smiling at someone’

(71) mai-ngkü
‘say to someone’

(72) tünia-ngkü
‘tell to someone’

(73) maravoaa-ngkü
‘cure someone’

In chapters 6 and 7, we will discuss two endings that add the causative meaning to the root of the word or to the existing verb, like *sing* or *dance*.

CHAPTER FOUR

LEXICAL CATEGORIES: CHEMEHUEVI ADJECTIVES

4.1 Theoretical background: A non-uniform class of adjectives

In the previous chapters, we considered several functional heads that form lexical categories in Chemehuevi. Our focus was on the distinction between the words formed from roots and those based on previously derived stems. We have seen a variety of functional heads that form nominals (NPN markers, possessive markers – allomorphs of ‘little’ n) and several instantiations of a verbal head ‘little’ v that attach either to the root or above it, to a derived stem. In this chapter, I will provide further support for the Root Hypothesis and show that roots with adjectival meanings can be derived either into stative verbs and form predicates, or they can be derived into adjectival nominalizations and act as attributes modifying nouns. In fact, I will claim that there are no ‘true’ adjectives in Chemehuevi.

The lack of independent lexical category of adjectives in a language is not surprising. In fact, cross-linguistically the category of adjectives is problematic, largely due to the fact that unlike nouns and verbs, adjectives do not easily fit into a prototype. Payne (1997) summarizes the issue in the following way, “...There is no semantically definable class of concepts that universally falls into a category that we would want to call adjectives; rather, they stand “between” nouns and verbs, lexicalizing properties or

characteristics that are indeterminate or variable in terms of time stability. Some languages have no formally distinct category of adjectives” (63). He continues to point out that in some languages (Acehnese and other Austronesian languages), property concepts are lexicalized as verbs; in others (Finnish) they are lexicalized as nouns. In Dutch, depending on the discourse, property concepts can be either nouns or verbs; in Yoruba, some adjectival concepts appear as nouns and others as verbs (Payne 1997: 65). Even in English, where adjectives form a distinct class, we find examples when adjectives function as nouns (***The rich just don't understand*** or ***Mammals care for their young***).

As for the formal representation of lexical categories, within generative syntax there is a tradition of representing each lexical category with bundles of binary features. Chomsky's (1970) original proposal defines nouns as [+N, -V], verbs as [-N, +V], adjectives as [+N, +V], and adpositions as [-N, -V]. Baker (2003) points out that within linguistic typology there are many mismatches between the existing lexical categories and the features that should represent them, particularly when it comes to adjectives, largely due to the fact that many languages lack a uniform class of adjectives. From this cross-linguistic perspective, it is useful to consider Baker's (2003) theory of lexical categories and its applications to non-western languages, like Mohawk and Chemehuevi.

Following Hale and Keyser (1993, 1998), who were one of the first to offer a structural approach to lexical categories, Baker (2003) argues that each lexical category has a unique set of characteristics (some structural, some semantic) that sets it apart from others. Under his view, verbs are the only category that can license an argument, project a

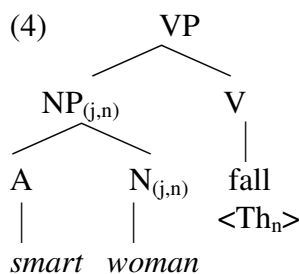
specifier and form a predicate independently; nouns and adjectives need a separate functional projection *Pred* to form predicates (more on this in chapter 5). Nouns, in Baker's framework, are unique in that they have a referential index, because they have "criteria of identity that allows them to bind anaphors, traces and theta-roles of verbs (Baker 2003:21). As for adjectives, Baker reaches conclusions opposite to Chomsky's (1970) featural representation: he argues that adjectives are neither verbs nor nouns, [-N, -V], because they neither project specifiers, nor bear referential indices. He calls them a default category, claiming that because adjectives lack the theta-role assigning properties of verbs and referential indices of nouns, they can occur in contexts where neither verbs nor nouns can occur due to their specifications²⁵. In this Baker also argues against Hale and Keyser's view of adjectives, since they claim that predicative adjectives project specifiers and license 'internal subjects' or Themes (Hale and Keyser 1993:30).

To illustrate his point, Baker turns to attributive modification, one of the classic adjectival functions. He points out that adjectives, but not nouns or verbs, can modify nouns directly, without intermediary functional structure. Below are examples repeated from Baker (2003:192):

- (1) a rich man; a shiny coin
- (2) *a wealth man; *a genius man (OK: a man of wealth; a boy-genius)
- (3) *a shine coin; *a hunger man (OK: a coin that shines; a shiny coin; a hungry man)

²⁵ Baker groups both adjectives and adverbs into the same class. As for adpositions, in his framework they are treated as a functional, not lexical category.

Baker then argues that adjectives have an option that is unique to them – they, as heads, can be merged directly with the head noun, with no functional structure mediating the relationship. He suggests the following structure for attributive modification, mentioning that it violates the familiar X-bar theory and goes more along the lines of the Bare Phrase Structure framework of Chomsky (1995b).



(Baker 2003:195)

Baker supports this structure for adjectival modification with the observation that if the structure really is the X-bar compliant $[_{DP} D [_{NP} AP [_{NP} N]]]$, it is unclear why attributive adjectives cannot take a complement (**the proud of Mary parent*), or why they cannot be preceded by a degree element (**the too/so proud parent*) (Baker 2003:196). He also mentions that Abney's (1987) analysis of attributive modification as an AP -- $[_{DP} D [_{AP} AP [_{NP} N]]]$ – is problematic in that A+NP constituent has a distribution of an NP: it can be a complement of a determiner, not a degree head (*the proud parent*, **too proud parent*), and it can be selected by NP-selecting verbs but not AP-selecting verbs like *seem* (*I respect proud parents*; **John and Mary seem proud parents*).

For the purposes of our discussion of Chemehuevi adjectives, it is important to distinguish between attributive adjectives, which we discussed above, and predicative

adjectives. While the former modify nouns (example (5a)), the latter form predicates (example (5b)):

(5) a. a *hungry* dog

b. The dog is *hungry*.

In English, the two types of adjectives are virtually identical (with the exception of a few adjectives that can be only predicative like *asleep* and *ready* (Baker 2003:194)). In other languages, like Mohawk and Chemehuevi, attributive and predicative adjectives have completely different structures. In Mohawk, for example, adjectives in their predicative use inflect like verbs, carry the same tense/aspect/agreement morphology, and form predicates like verbs – without intermediary *Pred* projection. As we will see later in the chapter, Chemehuevi predicative adjectives behave in the same way. Below are examples of ‘adjectival’²⁶ stative verbs from both languages, both appearing with a finite tense marker.

(6) Mohawk

Ra-kowan-Λ´-hne’ ne Sak.
MsS-big-stat-past NE Sak
‘Sak used to be big’.

(Baker 2003:249)

(7) Chemehuevi

Müga’i-n **pa’a-yü.**
very-1sg tall-pres
‘I am very tall’.

(Press 1979:99)

In Chemehuevi, the verbal character of predicative adjectives goes even further: even though some adjectives (like color terms) have an overt stative head, most

²⁶ The term ‘adjectival’ in this context refers only to the corresponding English meaning.

‘adjectival’ verbs have a null stative head, so on the surface they look exactly like their ‘non-adjectival’ counterparts. Compare (8) and (9) below:

(8) Müga’i-n pa’a-yü.
 very-1sg tall-pres
 ‘I am very tall’. (Press 1979:99)

(9) Nüü-(k) nukwi-yü.
 1sg-cop run-pres
 ‘I am running’. (JHJ)

The situation gets more complex structurally, when Mohawk and Chemehuevi adjectives modify nouns, i.e., are used attributively. As Baker puts it about Mohawk, “There seems to be no special attributive modification of nouns distinct from the possibility of forming a relative clause that is open to all verbs” (250). He illustrates the point with the two examples from Mohawk repeated below, where the modificational structure of *white* is identical to that of the verb *buy*, both forming a type of relative clause (marked with square brackets) and inflected for the same aspect and similar agreement:

- (10) Mohawk
- a. Tyer [ka-rák- \wedge atyá’tawi] wa-ha-hnínu-‘
 Tyer NsS-white-stat shirt fact-MsS-buy-punc
 ‘Tyer bought a white shirt’.
- b. Sak wa-hó-[a]ti-‘ ne [wak- hnínu- \emptyset áthere’].
 Sak fact-MsS-lose-punc NE 1sg.obj-buy-stat basket.
 ‘Sak lost the basket I bought’. (Baker 2003:250)

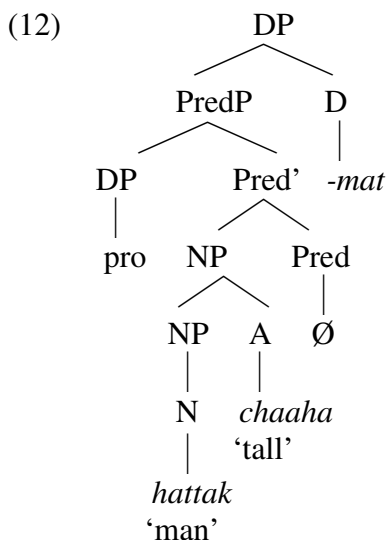
Choctaw is another example of a language in which adjectives must form a reduced relative clause in order to modify a noun (Broadwell 1990, Baker 2003).

(11) Choctaw

[Hattak chaaha-mat] chahta kiiyoh.
 man tall-dem/nom Choctaw not
 ‘That tall man is not Choctaw’.

(Broadwell 1990, as cited in Baker 2003:252)

Baker argues that in (11) the bracketed material is a bare noun merged with a bare adjective and then the whole attributive construction is embedded and incorporated into a phonologically null *Pred*, forming a minimal small clause structure. Baker’s diagram for the relative clause in (12) is repeated below:



(Baker 2003:253)

We find a similar, albeit not identical, situation in Chemehuevi: attributive adjectives are relative clauses (example (13)), formed similarly to relative clauses based on other verbs (example 14)²⁷.

(13) [Pa'a-ntü-m] aipa-tci nukwi-yü.
 tall-nomin-anim boy-NPN.nom run-pres

‘The tall boy is running’= ‘The boy that is tall is running’.

(Press 1979:57)

²⁷ Adjectives are marked with agreement morphology depending on their animacy; verbs, however, do not have animacy agreement but must co-occur with a demonstrative determiner.

- (14) [Nukwi-**tcü** ang] aipa-tci pa'a-yü.
 run-nomin this.anim.vis boy-NPN.nom tall-pres
 'The running boy is tall' = 'The boy that is running is tall'. (Press 1979:58)

Here I would like to point out a mismatch in terminology: Press (1979), following Sapir (1930), calls *-tü* and its allomorphs *-ntü*, *--tcü*, and *-rü* 'active present participles' (109). This terminology is misleading since participles are usually associated with verbal morphology only, but as we will see in Chemehuevi the forms ending in *-tü* exhibit nominal behaviors. Press herself mentions that in some contexts these so called participles are lexicalized as nouns and points to words like *teacher*, *doctor* and *policeman* in Chemehuevi (110):

- (15) nü-mpo'o-tu'i-ka-tü
 person-write-caus-perf-nomin
 'teacher, the one who makes people write' (Press 1979:171)
- (16) nü-nkwü-tui-ka-tü
 person-catch-cause-perf-nomin
 'the one who catches people' = 'policeman' (Press 1979:168)
- (17) pu'ha-ga-ntü
 power-have-nomin
 'the one who has power' = 'doctor' (Press 1979:162)

In the related language Ute a similar morpheme is viewed as a nominalizer, having a "nominal habitual" meaning, similar in meaning to the English *-er* in *worker*.

- (18) wuuka-**ru**
 work-habit-nomin
 'he/she habitually works, worker' (Ute Reference Grammar 1980:88)

Furthermore, in subject relative clauses in Ute, the verb is said to "take the nominal suffix *-tu*" (Ute Reference Grammar 1980: 185), which is clearly the same

suffix that forms the so called participles in the relative clauses in Chemehuevi. Compare the Ute example of a relative clause in (19) with the Chemehuevi example in (20):

(19) Ute

‘ aapa-ci ‘u wuḡka-vaa-**tu**
 boy-subj he work-fut-nomin
 ‘The boy who will work...’

(*Ute Reference Grammar* 1980: 187)

(20) Chemehuevi

Nüü-k uni-vaa-**ntü**.
 1sg-cop do-fut-nomin

‘I’m the one who will do it’ = “I’m going to do it”

(Press 1979:81)

To avoid confusion, I will refer to the forms in question as ‘adjectival nominalizations’ and ‘verbal nominalizations’/‘verbal nouns’. I will examine the structure of the Chemehuevi nominalizations and relative clauses in sections 4.3.3 and 4.3.5 below and show that the adjectival and verbal stems they are based on are indeed nominalized/relativized.

Another complicating factor is that on the surface it seems that Chemehuevi adjectival nominalizations not only modify nouns, but can also form predicates. Compare the stative verb and the adjectival nominalization in examples (21) and (22). There is no difference in meaning in the two sentences – just two different ways of saying the same thing. The predicative function of the adjectival form in (22) is misleading, however: as we will see later in the chapter *pa’antüm* ‘tall’ is a relative clause that modifies a phonologically null head noun. Technically, it is this complex nP that forms the main predicate in (22), and *pa’antüm* is an attributive adjective, literally meaning ‘He is a tall one’.

- (21) Mang **pa'a-yü.**
 3sg.anim.vis tall-pres
 'He is tall'. (Press 1979:58)
- (22) Manga-k **[pa'a-ntü-m].**
 3sg.anim.vis-cop tall-nomin-anim
 'He is tall'. (JHJ)

In order to explain this ability of adjectives to appear in different syntactic contexts, we will again turn to the Root Hypothesis. Clearly, the root *pa'a* does not belong to any lexical category. When inserted into a verbal context, it produces a stative verb; when inserted into an attributive structure, it acquires adjectival characteristics (such as agreement, for example) and is further nominalized as a part of a reduced relative clause. In section 4.3.4, we will turn to theory of relative clauses, particularly of the headless variety, in order to understand the internal structure of attributive modification in Chemehuevi. But before we do that, let us consider Chemehuevi adjectives in their guise as stative verbs.

4.2 Chemehuevi predicative adjectives as stative verbs

Sapir (1930) in his seminal work on Southern Paiute states, “Most adjectives are really verbs (predicative), or participles of verbs (attributive)” (95). The same is true for the Chemehuevi adjectives. In predicative use they often function as verbs: they take tense markers (which are unattested with adjectival participles), their agreement patterns differ from those of adjectival participles, and they do not require the copula to form predicates. Consider the examples below: the adjectival stems *pa'a*- ‘tall’, *nagami*- ‘sick’, *nangaya*

‘angry’, ‘üü- ‘pretty’ all take the present tense marker *-yü*, and neither of them require copula *-uk* to form the predicate (in (26) *-k* is optional).

(23) Müga’i-n pa’a-**yü**.
 very-1sg tall-pres
 ‘I am very tall’. (Press 1979:99)

(24) Müga’i-a’anga nagami-**yü**.
 very-3sg.anim.vis sick-pres
 ‘He is very sick’. (JPH&CL, *The Crow is Made Black*, 2)

(25) Manga naapu-wü nangaya-**yü**.
 3sg.anim.vis old man-NPN.nom angry-pres
 ‘The old man is angry’. (JHJ)

(26) Ümi-(k) ‘üü-**yü**.
 2sg-cop pretty-pres
 ‘You are pretty’. (RM)

One indication that ‘adjectival’ verbs are stative is the fact that the present tense marker *-yü* which is common on adjectives can only appear on [-momentaneous] stems (Press 1979:71), which suggests that adjectival verbs are durative or have a [-mom] feature. Momentaneous verbs are usually inceptive or are accomplished instantaneously; [-mom] verbs are durative (*run vs. dash off, feel vs. touch, be afraid vs. get a scare*).

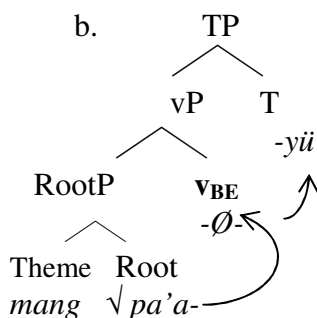
Press also reports that ‘adjectival’ stative verbs can take simple past markers *-vü* in the meaning of ‘was Adj’ and *-mpü* in the meaning of ‘got Adj’ (71), which stems from the fact that *-vü* attaches to durative or [-mom] verbs, but *-mpü* attaches to [+mom] verbs. Adjectival verbs are also attested with the future tense marker *-vaa*.

(27) Miauntsi-**vü**-ang.
 small-past-3sg.anim.vis
 ‘He was small’. (MP)

To summarize, the Chemehuevi predicative adjectives behave like stative verbs: they are durative non-momentaneous verbs; they denote a continuous state that does not have an instantaneous end point. Recall from our discussion of different flavors of ‘little’ *v* in chapter 3 that stative verbs meaning something like *be tall* in English are formed by the incorporation of the root into the functional head v_{BE} , the one that forms unaccusative non-eventive /stative verbs. Based on these assumptions, the derivation of an adjectival stative verb in Chemehuevi will be as follows:

- (28) a. Mang pa’a-yü.
 3sg.anim.vis tall-pres
 ‘He is tall’.

(Press 1979:58)



There are also adjectives that demonstrate an overt realization of stative ‘little’ v_{BE} : they consist of a root followed by obligatory suffix *-gai/-kai* ‘be’. The most prominent of these are color adjectives (29)²⁸, but there are words of other semantic classes there as well (30).

- (29) a. tupa-ga(i) ‘black’
 b. tosa-ga(i) ‘white’
 c. owasia-ka(i) ‘yellow’
 d. anka-ga(i) ‘red’
 e. sawa-ga(i) ‘green/blue’

²⁸ Laird (1976) mentions that the color names are verbal derivatives: “...*tosa-* white; but independently *tosagari*, white, deriving from *tosagah*, is white, being white, having the quality of whiteness” (286).

- f. kutca-ka(i) ‘gray’
g. parowa-ga(i) ‘purple’

(Press 1979, Lexicon)

- (30) a. tutca-gai ‘dirty’
b. küwa-gai ‘sharp’,
c. yum’i-gai ‘weak’

(OCD)

Predictably these roots can also appear without *-gai/-kai-*, but these cases are limited to incorporation, as is illustrated in the examples below:

- (31) **tupa**-ma’a-ngump-anga-uk^waya
black-paint-instr-3sg.anim.vis-2sg
‘You will paint him black’.

(JPH&CL, *The Crow is Made Black*, 4)

- (32) **tupa**-tatsitsi’i-gai
black-shine-have/be
‘glittering black’

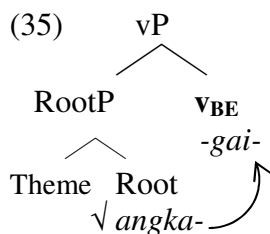
(JPH&CL, *The Crow is Made Black*, 7)

- (33) **anka**-nampa
‘red foot’

- (34) **anka**-pah
‘red water’

(OCD)

Based on our previous discussion of stative verb formation, color adjectives are derived in the following way:



Once an ‘adjectival’ stative verb is formed it can appear with all legitimate finite and non-finite verbal morphology, as is demonstrated in the examples below: the color

verb appears with a simple present tense marker *-yü* and forms a predicate in (36), or with a present participle marker *-rü* in (37) as an attributive modifier.

(36) Pavi-a-n naro'o-ong **angka-ga-yü**.
 brother-obl-1sg shirt-his red-be-pres
 'My brother's shirt is red'. (Press 1979:60)

(37) Nü **angka-ga-rü** wihi puni-vü.
 1sg red-be-nomin.obl knife.obl see-past
 'I looked at the red knife'. (Press 1979:57)

Whereas the formation of predicative adjectives is fairly easy to grasp, attributive adjectives have a more complex structure. Let us turn our attention to these.

4.3 Chemehuevi attributive adjectives

4.3.1 Attributive adjectives as nominalizations

As I mentioned before, the majority of adjectives in Chemehuevi, when elicited in bare form, appear with the nominalizer *-tü* with allomorphs nasalized *-ntü*, palatalized *-tcü/-tsü* and spirantized *-rü*. Below are examples of bare adjectives from word lists elicited by Tylor and Major who worked with several Chemehuevi speakers in late 1960s – early 1970s.

(38) Table #14. Chemehuevi adjectives in bare form

Data collected by Tylor (1972)		Data collected by Major (1969)	
straight	mukuta-tü	big	hoko-ntü
crooked	kwampani-tcü	dirty	tutsaga-rü
smooth	suunaava-ntü	clean	kac tutsaga-rü
rough	tsinkaga-rü	dull	kac küwa'wa
lazy	mawaga-ntü	sharp	küwa-ga-ntü
not lazy	kaats mawa-tü	heavy	pü'ütüya-ntü
clean	kaats tutsaga-tü	light	kac pütüya-wa-tü

dirty	tutsaga-tü	narrow	tsiau-tcü
long	pa'a-ntü	wide	awaa-ntü
short	tovipi-tzü	long	pa'antogantü length-having
thick	tumunda-tü	crooked	makatcüüpütcü
thin	takünapi-tcü	strong	mutcu-ntü-m (anim)
heavy	pütüya-ntü	weak	katc mutcu-wa'a-tü-m (anim.)
light	katcu pütüya-wa-tü	pregnant	no'o-ga-ntü
tall	pa'a-ntü	different	kümatcua-tü-m (anim)
low	tavüypi-tcü	different	kümatcua-tü
deep	tukwa-ntü		
shallow	tukowa-tü		
old	hüa-tcü		
new	aya-rü		
rich	tümpika-tü		

There are a number of what Sapir refers to as 'true' adjectives, i.e., adjectives that are not derived with *-tü*. However, this term is misleading because these words also have nominal endings, the familiar NPN markers *-tsi*, *-ntsi*, *-pü*, *-pi* as in (39), or they end in *-ni*, an adverbial suffix with the meaning of 'like' that is added to verbal stems as in (40) below.

(39) Adjectives ending with an NPN marker

- | | | |
|---------------|-----------------|-------|
| a. miaupi-tsi | 'small' | (GT) |
| b. mi'au-ntsi | 'small' | |
| c. mi'au-pi | 'small, little' | (OCD) |
| d. ha'ü-pü | 'good' | |
| e. ha'ü-tsi | 'good' | |
| f. ütü-pü | 'old' | (OCD) |

(40) Adjectives ending in *-ni* 'like'

- | | | |
|--------------|--------|-------|
| a. üvü-ni | 'bad' | |
| b. üvü-pü-ni | 'bad' | |
| c. üvü-yü-ni | 'bad' | |
| d. tüwü-ni | 'fast' | (OCD) |

All adjectives in Chemehuevi can modify a noun, i.e., be attributive. Below are examples from the recordings of Tyler and Major:

(41) Data collected by Tyler (1972)

a. aya-rü ayamovitsi	‘new automobile’
b. hoko-ntü kani	‘big house’
c. miaupi-tcü kani	‘little house’
d. tosaga-rü kani	‘white house’
e. angkaga-rü kani	‘red house’
f. pa’a-ntüa totsivagantü	‘having long hair’
g. tovipi-tsü totsivigantü	‘having short hair’

(42) Data collected by Major (1969)

a. ha’ü-pü tawatsi	‘good man’
b. ha’ü-tsi mamau	‘good woman’
c. ha’ü-tsi pungutsi	‘good dog’
d. mi’aupü-tsi aipatsi	‘small boy’
e. mi’aupü-tsi na’üntsitsi	‘small girl’
f. aü-rü tukvovi	‘fresh meat’

As for the word order of attributive modification, Press (1979) reports that as modifiers adjectives appear either before or after the head noun:

(43) a. **Pa’a-ntü-m** aipa-tci nukwi-yü.
tall-nomin-anim boy-NPN.nom run-pres

b. Aipa-tci **pa’a-ntü-m** nukwi-yü.
boy-NPN.nom tall-nomin-anim run-pres
‘The tall boy is running’.

(Press 1979:57)

Attributive adjectives agree with the head noun in case, number and animacy. In

(44), both head noun *puusi* ‘cat’ and the adjective that modifies it are marked with the oblique case marker *-a*.

(44) Puusi-**a-n** süya’i-tcü-**a** mavo’a-mpü.
cat-**obl**-1sg cold-nomin-**obl** cover-past
‘I covered the cat which was cold’.

(Press 1979:109)

In (45), the plurality and animacy of the head noun *aipatciw* ‘boys’ is reflected in the adjectival form that modifies it:

- (45) Aipatci-**w** pa'a-**ka-rü-m** nukwi-ka-yü-'üm²⁹.
 boy-**pl** tall-**sev-nomin-anim** run-sev-pres-anim
 'The tall boys are running'. (Press 1979:57)

Verbal nominalizations are formed in the same way and can be used attributively.

In the examples below, verbal nouns modify an overt noun (example (46)) or a phonologically null pronoun (examples (47)-(48)). They can be marked with the nominative case (examples (46)-(47)), or with the accusative case (as in example (48)), depending on the grammatical relation of the noun they modify (subject or object, respectively).

- (46) **Nukwi-tcü** ang aipa-tci pa'a-yü.
 run-nomin.nom 3sg.anim.vis.nom boy-NPN.nom tall-pres
 'The running boy is tall' = 'The boy that is running is tall'. (Press 1979:58)

- (47) **Nukwi-tcü** ang wü'iku-vü.
 run-nomin.nom 3sg.anim.vis.nom fall-past
 'The running one fell'. (Press 1979:58)

- (48) Nüü-(k) **nukwi-tcü** unga-y kwipa-vü.
 1sg-cop run-nomin.obl 3sg.anim.invis.obl hit-past
 'I hit the running one', 'I hit the one who was running'. (MP)

Press (1979) makes an observation that the verbal nouns do not show animacy agreement with the head noun, as do adjectival nouns. So in the examples below the two relative clauses modify the subject of the sentence *mang*, but the verbal nominalization in (49) lacks the animacy agreement:

²⁹ Adjectives are marked [+anim] with both singular and plural head nouns. The animacy marker -'üm (the glottal stop is deleted after the participle ending, allowing /ü/ to assimilate and delete resulting in -m on the surface) indicates that the head noun is an animate entity whether human or animal.

(49) Mang **tüka-rü** ang saarontci hivi-sua-ngu.
 3sg.anim.viv eat-nomin that one beer-obl drink-finish-mom
 ‘The eating one drank up the beer’.

(50) Mang **pa’a-ntü-m** saarontci hivi-sua-ngu.
 3sg.anim.vis tall-nomin-anim beer-obl drink-finish-mom
 ‘The tall one drank up the beer’. (Press 1979:57)

In the sections that follow, I will demonstrate that these differences are indicative of two different underlying structures. The verbal nominalizations have an embedded ‘little’ *v* in their structure, while the adjectival nominalizations have an embedded ‘little’ *a*, a functional head that is selected by a dissociated Agreement head. To understand these differences let us turn to some literature on the structure of derived nominalizations.

4.3.2 Theoretical background: Nominalizations within DM

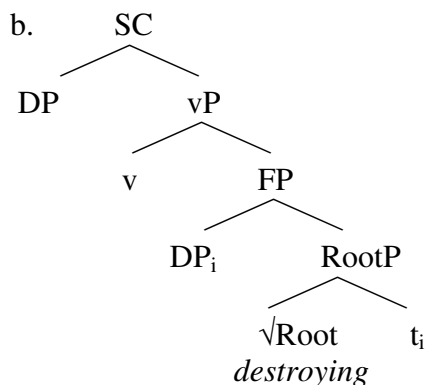
Recall that within DM lexical categories in general are viewed as structurally determined realizations of category-neutral roots. From this perspective, simple nouns and nominalizations are words derived with the help of the category-forming functional head ‘little’ *n*⁰. The original proposal dates back to Marantz (1997), who revives Chomsky’s (1970) discussion of nominalizations in English³⁰. Marantz’s main proposal was to move the derivation of nominalizations out of lexicon and into the syntax, while preserving Chomsky’s idea of a transformational approach to their formation. Marantz focuses on roots like $\sqrt{\text{DESTROY}}$ and $\sqrt{\text{GROW}}$ and argues that when they are placed in nominal

³⁰ For other work on mixed categories, see Borsley and Kornfilt (2000); Fu, Roeper, and Borer (2001) among others.

environment, the result is a nominalization (*destruction* and *growth*); when the roots are found in a verbal environment, they surface as verbs (*destroy* and *grow*). By the nominal environment he originally meant a Determiner; in later work (Marantz 2000), he introduced the category forming head ‘little’ n^0 .

Harley and Noyer (1998) built on Marantz’ original proposal to show that differences between gerunds and derived nominalizations in English can be accounted for by looking closely at their internal syntactic structure. They show that gerunds, being verbal derivatives, have a vP layer in their structure, while derived nominalizations lack this verbal component. Thus, gerunds, like the one in (51a), will have the structure in (51b):

(51) a. The barbarian army’s suddenly **destroying** the city upset Caesar.

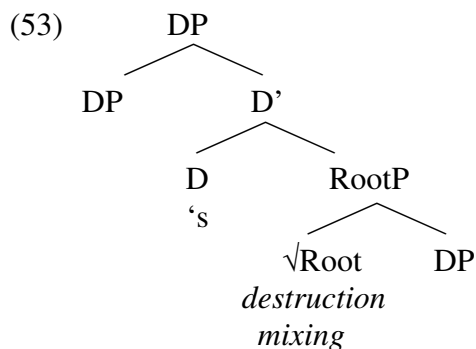


(based on Harley and Noyer 1998:11)

Derived nominalizations, like the ones in (52a) and (52b), lack the vP layer and in the environment of the D determiner are spelled out as nominals.

(52) a. The barbarian army’s sudden **destruction** of the city upset Caesar.

b. Belushi’s **mixing** of drugs and alcohol proved fatal.



(based on Harley and Noyer 1998:12-13)

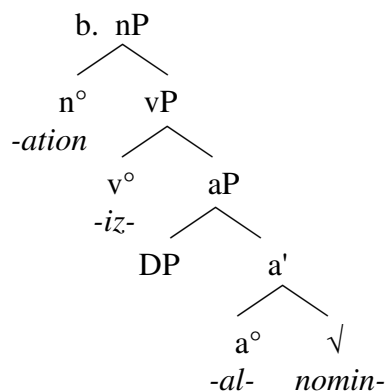
Under this analysis the English suffix *-ing* is viewed as a multifunctional Vocabulary Item, inserted as the gerundive affix or as a nominalizer. In fact, Harley and Noyer (1998) argue that as a nominalizer *-ing* is a default, or Elsewhere Vocabulary Item, inserted in the environments where no other more specified item is available. For example, the root $\sqrt{\text{DESTR}}$ in the nominal environment is specified for the nominalizer *-tion* (plus some readjustment rules that modify the phonological form of the root). The root $\sqrt{\text{MIX}}$, however, is not specified for any nominalizer, and in the nominal environment it is spelled out with the default *-ing*.

Harley (2006b) provides an updated version of this analysis while bringing up some of the unresolved issues in the morphology of nominalizations. Her main focus is on verb-particle constructions in English and their behavior in so called ‘mixed’ nominalizations. For the purposes of our discussion, I will focus on Harley’s treatment of derived nominalizations that have an embedded verbal layer.

In her discussion of nominals that contain verbal affixes, like the one in *nominalization of verbs*, Harley considers several of their properties: (i) they do not assign accusative case and need the preposition *of* to ‘rescue’ the DP in their argument

position; (ii) they can be modified by adjectives, but not adverbs; and (iii) they can co-occur with determiners and be pluralized. All of these characteristics are indicative of the nominal nature of these nominalizations. However, as Harley points out, the word *nominalization* itself clearly contains a verbalizer, *-iz-*, that is under her analysis is a Spell-out of a ‘little’ v , a head that can introduce an Agent (v_{DO}) and assign accusative case to its internal argument. If the v^0 is present, why cannot it license the accusative case? Following Kratzer (1996) and Pylkkanen (2002), Harley suggests that the ‘little’ v must be distinct from the Voice, a functional head that introduces Agents and selects for FP, the accusative case licenser. So, in the derivation of the word *nominalization* the ‘little’ v is present, but the Agent/Accusative case licenser heads (VoiceP and FP) are excluded.

(54) a. nomin-al-iz-ation



(Harley 2006b: 22)

Harley makes an important point relevant to our discussion of the Chemehuevi adjectival forms: “The key point... is that wherever you see a morpheme, there must be a corresponding terminal node in the structural analysis of the sentence”, whether this

terminal node is “originally syntactic (i.e., has originated as part of the Numeration and been added to the structure via syntactic Merge), or inserted as a ‘dissociated’ morpheme/terminal node at Morphology, prior to vocabulary insertion” (3). From our discussion of adjectival and verbal nominalizations in Chemehuevi, we have seen that there is a morpheme they have in common, nominalizer *-tii*. We have also seen that they differ with respect to the presence/absence of the Agreement head, a dissociated terminal node that selects for aPs, but not vPs, in the language. Now let us turn to the analysis of Chemehuevi adjectival and verbal nominalizations, as part of attributive modification.

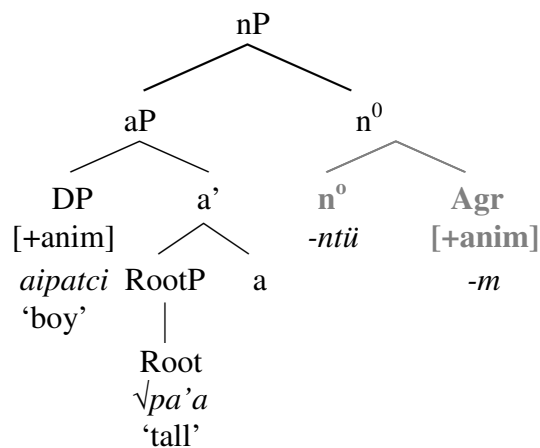
4.3.3 Chemehuevi adjectival and verbal nominalizations

We have seen earlier that the Chemehuevi attributive adjectives agree with the nouns they modify in animacy, case and number. These features are common for adjectives crosslinguistically. To account for these agreement facts, suppose that in the structure of adjectival nominalizations, the root incorporates into the adjective-forming ‘little’ *a* head, and then is nominalized by incorporating into an n^0 head. Following Embick (2000) and Bobaljik (2008), I claim that agreement is a morphological process and that merging of phi-features (like animacy in Chemehuevi adjectives) takes place after syntax. Similarly to cliticization of the possessive agreement markers discussed in chapter 3, I assume that the animacy agreement marker is merged as an Agr head in the morphological component of the grammar (shaded parts of the derivation in (55b)). In

section 4.3.5, we will discuss how nominalizations form relative clauses, but for now consider a partial derivation for the adjectival nominal in (55):

(55) a. *aipatci pa'a-ntü-m*
 boy tall-nomin-anim
 'a tall boy' (Press 1979:57)

b. (partial derivation)



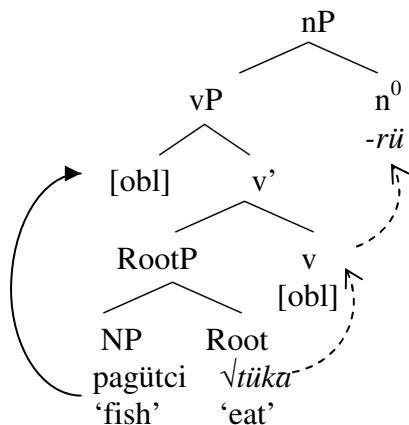
Verbal nominalizations lack the agreement marker because they do not have an underlying 'little' *a* head: the root incorporates directly into the verbal head 'little' *v*. There are several indications that the *vP* layer is indeed present in these nominalizations: (i) they may contain verbal morphology, like the aspectual marker *-ka-* in example (56), and (ii) they can contain an object, as in (57), the object of the verb *tüka-* 'eat' (marked oblique by the 'little' *v*) is fronted to the sentence initial position, possibly for emphatic reason.

(56) *Tüü-mpi ar [RC wü'iku-ka-tü] pütüya-ntü uru'a-yü.*
 rock-NPN.nom that fall-perf-nomin heavy-nomin be-pres
 'That rock which fell was/is heavy'. (Press 1979:109)

- (57) a. **Pagü-tci-ya**_i-uk mang [RC t_i tüka-rü].
 fish-NPN-obl-cop 3sg.anim.vis eat-nomin
 ‘He eats fish’ = ‘He is a fish-eating one’.

(based on Press 1979:75)

- b. (partial derivation)



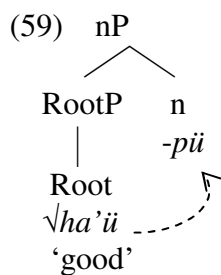
A note on the availability of allomorphy: recall that earlier I argued against the strong definition of phase (Arad 2003, 2005) as the first vP/nP/aP. Adjectival and verbal nominalizations discussed here clearly contain an embedded aP and vP level; nevertheless, the nominalizer *-tü* is still subject to morpho-phonological allomorphy that is supposed to be available only within the domain of a phase. I argued earlier that it is Voice that defines a phase in Chemehuevi and it is the projection that is not available in these nominalization.

Before we turn to the structure of attributive modification and reduced relative clauses in Chemehuevi, let us not forget the so called ‘true’ adjectives like *mi’au-ntsi* ‘small’, *ha’ü-pü* ‘good’, or *üvü-yü-ni* ‘bad’. These are not adjectival in their structure – they do not have an adjective forming head in their derivation. The first group is derived with a noun forming ‘little’ n (an NPN marker *-pü*, *-tsi*, etc.) and when these items occur

as modifiers of a head n, the resulting attributive phrases act as N+N compounds (notice the absence of agreement morphology typical for adjectival attributes):

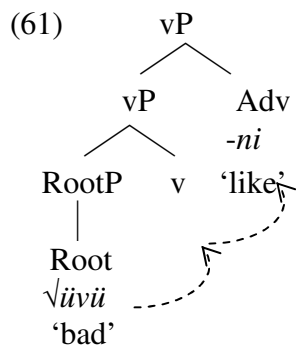
(58)

- | | |
|----------------------------|--------------|
| a. ha'ü-pü tawatsi | 'good man' |
| b. ha'ü-tsi mamau | 'good woman' |
| c. ha'ü-tsi pungutsi | 'good dog' |
| d. mi'aupü-tsi aipatsi | 'small boy' |
| e. mi'aupü-tsi na'üntsitsi | 'small girl' |



The words in the second group are derived with a suffix *-ni*, translated as 'like' in OCD, which most likely attaches to verbal stems: consider example in (60c) below – the root is followed by a tense marker *-yü*, an indication that we are dealing with a verb.

- | | | |
|----------------|-------------|-------|
| (60) a. üvü-ni | 'bad, evil' | |
| b. üvü-pü-ni | 'bad, evil' | |
| c. üvü-yü-ni | 'bad, evil' | |
| d. tüwü-ni | 'fast' | (OCD) |



Before addressing the structure of attributive modification, we need to address several theoretical issues. First, Press (1979) states that participles (nominalizations in our terminology) are the only source of relative clauses in the language. Secondly, both verbal and adjectival nominalizations can form *headless* relative clauses, in which case they do not modify any overt noun, but an implied indefinite third person pronoun *pro* (Press 1979:58). Before considering the Chemehuevi data and the structure of attributive modifications, let us deviate into some theoretical questions about the structure of relative clauses in general and headless relatives in particular.

4.3.4 Typology and internal structure of relative clauses

Relative clauses (henceforth, RCs) are modifying clauses that typically consist of a head and a modifying clause with a shared referent. The prototypical RC can be exemplified by the English *the book [that I ordered e]* where *the book* is the head and *that I ordered e* is a relative clause modifying the head. This type of an RC is known in the literature as an Externally Headed Relative Clause (EHRC) due to the fact that the nominal head appears outside of the modifying clause. The English RCs are *postnominal* because they follow the head noun (as in ***the sweater*** *that I made* where the head is in bold), which is the case for verb-medial (SVO) and verb-initial languages. In verb-final language, RCs tend to be *prenominal* as shown in the example from Finnish below:

(62) Finnish

[minun teke-mä-ni] **villatakki**

1sg.gen make-part-1sg sweater

‘the sweater (that) I made’

(Nikolaeva 2006:503)

There are three major approaches to the structure of EHRCs. The Head External Analysis (Montague 1974, Partee 1975, Chomsky 1977, Jackendoff 1977) suggests that the head of the RC originates *outside* of the RC. The relative clause CP is adjoined to the head NP; there is also an A'-movement of a relative operator Op from the clause internal position to Spec-CP (see Bhatt 2002 for a detailed discussion).

The Head Raising Analysis (Brame 1968, Schachter 1973, Vergnaud 1974, Kayne 1994, Bhatt 2002) assumes that the head of the RC originates *inside* the relative clause CP and undergoes raising to a clause external position. The advantage of this analysis is that it explains reconstruction effects and binding of variables within the RC³¹ (Schachter 1973, Vergnaud 1974) and the interpretation of idiom chunks³² (Brame 1968, Schachter 1973), facts that are unexplained by the Head External Analysis. However, the Raising Analysis is not without its own problems. One of these is the case clash problem that arises in languages in which NPs can get case from the embedded verb and the externally assigned case on the head noun outside the RC is unexplained.

The Matching Analysis (originated in Carlson 1977) helps to avoid this problem, and accounts for binding facts. It claims that there's no transformational relationship

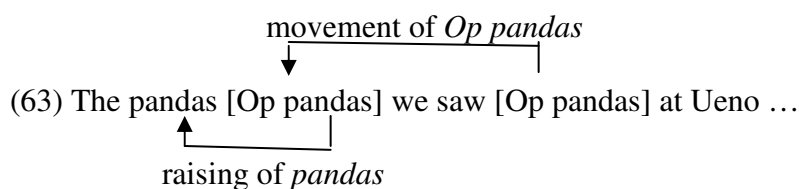
³¹ As representative example is in (i) when the anaphor must be interpreted in the lower clause, i.e., reconstructed:

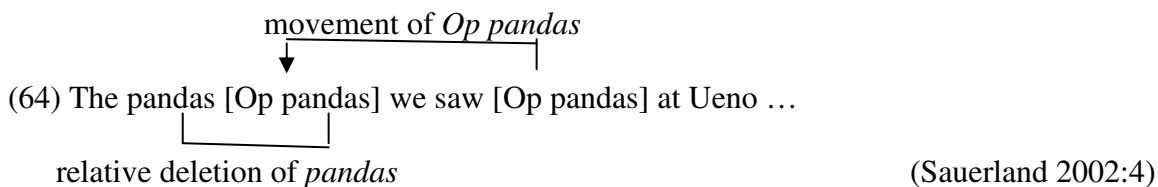
(i) The portrait of himself_i that John_i painted was extremely flattering. (Schachter 1973)

³² Idiom chunks such as a verb and its object must be interpreted as a constituent, hence it has been argued that the NP *headway* must originate within the RC and raised to its external position in (ii) below:

(ii) The *headway* that we *made* was satisfactory. (Schachter 1973)

between the head NP and the RC internal trace position. Instead it argues that a phonologically null operator *Op* raises from the relative clause internal position to the Spec-CP position, and mediates the semantic relationship between the relative clause internal position and the head. In more recent work (Sauerland 1998, 2000, 2002, Hulsey and Sauerland 2006), there is a version of the Matching Analysis that involves two instances of the head NP, one outside and one inside the relative clause CP. The internal head NP is phonologically deleted under identity of meaning with the external head, but crucially the two copies are not related by movement. Sauerland (2002) argues for the process of *relative deletion*, an obligatory ellipsis process that deletes the lower copy of the NP when the two NPs are different tokens of the same noun and are identical in meaning. Admittedly, his approach aims to reconcile the Raising and Matching analyses, and stems from the observation that the interpretation of the head noun in an RC is ambiguous between external and internal position. This is how Sauerland (2002) compares to Raising analysis in (63) with Matching analysis in (64). In (63) he shows a raising structure where after initial movement to Spec-CP of the relative clause, the NP *pandas* is moved out of the internal clause to the clause-external position. Since lower copies in movement chains are deleted in PF, only the higher copy of *pandas* is pronounced. In (64) however, there is no raising of *pandas* out of the RC, and the intermediary copies are deleted under relative deletion by identity (Sauerland 2002:4).





The strength of this analysis is that the head NP can be present both outside and inside the relative clause, thus resolving the case clash problem, as well as explaining reconstruction of pronouns and anaphors and interpretation of idiom chunks³³.

One of the advantages of the Raising Analysis of EHRCs is that it can be easily extended to RCs that are headed internally. Internally Headed Relative Clauses (IHRCs) are favored by verb-final languages and can be exemplified by the sentence from Udihe in (65) below where again the head is bolded:

(65) Udihe
 si anda-i ηene:-ni [bi ag'a-i **xoton-du** bagdi:-tigi-ni]
 you friend-2sg went-3sg brother-1sg city-loc living-lative-3sg
 'Your friend went to the city where my brother lives.'

(Nikolaeva 2006: 503).

It has been argued that in these RCs, the head noun is raised covertly at LF, either to a clause external position (see Barss et al. 1989 on Navajo RCs), or to the Spec-CP position of the lower clause (see Basilico 1996 on RCs in several Yuman languages).

In some languages with IHRCs there is evidence that RCs demonstrate some degree of nominalization. Such RCs make use of non-finite forms that show tense-aspect-

³³McCloskey (1990, 2002) offers another way of combining two patterns of RC formation in the same language. He argues that in Irish there are two patterns that form RCs: one involving Operator movement (A'-movement) that leaves a gap within the RC, and the other one involving no movement but a binding relationship between the head and a resumptive pronoun within the RC.

mood and agreement reduction and resemble simple attributes (adjectives and participles). The more strongly the RC is nominalized, the fewer grammatical functions it can relativize and the less likely it will allow the full representation of the head noun (Nikolaeva 2006:505). These are the cases when the representation of the modified noun, i.e., the head, often reduces to a gap, as is the case of headless RCs. As we will see in the sections below, this is the case of the Chemehuevi RCs – they display a high degree of nominalization and can be headless. Moreover, in some languages there is no distinction between RCs and attributive modification and adjectives and RCs show identical patterns. Again this is the case of the Chemehuevi RCs.

Quechuan languages present a good example of nominalized RCs. Cole et al. (1982) states that in Imbabura, RCs appear in nominalized form, with the nominalizer determined by the temporal relationship between the RC and the matrix clause. In the examples below the nominalizer can be either present or past:

(66) [e_i punu-ju-j] **wawa_i** mana cai-pi-chu
 sleep- progr-*pres.nom* child not this-in-neg
 ‘The child who is sleeping is not here’.

(67) [e_i punu-*shca*] **wawa_i** mana cai-pi-chu
 sleep- *past.nom* child not this-in-neg
 ‘The child who was sleeping is not here’. (Cole et al.1982:115-116)

Interestingly Imbabura has both EHRCs, as the ones in (66)-(67) above and IHRCs as in the example below:

(68) [wambra **wagra-ta** randi-*shca*] ali wagra –mi
 boy cow-acc buy-*past nom* good cow-validator
 ‘The cow that the boy bought is a good cow’. (Cole et al.1982:118)

Cole (1987) points out that IHRCs are found only in OV languages and only in languages with null anaphors (in argument positions). These languages have left-branching NP structure and the RC structure looks like the one in (69) below where *e* is a phonologically null pronoun co-indexed with a non-null NP antecedent inside the modifying clause.



So far we have discussed examples of languages where the RCs modify nominals that appear either outside of the RC or within it. However, in some languages there are RCs that do not have an obvious syntactic head. Nikolaeva (2006) states that “such clauses serve for concept formation rather than identification and are referred to as free relatives” (502). Free relatives do not have to modify a noun (i.e., a whole clause in the example (70) below) and, as all RCs, they can serve a number of syntactic functions (i.e., subject in (70) and object in (72) below).

(70) [Whatever you say] is wrong.

(71) He arrived late, [which I didn't like]. (Nikolaeva 2006:502)

(72) I like [who Fred married]. (Roberts 1997:78)

Depending on the analysis such RCs are considered either to be headless or have a phonologically empty head. Modini (1995:179) proposes that headless RCs are a subtype of EHRCs in that in both the relativized NP and the head occupy separate positions (unlike the IHRCs), but within the headless RCs the head is pronominalized, whereas in

the headed RCs the relativized NP is pronominalized. In fact this is the analysis that proves fruitful with the Chemehuevi data as we will see below.

There are several syntactic approaches to headless RCs. According to the Comp Hypothesis, a headless RC is headed by a base-generated empty nominal category and the *wh*-word appears in Spec-CP via regular *wh*-movement (Groos & Riemsdijk 1981).

(73) I like [_{NP} **e** [_{CP} *who*_i Fred married *t*_i]].

In the alternative analysis of free relatives, known as the Head Hypothesis (exemplified by Bresnan and Grimshaw 1978), the *wh*-word is base-generated in the position of the head, and Spec-CP is occupied by an empty operator Op, binding the trace in the embedded clause:

(74) I like [_{NP} **who** [_{CP} Op_i Fred married *t*_i]].

Kayne (1994) suggests a unifying analysis for headed and headless RCs as part of his version of the Raising Analysis. This analysis suggests that the RC is a syntactic complement of the D⁰ head of the DP. The modified head noun is generated internally to the RC from where it raises to the Spec-CP position:

(75) [_{DP} the [_{CP} [_{DP_i} dog [that you saw *t*_i]]]]

In case of *wh*-RCs, the relative selector is also a D⁰ (*the* in the example () below) that selects a complement CP; the larger DP *which book* is base-generated in the lower clause and is raised to the Spec-CP position (first the *wh*-movement applies to the [+wh] DP *which book*, and then the NP *book* further raises to the Spec-DP in order to be governed by the higher D⁰):

(76) [_{DP} the [_{CP} [_{DP} [_{NP} book]_j [_{D'} which *t*_j]]_i [_{IP} I read *t*_i]]]]

Headless RCs are analyzed as CP complements of a phonetically null determiner D^0 , corresponding in some sense to Groos and Reimsdijk's empty nominal category, and are internally headed. Kayne (1994: 154 n.13) points out that they differ from the headed variety in that the complement of the *wh*-word does not need to rise to the position governed by the higher D^0 , i.e., only the *wh*-movement part applies. Thus the headless RC in *we gave them what little money we had* will have the following structure:

(77) $[_{DP} [_{CP} [_{DP} \text{what little money}]_i [_{IP} \text{we had } t_i]]]$ (Roberts 1997:82)

With these theoretical points in mind, let us turn to the Chemehuevi relative clauses, particularly the headless RCs and attributive modification.

4.3.5 Chemehuevi relative clauses and attributive modification

First let us consider headed RCs in Chemehuevi to establish the order of the head noun and the modifying relative clause. Chemehuevi is an OV language, so we would expect to have either prenominal or Internally Headed RCs, or both. However, this is not the case. Consider the examples below: the heads of the RCs (in bold) precede the modifying clause and are positioned outside the RC. The reason is that the subjects of embedded clauses are always marked oblique (Press 197:53). Thus the nominative case marking in the head nouns in (78)-(79) indicates that they are positioned outside of the embedded clause and thus act as subjects of the main clause, not the subject or object of the embedded clause.

- S V
- (78) **Waampakwi-tci** [RC nüüni paka-mpa-na] aipa-tci-a kwipa-vü.
 scorpion-NPN.nom 1sg.obl kill-fut-nomin boy-NPN-obl sting-past
 ‘The scorpion I am going to kill stung the boy’. (Press 1979:111)

- S V
- (79) **Tükatüaa** [puusi-a pü-vaan karü-kai-na] yokoki-vü.
 table.nom cat-obl which-on sit-perf-nomin collapse-past
 ‘The table on which the cat sat collapsed’. (Press 1979:127)

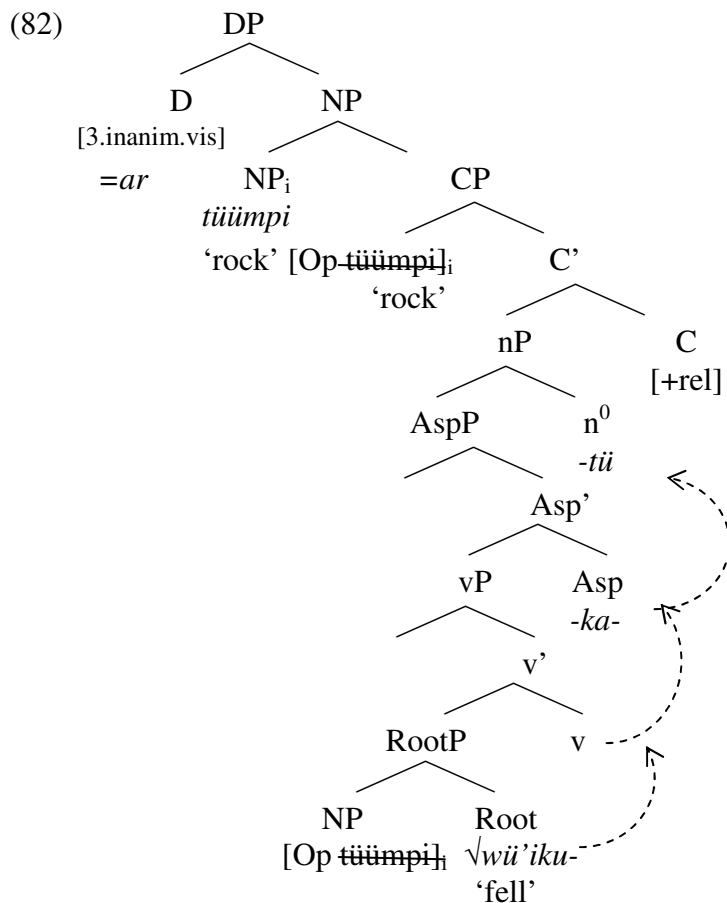
This pattern of postnominal EHRC is observed in other examples as well. The relative clause itself is formed by the nominalized form of the verb (as in (80)) or an adjective (as in (81)):

- (80) Tüü-mpi ar [RC wü’iku-ka-tü] pütüya-ntü uru’a-yü.
 rock-NPN.nom that fall-perf-nomin heavy-nomin be-pres
 ‘That rock which fell was/is heavy’. (Press 1979:109)

- (81) Puusi-a-n [RC süya’i-tcü-a] mavo’a-mpü.
 cat-obl-1sg cold-nomin-obl cover-past
 ‘I covered the cat which was cold’. (Press 1979:109)

Adopting Sauerland’s (1998, 2000, 2002) version of the Matching Analysis of RCs, I suggest the following derivation for the headed RCs in Chemehuevi: a silent copy of the head NP is a complement of the phonologically null relative Operator Op that is raised to the clause internal Spec-CP position to check its features against C^0 ; the lower copy of the NP is then elided due to the obligatory process of *relative deletion* since the external and the internal NPs are identical in meaning. The Operator is assigned the oblique case assigned by the verb of the RC; the head NP, base generated outside the RC and coindexed with the lower copies, is marked nominative by the T of the main clause. The head NP is a complement of the D head that can be null as in examples (78)-(79), or overtly realized in cases of demonstratives as in example (80) above. The full

demonstrative pronoun always appears to the left of the NP, but it can also follow the NP in which case it appears in an abbreviated form (*-ar* vs. *mar*)³⁴.



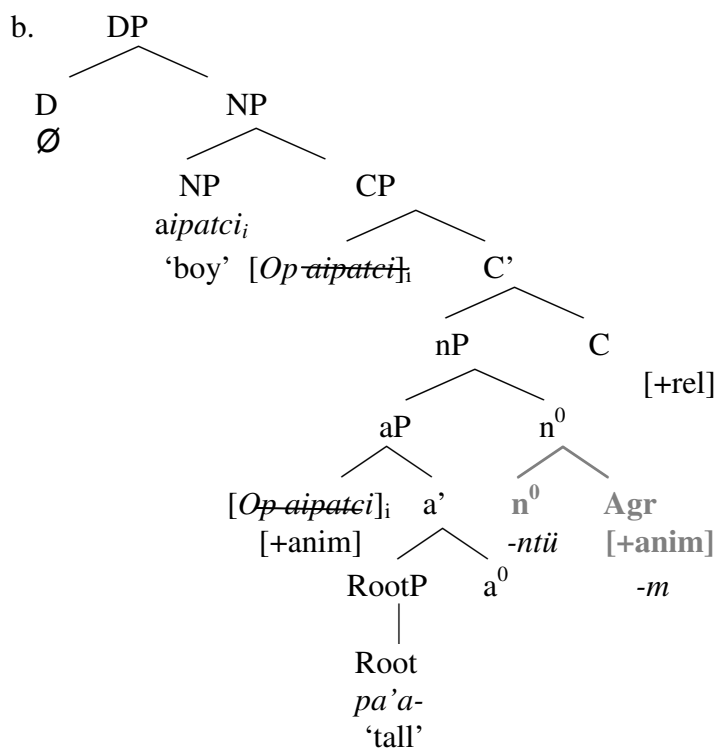
Now let us consider the structure of relative clauses formed by an adjectival nominal. The headed variety is exemplified by the sentence (83) below: the head noun *aipatci* 'boy' (in bold) is base generated outside the RC and is matched with its copies within the RC. The head noun is marked with nominative case – a clear indication that

³⁴ Press (1979) gives some evidence that these post-nominal demonstratives are affixes (56); however, I suggest that they are clitics and as such must attach to the first word of the clause to be pronounced (hence the word order in (80)).

the noun is outside of the embedded clause; the adjectival nominal *pa'antiim* 'tall' is the only constituent pronounced within the RC.

- (83) a. **Aipa-tci** [RC pa'a-ntü-m] nukwi-yü.
 boy-NPN.nom tall-nomin-anim run-pres
 'The tall boy is running'.

(Press 1979:57)



Adjectival nominals also form *headless* relatives (examples (84)-(85) below), in which case the relative clause consists of the nominal itself. Press (1979) says of these RCs that they act like ordinary nouns and “modify some sort of indefinite third person pronoun (‘one who’)” (110).

- (84) [RC Pa'a-ntü-m] nukwi-yü.
 tall-nomin-anim run-pres
 'The tall one is running'.

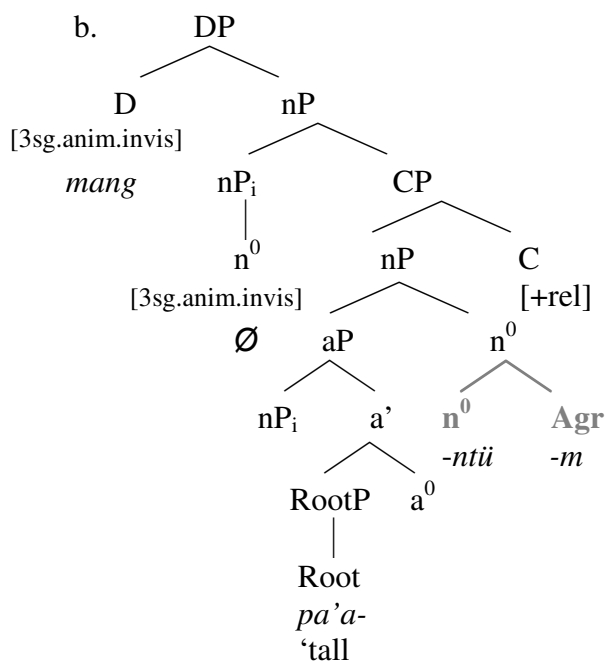
- (85) Nüü-(k) [RC hoko-ntü-m] kwühü-vü.
 1sg-(cop) big-nomin-anim catch-past

'I caught a large one'.

(Press 1979:110)

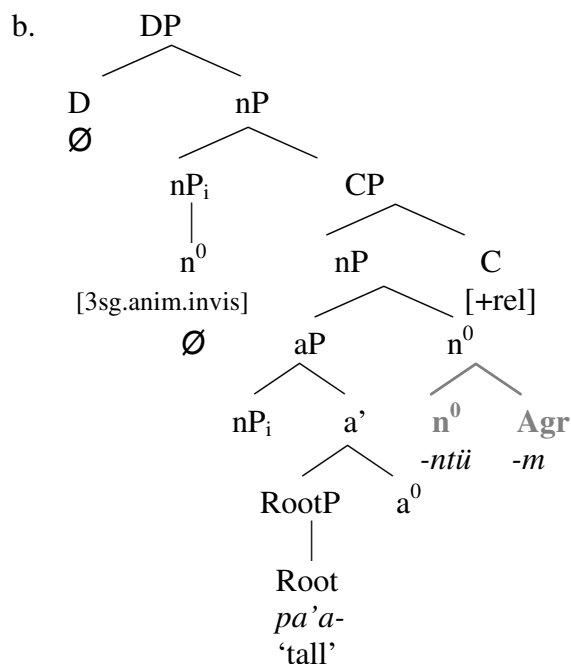
In fact, sentences like these are very common in the language and we find many examples of headless RCs acting like nominalizations. The examples below illustrate the formation of such headless RCs. In (86), the relative clause is headed by a phonologically null pronoun (based on Modini 1995). This pronoun must have some ϕ -features -- [3 person, singular, animate, visible] in the example under discussion-- because the demonstrative head D, as well as the adjectival nominal within the relative clause agree with it. The D head is overt in this example and null in the example (87) below. The head NP consists of a phonologically null pronoun, little n^0 that has some ϕ -features.

- (86) a. Mang [RC pa'a-ntü-m] saaron-tci-a hivi-sua-ngu.
 3sg.anim.vis.nom tall-nomin-anim beer-NPN-obl drink-finish-mom
 'The tall one drank up the beer'. (Press 1979:57)



- (87) a. [_{RC} Pa'a-ntü-m] wü'iku-vü.
 tall-nomin-anim fall-past
 'The tall one fell'.

(Press 1979:58)



These headless RCs behave like nominals because structurally they are nPs: they can co-occur with determiners (the demonstrative *mang* in example (86) above); moreover, once merged with a D⁰ head, they act like subjects or objects. They bear agreement morphology because they are formed by the adjectival head 'little' *a*.

4.4 Conclusion

In this chapter, we have investigated another lexical category in Chemehuevi – adjectives, and we have seen evidence that words that fall under one category in one

language can belong to two different categories in another. The Chemehuevi adjectives are not a homogeneous class: the same root can co-occur with verbal or adjective-/ noun-forming functional heads, resulting in formation of two different lexical categories, stative verbs on the one hand and adjectival nominals on the other. We have also seen that Chemehuevi lacks so called ‘true’ adjectives: all words with ‘adjectival’ meanings are derived. However, I have shown that there are strong indications that the Chemehuevi attributive adjectival forms contain a category forming functional head ‘little’ *a*: they agree with their head nouns in case, number and animacy, as do adjectives cross-linguistically.

This chapter also demonstrated that in Chemehuevi attributive modification involves reduced relative clauses. In order to modify a noun, an adjectival form is derived into a nominal that forms a relative clause that can modify an overt noun or a phonologically null one. We have also compared adjectival nominalizations with their close relatives, verbal nominalizations, and have identified the structural reasons for their similarities and differences. The purely syntactic approach to the derivation of these nominalizations argued for in this dissertation provided explanations for a cluster of previously unexplained facts about adjectival and verbal forms ending in *-tū*. I have shown that both adjectival and verbal derivatives are derived nominalizations (not participles as in previous terminology) and both form relative clauses to modify nouns. The differences between the two (absence/presence of animacy agreement) stem from their internal structure, i.e., whether or not the form in question has an embedded vP or aP layer. The fact that both adjectival and verbal nominalizations are subject to morpho-

phonological allomorphy (alternations of nominalizer *-tü*) also provides support for my suggestion that the Chemehuevi initial phase is determined not by aP or vP, but by the Agent-projecting Voice, since Voice is not present in these nominalizations.

Overall, this chapter provides strong evidence in favor of the Root Hypothesis: roots are acategorial and lexical categories are formed by the combinations of roots with category forming functional heads. Furthermore, these functional heads determine the ways in which lexical categories form predicates, as we are about to learn from chapter 5.

4.5 Notes for community use: How to build adjectives in Chemehuevi

Adjectives are words that describe certain qualities or properties of objects, people or animals in the world, like *smart*, *pretty*, *wooden*, or *brown* in English. For the purposes of our discussion of the Chemehuevi adjectives, it is important to distinguish between adjectives that form phrases like *a brown dog* or *a tall boy*, and adjectives that form sentences like *The dog is brown*, or *The boy is tall*, because in Chemehuevi these two types of adjectives are formed differently. Let us consider the first type first. Similarly to Chemehuevi nouns, adjectives can have four different endings that have to be memorized. Below I include some adjectives grouped according to the type of ending they take: *-tü*, *-tcü/tsü*, *-ntü*, or *-rü*:

- (88) Adjectives ending in *-tü*
- a. mukuta-tü straight
 - b. tumunda-tü thick
 - c. tukowa-tü shallow
 - d. tümpika-tü rich

(89) Adjectives ending in *-tcü/-tsü*

- a. kwampani-tcü crooked
- b. tovipi-tsü short
- c. takünapi-tcü thin
- d. tavüypi-tcü low
- e. húa-tcü old

(90) Adjectives ending in *-ntü*

- a. suunaava-ntü smooth
- b. mawaga-ntü lazy
- c. pa'a-ntü long, tall
- d. pütüya-ntü heavy
- e. tukwa-ntü deep

(91) Adjectives ending in *-rü*

- a. tutsaga-rü dirty
- b. tsinkaga-rü rough
- c. aya-rü new

These adjectives can be used to describe nouns in phrases like in the examples

below:

(92)

- a. ayarü ayamovitsi 'a new automobile'
- b. hokontü kani 'a big house'
- c. miaupitcü kani 'a little house'
- d. tosgarü kani 'a white house'
- e. angkagarü kani 'a red house' (GT)

If an adjective describes a person, we add ending *-m* to it:

(93) pa'antü-**m** aipatci
'a tall boy'

(Press 1979)

(94) mutcuntü-**m** aipatci
'a strong boy'

Phrases like the ones in (92)-(94) can also be made into full sentences, but the order of words will be different, similarly to when we change the English phrase *a tall*

boy into a sentence *The boy is tall*. Compare the Chemehuevi phrases in (93) and (94) to corresponding sentences in (95) and (96). We have to add copula $-k$ ³⁵ (sometimes pronounced as $-uk$) to the first word of the sentence, so in (95a) $-k$ attaches to *aipatci* ‘boy’, but in (95b) to *manga* ‘that’.

(95) a. Aipatci-**k** pa’antüm.
‘The boy is tall’.

b. Manga-**k** aipatci pa’antüm.
‘That boy is tall’.

(96) Aipatci-**k** mutcuntüm.
‘The boy is strong’.

We will see more examples of the use of $-k$ in the next chapter because it is required not only in sentences formed by adjectives but also in the ones formed by nouns.

³⁵ The uses of $-k$ ($-uk$) are similar but not identical to the uses of *is* in English.

CHAPTER FIVE

PREDICATION AND LEXICAL CATEGORIES IN CHEMEHUEVI

5.1 Introduction

In previous chapters we have examined lexical categories in the Chemehuevi language. In this chapter, we consider the predicational properties of nouns, adjectives and verbs. Following Baker (2003), I show that the Chemehuevi nouns require a copula to form predicates, whereas verbs do not. I also examine the syntactic behavior of the enclitic copula *-uk* in different contexts and demonstrate that it is required with all nominal predicates, including those formed not only by nouns, but also by reduced relative clauses (based on adjectival and verbal nominalizations), or by any constituent that has an underlying nP structure. The analysis given in this chapter provides an explanation for the previously unexplained role of the enclitic *-uk*, and answers the questions of why it is required in some contexts and is optional in others.

5.2 The puzzle of the enclitic *-uk*

Press (1979) provides a detailed description of the enclitic *-uk* that has a number of puzzling properties that on the surface seem rather random and disconnected from one another. She refers to this element as an enclitic and glosses it as ‘K’ in her examples,

hinting that it “might be related to some copular verb” (74). Phonetically, this element is realized as either [uk] or [k] depending on whether it follows a consonant as in (1) or a vowel as in (2); however the vowel following the [k] is undeterminable since all final vowels in Chemehuevi are voiceless³⁶.

(1) Pagü-tci-ya-**uk** mang tüka-rü.
 fish-NPN-obl-K 3sg.anim.vis eat-nomin
 ‘He eats fish’. (Press 1979:75)

(2) Nüü-**k** nain-tci.
 1sg-K girl-NPN.nom
 ‘I am a girl’. (Press 1979:75)

Press points out that John P. Harrington associated *-uk* with the 3rd person inanimate invisible affixal pronoun *-uka* or *-uk^wa* (74)³⁷. Here are two examples from Harrington’s unpublished field notes:

(3) ’Ümi-tsu’a-tü-müwüra’-**uk^wa** ‘ampaga-rü?
 2sg-become-nomin-kind-cop speak-nomin
 ‘Are you the kind that talks?’ (JPH&CL, *The Horned Owl*, 25)

(4) ‘Ava’ana’-**uk^wa** ‘ümi hiwa-wü-gaipü-ga-ntü...
 many-cop 2sg relative-pl.anim-deseased-have-nomin
 ‘You have many deceased relatives...’ (JPH&CL, *The Horned Owl*, 5)

We also find the same association in the work of Laird (1976), who refers to the copula use of the pronominal *-uk^wa* ‘that inanimate invisible’ or *-ik^wa* ‘this inanimate here’ in the following examples:

³⁶ Historically, the copula might have been related to *-uka* ‘this inanimate invisible’, but since the final vowels are unpronounced and the copula is an enclitic, it is impossible to determine whether there is a vowel and which one it is.

³⁷ I reject a possibility that *-uk* is an agreement pronominal copula similar to pronominal copulas in Hebrew and Arabic (Doron 1986), mainly due to the fact that none of the other pronominal person/number/animacy clitics appear in this context, only ‘3sg.inanim’ and Chemehuevi has robust agreement morphology.

(5) 'Ünü-pi-'ik^wa.
 bad/demon-NPN-3sg.inanim.here
 'It is a demon'.

(6) Nü'ü-k nüwü.
 1sg-3sg.inanim person
 'I am a person, I am a Chemehuevi'. (Laird 1976:286)

Press also points out that *-uk* is always attached to the first word in a sentence, regardless of the phrase boundaries. Consider the example in (7): when the possessor is a full DP, the enclitic *-uk* attaches to the determiner, i.e., the first word in the sentence, and clearly demonstrates that it is a second-position clitic.

(7) Ing-**uk** tava-tci patci-ga-ntü.
 3sg.anim.here-K man-NPN.nom older sister-have-nomin
 'This man has an older sister.' (JHJ)

The puzzles of *-uk* begin to surface when we consider the contexts in which it appears. Here is how Press summarizes the uses of the enclitic K:

“K can optionally appear in almost any sentence, provided the word order is such that K’s own constraints can be met. I am not certain exactly what K is; it is prohibited in imperatives, required in certain kinds of cleft sentences, obligatory in predicate nominative constructions with no overt copula, and obligatory with at least one aspect (with non-adjective verbs, which without K are interpreted as an active participle)”.

(Press 1979:124)

Below are instances of *-uk* illustrating its distribution. The first three cases are when *-uk* is obligatory: in (8) it appears with a verbal nominalization ('participle' in

Press' terminology) that incidentally gives the verb a habitual meaning, in (9) with a cleft construction, and in (10) with a nominal predicate.

(8) Tüka-rü-**k** nüü.
eat-nomin-K 1sg
'I eat'. (Press 1979:125)

(9) Marü-**k** huvavi tüka-kai-na-n.
that-K soup eat-perf-nomin-1sg
'That soup is what I ate'. (Press 1979:111)

(10) Itcü-**k** wii.
this-K knife
'This is a knife'. (Press 1979:125)

Compare the last example in this group to the one in (11) below: this is an instance when *-uk* is prohibited with an imperative:

(11) Itcü-(***k**) hivi-ngu.
this-K drink-imp
'Drink this!' (Press 1979:93)

In the next context the presence of *-uk* is optional; both (12) and (13) have predicates formed by finite verbs, whether stative/adjectival or eventive/verbal:

(12) Ümi-(ka) 'üü-**yü**.
2sg-(K) pretty-pres
'You are pretty'. (RM)

(13) Nüü-(**k**) nuwki-yü.
1sg-(K) run-pres
'I am running'. (JHJ)

The optionality of an element in some cases and its requirement in others posits certain challenges for a uniform account of its function and structural position. In the following sections, I will demonstrate that in Chemehuevi there are two elements that are

phonologically realized as *-uk*: one is the functional head that forms predicates, and the other a focus particle.

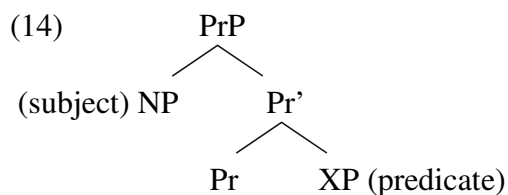
5.3 Theoretical background: Predication

In this section we will briefly consider several related theoretical approaches to the formation of predicates by different lexical categories. In particular, we are interested in differences between verbs, adjectives and nouns in the way they form predicates. Two main principles of these approaches are that (i) every proposition contains a predicational core, which expresses predicate argument relations; (ii) the semantics of predication is read off a particular syntactic structure. The particulars of this syntactic structure differ from author to author: for example, in early work by Stowell (1981), lexical categories were considered predicational in that they independently assigned thematic roles to their arguments. Later, predication was understood as a function of a functional element that acted as a mediator between lexical categories and their arguments (e.g. Hornstein and Lightfoot 1987, Raposo and Uriagereka 1990). This approach has been applied not only to English but also to data from number of languages including European Portuguese (Raposo and Uriagereka 1990), Scottish Gaelic (Adger and Ramchand 2003), Edo, Chichewa and Mohawk (Baker 2003), among others.

For the purposes of our discussion of Chemehuevi predication, I will focus on the predicate argument structure in the works of Bowers (1993) and Baker (2003).

5.3.1 Bowers (1993): functional category Pr for predication

In order to unify predicate formation of main and small clauses as well as predication formation across lexical categories, Bowers argues for a functional category Pr, mnemonic for *predication*, whose semantic function is predication and which projects an external argument and takes a VP, AP, NP or PP as its complement. The predication relation, in this configuration, holds between the argument in SpecPrP and the complement of Pr. On this view, none of the lexical categories can assign a theta role to an element in its specifier, and all need an intermediate projection Pr in order to take a subject. Bowers' configuration for PrP is repeated in (14):



where X = {V, A, N, P}

(Bowers 1993:595)

Bowers shows that this configuration can be applied to a variety of predicates: main clauses, small clauses (SC), predicates formed by verbs, nouns, adjectives and prepositions. Here are some example sentences that illustrate a derivation of a predicate according to Bowers.

(15) [IP e [I is [PrP John [Pr e [NP a genius]]]]].

(16) [IP They consider [PrP John [Pr e [NP a genius]]]].

(17) [IP e [PrP John [Pr e [VP overestimates his abilities]]]].

(18) [IP e [I is [PrP John [Pr e [AP full of himself]]]]].

As we can see from the examples above, Bowers' functional projection Pr parallels other functional elements suggested in the literature for verbal predicates: it is similar to the functional head Voice projecting an external argument in the work of Kratzer (1996), as well as Chomsky's (1995) little *v*. However, Bowers extends the need for Pr to predicates formed by nouns, adjectives and prepositions. Bowers points out several advantages of this analysis: (i) it suggests a uniform structural definition of the external argument and of the predication relation for both small and main clauses; (ii) it situates the SC within the framework of X-bar theory: a SC is PrP, the maximal projection of Pr; (iii) it explains the status of the element *as* in SC complements of verbs like *regard* – in the sentence *I regard John as crazy/an idiot*, *as* is a realization of Pr; (iv) it makes the relation between syntax and semantics of predication transparent (Bowers 1993:596-597).

5.3.2 Baker (2003): functional category *Pred* for predication

Baker (2003) takes the differences between lexical categories further. He argues that only adjectives and nouns require a functional head *Pred* to project a subject; verbs, on the other hand, take subjects either independently (if they are unaccusative), or through the mediation of a little *v* projecting an external argument (if they are transitive). To be more precise, his theory of predication is based on structural differences between verbs on the one hand and adjectives and nouns on the other. For Baker, only verbs can project a specifier and thus have a subject; nouns and adjectives cannot have a specifier and thus

need an extra functional projection which he calls *Pred* that projects a specifier and provides an argument for the N/Adj in its complement position. Baker's configurations for VPs as opposed to APs/NPs are repeated in below:

(19) Table #15. Baker's (2003) structures for unaccusative VP vs. PredP (35).

a. Chris hungers.	b. Chris is hungry/ a teacher.
<pre> graph TD TP --> e TP --> T_prime[T'] T_prime --> T T_prime --> VP VP --> NP[Chris] VP --> V[hunger <Th>] e --> Chris </pre>	<pre> graph TD TP --> e TP --> T_prime[T'] T_prime --> T T_prime --> PredP PredP --> NP[Chris] PredP --> Pred_prime[Pred'] Pred_prime --> Pred Pred_prime --> AP_NP[hungry/ a teacher] e --> Chris </pre>

Baker supports this distinction between verbs on one side and adjectives and nouns on the other, by pointing out that it is impossible to conjoin two small clauses of different categories that are complements of the verb *made*.

(20) *Eating poisoned food made Chris [sick] and [die]. (Baker 2003:38)

In Bowers' analysis, both *sick* and *die* form a PredP and thus conjunction should be grammatical. For Baker they are different categories – the former is a PredP [sick] and the later is an unaccusative VP [die], and that is how he explains the ungrammaticality of (20).

A similar distinction is illustrated when a predicate formed by a transitive or unergative verb is coordinated with a predicate formed by an adjective or noun phrase. For Bowers each phrase in brackets in (21)-(22) below is a PredP and thus should be able

to coordinate with another PredP. Baker shows that the coordination is ungrammatical because *thirsty* and *champion of the chess class* are PredPs, whereas *drink a can of soda* and *celebrate* are vPs.

(21)*Sitting in the hot sun made Chris [thirsty] and [drink a can of soda].

(22)* Winning the game made Chris [champion of the chess club] and [celebrate].

(Baker 2003:38)

5.3.3 Overt realization of *Pred*

Both Baker and Bowers agree that in English *Pred* has no overt realization (aside from *as* in SC complements of verbs like *regard* mentioned above). Even though the verb *to be* appears with both adjectival and nominal predicates in (23a) below, it disappears in small clauses (23b):

(23) a. Chris is intelligent/ a genius.

b. I consider Chris intelligent/ a genius. (Baker 2003:40)

It also shows up with participial verbs, even though as Baker points out they should be able to theta-mark their subjects independently:

(24) Chris *(is) dying. (Baker 2003:40)

As predicted by any syntactic theory with cross-linguistic aspirations, an element whose presence is hypothesized in the abstract syntactic structure might have an overt realization in some languages, but not in others. Baker gives examples of languages that have an overt realization of *Pred*. In a Nigerian language Edo, when Ns and As act as a

main clause predicates, they must appear with a copula element *–yé* for adjectives and *rè* for nouns.

(25) Edo

a. Èmèrí mòsé.
Mary be.beautiful_V
'Mary is beautiful'.

b. Èmèrí *(yé) mòsèmòsè.
Mary PRED beautiful_A
'Mary is beautiful'.

c. Úyì *(rè) òkhaèmwèn.
Uyi PRED chief_N
'Uyi is a chief'.

(Baker 2003:40)

Crucially, unlike the English copula *be*, these copula elements are never used as auxiliaries to accompany verbs in Edo; the language has a completely distinct set of verbal auxiliaries. Baker also shows that neither *yé* nor *rè* inflect for tense or subject agreement, a fact that further supports the idea that they are non-verbal copulas.

Baker lists several other languages that have an overt realization of *Pred*: Niger-Congo languages, Hausa, Kanuri, Gude, Mande, Somali, and Berber (in Africa); Parji, Chinese, Vietnamese (in Asia); Samoan and Niuean (in Oceania); Canela-Kraho, Chacabo, Paumari (in South America); and finally Wappo, Popoloc and Chemehuevi (in North America). In the following section we consider Baker's claim about the overt *Pred* head in Chemehuevi.

5.4 *Pred* in Chemehuevi

Baker's claim about the overt realization of *Pred* in Chemehuevi is based on Wetzter's (1996) discussion of Chemehuevi color adjectives. According to Wetzter, color terms require what Press (1975) calls a stative suffix *-ga~-ka* to be used predicatively (11). The example (from Press 1975) he uses to illustrate this paradigm is repeated below:

- (26) Pavi-a-n naro'o-ong angka-ga-yü.
 brother-obl-1sg shirt-his red-stat-pres
 'My brother's shirt is red'. (Press 1975:113)

In fact all color adjectives require the suffix *-gai*, as is shown in (27) below:

- (27) a. tupa-ga(i) 'black'
 b. tosa-ga(i) 'white'
 c. owasia-ka(i) 'yellow'
 d. anka-ga(i) 'red'
 e. sawa-ga(i) 'green/blue'
 f. kutca-ka(i) 'gray'
 g. parowa-ga(i) 'purple' (Press 1979, Lexicon)

Based on the Chemehuevi color terms, it is feasible that *-gai* is the overt realization of *Pred*. As you will recall from chapter 3, suffix *-gai* has a meaning of 'be/have', and that is exactly what Baker suggests the interpretation of *Pred* might be in some languages. However, I claim in the following sections that even though Baker's intuition is right in that Chemehuevi does have a realization of *Pred*, it is not *-gai*, but the mysterious clitic copula *-uk*, discussed in the beginning of the chapter.

5.4.1 Verbal predicates in Chemehuevi

In Baker's (2003) theory of predication, verbs are special in that they do not require *Pred* to form predicates, whereas adjectives and nouns do. As we shift our focus to Chemehuevi, recall that in this language the class of adjectives is not uniform: the same root in most cases can form a stative verb or an adjectival nominalization. As we saw in chapter 4, these two instantiations of roots have different syntactic behaviors. They also differ with respect to predicate formation. Chemehuevi verbs, both adjectival/stative and non-adjectival, form predicates without *Pred*, whereas adjectival nominalizations like other nouns require *Pred* to form predicates. Consider the examples below: in (28) and (29) the predicates are formed by finite verbs *nuwkiyü* 'is running' and *pa'ayü* 'is tall' without a copula.

(28) Pa'a-ntü-mü aipa-tci **nukwi-yü.**
 tall-nomin-anim boy-NPN.nom run-pres
 'The tall boy is running'. (Press 1979:57)

(29) Nukwi-tcü ang aipa-tci **pa'a-yü.**
 run-nomin this.anim.vis boy-NPN.nom tall-pres
 'The running boy is tall'. (Press 1979:58)

Here are more examples of verbal predicates, from earlier texts, with no copula attested:

(30) Ma'üpütsi 'uva **nüng-karü-yü...**
 old woman there weave basket-sit-pres
 'An old woman there is sitting weaving a basket...' (JPH&CL, *Horned Owl*, 4)

(31) Pia-ya-vü kwühü tugun-tu'a **wü-wünü-tu'i-ngu.**
 mother-obj-poss take up-toward mom-stand-caus-mom
 'Picking up his mother, he stood her up'. (JPH&CL, *Horned Owl*, 6)

When the predicate is formed with an adjectival or verbal nominalization, as in the examples (32)-(33) below, the copula *-uk* is required.

- (32) Aipa-tci-**k** **pa'a-ntü-m.**
 boy-NPN.nom-cop tall-nomin-anim
 'The boy is tall'.

- (33) Nüü-**k** **nukwi-tcü.**
 1sg-cop run-nomin
 'I run'. (Press 1979:74)

Finite verbs can appear with copula *-uk* optionally, in which case the subject appears to be slightly focused (Press 1979:75).

- (34) Nüü-(**k**) **nuwki-yü.**
 1sg-(cop) run-pres
 'I am running'. (JHJ)

- (35) Manga-(**k**) na'üntci-tci **wünümi-yü.**
 3sg.anim.vis-(cop) girl-NPN.nom dance-pres
 'This girl is dancing'. (JHJ)

We return to the emphatic functions of *-uk* in section 5.5; but for now our main observation is that finite Chemehuevi verbs do not require a copula to form a predicate.

5.4.2 Chemehuevi color terms and predicates formed from them

Now let us consider color terms mentioned by Baker as potential candidates for predicate formation through the functional head *Pred*. As mentioned above, these adjectives consist of a root and an obligatory suffix *-gai/-kai* 'be/have'.

- (36) a. tupa-ga(i) 'black'
 b. tosa-ga(i) 'white'

- c. owasia-ka(i) ‘yellow’
- d. anka-ga(i) ‘red’
- e. sawa-ga(i) ‘green/blue’
- f. kutca-ka(i) ‘gray’
- g. parowa-ga(i) ‘purple’

(Press 1979, Lexicon)

Laird (1976) mentions that the color names are derivatives: “...*tosa-* white; but independently *tosagari*, white, deriving from *tosagah*, is white, being white, having the quality of whiteness” (286). Wetzer (1996) also talks about “the nominal affiliation” of color adjectives across languages and suggests that they may be “the result of semantic bleaching of nouns which originally referred to objects characterized by a specific colour” (11). Recall from our discussion of the Chemehuevi color terms in chapter 3 that these forms are stative verbs and are derived by the incorporation of a root into the verbal functional head ‘little’ v_{BE} , spelled out as the suffix *-gai/-kai* ‘be’. Color roots can appear without *-gai/-kai*, but these cases are limited to incorporation into other verbal roots as in examples (37)-(38) or cases of compounding as in (39)-(40):

- (37) **tupa**-ma’a-ngump-anga-uk^waya
 black-paint-instr-him-you
 ‘You will paint him black’.

(JPH&CL, *The Crow is Made Black*, 4)

- (38) **tupa**-tatsitsi’i-gai
 black-shine-have/be
 ‘glittering black’

(JPH&CL, *The Crow is Made Black*, 7)

- (39) **anka**-nampa
 ‘red foot’

(OCD)

- (40) **anka**-pah
 ‘red water’

(OCD)

Besides color terms, there are other roots that must combine with *-gai* to form adjectives. Among these are *tutca-gai* ‘dirty’, *küwa-gai* ‘sharp’, *yum’i-gai* ‘weak’. These

adjectives, together with color terms, have a high degree of compositionality: they are bound roots that have to incorporate into other stems (verbal or nominal). In fact, they do look a lot like nominal roots incorporated into *-gai* ‘be/have’:

- (41) a. kani-gai
house-have
‘to dwell, have a house’ (OCD)
- b. nüwü-gai
person-be
‘to live’ (OCD)
- c. süna’avi-gai-ngu
coyote-be-mom
‘became a coyote’ (JPH&CL, *Coyote Kills His Mother-in-Law*, 18)

Aside from their derived nature, color adjectives with *-gai~-kai* behave syntactically exactly like other adjectives. As we see from textual examples in (42)-(45) below, color roots form attributive constructions with the nominalizer *-rü* and have an agreement marker *-m/mü* [+anim] (which shows agreement between the ‘adjective’ and the animate noun it modifies).

- (42) Iwa’a-mi **’oasia-ka-rü-m** ma’a-ngumpa-su.
now-you yellow-be-nomin-anim paint-instr-again
‘Now (I) will paint you yellow’. (JPH&CL, *The Crow is Made Black*, 5)
- (43) Aüvisu **angka-ga-rü-m** ma’a-ngumpa-’ami.
soon red-be-nomin-anim paint-instr-you
‘Soon (I will) paint you red’. (JPH&CL, *The Crow is Made Black*, 6)
- (44) Haita-ungwa **angka-ga-rü-mü-**’ungwa ma’a-yü.
then-he red-be-nomin-anim-him paint-past
‘Then he painted him red’. (JPH&CL, *The Crow is Made Black*, 6)

- (45) Haita-‘ungwa **tupa-ga-rü-mü-**‘ungwa ma’a-ngu.
 then-he black-be-nomin-anim-him paint-mom
 ‘Then he painted him black’.

(JPH&CL, *The Crow is Made Black*, 7)

Recall that similar morphology is attested on other adjectival nominalizations within reduced relative clauses, such as the one in (46) repeated below:

- (46) Aipa-tci-k **pa’a-ntü-m.**
 boy-NPN.nom-cop tall-nomin-anim
 ‘The boy is tall’. (Press 1979:74)

Like other adjectives and verbs, color terms can occur with finite morphology

(47) or as nominalizations within a reduced relative clause (48):

- (47) Pavi-a-n naro’o-ong **angka-ga-yü.**
 brother-obl-1sg shirt-his red-be-pres
 ‘My brother’s shirt is red’. (Press 1979:60)

- (48) Nü **angka-ga-rü** wihi puni-vü.
 1sg red-be-nomin knife.obl look-past
 ‘I looked at the red knife’. (Press 1979:57)

The last example is particularly revealing with respect to the predicate formation. Here the color term *angkaga* ‘red’ appears in the attributive use modifying the noun *wihi* ‘knife’ and the predicate itself is the verb *puni-* ‘to see’. Still the suffix *-gai* is present. Clearly if it were the realization of *Pred* as is suggested by Baker, it would have no syntactic reason for being there, since Baker himself believes that “the *Pred* head is not present in the attributive constructions” (2003:193).

It seems therefore that Baker’s notion that *-gai* is the overt realization of *Pred* head in Chemehuevi is wrong, so let us consider another candidate for *Pred* this time referring to the data from nominal predicates.

5.4.3 Nominal predicates in Chemehuevi

The most basic kind of a nominal predicate is the equative nominal predicate such as the ones below. The predicate is formed by a noun that appears with either the non-possessed noun marker (50)-(51) or a possessive marker (52)-(55); the subject is a demonstrative pronoun followed by the enclitic copula *-uk*.

(50) Itc-uk nüüni tamu-pi.
 3sg.inanim.vis-cop 1sg.obl car-NPN.nom
 ‘This is my car.’

(51) Itc-uk kani-Ø.
 3sg.inanim.vis -cop house-NPN.nom
 ‘This is a house.’

(52) Itc-uk nüüni kani-n.
 3sg.inanim.vis-cop 1sg.obl house-1sg
 ‘This is my house.’

(53) Ing-uk tava-tci nüüni pavi-n.
 3sg.anim.vis-cop man-NPN.nom 1sg.obl older brother-1sg
 ‘This man is my older brother.’

(54) Ing-uk nüüni tcaka’i-n.
 3sg.anim.vis-cop 1sg.obl younger brother-1sg
 ‘He is my younger brother.’

(55) Itc-uk nüüni pungu-n.
 3sg.inanim.vis-cop 1sg.obl dog-1sg
 ‘This is my dog.’

(JHJ)

Another kind of a nominal predicate that we find in Chemehuevi is possessive nominal predicates. In the sentences below the pronominal possessor *nüü-* ‘1sg’ is immediately followed by the copula *-uk/-k* and the possessee is augmented by *-gai*

‘be/have’ and the familiar nominalizer *-ntü*, an allomorph of *-tü*. In a way the sentences

(56)-(60) have the meaning ‘I am the one that has X’ or ‘I am the one having X’³⁸.

(56) Nüü-k pavi-ga-ntü.
1sg-cop older brother-have-nomin
‘I have an older brother.’

(57) Nüü-k tcaka’i’-ga-ntü.
1sg-cop younger brother-have-nomin
‘I have a younger brother.’

(58) Nüü-k pungu-ga-ntü.
1sg-cop dog-have-nomin
‘I have a dog.’

(59) Nüü-k kani-ga-ntü.
1sg-cop house-have-nomin
‘I have a house.’

(60) Mango-k o’ntokoro pu’i-ga-ntü.
3sg.anim.vis-cop brown eye-have-nomin
‘He has brown eyes.’

(JHJ)

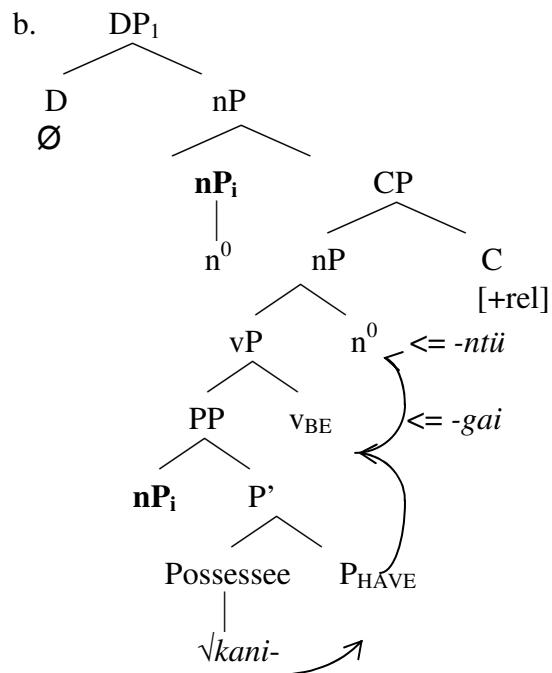
If you recall our discussion of these predicates in chapter 3, Section 3.2.1, I have argued that these predicates consist of a nominal root (Possessee) that incorporates into a functional head P_{HAVE} that further incorporates into a verbal functional head v_{BE} , giving us the possessive meaning (based on Freeze 1992, Harley 1995). In the example below, the root *kani-* ‘house’ successively incorporates into a P_{HAVE} and then ‘little’ v_{BE} (spelled-out as *-gai*) and is nominalized by nominalizer *-ntü* due to [+nasal] feature on the P_{HAVE} .

(61) Partial derivation of a possessive nominal predicate
a. Nüü-k kani-ga-ntü.

³⁸ The Online Chemehuevi Dictionary cites the form *-gantü* as a single morpheme with the meaning ‘the one who has’ or ‘having’: *aapiü-gantü* ‘being that has horns’, *huvi-a-gantü* ‘song owner’, *kukwa-gantü* ‘place or person having wood’, *noo’ovi-gantü* ‘pregnant, fetus having’.

1sg-cop house-have-nomin
 ‘I have a house’ = lit. ‘I am the one having a house’.

(JHJ)



However this is only part of the picture, as we have to explain the presence of the copula *-uk*. Before we consider the full analysis, let us return to adjectival predicates because they have the same structure as the possessive nominal predicates.

5.4.4 Predicates formed by adjectival nominalizations

When used predicatively, adjectival nominalizations always require the enclitic copula *-uk*. Below are examples of predicative adjectival nominalizations from several sources (recorded interviews done by Tylor and Major in 1960s).

(62) Data from Tylor's interviews

- a. Itcu-**k** tutsa-ga-tü.
 3.inanim.here-cop dirty-be-nomin
 'It is dirty'.
- b. Ümi-**k** mugua-tü.
 2sg-cop crazy-nomin
 'You are crazy'.
- c. Umango-**k** hüga-tcü.
 3sg.anim.vis-cop old-nomin
 'He's old'.
- d. Tümpi-ka-tü-**k** mang, üvüsi-tu'i-yü-ang.
 money-have-nomin-cop 3sg.anim.vis bad-caus-pres-3sg.anim.vis
 'He is rich, but I dislike him.'
- e. Nüü-**k** tawaya-ntü.
 1sg-cop ready-nomin
 'I'm ready'.

(63) Data from Major's interviews

- a. Umarü-**k** küwa-ga-ntü.
 3.inanim.vis -cop edge-have-nomin
 'It's sharp'.

b. **Mango-k** no'o-ga-ntü-m³⁹.
 3sg.anim.vis-cop fetus-have-nomin-anim
 'She is pregnant'.

c. **Mango-k** yuhu-ga-ntü-m.
 3sg.anim.vis fat-have-nomin-anim
 'He is fat, that person is fat'.

The so called 'true' adjectives, derived by NPN-markers, consistently form predicates with the copula *-uk*.

(64) Data from Tyler's interviews

a. **Marü-k** haü-pi.
 3.inanim.vis-cop good-NPN
 'That is good'.

b. **Marü-k** üvüpi-ni.
 3.inanim.vis bad-like
 'That is bad'.

(65) Data from Major's interviews

a. **Umanga-uk** üvüpi-wü-ni.
 3sg.anim.vis-cop bad-anim-like
 'He's bad'.

Counter to these examples, Press (1979) maintains that with adjectives the enclitic copula is optional⁴⁰. However, the examples from Press's recorded interviews clearly demonstrate that *-uk* is consistently present with adjectival predicates:

³⁹ Notice that the animacy marker is attested only in two out of eight examples with an animate subject. The animacy marker appears in [+sing] contexts in the speech of Pearl Eddie, but is missing in examples given by Bessie Waco whose Chemehuevi dialect might have been influenced by Southern Paiute (her first language was reportedly S. Paiute). These examples are consistent with Sapir's description of use of 'animate plural' in S. Paiute.

⁴⁰ (i) Aipatci-(k) pa'a-ntü-m.
 boy-(K) tall-nomin-anim
 'The boy is tall'.

(Press 1979:74)

(66) Data from Press's interviews

a. Mutcu-**k** nukwi-pi haü-pi.
fast-cop run-NPN good-NPN
'Fast running is good'.

b. Sampava-**uk** nukwi-pi haü-pi.
slow-cop run-NPN good-NPN
'Slow running is good'.

c. Miauntsi-vaa-ntü-**k** mang.
small-fut-nomin-cop 3sg.anim.vis
'He will be small'.

d. Nüü-**k** pitanga-rü-m.
1sg-cop fast-nomin-anim
'I'm fast'.

(Press 1979:100)

An interesting example showing that *-uk* appears with a predicative adjective, but not with a verbal predicate is repeated below:

(67) Johni-**k** utusamp **mutcu-ntü-mü**, aüvi-ang **yum'i-ga-yü**.
John-cop always strong-nomin-anim, now-he weak-be-pres
'John is always strong, but now he is weak'.

(Press 1979:74)

The copula *-uk* is also consistently attested in the speech of my consultant, Johnny Hill Jr.. Below is a representative sample:

(68) Manga-**k** piso'o-tci nagamü-tcü.
3sg.anim.vis-cop child-NPN.nom sick-nomin
'The child is sick'.

(69) Marü-**k** tüvi-pü mutcu-ntü.
3.inanim.vis-cop ground-NPN.nom hard-nomin
'The ground is hard'.

A possible explanation of this reported optionality lies in the fact that the same content can be elicited either as a predicate/sentence when *-uk* is required (as in (i) above) or as an attributive phrase *aipatci pa'antüm* 'a tall boy' and no copula is necessary there. It could have been a simple misunderstanding of what is being said.

- (70) Marü-**k** pavon'okwi-tcü naakü-hoko-ntü.
 3sg.inanim.vis-cop watermelon-NPN.nom very-big-nomin
 'The watermelon is big'.
- (71) Itch-**uk** nüüni kani-'n tosaga-rü.
 3.inanim.here-cop 1sg.obl house-1sg white-nomin
 'My house is white'.
- (72) Itc-**uk** nüüni tamu-pi ha'ü-pi.
 3.inanim.here-cop 1sg.obl car-NPN.nom good-NPN
 'My car is nice'.
- (73) Mango-**k** anga-vü-ing naakü-mutcu-ntü.
 3sg.anim.vis-cop arm-NPN-3sg.anim.vis very-strong-nomin
 'His arms are strong'.
- (74) Mango-**k** kani-ing mi'aupi-tci.
 3sg.anim.vis-cop house-3sg.anim.vis small-NPN
 'His house is small'.

(JHJ)

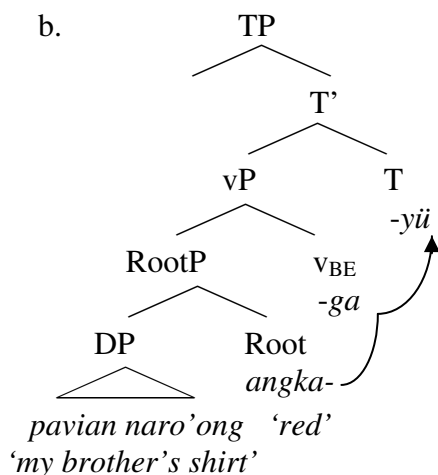
5.4.5 Analysis: copula *-uk* as the overt realization of *Pred*

I claim that the enclitic copula *-uk* in Chemehuevi is the overt realization of *Pred* (in the sense of Baker 2003), a functional head that enables nominals to make predicates. *Pred* takes a nominal as its complement and projects a specifier, which hosts the external argument. In Chemehuevi, *Pred* is required in all nominal predicative contexts: simple nominal predicates and possessive nominal predicates, as well as predicates formed by nominalizations (i.e., reduced relative clauses). Finite verbal predicates, however, do not require *Pred*. Since Chemehuevi does not have underived adjectives, we cannot test his theory of predication in relation to them.

Consider a finite verbal predicate, like the one in (75): the predicate is projected by a stative functional verb v_{BE} , spelled out as $-ga$, into which the root incorporates.

(75) *Derivation of a verbal predicate*

- a. Pavi-a-n naro'o-ong angka-ga-yü.
 brother-obl-1sg shirt-his red-be-pres
 'My brother's shirt is red'.



This analysis also explains why copula $-uk$ is prohibited with imperatives in Chemehuevi: a predicate formed by a verb (imperative or indicative) does not require *Pred*:

- (76) Itcü-(**k*) hivi-ngu.
 this-cop drink-imp
 'Drink this!'

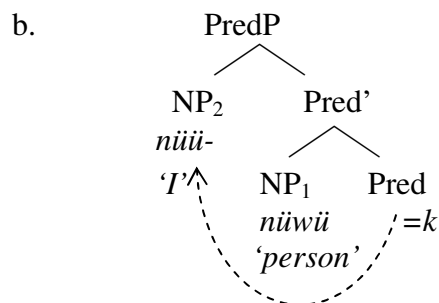
(Press 1979:93)

Now let us turn to a derivation of a nominal predicate as in (77) below: NP_1 merges with *Pred*, which in turn projects a specifier occupied by NP_2 , a predicate is formed. NP_2 may further rise to Spec-TP for case reasons. I adopt 'the Weak Phonology' view of 2nd position clitics defended by Bošković (2001, 2004), who argues that syntax controls the position and movement of all elements (including clitics), but phonology

filters out otherwise grammatical sentences to enforce a 2nd position requirement. Under this view *Pred* is base-generated on the right (as all heads in Chemehuevi, a head final language), but its phonological realization, clitic copula *-k*, surfaces in the second position due to PF requirements on clitics, stating that “clitics occur in the second position of their intonational phrase” (Bošković 2004: 39), roughly defined as a unit of prosodic structure with one main phrasal stress, and whose rightmost boundary is usually followed by a pause.

(77) *Derivation of a simple nominal predicate*

a. Nüü-k nüwü.
 1sg-cop person.NPN.nom
 ‘I am a person/Chemehuevi’.



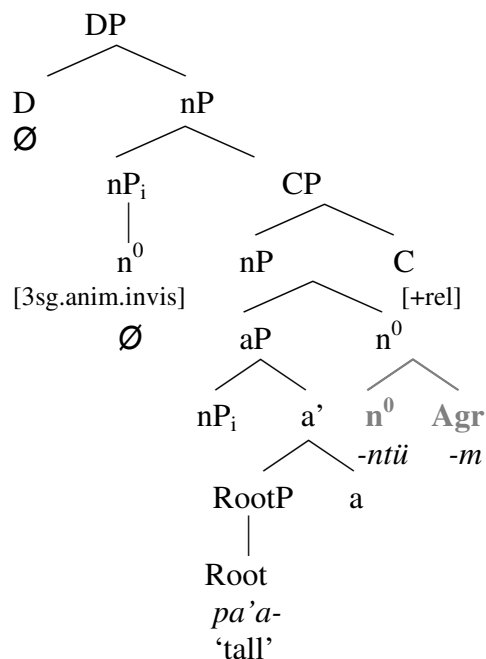
Both possessive nominal and ‘adjectival’ predicates share one feature – the predicate is formed by a headless relative clause containing a nominalizer *-tü*. Compare the following sentences: in both the subject is followed by the enclitic copula *-k* and the predicate consists of a headless relative clause. This RC has a null head and can be roughly translated into English as ‘the one having a brother’ in (78) and ‘the one being tall’ in (79).

(78) Nüü-k pavi-ga-ntü.
 1sg-cop brother-have-nomin
 ‘I have a brother’.

- (79) Aipa-tci-k pa'a-ntü-m.
 boy-NPN-cop tall-nomin-anim
 'The boy is tall' = 'The boy is the one that is tall'. (JHJ)

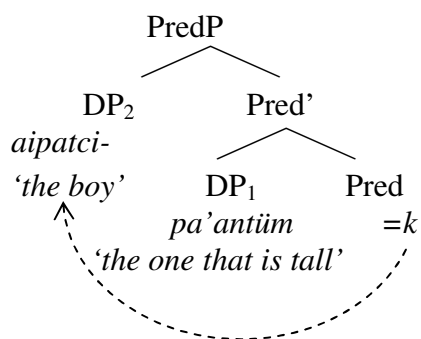
The relative clause that forms the predicates in (78) and (79) has a strong nominalized flavor. This is due to the fact that RCs have an nP head that is phonologically null but structurally behaves as a nominal. Thus it is not surprising that the predicate formed by such an RC requires the *Pred* head to project a specifier/subject, similarly to other nominal predicates. Recall from chapter 4 the structure of the headless RC with the adjectival nominalization: the head is a null head n^0 with some ϕ -features matched with an identical head within the aP; the root is embedded under adjectival head 'little' a, and is further nominalized by n^0 -*ntü*.

- (80) Derivation of an adjectival headless relative clause



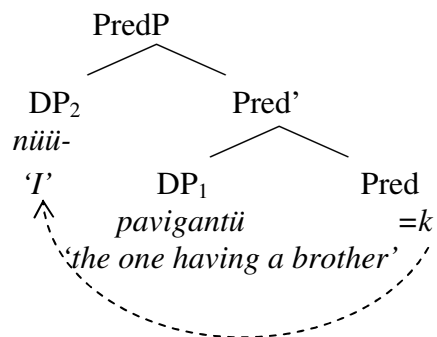
Predicate formation in (81) is identical to what occurs with simple nominal predicates: the *Pred* head is merged with DP_1 and projects a specifier that hosts the subject (DP_2) of the predicate.

(81) Derivation of a predicate formed by a reduced relative clause



The possessive nominal predicates have the same derivation: the only difference is the absence of the animacy marker that marks adjectives and indicates that the category forming ‘little’ *a* is embedded somewhere in the derivation of an adjectival predicate.

(82) Derivation of a possessive nominal predicate



Thus far we have seen that a clear pattern has emerged: finite verbs in Chemehuevi do not require the functional *Pred* head to form predicates; nominals do including simple nouns and nominals with a complex structure. As such we came closer

to understanding the functions and nature of the enclitic copula *-uk*: it is used to form predicates in nominal contexts.

Now we are in the position to address the obligatory nature of copula *-uk* with verbs in so called ‘habitual aspect’, i.e., verbal ‘participles’ in old terminology. Press points out that this is the only case when verbs require the copula, but does not provide any explanation for such a requirement. The exemplary sentences are repeated in (83)-(84):

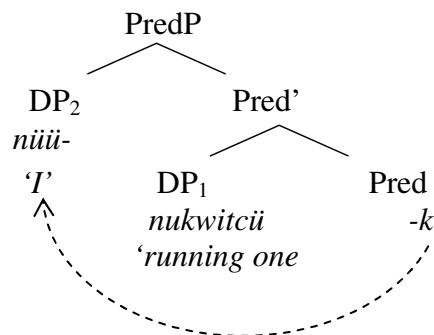
(83) Nüü-**k** tüka-**rü**.
1sg-cop eat-nomin
‘I eat’.

(84) Nüü-**k** nukwi-**tcü**.
1sg-cop run-nomin
‘I run’.

(Press 1979:199)

In chapter 4, we have established that the verb forms like the ones above are not participles but nominalizations that form reduced relative clauses and that is the reason why they behave as nominals. Even though they contain a vP layer, these forms are complex DPs and as such they require *Pred* to form predicates. The derivation of a predicate in (84) will have the following representation:

(85) Derivation of a predicate formed by a verbal noun



5.5 Copula *-uk* as a focus particle: a complete picture

In previous sections we have examined in detail cases where copula *-uk* is obligatory, namely predicates formed from nominals, whatever their internal structure may be. In this section we will turn to the optional uses of *-uk*. Press (1979) mentions that when *-uk* co-occurs with finite verbs (as the ones in (85)-(86) below, it does not contribute anything semantically, but the subject may be slightly focused.

(85) Nüü-(k) huvitu-wa.
 1sg-(cop) sing-pres
 ‘I am singing’.

(86) Manga-(k) na’üntci-tci wünümi-ya.
 3sg.anim.vis-(cop) girl-NPN.nom dance-pres
 ‘This girl is dancing’. (JHJ)

She also mentions the uses of *-uk* with cleft constructions (‘It was John who cut the wood) or in responses to questions like ‘Who caught the fish?’ (Press 1979:75). We find plentiful examples of such focused use in the traditional Chemehuevi stories recorded by Harrington and Laird in their field notes. Below are several of such examples, in which the element followed by *-uk^wa* is focused (emphasis is mine). In each case the speaker is either emphasizing an element in a sentence as in (87)-(90) or juxtaposing two propositions as in (91)-(92).

(87) Manga-’**uk^wa** pi-piso’a-ni-anga ‘üvüpwüni’a...
 3sg.anim.vis-cop RED-child-1sg-3sg.anim.vis bad
 ‘*THAT* one, that child of mine, is bad...’

(JPH&CL, *The Horned Owl*, 4)

- (88) ‘Ava’ana-**uk^wa** juhu-wüwai-k^ya-ku kani-pa-’uk^wa-ya.
 much-cop fat-hang-perf-res house-in-3.inanim.invis-obl
 ‘MUCH fat was hanging in that house’.
 (JPH&CL, *Two Yucca Girls*, 4-5)
- (89) Hu-’umü-**uk^wa** püva-ni’i-k^yai-pagai-k^yai-n^ya-rami-’umü
 emph-3pl.anim.invis-cop stay-cont-perf-travel-perf-nomin-1dual-3pl.anim.invis
 ‘THOSE with whom we stayed while traveling,
 hu-maru’^wa-vü-wa’i-mü.
 emph-3sg.inim.invis-poss way-without-anim
 were not that way.
 (JPH&CL, *Two Yucca Girls*, 13)
- (90) Hu-’^wing^ya-su-’**uk^wa** püva-ni’i-v^ya-na-rami-’ung^wa.
 emph-3sg.anim.here-one-cop stay-cont-fut-nomin-1dual-3sg.anim.invis.
 ‘THIS ONE, we are going to stay with’.
 (JPH&CL, *Two Yucca Girls*, 13)
- (91) Nü-nia-’**uk^wa** püva karü-kai-na,
 1sg-poss-cop in this position sit-res-nomin
 ‘It is MY place where I was sitting,
 ‘itsü-’**ük^wa** püva-ni ‘äüvi ka-karü-kai-na.”
 3.inanim.here-cop in this position-1sg now mom-sit-res-nomin
 THIS is where I have just now sat.’
 (JPH&CL, *The Horned Owl*, 5)
- (92) Hü’ü-aika⁴¹, nü’ü-**k^wa**-aika pagai-ni’i-gai nüwü-gai-va-aika...,
 yes 1sg-cop walk-cont-be person-be=live-fut
 ‘All right, I will live by traveling around,
 ‘ümi-’**ik^wa** kani-va-ni’i-va-ntü-aika...
 2sg-copula house-at-cont-fut-nomin
 YOU are the one that is to stay at house...’.
 (JPH&CL, *Exchanging of Noses*, 1)

I found that the use of *-uk* for the expression of emphasis has parallels in languages related to Chemehuevi. Sapir (1930) mentions a similar enclitic that occurs in

⁴¹ *Aika* is the Mythical Coyote’s speech signature which usually appears after his words in quoted speech.

Southern Paiute in focus constructions, and similarly to Chemehuevi this focus element has the meaning of “that inanimate invisible” *-aqa-*:

(93) Southern Paiute

- a. Nī'-**aq** 'ɔai' 'It is I'.
- b. ^um^wa'ng-**aqa** 'It is he (vis.)'.
- c. ^um^wa'ng-**aqa** nī'ni pīnikaikaina 'It is he is whom I saw'.

(Sapir 1930:270)

One difference between the Chemehuevi *-uk* and the Southern Paiute *-aqa-*: the latter can be used with imperatives, whereas the former is prohibited with imperatives:

(94) qa-aqa 'Sing!'

(Sapir 1930:254)

A similar emphatic suffix is attested in Ute (*Ute Reference Grammar*, 1980), where it marks a focused constituent (focusing on a type, rather than identity of the individual):

(95) Ute

- Ta'wa-ci-**ku** ('ura-'ay) sivaatu-ci paxa-qa-tu
 man-EMP be-imm goat-obj kill-anter-nomin
 'It was a man who killed the goat' (rather than a woman).

(*Ute Reference Grammar*, 1980:207)

There is a significant difference from the Chemehuevi use of emphatic *-uk* in Ute: The use of the suffix *-ku* in Ute precludes the use of the definite article/demonstrative (which marks the noun as being a specific individual), whereas in Chemehuevi *-uk* can co-occur with demonstratives.

(96) Ute

- a. 'u ta'wa-ci 'ura-'ay sivaatu-ci paxa-qa-tu
 that man-subj be-imm goat-obj kill-anter-nomin
 'It was that man who killed the goat'.
- b. * 'u ta'wa-ci-**ku** 'ura-'ay sivaatu-ci paxa-qa-tu
 that man-emph be-imm goat-obj kill-anter-nomin

‘It was that man who killed a goat’ (rather than a woman).

(*Ute Reference Grammar*, 1980:207-208)

Furthermore, we find references to phonologically similar emphatic elements in other Uto-Aztecan languages, further removed from the Southern Numic Chemehuevi, Southern Paiute and Ute. In his survey of Uto-Aztecan languages, Langacker (1977) mentions “an affirmative particle” that appears in focus constructions similar to the English cleft sentences (29). In Classical Nahuatl and Tarahumara this particle is realized as *-ka-* and *-k^wa-* respectively:

(97) Classical Nahuatl

ka ye’waatl in ni-k-čiya
 aff he subj.rel I-him-wait
 ‘It’s him that I’ve been waiting for’.

(Langacker 1977:29)

(98) Tarahumara

Q: yeruka ani-re=ke	A: rioši kwa ani-re-ke
Who say-past=emph	god aff say-past=emph
‘Who said it?’	‘God said it’.

(Langacker 1977:30)

Langacker suggests that this affirmative particle can be reconstructed to Proto-Uto-Aztecan and adds that “affirmative and emphatic elements in UA present a complex picture both synchronically and diachronically” (32).

In this section we have seen evidence from other UA languages that they employ a clitic realized as **k^wa ~ aqa ~ kwa ~ ka ~ ku ~ uk^wa ~ uk*, which has emphatic or affirmative meaning and tends to attach to the first word in a sentence. Clearly, there is a connection between these forms used across languages of this family in cleft sentences and for emphasis. For now, I will leave the investigation of focus/topic structure in Chemehuevi and its correlates in related languages for future research.

5.6 Conclusion

In the beginning of this chapter we have revisited several puzzles of the enclitic *-uk* in Chemehuevi, first mentioned in the work of Press (1979). We have seen that this element is obligatory in some contexts but optional in others. An investigation of the predicational properties of lexical categories in Chemehuevi in light of Baker's (2003) theory of predication showed that this copula is required with nominal predicates, such as possessive and equative predicates, as well as with predicates formed by relative clauses; however, finite verbs form predicates independently. Under this analysis the copula *-uk* is viewed as the overt realization of a functional head *Pred* that facilitates predicate formation of nominal elements. This copula does not inflect for Tense or Aspect, not does it show subject agreement. Historically it is related to the 3rd person inanimate invisible postfix pronoun *-uka* (Press 1979:74, Laird 1976). As for the contexts where *-uk* appears optionally, we have seen indications that such uses are emphatic and have parallels in other Southern Numic language, as well as in other languages of the Uto-Aztecan family. Overall the analysis argued for in the chapter helps understand not only predicate formation in Chemehuevi, but also sheds light on previously unexplained behavior of clitic copula *-uk* and its occurrence with verbal nominalizations.

5.7 Notes for community use: How to build sentences in Chemehuevi

In chapter 4, I mentioned that when we form sentences from adjectives, we need to use copula *-k/-uk* after the first word in the sentence. The same copula is used to form sentences from nouns. Compare adjectival sentences in (99) to sentences based on nouns in (100): both types have *-k/-uk* attached to the first word in the sentence; however, sentences in (99) are based on adjectives (*sick, hard, big, etc.*) and describe a property, whereas sentences in (100) are all based on nouns (*house, car, brother, dog, etc.*) and talk about a person, object or animal.

- (99) a. Manga-**k** piso'otci nagamütü.
 that-cop child sick
 'The child is sick'.
- b. Mariü-**k** tüvipü mutcuntü.
 that-cop ground hard
 'The ground is hard'.
- c. Mariü-**k** pavon'okwitcü naakühokontü.
 that-cop watermelon big
 'The watermelon is big'.
- d. Itch-**uk** nüüni kani'n tosagarü.
 this-cop my house-my white
 'This house of mine is white'.
- e. Itc-**uk** nüüni tamupi ha'üpi.
 this-cop my car nice
 'This car of mine is nice'.

(JHJ)

- (100) a. Itc-**uk** nüüni tamupi.
 this-cop my car
 'This is my car.'

- b. **Itc-uk** kani.
 this-cop house
 ‘This is a house.’
- c. **Itc-uk** nüüni kani’n.
 this-cop my house-my
 ‘This is my house.’
- d. **Ing-uk** tavatci nüüni pavi’n.
 this-cop man my older brother-my
 ‘This man is my older brother.’
- e. **Ing-uk** nüüni tcaka’i’n.
 this-cop my younger brother-my
 ‘He is my younger brother.’
- f. **Itc-uk** nüüni pungu’n.
 this-cop my dog-my
 ‘This is my dog.’

(JHJ)

As for the choice of copula, *-k* is used when the word it attaches to ends in a vowel. This can be seen in (99 a-c), where *-k* follows *manga-* or *marü-*, both ending in vowels. Copula *-uk* is used when it attaches to a word ending in a consonant: the first word in all examples in (100) ends in a ‘hard’ sound *itc-* or *ing-*, that is why *-u* is inserted before *-k*.

The same rules apply when we talk about possession: sentences in (101) talk about something or someone belonging to a person or family. The ‘possessor’, i.e., the person who has something, is mentioned first. Then follows the copula *-k*, followed by the person or object being possessed, together with ending *-gantü*, which means ‘the one having something’. To be more precise, all sentences in (101) follow the pattern ‘I am the one that has something’, where *-k* roughly corresponds to the English ‘am’.

- (101) a. Nüü-**k** pavi-gantü.
 I-cop older brother-having
 ‘I have an older brother.’
- b. Nüü-**k** tcaka’i’-gantü.
 I-cop younger brother-having
 ‘I have a younger brother.’
- c. Nüü-**k** pungu-gantü.
 I-cop dog-having
 ‘I have a dog.’
- d. Nüü-**k** kani-gantü.
 I-cop house-having
 ‘I have a house.’
- e. Mango-**k** o’ntokoro pu’i-ga-ntü.
 He-cop brown eye-having
 ‘He has brown eyes.’

(JHJ)

Finally, let us turn to sentences made up by verbs. These describe actions or activities, like *running*, *dancing*, or *working*. As a rule, we do not find copula *-uk* in this context. As you can see in (102) below, the action words *sing*, *dance* and *run* are followed by endings *-wa* and *-yü* indicating that the action is taking place in the present, or by the ending *-vü* in (103), if the action took place in the past.

- (102) a. Nüü huvitu-**wa**.
 I sing-present
 ‘I am singing’.
- b. Manga na’üntcitci wünümi-**yü**.
 that girl dance-present
 ‘The girl is dancing’.
- c. Manga aipatci nukwi-**yü**.
 that boy run-present

‘The boy is running’.

(JHJ)

- (103) a. Nüü namantua-umü tco-kwipatu’i-**vü**.
 I together-them head-bash-past
 ‘I bashed them together on the head.’

(Press 1979:51)

- b. Nüü nukwi-**vü**.
 I run-past
 ‘I ran’.

(JHJ)

In this section, I described the most common and simple types of sentences in Chemehuevi. We find much more complex structures in connected speech, and especially in traditional oral narratives and songs.

PART TWO
CHEMEHUEVI CAUSATIVE VERBS

CHAPTER SIX

CHEMEHUEVI CAUSATIVES: THEORETICAL BACKGROUND

6.1 Introduction

The study of causative constructions in the languages of the world has been one of the most recurrent topics of linguistic inquiry. Linguists from different theoretical backgrounds have been drawn to causatives for a number of reasons. First of all, any analysis of causatives requires a careful integration of syntax, morphology and semantics. Secondly, causative constructions across languages share a surprising uniformity, which makes them an interesting subject for those who study language universals. Thirdly, the typology of causatives sheds light on crosslinguistic restrictions on possible causative structures, which in turn help linguists understand rules of morphosyntax on a larger scale. Lastly, the study of causation goes beyond strict linguistic inquiry, into the spheres of philosophy and cognitive science.

This part of my dissertation focuses on morphosyntactic aspects of causatives in Chemehuevi, an area that has never been a subject of theoretical exploration. In chapter 6, I present the data on the Chemehuevi causative verbs and outline major theoretical concepts and issues in the theory of causative constructions, including typology of causatives and a sample of syntactic approaches to it. I focus on structural approaches to lexical vs. syntactic causatives in order to build a theoretical foundation for the analysis of the Chemehuevi causative verbs in chapter 7. As in the previous chapters, I view the

Chemehuevi data from the perspective of Distributed Morphology with the focus on how the relative distance of the causative affix from the root influences its distribution and morphosyntactic behavior.

6.2 Variants of the causative morpheme in Chemehuevi

In Harrington's unpublished field notes the most commonly attested causative marker in Chemehuevi is *-tu'i-*⁴². Laird (1976:326) also lists *-tu-*, *-ru-*, *-ro-*, *-tcu-* as instantiations of the causative morpheme. The Online Chemehuevi Dictionary (Elzinga 2006) cites several instances of the causative morpheme: *-tu-*, *-tui-*, *-tu'i-*, *-tcu-*, *-ru-*, and *-ro-*⁴³. The picture seems to be rather complicated due to the presence of allomorphy as well as the effects of several phonological processes.

Press (1979) identifies *-tu'i-* and *-tu-* as two primary causative morphemes in Chemehuevi and mentions that “they may be two separate suffixes, though they vary freely when suffixed to nouns” (63). She also points out that *-tu'i-* is used with verb stems, in which case it does not alternate with *-tu-*. Press's examples of alternation between *-tu'i-* and *-tu-* are repeated in (1) below, where both suffixes are attested with a noun *wihi-* ‘knife’:

- (1) a. *wihi-tcu'i*⁴⁴
 knife-make
 ‘make a knife’

⁴² In some versions of Harrington/Laird's texts */-tu'i-/* is labialized *-tu^wi-*. According to Laird this was the ‘old’ way of speaking, and I assume that *tu'i~tu^wi* alternation is a diachronic one.

⁴³ *-ro-* is a variant of *-ru-* due to vowel harmony.

⁴⁴ Front vowel */i/* causes the palatalization of */t/*.

- b. **wihi-tcu**
 knife-make
 ‘make a knife’ (Press 1979:63)

We find another example of *-tu’i-~-tu-* alternation with a root *ta-* ‘heat of the sun’; this root has a spirantization feature which triggers spirantization of the initial consonant of the causative affixes (i.e., $t > r/\text{Root}_{[+\text{SPRNT}]}$ ___):

- (2) a. **ta-ru’i-ga**
 heat-caus-prt
 ‘It’s hot (outside).’ (Laird 1976:322)

- b. **ta-ru-ga**
 heat-caus-prt
 ‘It’s hot (outside).’ (JHJ)

This alternation between *-tu’i-* and *-tu-* is attested in very few examples, and at this point it is unclear whether the two forms were in free variation within one speaker, variants employed by different speakers in the same way, or diachronic variants. One thing is clear, however: when *-tu’i-* and *-tu-* are attached directly to roots, they become subject to morpho-phonologically conditioned allomorphy, with palatalized *-tcu-*, nasalized *-ntu-/ntu’i-*, and spirantized *-ru-/ru’i-* as corresponding variants. Table #16 illustrates this allomorphy with examples from Laird (1976), Harrington’s unpublished field notes, as well as the Online Chemehuevi Dictionary.

(3) Table #16. Chemehuevi causative affixes attached directly to roots - allomorphy

Allomorphs of v_{CAUS}	$\sqrt{+} v_{CAUS} /-tu-/$	$\sqrt{+} v_{CAUS} /tu'i-/$
Base forms	a. huvi- tu ⁴⁵ - song-caus	
Spirantized	b. wana- ru - web-caus 'make a web' c. ta- ru -ga heat/sun-caus-prt 'it's hot' d. patsa- ru - moccasin-caus 'make moccasins' e. havitüaa- ru bed-caus 'make beds' f. paga-pü- ru - shoe-NPN-caus 'make shoes' g. tsotsivü'a- ru hair-caus 'make one's hair' h. huu- ru arrow-caus 'make an arrow'	p. tugwa- ru 'i- night-caus 'camp for the night' q. ta- ru 'i-ga sun-caus-prt 'it's hot'
Nasalized	i. naro'o- ntu shirt-caus 'make a shirt' j. kwasu- ntu dress-caus 'put on a dress'	r. takwi- ntui circle-caus 'to encircle'

⁴⁵ For some reason unknown to me, in this example *-tu* is not palatalized by the front vowel *i*.

Palatalized	k. wihi- tcu - knife-caus ‘make a knife’ l. soni- tcu - nest-caus ‘make a nest’ m. movi- tsu - beak-caus ‘make a beak’ n. kani- tsu - house-caus ‘make a house’ o. pihi- tsu - breast-make ‘make breasts’	s. wihi- tcu’i - knife-caus ‘make a knife’
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Notice that in all of the examples in Table #16 the causative affix *-tu-* follows the root without an NPN marker, a clear indication that these causative verbs are formed from bare roots, not derived nominal stems. In the case of the causative *-tu’i-*, we know it attaches to a verbal stem because in many examples in Table #17 below there is intervening verbal morphology between the root and the causative affix (example 4aa, 4bb, 4pp among others). When a causative verb is formed from a verbal stem, only *-tu’i-* is attested and none of the morpho-phonological processes illustrated in Table #16 apply. In some cases *-tu’i-* surfaces without the glottal stop as *-tui*, but these forms are clearly in free variation: for example, both are attested with the same stem *-poo-* ‘write’, in examples (4c) below. Table #17 summarizes most of the attested examples of causatives based on verbal stems.

(4) Table #17. Chemehuevi causative affix attached to verbal stems: invariant *-tu'i-*

Non-causative verb stem	V+V _{CAUS}
a. yawi- 'carry'	aa. yawi-kai- tu'i carry-perf-caus 'made carry' aaa. na-yawi'i- tui self-carry-caus 'send'
b. puni- 'see'	bb. puni-kai- tu'i see-perf-caus 'make look, make show, show' bbb. nü-mpuni- tu'i person-see-caus 'show'
c. po'o- 'write'	cc. po'o- tu'i write-caus 'teach school' ccc. nü-mpo'o- tui person-write-caus 'teach school'
d. kwipa- 'hit'	dd. tco-kwipa- tu'i head-hit-caus 'bash together'
e. na'ai- 'burn' (intrans)	ee. na'ai- tu'i burn-caus 'make fire', 'make burn'
f. noyogwa- 'boil' (intrans)	ff. noyogwa- tu'i boil-caus 'make boil'
g. wüyu ^w a- 'hang' (intrans)	gg. wüyu ^w a- tu'i hang-caus 'make hang'
h. havi- 'lie down' (sg)	hh. havi- tu'i lie-caus 'make lie down'
i. kwavi 'lie down' (pl)	ii. kwa-kwavi- tu'i mom-lie-caus 'make them lie down'

j. tüka-	‘eat’	jj. tüka- tu’i eat-caus ‘feed, make eat’
k. maga-	‘give’	kk. maga- tu’i give-caus ‘make give’
l. nukwi-	‘run’	ll. nukwi- tu’i- run-caus- ‘make run’
m. huvitu-	‘sing’	mm. huvitu- tu’i- sing-caus- ‘make sing’
n. wünümi-	‘dance’	nn. wünümi- tu’i- dance-caus ‘make dance’
o. nagami-	‘being sick’	oo. nagami- tu’i- sick-caus ‘make sick’
p. ha’üpiyuwa	‘being well’	pp. ha’üpi-yu-wai- tu’i- good-be-become-caus ‘make well’
q. wünü-	‘stand	qq. wünü- tu’i- stand-caus ‘make stand
r. ‘awa’anu-	‘being wide’	rr. ‘awa’anu- tu’i- wide-caus ‘making wide’
s. pagai-	‘go along’	ss. pagai- tu’i go along-caus ‘let go along’
t. karü-	‘sit down’	tt. karü- tu’i sit-caus ‘make sit down’
u. wü’i-ku-	‘have fallen’	uu. wü’i-ku- tu’i- fall-perf-caus ‘caused to fall’
v. naruga	‘buy’	vv. naruga- tui-kani buy-caus-house ‘store, shop’
w. nüa-gah	‘wind blowing’	ww. nüa- tu’i-ga wind blow-caus-prt ‘causing wind to blow’

x. pitsü	‘suck’	xx. pitsü- tu’i suck-caus ‘make nurse’
y. paya’ai	‘drown’	yy. paya’ai- tu’i drown-caus ‘make drown’

Below are several contextual examples of both *-tu-* and *-tu’i-* from the stories collected by Harrington and Laird, and the same distribution is attested there:

- (5) Kani-vinapa-yu-’ungwa tokwam’i-karü-gu ponia-ya-ungwa-ya
house-behind-obl-3sg.anim.invis sew-sit-pres.ptr skunk-obl-3sg.anim.invis-obl
‘Behind the house, the Skunk was sitting and sewing,
usukwi-huvi-**tu**-kwarü-gai, kavü-a patsa-**ru**-gwa’i.
whistle-song-make-sit-while wood rat skin-obl moccasin-make-prt.
whistling a song, while making moccasins out of wood rat skins’.
(JPH&CL, *Horned Owl*: 4)
- (6) Haita-’unga patsa-**ru**-ngu-su ‘äuga-rü-na,
then-3sg.anim.invis moccasin-make-mom-again new-nomin-nomin
‘Then he put on moccasins again, the new ones,
kani-a-vü takw^ai-**tu’w**i-ngu.
house-obl-poss winding-caus-mom
and circled around his house’.
(JHJ&CL, *Horned Owl*: 6)
- (7) Kümantsi-a paga-pü-**ru**-ngu-su.
other-obl shoe-NPN-make-mom-again
‘Other moccasins he put on again’.
(JPH&CL, *Horned Owl*: 7)
- (8) Haita-’umü kani-a-ukwa-ya puni-kai-wa’i-ngu-’umü,
then-3pl.anim.invis house-obl-3sg.inanim.invis-obl see-perf-go to.pl-mom-3pl.anim.invis
‘Then they went over to look at the house,
novi-pü-a ‘u-agarua hüpü-ka-**tu’i**-tsi puni-kai-ngu.
windbreak-NPN-obl 3.inanim.invis.obl-through holey-be/have-make-make-after see-perf-mom
made a hole through the windbreak and they looked inside’
(JPH&CL, *Horned Owl*: 22)
- (9) ‘Upa’-umü na’ ai-**tu’w**i-k^yai-yu na-yu’^wai-k^ya-rü-ni’i-yü-’ümü.
in-3pl.anim.invis burn-make-perf-past refl-warm-res-nomin-cont-past-3pl.anim.invis

‘Inside they made a fire and were warming themselves’.

(JPH&CL, *Two Date Worm Girls*: 17)

- (10) Haita-’umü havitü-aa-**ru**-ngu-ntsi ha-havi.
 then-3pl.anim.invis bed-obj-make-mom-after mom-lie down
 ‘Then having made their beds, they lay down’.

(JPH&CL, *Two Date Worm Girls*: 17)

So far we have seen that there are two main causative forms in Chemehuevi: *-tu’i*, which with a few exceptions attaches to verbal stems, and *-tu-*, which attaches directly to roots. The first form seems rather invariant (with the exception of free variation between speakers), whereas the second form is subject to several morpho-phonological processes. In the next section I will review basic theory of causative verbs as well as frameworks that will help us sort out differences between the two classes of causative constructions in Chemehuevi.

6.3 Theoretical background

Let us turn to several typological and theoretical issues raised in the literature on causative constructions. The focus is on generative approaches to causatives, particularly on the structural/syntactic explanations of cross-linguistic differences between causatives of different types.

6.3.1 Causatives: definition, valence and argument structure

Causative constructions are the linguistic expression of the conceptual notion of causation. As such, they contain the expression of both cause and effect, and their

argument structure includes participants or entities that initiate either the cause or the caused event. Payne (1997:176) gives the following definition of a causative:

- (11) Definition: a causative is a linguistic expression that contains in semantic/logical structure a predicate of cause, one argument of which is a predicate expressing an effect, [where] the predicate of cause [...] contains the notion of causation [and] the predicate of effect [...] expresses the effect of the causative situation.

An example from English illustrates this definition:

- (12) CAUS (Duck, FETCH (Coyote, ever-lasting water)) = Duck caused Coyote to fetch ever-lasting water.

In this example, the causing predicate takes two arguments, **Causer** or Agent of the predicate of cause (*Duck*) and the predicate expressing the effect (FETCH (*Coyote, ever-lasting water*)); the predicate of effect in turn has two arguments, **Causee** or the Agent of the caused event (*Coyote*) and Theme (*ever-lasting water*). Causer and Causee are not the only thematic roles licensed by causative predicates. In the cases when the instigator of the causing event is inanimate, its thematic role is that of **Cause**, as in the example below:

- (13) Education makes people reach their dreams.

Causative morphology increases the valence of a verb, since in most languages it adds a participant to the existing argument structure⁴⁶. For example, addition of a causative affix to an intransitive monadic verb results in a transitive causative form,

⁴⁶ According to Pylkkanen (2001), in some languages (Finnish, Japanese and as we will see Chemehuevi) there are causatives without Causer (desiderative and adversity causative constructions).

whose argument structure contains the original subject (Causee) and the subject introduced by the transitivizer (Causer). Causatives formed from transitive verbs have three participants: the original subject and object, interpreted as Causee and Theme, and the subject introduced by the transitivizer, the Causer.

In English, both unaccusative and unergative verbs can be transitivized by conversion (examples (14) - (17)), but this process is not fully productive:

(14) English

- a. Anne walked.
- b. John walked Anne to the school.

(15) a. The ship sank.

- b. The captain sank the ship.

(16) a. The tree fell.

- b. The lumberjack felled the tree.

(17) a. The door slammed.

- b. John slammed the door.

Examples from Classical Nahuatl demonstrate a productive formation of causatives from unaccusative and unergative verbs:

(18) Classical Nahuatl

a. Ø-mitz-huetzi-tia

3sSubj-2sObj-fall-caus

'He makes you fall'.

(Launey 1981:190)

b. Ti-nech-tza'tzi-tia

2sSubj-1sObj-shout-caus

'You make me shout'.

(Launey 1981:181)

In many languages causative affixes can also be added to transitive verbs, as is well demonstrated by an example from Classical Nahuatl below:

(19) Classical Nahuatl

Ni-mitz-cua-l-tia in nacatl.

1sSubj-2sObj-eat-NonActive-caus the meat

‘I made you eat the meat’.

(Launey 1981:181)

Cross-linguistically the logical/semantic structure of causatives gives rise to a variety of causative constructions.

6.3.2 Typology of causatives: lexical, affixal and syntactic causatives

The traditional typology of causatives recognizes three prototypical types – lexical, morphological, and syntactic. In the *lexical* causative type, the notion of cause “is wrapped up in the lexical meaning of the verb itself” (Payne 1997:177). According to Payne, morphologically this type of causative can involve (i) no change in the verb (as in the English verb *close*: *The doors closed*, vs. *The boy closed the doors*), (ii) some idiosyncratic change in the verb (*rise* vs. *raise*), (iii) different verb /suppletion (*eat* vs. *feed*, *see* vs. *show*, *die* vs. *kill*, *learn* vs. *teach*).

Morphological or affixal causatives are derived from non-causative stems with the help of causative affixes. In some languages (Chukchee) such formation of causatives is lexically restricted and non-productive; in others (Turkish, Japanese, Malayalam, and Chemehuevi, among others) any verb can form a morphological causative. Examples below illustrate such productivity in Japanese: a causative morpheme *-(s)ase* is added to an intransitive verb in (20a) and to a transitive verb in (20b).

(20) Japanese

a. Hanako ga Ziroo o ik-ase-ta.
 Hanako nom Ziroo acc go-caus-past
 ‘Hanako made Ziroo go.’ (Song 1996:9)

b. Yakko-ga Wakko-ni pizza-o tabe-sase-ta.
 Yakko-nom Wakko-dat pizza-acc eat-caus-past
 ‘Yakko made Wakko eat pizza.’ (Harley 1995:52)

Syntactic, or *periphrastic*, causatives involve two separate predicates, one expressing the notion of cause, the other the notion of effect. Most causatives in English involve a separate causative verb, e.g. *make*, *cause*, *force*, etc. In Korean periphrastic causatives, there is a complementizer *-ke* that clearly separates the two predicates:

(21) Korean

a. cini-ka wus-əss-ta
 Jinee-nom smile-pst-ind
 ‘Jinee smiled.’

b. kiho-ka cini-ka wus-ke ha-əss-ta
 Keeho-nom Jinee-nom smile-comp caus-pst-ind
 ‘Keeno caused Jinee to smile.’ (Song 1996:3)

6.3.2.1 *Affixal causatives and case marking – typological distinctions*

We will focus on the affixal or morphological causatives in the remainder of this chapter, due to a variety of distinctions that are present within this class, which are relevant to the study of the Chemehuevi causatives.

Spencer (1991) identifies three possibilities of case marking for arguments in a causative predicate. The first case is exemplified by Chamorro, where after causativization the original subject is marked accusative and the original object oblique⁴⁷:

(22) Chamorro

Ha	na'-taitai	häm	[i ma'estru]	[ni	esti	na	lebblu].
3sg.subj	caus-read	us-obj	the teacher	obl	this	ptcl	book

'The teacher made us read this book'. (Spencer 1991:253)

For the ease of exposition, I will represent a causative derived from a transitive verb in a schematic fashion (adopted from Spencer 1991), where NP₀ is the Causer, NP₁ is the Causee and the subject of the original non-causative clause, and NP₂ is the Theme and the direct object of the original clause. Thus the Bantu type of causative case marking is schematized below:

(23) NP₁ V NP₂ -> NP_{0-NOM} V-CAUS NP_{1-ACC} NP_{2-OBL}

The second option, exemplified by Swahili, is when the original subject becomes the direct object of the causative, and the original object remains accusative.

(24) Swahili

Maria	a-li-m-lip-isha	Johni	pesa	kwa	watoto.
Mary	she-past-him-pay-caus	John	money	to	children

'Mary made John pay the money to the children'. (Spencer 1991:253)

(25) NP₁ V NP₂ -> NP_{0-NOM} V-CAUS NP_{1-ACC} NP_{2-ACC}

The last option, exemplified by Turkish, is the one in which the old object remains the object and the old subject is demoted to an optional adjunct:

⁴⁷ Harley (pc) points out that this case marking pattern is representative of both morphological causatives (as in Chamorro example) and some periphrastic causatives (as in Romance languages).

(26) Turkish

Dişçi mektub-u müdür-e imzala-t-ti.
Dentist letter-acc director-dat sign-caus-past

‘The dentist made the director sign the letter’.

(Spencer 1991: 253)

(27) NP₁ V NP₂ -> NP_{0-NOM} V-CAUS NP_{1-DAT} NP_{2-ACC}

As we will see in chapter 7, in Chemehuevi only the subject of the main clause (Causer) is marked with the nominative case, while all the other arguments (Causee, Theme) are oblique.

6.3.2.2 Case marking, true objecthood and clause structure of affixal causatives

Case marking of the NPs in causative predicates is only one indicator of their clause structure. An issue related to case marking is the thematic identity of the ‘true’ object of the causative verb. From what we have seen in the previous section, in some languages (as in Turkish) Theme is the true object of the derived verb, but in others (as in Chamorro) Causee is the true object. Marantz (1984) discusses several features of true objecthood and relates them to the clausal structure of causatives. *Monoclausal causatives* behave like regular transitive verbs, i.e., syntactically they are a single clause. Some properties of the monoclausal type of causatives are: (a) the Causee (NP₁) appears as an oblique or indirect object (not the true object) and if there is Verb-Object agreement in a language, the derived verb agrees with the original Theme (NP₂); (b) if the lower object (NP₂), Theme, is a reflexive, only the matrix subject (NP₀) can be its antecedent; (c) if the causative is passivized, Theme (NP₂) is promoted to the matrix subject position (Spencer 1991:268). The corresponding derivations are schematically represented in (28).

- (28) a. NP_{1-NOM} V NP_{2-ACC} -> NP_{0-NOM} V-CAUS NP_{1-OBL/DAT} NP_{2-ACC}
 b. NP_{0-NOM} V-CAUS NP_{1-OBL/DAT} SELF_{0/*1-ACC}
 c. NP_{2-NOM} V-CAUS-PASS (NP_{1-OBL}) (NP_{0-OBL})

Malayalam, a Dravidian language of Southern India, exemplifies the monoclausal type of causative. Here the Theme is the true object: it is marked with the accusative case (29a), when the Theme is a reflexive, only Causer can be its antecedent (29b), and it when the verb is passivized, the Theme is promoted to the subject position (29c).

(29) Malayalam

- a. Amma kuṭṭiyekkoṇṭə aanaye nuḷliccu.
 mother-nom child-instr elephant-acc pinch-caus-past
 ‘Mother made the child pinch the elephant’. (Marantz 1984:276)
- b. Amma kuṭṭiyekkoṇṭə aanaye swaṇtam wiṭṭil weccə nuḷliccu
 mother-nom child-instr elephant-acc self’s house at pinch-caus-past
 ‘Mother made the child pinch the elephant at mother’s/*child’s/*elephant’s house’.
- c. Ammayaal aana nuḷlik’k’ appettu.
 mother-instr elephant-nom pinch-caus-pass-past
 ‘The elephant was caused by mother to be pinched’. (Marantz 1984:282)

The *biclausal causatives* have a different distribution with regards to the ‘true object’: (a) the Causee (NP₁) is the true direct object of the derived verb and the Theme, NP₂, appears as a ‘frozen’ direct object or is marked with an oblique case; the verb agrees with the Causee, if it shows object agreement; (b) if the Theme (NP₂) is a reflexive, only the Causee (NP₁) can be its antecedent; (c) if the causative is passivized, the Causee is promoted to the matrix subject position.

- (30) a. NP_{1-NOM} V NP_{2-ACC} -> NP_{0-NOM} V-CAUS NP_{1-ACC} NP_{2-OBL}

b. NP_{0-NOM} V-CAUS NP_{1-ACC} SELF_{1/*0-OBL}

c. NP_{1-NOM} V-CAUS-PASS (NP_{2-OBL}) (NP_{0-OBL})

The Bantu language, Chi-Mwi:ni, has biclausal causatives, in which the Causee is the true object. Only the higher object (Causee) can serve as the antecedent to the lower object (Theme) reflexive (31b), and can become the subject when the causative verb is passivized (31c):

(31) Chi-Mwi:ni

a. Mwa:limu Ø-wa-áńđik-ish-iz-e wa:na xaṭi.

teacher SP-OP-write-caus-T/A children letter

‘The teacher made the children write the letter’.

(Abasheikh 1979 as cited in Marantz 1984:267)

b. Wa:na wa- áńđik -ish-iz-a: xaṭi na mwa:limu.

children SP-write-caus-pass-T/A letter by teacher

‘The children were made to write a letter by the teacher’. (Marantz 1984:270)

c. Mi ni-m-big-ish-iz-e mwa:na ru:hu-y-é.

I SP-OP-hit-caus-T/A child himself

‘I made the child hit himself’.

(Marantz 1984:271)

In chapter 7, I use these diagnostics to determine the clausal structure of the Chemehuevi causatives. It is also useful to point out that since there are different ways in which one might construe of the term ‘clause’ (vP, IP, CP), in my discussion of the Chemehuevi causatives by ‘monoclausal’ I mean containing one vP, one event and by biclausal two vPs, two events.

6.3.3 Early syntactic analyses of the typology of affixal causatives: Marantz (1984) and Baker (1988)

In the previous sections we have examined several aspects in which affixal causatives can differ and saw that these differences are related to mono- or biclausal structure of the causative predicates. In this section we will consider two theories that attempt to explain these clusters of properties across languages, both of which sprang from the framework of Government and Binding in early 1980s.

6.3.3.1 Marantz (1984): Morphological merger of causative affixes

Marantz (1984) offers one of the first structural solutions to differences in case marking and agreement between mono- and biclausal causatives. He argues that the difference comes from the timing of the morphological merger of the causative affix with the stem. In his theory of grammatical relations, there are several levels of representation: (i) logico-semantic structure (*l-s structure*), which represents “the syntactically encoded semantic dependencies among sentential constituents” (6), (ii) the syntactic structure (*s-structure*), an intermediary between l-s representation and the surface representation, which is essentially a “constituent structure tree” that displays the grammatical relations among constituents, encoded in the l-s structure, (iii) the surface structure where all syntactic operations happen. Crucially, Marantz’s theory does not derive the s-structure from l-s structure, but rather determines whether there is a valid mapping relationship

between the two. Affixes, like other lexical entries, carry features. The features of a derived word are determined by the features of its constituents through the process of percolation: features of every morpheme percolate up the word tree, and features of affixes take precedence over the features of roots, unless an affix is unspecified for any features (Marantz 1984:9).

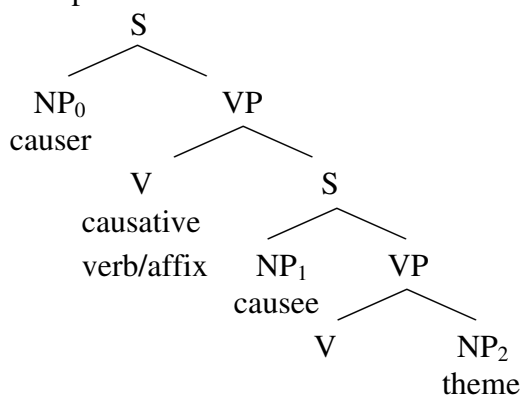
For Marantz (1984:264), a causative affix has an argument structure and a lexical entry:

(32) 'cause' (caused), [+log subject], [+transitive]

Like any other affix with an argument structure, a causative affix is independent at some level and must merge with a root or a stem. The level at which the merger takes place determines whether a language has mono- and biclausal causatives.

Marantz (1984) claims that cross-linguistically all derived causatives, both mono- and biclausal have the l-s structure in (33).

(33) l-s representation of a derived causative (based on Marantz 1984:262)



The monoclausal causative type results when the merger of the causative to the root occurs at l-s structure. Recall that in this type, the lower object is marked as direct objects are marked, and the causee has an oblique marking (instrumental in Malayalam).

(34) Table #18. Monoclausal causative structure (based on Malayalam, Marantz 1984:279, 281)

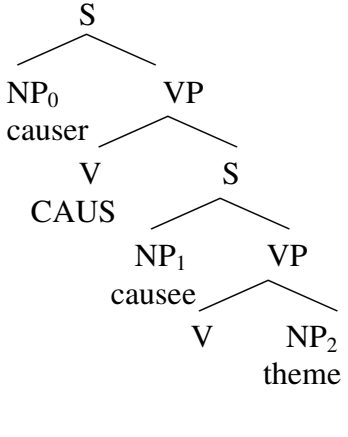
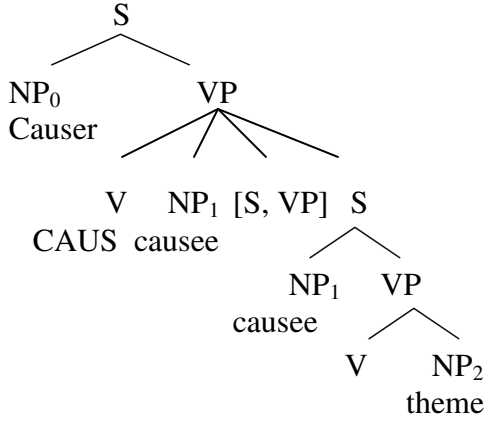
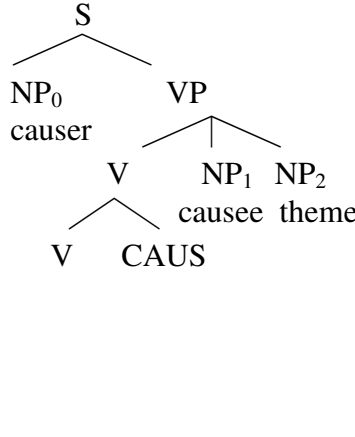
(a) l-s relations	(b) merger at l-s structure
<pre> graph TD S1[S] --- NP0[NP0 causer] S1 --- VP1[VP1] VP1 --- S2[S] VP1 --- V1[V1 CAUS] S2 --- NP1[NP1 causee] S2 --- VP2[VP2] VP2 --- NP2[NP2 theme] VP2 --- V2[V2] </pre>	<pre> graph TD S[S] --- NP0[NP0 causer] S --- VP1[VP1] VP1 --- NP1[NP1 causee] VP1 --- NP2[NP2 theme] VP1 --- V3[V3] V3 --- V2[V2] V3 --- V1[V1 CAUS] </pre> <p>amma kuṭṭiyekkoṇṭə annaye nulli -ik'k'- mother-nom child-instr elephant-acc pinch-caus</p>

The causative predicate (V_1) does not take an object because only the root can assign a syntactic role to its argument, so the only object is that of the root verb (V_2). The causee becomes an indirect argument of the derived verb (V_3) and is marked with the instrumental case in Malayalam. In other languages with the l-s merger, the causee can be expressed as a goal or however the displaced subject of a passive is expressed (Marantz 1984:282).

In languages like Chi-Mwi:ni, the merger of the causative affix with the root takes place at s-structure. Recall that in this case the causee acts like a direct object of the derived causative verb, and the original object is marked as oblique. Marantz argues that the causative morpheme is an ECM predicate, in that it takes the lower proposition as a complement. This ECM construction is Raising-to-Object, in which NP_1 is the subject of

the lower clause and the object of the upper clause. Both the causative and the root verb take objects in I-structure, but only the causee can receive a syntactic role from the derived verb, since Chi-Mwi:ni verbs assign only one role each. The I-s representation, merger at s-structure and the post-merger representation are summarized in (35):

(35) Table #19. Biclausal causative structure (based on Chi-Mwi:ni, Marantz 1984:268-269)

(a) I-s representation	(b) Merger at s-structure	(c) post-merger
 <pre> graph TD S1[S] --- NP0[NP0 causer] S1 --- VP1[VP] VP1 --- V1[V CAUS] VP1 --- S2[S] S2 --- NP1[NP1 causee] S2 --- VP2[VP] VP2 --- V2[V] VP2 --- NP2[NP2 theme] </pre>	 <pre> graph TD S1[S] --- NP0[NP0 Causer] S1 --- VP1[VP] VP1 --- V1[V CAUS] VP1 --- NP1[NP1 causee] VP1 --- S2[S] S2 --- NP1_2[NP1 causee] S2 --- VP2[VP] VP2 --- V2[V] VP2 --- NP2[NP2 theme] </pre>	 <pre> graph TD S1[S] --- NP0[NP0 causer] S1 --- VP1[VP] VP1 --- V1[V] VP1 --- NP1[NP1 causee] V1 --- V2[V] V1 --- CAUS[CAUS] NP1 --- NP1_2[NP1 causee] NP1 --- NP2[NP2 theme] </pre>

So for Marantz (1984), all causatives are formed by morphological merger, but mono-clausal causatives are formed before syntax (which makes them closer to a regular transitive verb), while biclausal causatives are formed in the syntactic component. In the theory we will consider next, developed by Baker in his dissertation, both types of causatives are derived in the syntax, and the differences between mono- and biclausal causatives are the result of two different derivations.

6.3.3.2 Baker (1988): incorporation analysis of affixal causatives

Baker (1988) argues for an incorporation analysis of morphological causatives, in which the V that heads the lower VP incorporates into the causative V head via head movement. The crucial assumptions of this approach are that all morphemes (including the causative affix) are input to the syntax and that the causative morpheme is a Verb projecting the matrix VP. The incorporation of the lower verb into the matrix causative V is subject to independent syntactic principles such as:

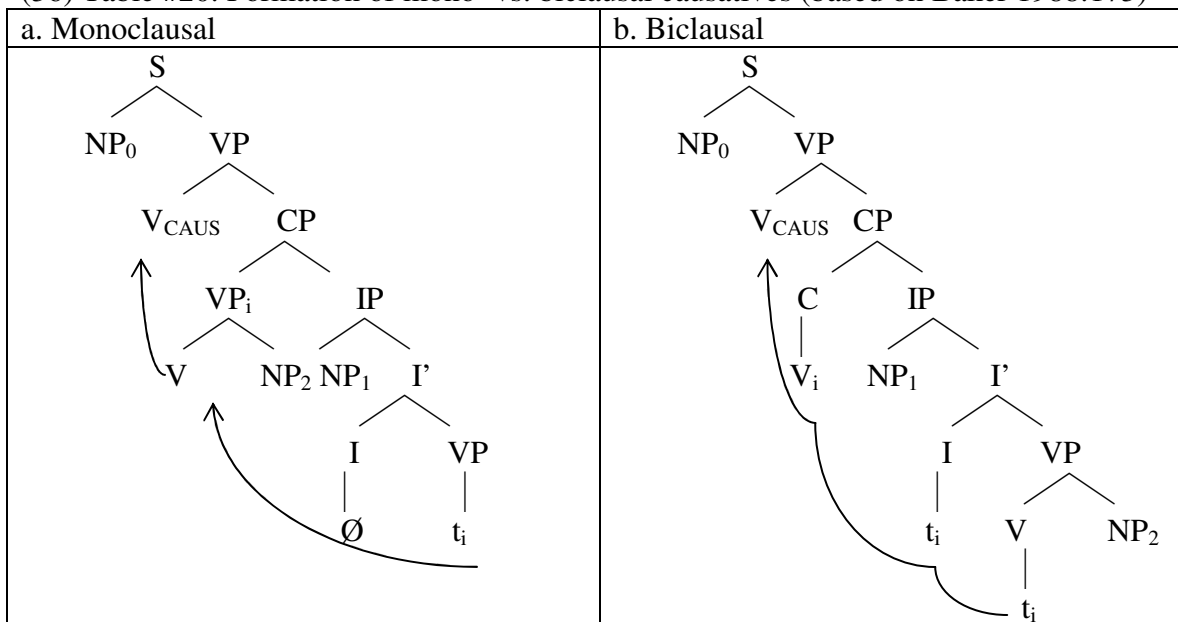
- (i) *Head Movement Constraint*: X may move into Y, where X and Y are zero level categories, only if Y governs the position of X (Travis 1984),
- (ii) *Empty Category Principle*: All traces must be properly governed,
- (iii) *The Uniformity of Theta Assignment Hypothesis*: Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure (Baker 1988:46).

In essence the UTAH guarantees that the same relationship holds between the verb like *melt* and its argument *the ice* (Theme) at D-structure, regardless of whether the Theme surfaces as the subject (*The ice melted*) or as the object (*John melted the ice*). The main significance of the UTAH is in that it “points away from a lexical analysis of *causative*, applicative, and noun incorporation structures and gives theoretical motivation for analysis in terms of syntactic X⁰ movement” (Baker 1988:49).

Baker argues that crosslinguistically two types of causative structures result from differences in Case-marking (173). Monoclausal causatives are attested in languages that lack double object constructions because their verbs cannot assign (structural or inherent) case to more than one NP. So for the Theme in the lower clause to get case, it must tag

along with the whole VP to form a morphological causative, resulting in structure (36a) below. Baker includes Malayalam, Chichewa, Turkish, Jacaltec, Finnish and Quechua in this group (191). Languages that have biclausal causatives must allow their verbs to assign structural or inherent case to more than one NP and consequently also allow true double objects. This is the case in some Bantu languages (Kinyarwanda, Luyia, Mashi, Kimeru, Chimwiini), Choctaw, and Japanese (dative and accusative cases are assigned by triadic verbs). In the biclausal causative, the NP₁ receives the accusative case from the derived verb, while the NP₂ remains in the lower VP with oblique case.

(36) Table #20. Formation of mono- vs. biclausal causatives (based on Baker 1988:173)



Recall that in monoclausal causatives, the lower object NP₂ (Theme) becomes the direct object of the causative verb, while the lower subject NP₁ (Causee) becomes oblique. Baker reaches this result by raising the lower VP in its entirety to Spec-CP; the lower V then incorporates into the causative V (structure 36a). In biclausal causatives, the

lower subject NP₁ (Causee) is the true object of the causative verb (similar to the ECM verb like *believe*), a fact that allows Baker to posit that in this case the lower V incorporates directly into the causative V (structure 36b). The configuration in (36a) allows for the accusative case marking of the NP₂ by the derived causative verb that governs into the VP in the Spec-CP position.

The strength of Baker's theory is in deriving typological differences from independent syntactic principles. He also demonstrates that morphological causative formation through verb incorporation is parallel in many ways to the formation of applicatives, complex verbs, noun incorporation and passive formation. He also offers another testing technique for biclausality – the availability of double object constructions in a language.

6.3.4 Japanese affixal causatives: lexical vs. syntactic

So far we have considered several planes in the typological classification of causatives. Causatives can be lexical, morphological (affixal), or syntactic (periphrastic); they can be either mono- or biclausal with respect to different properties such as case; and can have various combinatorial possibilities across languages (i.e., can be restricted to intransitive stems, or have no restrictions). In this section, we will see that the typology outlined above is not always straightforward. It has been shown in the literature that even though Japanese causatives belong to the *morphological* type, some of them behave as *lexical (unproductive)* causatives, while others -- as *syntactic (productive)* causatives, a fact that

makes a uniform analysis of Japanese causatives quite problematic. Let us consider the Japanese causatives in some detail.

To form a causative in Japanese, the causative morpheme *-(s)ase* is attached to a non-causative verb, and the resulting causative verb acts as a single phonological and morphological entity (Kitagawa 1986, Manning, Sag & Iida 1999). Morphologically all *V+sase* causatives are very similar: they constitute a single phonological word, are subject to phonological allomorphy, *-sase* is a bound morpheme, etc. However, there are a number of clear distinctions that indicate that some *V+sase* causatives are lexical while others are syntactic.

Several syntactic tests have been proposed in the literature on Japanese causatives to distinguish between monoclausal and biclausal causatives (see Harley 2006a:5 for a complete list). Among them are:

- (i) *Scope*: with biclausal causatives VP-modifying adverbials can take scope over either the causing or the caused event (Shibatani 1976, Kitagawa 1994)); also quantifiers on the object of the root can have both high and low scope; with monoclausal causatives there is no ambiguity in scope (Kitagawa 1994);
- (ii) *Control*: subject control adjuncts, such ‘while Xing’ or ‘by means of Xing’ can be controlled by either Causer or Causee only in the case of biclausal causatives;
- (iii) *Binding*: the subject-oriented anaphors can be anteceded by either high or low subject only in bi-clausal causatives (Kuroda 1965, Shibatani 1976);

- (iv) *Disjunction*: only in the case of bi-clausals the causing and the caused events can be conjoined by the disjunct ‘or’;
- (v) *Negative polarity items*: NPI licensed in a single clause domain and as such can indicate a mono-clausal nature of a causative (Kuroda 1965).

Essentially all of these tests are based on the identification of the number of events in a particular utterance. Mono-clausal causatives contain only one event, whereas bi-clausal causatives contain two.

Harley (2006a:6-7) provides the following summary of distinguishing properties of the two types of morphological causatives in Japanese:

- (37) a. *Lexical causatives*:
 - monoclausal
 - can have idiomatic interpretation (Miyagawa 1980, 1984, Zenno 1985)
 - exhibit allomorphy with other lexical causative affixes (Jacobsen 1981)
 - strong speaker sense of ‘listedness’, non-productivity
 - may feed non-productive nominalization (Volpe 2005)
 - behaves syntactically, semantically, and morphologically like a single verb which heads a single verb phrase
- b. *Syntactic causatives*:
 - productive and compositional
 - biclausal by tests involving scope, adverbial control, binding, disjunction
 - monoclausal by tests involving negative polarity and tense
 - make*-causative monoclausal by tests involving case
 - Causee must be animate/Agentive

Notice that syntactic causatives exhibit both monoclausal and biclausal properties, another complication in the face of a uniform analysis. The following examples illustrate a lexical (38) and a syntactic causative (39) in Japanese:

(38) Taroo-ga zisyoku-o niow-ase-ta.
 Taro-nom resignation-acc smell-caus-past
 ‘Taro hinted at resignation’. (Literally: ‘Taro made resignation smell.’)

(39) Hanako-wa Yoshi-o ik-ase-ta.
 Hanako-top Yoshi-acc go-caus-past
 ‘Hanako made Yoshi go.’

(Harley 2006a:3)

The main problem for a uniform account of Japanese lexical and syntactic causatives is that it is tempting to say that lexical causatives are formed in the lexicon, but syntactic causatives -- in the syntax. Such approach would explain the idiosyncratic behavior of lexical causatives, and the productivity of the syntactic ones, as well as the mono-clausal vs. bi-clausal structures of the two. Within Principles and Parameters framework, Baker’s (1988) incorporation analysis of affixal causatives is probably the most representative of such an approach.

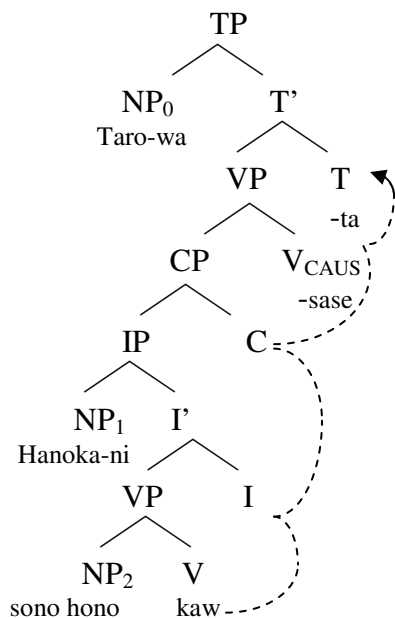
6.3.4.1 Baker’s (1988) incorporation analysis

Recall from the previous section, that Baker argues for two different derivations for monoclausal and biclausal causatives. In his discussion of Japanese causatives, he examines only the syntactic *V+sase* causatives and analyses them as biclausal. Below are Baker’s (1988) example from Japanese and the corresponding derivation:

(40) Taroo wa Hanako ni sono hon o kaw-(s)ase-ta.
 Taro-top Hanako-dat that book-acc buy-caus-past
 ‘Taro made/let Hanako buy that book’.

(Baker 1988:177)

(41) Derivation for a Japanese syntactic causative (based on Baker 1988:185)



Baker's analysis accounts for the behavior of syntactic causatives, but has nothing to say about the lexical causatives, since it is assumed that they are formed in the pre-syntactic module, i.e., in the lexicon.

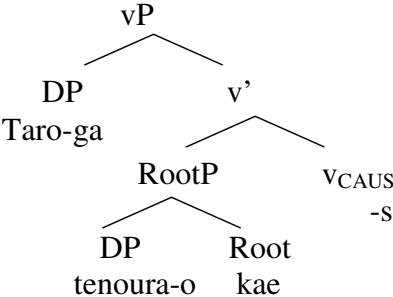
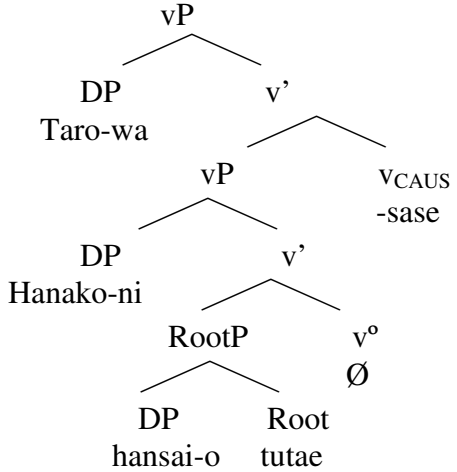
6.3.4.2 Harley (1995, 2005): Event structure and low vs. high-attachment causatives

Harley (1995, 2005) argues for a uniform account for lexical and syntactic causatives in Japanese based on the fact (observed by Miyagawa 1984) that there is a systematic relationship between the two types: "Lexical interpretations of *-sase* are possible only if the root to which it is attached does not have a causative form derived in another way" (Harley 2006a:20). In other words, *V+sase* can have a lexical interpretation only if a verb in question does not have an irregular transitive or ditransitive form. For example, there

are 16 classes of verbs that have irregular inchoative/causative forms (extensively documented by Jacobsen 1992), which involve affixes other than *-sase* to form causative forms (-e- in *ag-e-ru* ‘rise’, -s- in *hita-s-u* ‘soak’, -as- in *hekom-as-u* ‘dent’, -os- in *horob-os-u* ‘ruin’, among others). The main point is that *-sase* is an ‘elsewhere’ morpheme: it appears with both lexical and syntactic causatives, provided that no other causative affix is assigned to that particular stem. Under these circumstances a unified treatment of all *-sase* causatives is needed and, as Harley demonstrates, a syntactic account is the only way to go.

Harley argues for a decompositional Late Insertion view of all Japanese causative verbs, in which a verb is formed from combination of a root with a verbal functional head that can come in different flavors. Causative verbs are formed when a root head-moves to a functional head little v_{CAUS} (which projects an external argument Agent/Causer), whereas inchoative verbs involve head movement of the root to the little v_{BECOME} (which does not project an external argument). Harley shows that lexical causatives denote a single event (similar to the English verb *open*) and are non-compositional, whereas syntactic causatives consist of two events, the causing event plus an event resulting from it, are productive and compositional (similar to the English periphrastic causatives *cause x to die* or *make x leave*). One of the consequences of these structural differences is that in the formation of a lexical causative, v_{CAUS} is immediately adjacent to the root, but in a productive causative, v_{CAUS} takes a whole vP as a complement and is not adjacent to the root. Consider Harley’s examples and corresponding structures repeated below:

(42) Table #21. Japanese lexical vs. syntactic causative structures (Harley 2006a:32)

Lexical causative	Syntactic causative
<p>a.</p> 	<p>b.</p> 
<p>Taro-ga tenoura-o kae-s... Taro-nom palm-acc return-caus 'Taro did it all at once'.</p>	<p>Taro-wa Hanako-ni hanasi-o tutae-sase-ta. Taro-top Hanako-dat story-acc convey-caus-past 'Taro made Hanako convey a story'.</p>

Recall that in the case of lexical causatives there are many morphemes that can compete for the realization of v_{CAUS} (depending on the class the verb belongs to), and *-sase* is the least specified one, an elsewhere morpheme. So in the example (42a) above the VI that wins the competition has the following entry:

(43) *-s-* $\langle \rangle$ v_{CAUS} / [$\sqrt{V+VI+VII}$ ___v],

Since the verb *kae* belongs to class VI, *-s-* is the Vocabulary Item most specified for this context; the elsewhere morpheme *-sase-* is blocked because a more specified morpheme wins the competition. As for the syntactic causative in (335b), there are two little v^0 heads, one introducing the external argument of *tutae* 'convey', and the other the Causer of the causative clause. As Harley (2005) explains, "In a syntactic causative, head-to-head movement of the root up through its own immediately c-commanding v^0 and into the matrix *-sase* v^0 will create a complex structure in which the matrix v_{CAUS}

will not meet the structural description for any special root-conditioned allomorphs of v_{CAUS} ” (31). This is the reason why syntactic causatives in Japanese are always spelled-out with *-sase*⁴⁸.

This syntactic approach to both lexical and syntactic causatives successfully accounts for monoclausal properties of the former and biclausal properties of the latter. The presence of two vPs in syntactic causatives triggers the ambiguity of scope of adverbials, quantifiers and subject control adjuncts, as well as the ambiguity of subject oriented anaphors. vP has also been argued to be a locus of idiomatic interpretation (Marantz 1997), a fact that explains why only lexical *V+sase* causatives can have lexicalized meanings: $v_{\text{CAUS}} -sase$ is adjacent to the root and both of them appear within a single vP. In a syntactic causative $v_{\text{CAUS}} -sase$ is not adjacent to the root and is separated from it by another vP layer. This analysis also captures the fact that both lexical and analytic causatives can contain *-sase*, unless there is a more specified form, i.e., *-sase* is analyzed as an “elsewhere” morpheme. It also explains the impossibility of lexical unergative causatives in Japanese: unergative verbs are essentially vP with an external argument, and lexical causatives are always formed on stems lacking an external argument.

Harley’s analysis also explains why productive causatives behave as monoclausal by tests of tense, case and negative polarity items. These properties can be explained by the size of the complement that v_{CAUS} takes, which is either RootP or vP, neither of which

⁴⁸ Arad (2003) argues that vP is also a locus for allomorphic conditioning: “roots can only condition specific allomorphs of morphemes which are syntactically directly adjacent to them “ (Harley 2006a:36).

contains the TP projection, whose functional head T is responsible for licensing nominative case and carrying tense features. Negative polarity items are licensed by Neg head that also lies outside of vP. The unavailability of T and Neg heads in the lower clause of productive causatives results in a single tense, case and NPI domain.

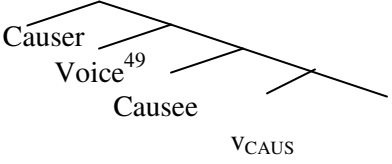
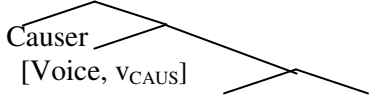
All of the diagnostic tests described above will prove to be instrumental in determining the structure of the Chemehuevi causatives of two types. For additional finer-grained analysis of morphological causatives, let us turn to Pylkkanen (2002).

6.3.4.3 Pylkkanen (2002): Complements of v_{CAUS} and causative typology

Pylkkanen (2002) offers an analysis of affixal causatives in Japanese and other languages that is also based on the size of the complement of the causative head. Crucially for her analysis, the causative head v_{CAUS} does not project a Causer argument, and causativization does not always increase the number of arguments. According to her, one source of crosslinguistic variation is Voice-bundling: v_{CAUS} can occur either by itself or be bundled with Voice, the functional head introducing the external argument. In non-Voice bundling languages, like Japanese and Finnish, the causing event is introduced by v_{CAUS}, but the Causer is projected independently by the Voice head. This is the reason why non-Voice bundling languages have instances of causation without the external argument, like desiderative causatives in Finnish and adversity causatives in Japanese. I will show in chapter 7 that Chemehuevi is a non-Voice bundling language: it has causatives without a Causer, as well as causatives based on unergative verbs. English, on

the other hand, is a Voice-bundling language: its zero-causatives (*melt, burn, close*) depend on Voice and always have a Causer. The corresponding structures for Voice-bundling are repeated in (44a) and (44b) below:

(44) Table #22. Variation: Voice-bundling of the causative head (based on Pylkkanen 2002:75)

a. Non-voice bundling causative (Japanese and Finnish) Chemehuevi	b. Voice-bundling (English)
 <ul style="list-style-type: none"> - v_{CAUS} introduces a causing event - Voice introduces an external argument - Adversity causatives in Japanese - Desiderative causatives in Finnish - Unergative causatives are available (Spec-v_{CAUS}) 	 <ul style="list-style-type: none"> - English zero causatives (<i>melt, burn</i>) depend on Voice for the external argument, and always have a Causer - Unergative causatives are unavailable

Example (45) from Japanese illustrates a case when a causing event is present but the Causer is missing. The sentence can have two meanings, one in which Taro causes his son's death (in which case Voice projects Causer) and the other in which Taro is affected by his son's death, but does not cause it (no Voice, no Causer):

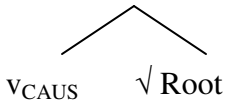
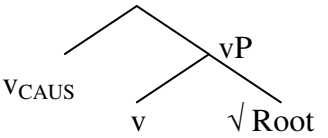
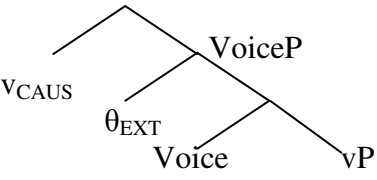
- (45) Taroo-ga musuko-o sin-ase-ta.
 Taro-nom son-acc die-caus-past
 (i) 'Taro caused his son to die'.
 (ii) 'Taro's son died on him'.

The second meaning is known as the *adversity reading* and is only available with lexical causatives (Oerhle & Nishio, 1981). Pylkkanen shows that the availability of both

⁴⁹ The little v is a category-defining functional head in the sense of Marantz (1997), and Voice is the functional head projecting the external argument (Kratzer 1996).

meanings is due to two different structures associated with lexical and productive causatives. She argues that v_{CAUS} can combine with (i) a category-neutral root⁵⁰, (ii) a vP lacking an external argument, and (iii) a vP with an external argument⁵¹, termed a phase-selecting v_{CAUS} . In Japanese, lexical causatives are root-selecting (46a), whereas productive causatives are phase-selecting (46c). I will show in chapter 7 that Chemehuevi v_{CAUS} can select for both roots and VoiceP.

(46) Table #23. Variation: Selection of the causative head (based on Pylkkanen 2002:77)

a. Root-selecting v_{CAUS} (English zero-causative, Japanese lexical causative) Chemehuevi -tu causatives	b. Verb-selecting v_{CAUS} (Finnish <i>-tta</i> causative, Bemba <i>-eshya</i> causative)	c. Phase-selecting v_{CAUS} (Japanese productive causatives, Luganda and Venda causatives) Chemehuevi -tu'i causatives
 <ul style="list-style-type: none"> - No adverbial VP modification of the caused event (*manner adverbs <i>beautifully</i>) - No intervening verbal morphology - Monclausal = one vP 	 <ul style="list-style-type: none"> - Manner adverbs are ok for the caused event - *Agentive adverbs (<i>deliberately, on purpose</i>) - Intervening morphology is ok 	 <ul style="list-style-type: none"> - All adverbial modification is fine including agentive adverbs - All kinds of verbal heads can intervene between CAUS and the root - Biclausal = two vPs

With root-selecting causatives, neither adverbial VP-modification of the caused event, nor verbal morphology between the causative morpheme and the root should be possible.

For example, in Japanese the adversity causative meaning (a diagnostic for lexical causatives) disappears as soon as a VP-adverb like *bravely* or *quietly* is added or when a

⁵⁰ Similarly to Harley's lexical causative.

⁵¹ Similarly to Harley's syntactic causative.

desiderative morpheme *-tai-* intervenes between v_{CAUS} and the root, i.e., as soon as the complement of v_{CAUS} is larger than the root:

- (47) Taroo-ga musuko-o isagiyoku sin-ase-ta.
 Taro-nom son-acc bravely die-caus-past
 (i) ‘Taro bravely caused his son to die’.
 (ii)* ‘Something caused Taro to be adversely affected by his son dying bravely’.
- (48) Taroo-ga musuko-o sini-taku-sase-ta.
 Taro-nom son-acc die-des-caus-past
 (i) ‘Taro made his son want to die’.
 (ii) * ‘Taro was adversely affected by his son wanting to die’.
- (Pylkkanen 2002:99)

Verb-selecting causatives require verbal morphology between the v_{CAUS} and the root, and also allow adverbial modification, except for agentive adverbs, since the external argument is not part of the structure. Thus, Bemba causatives allow lower scope for non-agentive manner adverbs like *quickly* and *beautifully*, but disallow lower scope for agentive adverbs like *on purpose* or *willingly*. Also many verbal affixes (stative and reciprocal heads) can intervene between v_{CAUS} and the root.

- (49) Naa-butwiish-ya Mwape ulubilo.
 I.past-run-caus Mwape fast
 (i) ‘I made Mwape RUN QUICKLY’.
 (ii) ‘I QUICKLY MADE Mwape run’.
 (Givon 1976:343, as cited in Pylkkanen 2002:105)
- (50) Naa-mu-fuund-ishya uku-laanda iciBemba ku-mufulo.
 I-past-him-learn-caus to-speak Bemba on-purpose
 (i) ‘I, on purpose, made him learn to speak Bemba’.
 (ii) *‘I made him on purpose learn to speak Bemba’.
 (Givon 1976:329, as cited in Pylkkanen 2002:105)
- (51) a. Naa-tem-ek-eshya iciimuti.
 I.past-cut-stat-caus stick
 ‘I caused the stick to be cut’.
 (Givon 1976:332, as cited in Pylkkanen 2002:105)

- b. Naa-mon-an-ya Mwape na Mutumba.
 I.past-see-rec-caus Mwape and Mutumba
 ‘I made Mwape and Mutumba see each other’.

(Givon 1976:335, as cited in Pylkkanen 2002:105)

Phase-selecting causatives should not exhibit any of the restrictions with regards to adverb modification or intervening verbal morphology, since they select for VoiceP. In Bantu languages, Venda and Luganda, many morphemes can intervene between CAUS and the root causatives, including a high applicative morpheme (examples 52-53); also both languages allow lower scope agentive modification for causative predicates (examples 54-55).

(52) Venda

- | | | | |
|----|------------------|-----------------|-------------|
| a. | -tshimbila | ‘walk’ | |
| b. | -tshimbi-dza | ‘make walk’ | CAUS |
| c. | -tshimbil-el-a | ‘walk for’ | APPLIC |
| d. | -tshimbil-e-dz-a | ‘make walk for’ | ALLPIC-CAUS |

(53) Luganda

- | | | | |
|----|--------------|-----------------|-------------|
| a. | tambula | ‘walk’ | |
| b. | tambu-z-a | ‘make walk’ | CAUS |
| c. | tambul-ir-a | ‘walk for’ | APPLIC |
| d. | tambul-i-z-a | ‘make walk for’ | APPLIC-CAUS |

(54) Venda

- | | | | | | |
|--|----------------------|---------|---------|------|-------------|
| Muuhambadzi | o-reng-iz-a | Katonga | mod9oro | nga | dzangalelo. |
| salesman | 3sg.past-buy-caus-FV | Katonga | car | with | enthusiasm |
| ‘The salesman made Katonga BUY THE CAR EAGERLY’. | | | | | |

(Pylkkanen 2002:108)

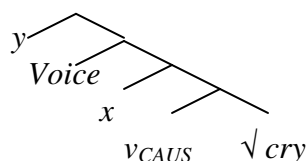
(55) Luganda

- | | | | | | |
|---|------------------------|---------|----------|------------|---------|
| Omusomesa | ya-wandi-sa | Katonga | ne | obu | nyikivu |
| teacher | 3sg.past-write-caus-FV | Katonga | with the | dedication | |
| ‘The teacher made Katonga WRITE WITH DEDICATION.’ | | | | | |

(Pylkkanen 2002:109)

Pylkkanen's typology also makes predictions about the availability of causativizing unergatives within an all-syntactic framework. She argues that in English unergative causatives are unavailable (**John cried the child*) because Voice and CAUS are bundled into one syntactic head and there is no available position for the Causee (x), which in non-bundling languages appears in the specifier of v_{CAUS} , as its other argument.

(56) Root-causativized unergative



In non-bundling voice languages, like Japanese, causativized unergatives are available:

- (57) John-ga kodomo-o nak-asi-ta.
 John-nom child-acc cry-caus-past
 'John made the child cry'.

Pylkkanen's analysis of causatives is quite interesting especially because it provides answers to crosslinguistic variation in the behavior of causative constructions. It also captures the generalization that there is a systematic difference between causative verbs based on roots and those based on verbal stems; in that it is compatible to Harley's low vs. high-attachment causatives. For the purposes of our discussion of the Chemehuevi causatives, three main themes can be taken from Pylkkanen's treatment of crosslinguistic variation of v_{CAUS} : (i) a language can have causatives of two different types (root-selecting and phase-selecting causatives coexist in Japanese and as we will see in Chemehuevi); (ii) in some languages causation is separate from the presence of an

external argument and I will show that Chemehuevi is one of the languages that have causatives without a Causer; (iii) in some languages (like Chemehuevi) Voice (not vP) is a phase, i.e., a domain of special meaning/phonology.

6.4 Conclusion: Low vs. high-attachment analysis of affixal causatives

The idea of high or low attachment of the causative affix has proved quite efficient in explaining differences between lexical and syntactic causatives in Malagasy and Tagalog (Travis 2000), and across several other languages (Svenonius 2005). The idea has also been extended to word formation in general: based on data from Hebrew, Arad (2003) demonstrates systematic differences between words formed directly from roots and those formed from nouns, verbs and adjectives. As Harley puts it, “Attachment of a morpheme to a higher functional projection results in regular morphology and compositional meaning, while attachment of the same morpheme to a lower projection (often the root), results in some allomorphy and potential meaning drift” (Harley 2006a:37). For example, Travis shows that in Malagasy and Tagalog, lexical causatives exhibit a range of idiosyncrasies:

- (i) *Semantic idiosyncrasies*: transitive forms of inchoative verbs often have a non-compositional meaning (in Tagalog, inchoative *sumabog* means ‘X explode’, but the transitive counterpart *nagsabog* means ‘Y scatters X’, not ‘Y explodes X’ (158));

- (ii) *Phonological idiosyncrasies*: in Malagasy, when lexical causative morpheme /an-/ is added to a root with an initial consonant, fusion occurs and the consonant is deleted (an + p => am), whereas usually any combination of a consonant with a nasal results in a nasalization of the consonant (n + p => ^mp) (159);
- (iii) *Lexical idiosyncrasies*: sometimes verbs with causative meaning contain the causative morpheme but have no inchoative counterpart (in Tagalog *m-pag-halo* means ‘Y mix X’, but there is no **humalo* ‘X incorporates’ (157); sometimes the lexical causative is optional (in Tagalog both *hiwa* and *pag-hiwa* ‘X cut Y’ are possible (160)); often a transitive verb does not have a causative morpheme in it (Malagasy *mividy* ‘X buy Y’ (160)).

The syntactic causatives in both languages have none of these idiosyncrasies and are truly productive: they always add an additional Causer, their meaning is always compositional ‘X causes Y to V’, and they trigger regular phonological processes (ex. nasalization in Malagasy, as opposed to fusion).

Table #24 summarizes the differences between lexical and productive morphological causatives (based on Travis 2000, Pytkkanen 2002, Harley 2006a, Svenonius 2005).

(58) Table #24. Summary of properties of low and high attachment causatives

Module	Lexical /root/ low attachment causatives	Productive / verb stem/ high attachment causatives
Phonology	Idiosyncratic	Regular
Morphology	Irregular, allomorphy	Regular

Semantics	Compositionality	Non-compositional, meaning drifts	Compositional
	Availability of inchoative/transitive counterparts	Incomplete paradigms: either one can be missing	Complete paradigms: usually both attested
	Type of causation	Direct	Indirect (permissive, assistive)
	Animacy	No restrictions	Animate Causee
Syntax	Case-marking: Causee Theme	Marked as oblique Marked as direct object	Marked as direct object Marked as oblique
	Theme is Reflexive	Causer as antecedent	Causee as antecedent
	Passive	Theme is subject of passive	Causee is subject of passive
	Event/ clause structure	Single event, mono-clausal predicate	Two events, bi-clausal predicate
	Restrictions on the base	High (unaccusative, intransitive stems only)	Low (intransitive, transitive, unergative); highly productive
	Availability of causation w/out Causer	Possible	Impossible (in Voice-bundling languages) Possible (in non-Voice bundling languages)
	Scope of adverbs, subject control adjuncts and subject oriented anaphors	Unambiguous	Potentially ambiguous
	Iteration	None	Possible stacking
Morphosyntax	Intervening morphology between CAUS and root	None	Possible (ex. aspect morphemes, applicative, etc.)

This summary provides a general framework for the study of Chemehuevi causatives. In chapter 7 we examine causative verbs in Chemehuevi, with several theoretical questions in mind: Where do Chemehuevi causatives fit typologically? Are they monoclausal or biclausal, low-attachment or high-attachment? We will examine

evidence from phonology, morphology, syntax and semantics to show that indeed both types of causatives are attested in Chemehuevi. We will also address issues related to the case marking and syntactic status of the arguments of causative verbs. The answers to these questions help place Chemehuevi causatives within the typology of causative constructions, and also shed light on several theoretical issues in the study of affixal causatives.

6.5 Notes for community use: How use the causative construction ‘make something’ in Chemehuevi

In this part of my dissertation, I discuss two types of causative constructions in Chemehuevi. The first type is used when one is talking about making things, like building a house, sewing a shirt, or baking bread, and instead of using two separate words like in the English examples, Chemehuevi has an option of expressing the idea in one word. Consider several examples below: a root, referring to the object being made, is followed by the causative ending *-tu*, with its variants *-ntu*, *-ru*, and *-tsu/-tcu* (the type of ending must be memorized for each word).

(59) a. **huvi-tu**
 song-make
 ‘sing’

(60) a. **wana-ru**
 web-make
 ‘make a web’

b. **ta-ruga**
 heat-making

‘it’s hot’

c. patsa-**ru**
moccasin-make
‘make moccasins’

d. havitüaa-**ru**
bed-make
‘make beds’

(61) a. naro’o-**ntu**
shirt-make
‘make a shirt’

b. kwasu-**ntu**
dress-make
‘make a dress, put on a dress’

(62) a. wihi-**tcu**
knife-make
‘make a knife’

b. soni-**tcu**
nest-make
‘make a nest’

c. kani-**tsu**
house-make
‘make a house’

After the word of making something is formed, it behaves like a regular verb and can take regular verbal endings, like *-ngu* in the examples below indicating that an action described by the verb has taken place.

(63) Kümantsia pagapü-**ru**-ngu-su.
other shoe-make-mom-again
‘Other moccasins he put on again’.

(JPH&CL, *Horned Owl*: 7)

(64) Haita-’umü havitü-aa-**ru**-ngu-ntsi hahavi.
then-they bed-make-mom-after lay down

‘Then having made their beds, they lay down’.

(JPH&CL, *Two Date Worm Girls*: 17)

To describe how something is made, put the word describing the manner of action in front of the causative construction, as in example (65):

(65) Nüüni piya-n häitci samita’a-ru.
 my mother-my good/well bread-make
 ‘My mother makes good bread’, ‘My mother makes bread well’. (JHJ)

The other type of the causative construction has a meaning of ‘to make someone do something’ and uses ending *-tu’i*. We will consider it in detail in the next chapter.

CHAPTER SEVEN

CHEMEHUEVI CAUSATIVES: STRUCTURE AND TYPOLOGY

In this chapter, I view the two types of causative verbs in Chemehuevi from the perspective of the Low vs. High Attachment Hypothesis. I claim that *-tu* causatives are root causatives and because in their case the causative functional head attaches directly to the root. It is located within the same phase with the root and can be influenced by its idiosyncratic properties, resulting in allomorphy and availability of non-compositional meanings. On the other hand, the *-tu'i* causatives are high attachment; they are a result of attachment of the causative head to a derived verbal stem (VoiceP in the case of agentive verbs). Since in my definition the first phase is marked by the Voice head, the high causative *-tu'i* lies outside the boundaries of the first phase and thus cannot have access to the root and its features. This results in regular syntax and semantics of the *-tu'i* causatives, as well as in the absence of allomorphy.

7.1 Low vs. high attachment causatives in Chemehuevi

As the literature on affixal causatives indicates, the differences between lexical and productive causatives in languages like Japanese, Malagasy and Tagalog can be explained in terms of low vs. high attachment of the causative morpheme (Travis 2000, Pylkkanen 2002, Svenonius 2005, Harley 2006a). In this work I avoid the terms 'lexical'

vs. ‘syntactic’ primarily on the theoretical grounds: within the framework of Distributed Morphology, there is no Lexicon, in the traditional sense of the term, and all words, especially morphologically complex ones, are built in syntax (Halle and Marantz 1993, Harley and Noyer 1999). Consequently this system does not account for the properties of what we traditionally call ‘lexical’ causatives by saying that they are built in the Lexicon, and thus are fundamentally different from ‘syntactic’ causatives that are built in the syntax. The differences are explained by positing different structures for the two types of affixal causatives, particularly by the structural position of the causative affix. When it is attached directly to the root (i.e., ‘low attachment’), the resulting causative verb often exhibits allomorphy, idiosyncratic meaning and more restrictions on the combinatorial possibilities (for example, only unaccusative stems can be lexically causativized in Japanese). High attachment of the causative morpheme, on the other hand, results in regular morphology, compositional meaning and usually very productive attachment. Recall that Arad (2005) formulates this locality constraint on the interpretation of roots in terms of phase theory, defining phase as root+ category-forming functional head. I have argued before that in Chemehuevi category forming heads v^0 , n^0 and a^0 do not mark the first phase, but rather Agent-introducing head Voice does. In section 7.1.2, I will present more evidence for my definition of phase.

Another crucial difference between low and high attachment causatives is their event structure: low attachment causatives are perceived as monoclausal predicates consisting of a single event, whereas high attachment causatives are biclausal and contain two events, that of cause and that of effect. In the following sections, I present evidence

from Chemehuevi phonology, morphology, syntax and semantics to establish that causatives formed from roots consist of one $vP/VoiceP$ ⁵², whereas causatives formed from verbal stems consist of two $vPs/VoicePs$. Before we turn to the analysis of phonological, semantic and syntactic differences between the two types of causatives in Chemehuevi, let us establish where Chemehuevi causatives fit typologically.

7.1.1 Chemehuevi is a non-Voice bundling language

Recall from our discussion of Pylkkanen's (2002) typology of causative constructions that in some language the causative head v_{CAUS} is separate from the Voice head that introduces the external argument, the Causer/Agent. I claim that Chemehuevi is a non-Voice bundling language because (i) there are causative verbs without a Causer, (ii) we can causativize unergative and transitive verbs.

Sentences in ()-() below exemplify causatives without a Causer: there is a causing event, but no external Causer, and the Voice head is absent from the causative derivation. Notice that both *-tu* causatives (example (1)) and *-tu'i* causatives (example (2)) can appear without a Causer, as is predictable in a non-Voice bundling language.

(1) Iva asi-huvi-**tu**-wa.

here salt song-caus-pres
'Salt song is going on'.

(JHJ)

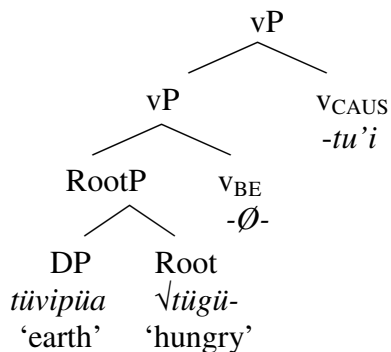
(2) Sünawa-vi kani-gai-mi-yü yunakaimü-wa'i-vü,
coyote-NPN.nom house-have-usit-past company-with-3sg/poss
'Coyote was dwelling with his company'

⁵² Recall that non-agentive verbs formed by v_{BE} and v_{BECOME} do not have a Voice projection.

tüvi-pü-a tügü-**tu'i**-kwa'i-k^ya.
 earth-NPN-obl hungry-cause-away-perf
 when it was hungry times on earth'.

(JPH&CL, *Gila Monster Gets Killed*: 1)

(3) Causatives without a Causer



Examples in (4) through (6) demonstrate that agentive verbs (unergative, transitive and ditransitive) can be causativized with the *-tu'i* causative, an option that is only structurally available to non-Voice bundling languages because Spec-VoiceP hosts the Causer and Spec-vP_{CAUS} can host the Causee (see the diagram in (8) for an illustration).

(4) Ümi-(k) manga-y na'üntci-tci-a wünümi-**tu'i**-yü.
 2sg-cop 3sg.anim.vis-obl girl-NPN-obl dance-caus-pres
 'You are making the little girl dance'.

(JHJ)

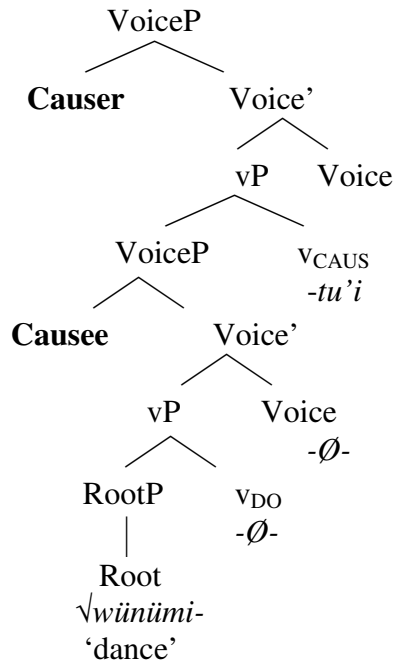
(5) Moa-n nüüni tühi-ya pakaa-kai-**tu'i**-ka-tü.
 father-1sg 1sg.obl deer-obl kill/sg.obj-perf-caus-past
 'My father made me kill the deer'.

(JHJ)

(6) Manga-(k) nüüni ümi pungku-tci-a maga-kai-**tu'i**-ka-tü.
 3sg.anim.vis-cop 1sg.obl 2sg.obl dog-NPN-obl give-perf-caus-perf-nomin
 'He made me give you a dog'.

(JHJ)

(8) Causativization of an agentive verb



With these points in mind let us turn to differences between *-tu* causatives and *-tu'i* causatives, focusing on the availability of morpho-phonological allomorphs first.

7.1.2 Morpho-phonological differences between the two types of causatives

As we have seen in the introduction to chapter 6, when attached to a root, the Chemehuevi causative markers have several allomorphs. Press (1979) identifies several processes at work here. The first is a phonological process of palatalization: in Chemehuevi /t/ becomes palatalized after the front vowel /i/, and consequently the

causative morpheme *-tu'i-* becomes *-tcu'i-*, and *-tu-* -- *-tcu-*⁵³. This process, however, generally does not affect causatives formed from verbal stems, only those formed from roots. Consider examples below: the palatalization rule applies when the causative morpheme is added to the roots *wihi-* ‘knife’ and *soni-* ‘nest’ in (9), but does not apply when it is added to verbal stems *nukwi-* ‘run’ and *yawi'i-* ‘carry’ in (10).

(9) a. *wihi-tcu'i-*
 knife-caus
 ‘make a knife’ (Press 1979:63)

b. *soni-tcu-ga*
 nest-caus-prt
 ‘making a soft, fur-lined nest or den (like a rabbit’s)’ (OCD)

(10) a. *Nüü-k manga-y nukwi-tu'i-vü.*
 1sg-cop 3sg.anim.vis-obl run-caus-past
 ‘I made him run’. (Press 1979:66)

b. *na-yawi'i-tui*
 self-carry-caus
 ‘send’ (OCD)

The second process is morpho-phonological nasalization: a morpheme-initial consonant is nasalized if the preceding morpheme contains a nasal feature (Sapir 1930, Press 1979). The nasalized consonant carries the place feature of the original morpheme-initial consonant, for example /p/ > [mp] and thus remains bilabial, and /t/ > [nt] remaining alveolar. If the causatives *-tu-* or *-tu'i-* are preceded by such a morpheme, they are pronounced as *-ntu-* and *-ntu'i-* respectively. Similarly to palatalization, nasalization is only attested in root+V_{CAUS} environments:

⁵³ Some speakers pronounce *tc* as *ts* (IPA [č] as [ts]).

(11) a. **naro'o-ntu**
 shirt-caus
 'make a shirt'

b. **takwi-ntui**
 circle-caus
 'encircle'

c. **kwasu-ntu**
 dress-caus
 'to get dressed'

(OCD)

Finally, Chemehuevi morpheme-initial stops undergo spirantization if the preceding morpheme contains a spirantization feature (Sapir 1930, Press 1979). In the case of the causative morpheme, the initial /t/ becomes [r] and thus we have allomorphs *-ru'i-* and *-ru-*. Examples in (12) illustrate this pattern, and they also confirm that the spirantization rule, like palatalization and nasalization rules, affects causative affixes attached to roots⁵⁴:

(12) a. **ta-ru'i-g^yah**
 heat-caus-ing
 'It's hot.' (as in hot weather)

(Laird 1976:322)

b. **wana-ru**
 web-caus
 'make a web'

(OCD)

⁵⁴ There is an example of the 'root' causative attaching to a nP, an indication that nPs are not phases in Chemehuevi.

(i) **paga-pü-ru-ngu-su**
 shoe-NPN-caus-mom-again
 '...(he) put on moccasins again...'

(JPH&CL, *Horned Owl*: 7)

This systematic difference between root causatives and causatives formed from verbal stems in the application of phonological and morpho-phonological rules suggests that the two classes of causative constructions are structurally different.

I claim that *-tu* causatives are low attachment and constitute one event, one vP/VoiceP, whereas *-tu'i* causatives are high attachment and consist of two events, two vPs/VoicePs. The first piece of evidence for this claim comes from the application of palatalization, spirantization and nasalization rules in other contexts.

Let us consider another context in which palatalization, spirantization and nasalization regularly apply in Chemehuevi. A good example of these processes is alternations of the nominalizer *-tü-* and related to it palatalized *-tcü-*, nasalized *-ntü-* and spirantized *-rü-*. Representative examples are given in (13) below:

- (13) a. mohara-**tü**
 bitter-nomin
 ‘bitter’ (Press 1979:61)
- b. *palatalized*
 mi’aupi-**tcü**
 small-nomin
 ‘small’ (JHJ)
- c. *nasalized*
 mutchu-**ntü**
 strong-nomin
 ‘strong’ (JHJ)
- d. *spirantized*
 aüga-**rü**
 new-nomin
 ‘new’ (JPH&CL, *Horned Owl*: 6)

Recall from our discussion of attributive modification in chapter 4 that the nominalizer *-tū* attaches above category forming heads a^0 and v^0 , that do not constitute a phase. Regular morpho-phonological rules of nasalization, palatalization and spirantization apply in this context due to the attachment of the head within the same phase. The same morpho-phonological rules do not apply when a corresponding element attaches further up the tree from the root. We find a clear illustration of this rule in comparison between the following pairs: in (14a) the nominalizer n^0 attaches to the vP *nukwi-* ‘run’ triggering palatalization; however in (14b) the causative affix attaches above Voice and the causative morpheme does not undergo palatalization. The phase boundaries are marked with dotted lines.

(14) Table #25. Availability of allomorphy: low vs. high attachment of a functional head

a. <i>nukwi-tcū</i> run-nomin ‘running one’	b. <i>nukwi-tu’i</i> run-caus ‘make X run’ (JHJ)

When we go back to root causatives, it becomes clear that a similar distinction is at work: when the causative morpheme is attached directly to a root, all regular morpho-phonological rules apply, producing a number of allomorphs depending on the stem to

which the causative affix applies. In (15) below, I give the representative derivations for low attachment root+v_{CAUS} verbs *huvitu-* ‘sing’, *wanaru-* ‘make a web’, *naro’ontu-* ‘make a shirt’, and *kanitsu-* ‘make a house’.

(15) Table #26. Derivations for Chemehuevi root causatives with allomorphy

(a) huvi-tu- song-caus ‘to sing’	(b) wana-ru- web-caus ‘make a web’	(c) naró’o-ntu- shirt-caus ‘make a shirt’	(d) kani-tsu- house-caus ‘make a house’
VoiceP / \ Causer Voice’ / \ vP Voice / \ Root v _{CAUS} √huvi- -tu-	VoiceP / \ Causer Voice’ / \ vP Voice / \ Root v _{CAUS} √wana- -ru- [+sprnt]	VoiceP / \ Causer Voice’ / \ vP Voice / \ Root v _{CAUS} √naró’o- -ntu- [+nasal]	VoiceP / \ Causer Voice’ / \ vP Voice / \ Root v _{CAUS} √kani- -tsu-

In derivation (15a), root incorporates into a functional head little v_{CAUS} forming a causing event. During Vocabulary insertion, the Vocabulary Item *huvi-* is inserted as a Root and VI *-tu* for little v_{CAUS}. This allomorph of v_{CAUS} is inserted when the v head attaches directly to the root and there are no morpho-phonological features involved.

(11) *-tu-* <> v_{CAUS} / [√Root__]

Examples (15 b and c) involve cases when the root has a morpho-phonological feature, like [+sprnt] or [+nasal], that influences the phonological realization of a particular morpheme. Within DM, cases like these are accounted for by a set of readjustment rules “that have the form of phonological rules and apply to morphemes after Vocabulary insertion” (Halle and Marantz 1993:128). Thus at Vocabulary insertion, the verbs in (15b) and (c) will all have *-tu* inserted for v_{CAUS}; however, at PF this affix

will undergo a readjustment dependent on the environment where it occurs. The readjustments discussed above are represented below:

(16) $t \rightarrow r / \sqrt{\text{Root}}_{[+\text{SPRNT}]}$ ___

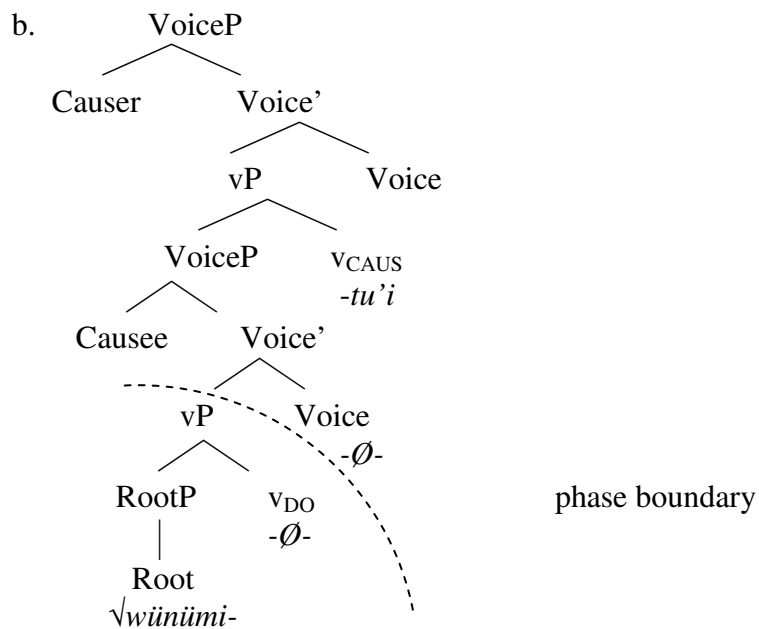
(17) $t \rightarrow nt / \sqrt{\text{Root}}_{[+\text{NASAL}]}$ ___

In fact, these rules apply not only to the causative affix, but in several other environments (ex. nominalizer *-tü* has forms *-rü* and *-ntü*, as well as the palatalized *-tsü*). As for the example (15d), the root *kani-* does not have any features relevant to the insertion of v_{CAUS} , and that is why the least specified VI for a causative attached directly to the roots, *-tu-*, is inserted. The palatalization of *-tu-* occurs in the PF component of the grammar⁵⁵.

Now let us consider a derivation of a high attachment causative verb *wünümitu'i* ‘make someone dance’. Here a causing event, projected by v_{CAUS} is added to an existing event, headed by its own ‘little’ v , resulting in a biclausal structure. Since the verb *dance* is agentive, v_{CAUS} selects for an Agent-projecting Voice head, whose specifier is filled by the Causee. The phase boundary is marked with a dotted line.

(18) a. *wünümi-tu'i*
 dance-caus
 ‘make someone dance’ (JHJ)

⁵⁵ These facts could also be viewed as ‘level ordering effects’ in terms of lexical phonology (Kiparsky 1982, Mohanan & Mohanan 1984), explained here in terms of Phase Theory, since in DM there is no lexicon in which to construct “lexical” phonology.



The root undergoes successive cyclic incorporation into v_{DO} and v_{CAUS} . At the point of Vocabulary Insertion, the root is realized as the VI *wüniimi-* ‘dance’, but none of the VIs for v_{CAUS} that are specified for roots can be inserted into the v_{CAUS} here since it is not adjacent to a root, and more importantly attaches above Voice, i.e., above the first phase. I suggest that this v_{CAUS} is spelled-out as an Elsewhere causative morpheme, a VI inserted as a realization of v_{CAUS} in the underspecified cases.

(19) *-tu'i-* $\langle \rangle$ v_{CAUS} / elsewhere.

All Vocabulary Items for v_{CAUS} are summarized in (20) below:

(20) Vocabulary Items for v_{CAUS} :

- a. *-tu-* $\langle \rangle$ v_{CAUS} / [$\sqrt{\text{Root}} _$]
- b. *-tu'i-* $\langle \rangle$ v_{CAUS} / elsewhere

There is more evidence that palatalization applies under adjacency to the root.

Compare examples in (21)-(22) below: palatalization applies only when v_{CAUS} is

immediately adjacent to the root. In example (22), the oblique marker *-ya* intervenes between the root and causative head and palatalization does not occur.

(21) **kani-tsu-vaa**
 house-make-fut
 ‘will make a house’ (JPH&CL, *Coyote Carries His Own House*: 1)

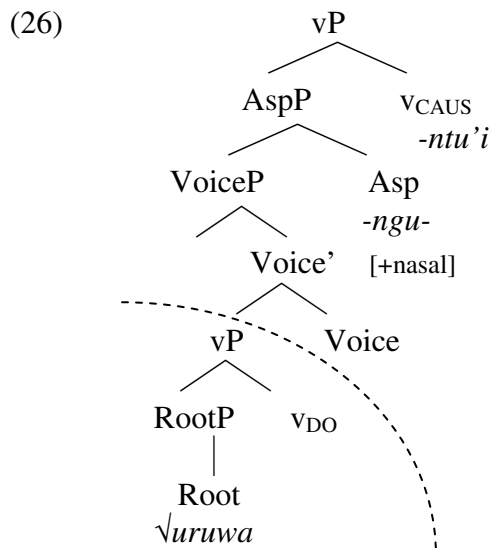
(22) tsuupi-**kani-ya-tu-’u**
 tipi-house-obl-caus-past
 ‘he made a tipi’... (JPH&CL, *The Struggle Over The Mano*: 3)

Also nasalization of v_{CAUS} can be triggered by a momentaneous aspect morpheme *-ngu-* in high attachment causatives. This is predicted because the two functional heads are adjacent and both occur above phase-delimiting Voice. These are the only attested examples of nasalization of a high attachment v_{CAUS} .

(23) panangk^wa-**ngu-ntu’i-v^ya**
 come down-mom-caus-fut
 ‘will cause to descend’ (JPH&CL, *Bat Killed Rattlesnake*: 24)

(24) uruwa-**ngu-ntu’u**
 go-mom-caus.past
 ‘caused to go’ (JPH&CL, *Coyote Is Going To Get Antsi Seed*: 48)

(25) togwai-**ngu-ntu’i-mia**
 half-mom-caus-usative
 ‘(he) filled (it)’ (JPH&CL, *Two Date Worm Girls*: 6)



The next set of examples provides further evidence for defining phase in terms of Voice in Chemehuevi. In examples (27a)-(27c) below, the high attachment causative verb is nominalized with the familiar nominalizer *-tü* and, unlike in examples (13) above, in this high attachment context *-tü* is not subject to root-conditioned allomorphy as is predicted from its position outside the first phase.

(27) a. Manga-k aipa-tci kaa-pi-a kürukwi-tu'i-ka-tü.
 3sg.anim.vis-cop boy-NPN.nom cup-NPN-obl break-caus-perf-nomin
 'The boy broke the cup'. (JHJ)

b. Nüüni mua-n manga-y aipa-tci-a pungu-tci-a
 1sg.obl father-1sg.nom 3sg.anim.vis-obl boy.NPN-obl dog-NPN-obl

tüka-pi-a maga-ka-tu'i-ka-tü.
 food-NPN-obl give-perf-caus-perf-past

'My father made the boy give the dog food'.

(JHJ)

c. Hu-ung manga-y nahumpa tukvo-vi-a
 emph-3sg.anim.invis 3sg.anim.vis-obl oneself meat-NPN-obl

tügu'uni-kai-tu'i-ka-tü.
 cook-perf-caus-perf-nomin

'He made her cook the meat by herself'. (JHJ)

In this section we have seen that in Chemehuevi low attachment causative verbs differ from high attachment causatives in the application of several morpho-phonological processes. We have established that palatalization, nasalization and spirantization apply to the causative head attached directly to the root because they appear within the same phase. Since the high attachment causatives are formed by a phase-selecting v_{CAUS} (in terms of Pylkkanen 2002) that attaches above Voice, no allomorphy is observed. Notice that this low vs. high attachment analysis explains both the presence/absence of allomorphy in the two types of causatives, as well as the cross-linguistic observation that high attachment ('syntactic' in traditional terminology) causatives are dyadic, i.e., involve two events (more on this in section 7.3.3).

7.1.3 Semantic differences between the two types of causatives

The literature on affixal causatives (Harley 2006a, Travis 2000 among others) argues that low attachment causatives are subject to semantic and lexical idiosyncrasies: (i) they can have idiomatic meanings, (ii) they may have no inchoative counterpart, (iii) sometimes they are optional.

Chemehuevi root causatives exhibit several of these properties. First of all, several of them demonstrate the presence of non-compositional meaning. For example, the combination of *kwasu-* ‘dress’ and causative *-ntu* can mean both ‘make a dress’ and ‘to dress, to put on a dress’, even though a very similar causative *naro’o-ntu* can only mean ‘make a shirt’, not ‘put a shirt on’:

- (28) a. *kwasu-ntu*
 dress-caus
 ‘put on a dress’, ‘make a dress’ (OCD)
- b. *naro’o-ntu*
 shirt-caus
 ‘make a shirt’ (OCD)

A similar situation is attested in the next group of examples: the incorporation of the root *tugwa-* ‘night’ into v_{CAUS} results in a low attachment causative *tugwa-ru’^wi* which can have two meanings. In examples (29), we have a compositional meaning ‘the night came’/‘it became night’.

- (29) a. *tugwa-ru’^wi-k^wai-ngu*
 night-caus-perf-mom
 ‘(it) became night’ (JPH&CL, *Coyote Is Going To Get Antsi Seed*: 21)
- b. *togwai-tugwa-ru’^wi-wai-ngu*
 half-night-caus-get-mom
 ‘when it got to be midnight’ (JPH&CL, *Coyote Gets Duck For A Doctor*: 7)
- c. *tasüa-tugwa-ru’^wi-wa’i-ngu*
 dawn-night-caus-get-mom
 ‘when it was getting to be early morning’
 (JPH&CL, *Coyote Fetches The Everlasting Water*: 4)
- d. *tugwa-ru’^wi-ntü-paa*
 night-caus-nomin-water
 ‘night water’ (place name), literally ‘night-causing water’ (OCD)

these root causative verbs are lexicalized, i.e., have undergone a meaning drift and are no longer compositional.

Among semantic idiosyncrasies of low attachment causatives, Travis (2000) mentions that sometimes they are optional, i.e., a productive causative is available in the language. Consider the next pair of examples from Chemehuevi: the same root *takwi-* ‘circle, coil’⁵⁷ is attested with either *-ntui* or *-tu’i*, which indicates that (34) is an example of a root causative because of the availability of nasalization, and (35) is an example of high attachment causative. We can therefore assume that the low attachment variant is optional.

(34) *takwi-ntui*
circle-caus
‘to encircle, to circle around something’ (OCD)

(35) *takwi-tu’i-ngu*
circle-caus-mom
‘to encircle, to circle around something’ (JPH&CL, *The Horned Owl*: 6)

When it comes to the high attachment causative verbs, their meaning is always compositional and both intransitive and transitive forms are always available. Below are several inchoative/transitive pairs from Chemehuevi:

(36) ‘burn’
a. *Haga-ngu-ntsi na’^ai-ka-tü* ‘ivantü?
what-mom-NPN burn-perf-nomin here
‘What was burnt here?’ (JPH&CL, *Coyote Imitates Antlion*: 1)

⁵⁷ Another example with this root:

(i) *takwi-tsupa-ga*
circle-slip loose-prt
‘winding around a person's legs, said of person flinging legs or snake flinging coils’ (OCD)

- b. **na^ai-tuⁱ-k^yai-yü**
 burn-caus-res-pres
 ‘having made a fire’ (JPH&CL, *Two Date Worm Girls*: 17)
- (37) ‘boil’
 a. **noyoga-**
 boil
 ‘boil, intrans.’ (OCD)
- b. Pa-ya-ukwa **noyog^wa-tuⁱ-karürü-mü.**
 Water-obl-3.inianim.invis boil-caus-sit-they
 ‘They were sitting, boiling the water’. (JPH&CL, *Crow Is Made Black*, 11)
- (38) ‘hang’
 a. ‘uni-ngu-ntsi **wüyu^wa-tu^wi-k^yai-n^ya-vü** ‘uva’ana **wayu^wa-kai-ngu-mi-yü...**
 do-mom-after hang-caus-perf-nomin-poss on top of hang-perf-mom-anim/subj-pres
 ‘Having done so, over his thing that he had hung he would hang ...’
 (*Two Date Worm Girls*, 11)
- (39) ‘lie vs. lay’
 a. Haita-’umü havitüa-ru-ngu-ntsi **ha-havi.**
 then-they bed-make-mom-after mom-lie
 ‘Then, having made their beds, they lay down’. (Two Date Worm Girls, 17)
- b. napüwü-a-’umü **ha-havi-tu^wi-k^ya-tsi...**
 old man-obl-they mom-lie-caus-past-after
 ‘having lain the old man down, they...’
 (*The Man Who Was Rooted To The Earth*, 2)
- (40) ‘break’
 a. **kürukwi**
 break
 ‘break’ –tran (stick/bone) (Press 1979, 160)
- b. Manga-k aipa-tci kaa-pi-a **kürukwi-tuⁱ-ka-tü.**
 3sg.anim.vis-cop boy-NPN.nom cup-NPN-obl break-caus-perf-nomin
 ‘The boy broke the cup’. (JHJ)

Low and high attachment causatives also differ with respect to expressing direct vs. indirect causation. Direct causation expresses a direct and immediate relation between actions of the Causer and the caused event; indirect causation often implies that the

Causer was indirectly involved in the caused event, i.e., permitted something to happen or assisted in it happening. Svenonius (2005) explains the difference between the two types in terms of event structure, “...indirect causation is the result of juxtaposing two events, the causing event and the caused event, while direct causation is the result of fusing two subevents into a single event” (4).

This distinction is found in the Chemehuevi data: only high attachment causative verbs have assistive or permissive meanings, translated in glosses as ‘let do X’ or ‘tell to do X’. Below are several examples from Harrington field notes:

- (41) kuna-pika-**tu**ⁱ-tsi-wa’i-sampa
 fire-touch-caus-prt-neg-only
 ‘only without letting it touch fire’ (JPH&CL, *Two Date Worm Girls*: 5)
- (42) pa-pag^ai-**tu**^wi-tsi
 mom-walk/pl-caus-prt
 ‘having let them go...’ (JPH&CL, *The Struggle Over The Mano*: 23)
- (43) wayu^wa-**tu**^wi-
 hang-caus-
 ‘letting it hang...’ (JPH&CL, *Coyote Kills His Mother-in-law*: 8)
- (44) tūgagai-**tu**^wi-yü
 seed gather-caus-past
 ‘tell to come gather seeds’ (JPH&CL, *The Struggle Over The Mano*: 14)

So far we have seen that the two types of causative verbs in Chemehuevi differ systematically in their morpho-phonology and semantics. Root causatives are subjects to root-conditioned allomorphy and meaning drifts, while high attachment causatives do not have allomorphs and their meaning is always fully compositional. In the next section I

will present syntactic differences between *-tu* and *-tu'i* causatives in Chemehuevi that stem from their clause and event structure.

7.1.4 Differences in the clause/event structure: Evidence from syntax and morphosyntax

In this section we consider a cluster of morpho-syntactic properties that distinguish between low and high attachment causatives in Chemehuevi that come from the differences in their clause and event structure. First we consider case marking, passivization and reflexivization of high attachment causatives to establish that they are biclausal in structure (by this I mean that they contain two vPs). These tests can only apply to causativization of transitive clauses of the type ‘make x do y to z’, where x is the Causee and z is the Theme. None of these tests can apply to Chemehuevi root causatives since they are of the type ‘make x’, where x is the incorporated Theme, and they can only contain one vP. However, there are other tests (like intervening verbal morphology, adverbial modification, and availability of causative iteration) that can be applied to root causatives, to which we will return in sections 7.1.3.2. and 7.1.3.4 below.

7.1.4.1 Case marking, passivization and reflexivization of causative verbs

As we discussed in chapter 6, monoclausal and biclausal causatives formed from transitive verbs can differ with respect to case marking of the Causee and the Theme. In

the monoclausal type, the Causee is marked oblique, and the Theme is the true object of the causative verb, marked with the accusative case, triggering object agreement, and becoming a subject if the causative is passivized. On the other hand, in the biclausal causatives, the Causee is the true object of the derived verb, having all the corresponding properties.

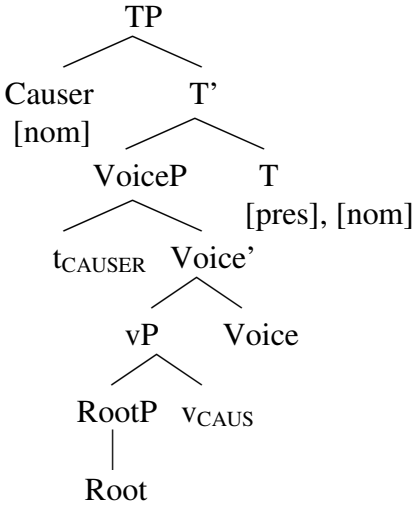
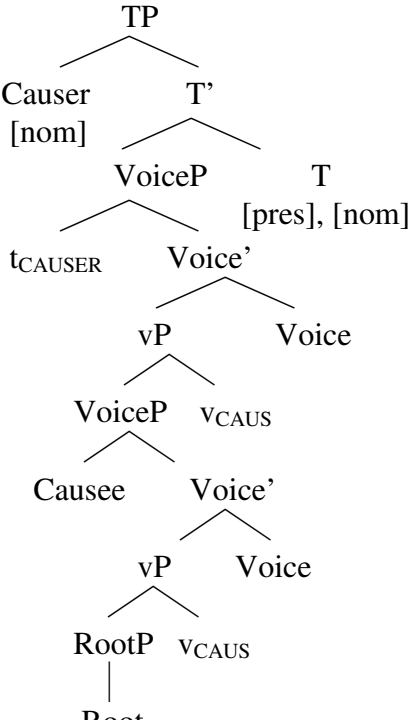
Case marking in Chemehuevi is opaque with regards to the differential status of Causee and Theme, because all non-subjects in matrix clauses are marked with the oblique case. Only one NP is marked with the nominative case, and in all causatives it is the Causer. In this sense, both root causatives and v+CAUS causatives have only one case domain. Examples below illustrate the pattern with root causatives (45), causativized intransitive (46) and ditransitive (47) verb stems:

- (45) Nüüni piya-n häütci samita'a-ru-Ø.
 1sg.obl mother.NPN.**nom**-1sg good bread-caus-pres
 'My mother makes good bread'. (JHJ)
- (46) Umi-k manga-y na'üntci-tci-a wünümi-tu'i-yü.
 2sg.**nom**-cop 3sg.anim.vis-**obl** girl-NPN-**obl** dance-caus-pres
 'You are making the little girl dance'. (JHJ)
- (47) Nüüni mua-n manga-y aipa-tci-a pungu-tci-a
 1sg.obl father-1sg.**nom** 3sg.anim.vis-**obl** boy.NPN-**obl** dog-NPN-**obl**
 tüka-pi-a maga-ka-tu'i-ka-tü.
 food-NPN-**obl** give-perf-caus-perf-past
 'My father made the boy give the dog food'. (JHJ)

The availability of only one nominative case domain is explained under the assumption that nominative case is licensed by T, and since v_{CAUS} takes VoiceP or RootP

as its complements, only one NP, the Causer, can get nominative case and there is only one Tense domain. The corresponding derivations are presented in (48).

(48) Table #27. Case and Tense licensing in Chemehuevi root and verb-stem causatives

a. root causative	b. verb-stem causative
 <p>The syntax tree for the root causative structure is as follows: TP branches into Causer [nom] and T'. T' branches into VoiceP and T [pres], [nom]. VoiceP branches into t_{CAUSER} and Voice'. Voice' branches into vP and Voice. vP branches into RootP and v_{CAUS}. RootP branches into Root.</p>	 <p>The syntax tree for the verb-stem causative structure is as follows: TP branches into Causer [nom] and T'. T' branches into VoiceP and T [pres], [nom]. VoiceP branches into t_{CAUSER} and Voice'. Voice' branches into vP and Voice. vP branches into VoiceP and v_{CAUS}. The lower VoiceP branches into Causee and Voice'. The lower Voice' branches into vP and Voice. The lower vP branches into RootP and v_{CAUS}. RootP branches into Root.</p>

The examination of passivization of the transitive verb stem causatives is more revealing. Passives in Chemehuevi are formed with the passive morpheme *-tü-* and the subject of the passive verb is marked with the nominative case. As examples below indicate, when v+CAUS verbs are passivized, the Themes, ‘anything’ and ‘crow’ are marked with the oblique case and thus cannot be the subjects of the passive verb. The Causee is not present as an overt NP in these examples, but appears as a subject agreement marker *-‘umii-* ‘3anim.pl.invis’ in (49).

- (49) Nanaga-ru'a-pü-tsi-a tüka-**tu'i-tü-na-'umü**-vü
 stuff-give-nomin-NPN-obl eat-**caus-pass**-nomin-3anim.pl.invis-past
 'Anything that they were given to eat,

katsu-**umü** tüka-ka-wa'i-kwa Sünawa-vi-a yunakai-mü
 not-3anim.pl.invis eat-PL-not-PAST Coyote-NPN-obl company-NPN.**nom**
 they did not eat, the Coyote's company'

(JPH&CL, *Crow's Being Made Black*: 10)

- (50) 'Atapü-tsi-a tupa-ga-**tu'i-tü**-pü
 crow-NPN-obl black-be-**caus-pass**-nomin
 'Of Crow's being made black'.

(JPH&CL *Crow's Being Made Black*: 1)

Since with passivized causatives the Theme remains oblique and subject agreement is with the Causee, we can conclude that Causee is promoted to the subject position and is the true underlying object of the verb stem causatives, an indication that the latter are indeed biclausal, i.e., consist of at least two vPs.

Turning to reflexivization of the Theme, recall that in most languages when the Theme is a reflexive, it can be co-indexed only with the Causer in monoclausal causatives, and only with the Causee in biclausal causatives (Marantz 1984, Spencer 1991)⁵⁸. The data from reflexivization in Chemehuevi suggests that *-tu'i* verbs are biclausal. In the first example, reflexive/reciprocal prefix *na-* is co-referential with the Causee only; the sentence literally means 'I made them hit each other on the head'.

- (51) Nüü **na**-ma-ntua-**umü** tco-kwipa-**tu'i**-vü.
 1sg.nom refl-with-toward-3pl.anim.invis head-hit-caus-past
 'I bashed them together.'

(Press 1979:51)

⁵⁸ In Japanese, because of the long-distance nature of the subject-oriented anaphor *zibun*, it can have both Causer and Causee as an antecedent, but only in the biclausal causatives, indicating that they indeed have two subjects and two clauses (Shibatani 1973 among others).

In (52) again the Causee ‘net’ is the only antecedent of the reflexive *na-*:

- (52) Tasüa-gwa’i-ngu, **na**-ma-ntu^wa-ngu-**ntu**’^wi-pü-’ukwa-’ungwa
 morning-get-mom self-by hand-towards-mom-caus-prt-3inanim.invis-3anim.invis

wana-ya-’ukwa-ya.
 net-obl-3.inanim-obl

‘When it got morning, he made the net come together = brought (the ends of) the net together’.

(JPH&CL, *Coyote Pounded His Own Knee*: 33)

The next example also supports biclausality of *-tu’i* verbs: the reflexive pronoun *nahumpa* in an adjunct phrase ‘by oneself’ is co-referential only with the Causee, not with Causer. The position of the Agent-oriented adverbial between the Causee and the Theme suggests its low attachment:

- (53) Hu-ung manga-y **nahumpa** tukvo-vi-a tügu’uni-kai-**tu**’i-ka-tü.
 emph-3sg.anim.invis 3sg.anim.vis-obl oneself meat-NPN-obl cook-perf-caus-perf-nomin
 ‘He made her cook the meat by herself’.
 *‘He himself made her cook the meat.’ (JHJ)

We also find an example in which reflexive *na-* is co-referential with both Causer and the Causee. The example in (54) is ambiguous in that the reflexive *na-* can have both *Ann* (Causer) and *John* (Causee) as antecedents.

- (54) Ann Johni **na**-ha’ü-suntu’i-ngu-**tu**’i-vü.
 Ann John(obl) refl-good-think-mom-caus-past
 ‘Ann made John like her/himself’. (Press 1979: 49)

This sentence behaves exactly like a Japanese biclausal causative – the ambiguity of the reflexive suggests that there are two ‘subjects’ in the domain accessible to the anaphor, Causer and Causee. The availability of two binding domains may be explained by the presence of two causatives, a root causative *-ntu’i* forming the verb *ha’üsuntu’i*

‘to like = to think well’ and the verb stem causative formed when the root causative is further causativized. Reflexive *na-* is bound by *John* in the inner clause, giving us the meaning ‘John liked himself’, which is predictable if root causatives are monoclausal. However, since the Causer *Ann* can also bind the reflexive *na-*, we have to assume that the upper causative vP is also within the same binding domain, i.e., the Chemehuevi reflexive *na-* is a long-distance anaphor.

The example in (55) also shows that the reflexive can be bound by the Causer, however the reflexive is part of an adjunct phrase ‘near/by/next to himself’ and must be attached above the lower vP, in other words this example is not a counter-example to the established pattern of the way reflexivization works in causative verbs.

- (55) Haita-’ungwa ava’atü-mü-a naga-wü-a
 then-3sg.anim.invis many-anim-obl mtn.sheep-pl-obl
- nahumpa-**’umü pa-pagai-**tu**’**wi**-tsi...
 oneself-3pl.anim.invis mom-go along-caus-prt
 ‘Then he let many mountain sheep pass by/next to himself’.
 (JPH&CL, *Coyote Pounded His Own Knee*: 35)

To conclude this section, we have seen that verb stem causatives in Chemehuevi demonstrate several features of biclausality: (i) when the verb is passivized, the Causee becomes the subject of the passive, marked with the nominative case, and (ii) when the Theme is a reflexive, the Causee can be the antecedent, i.e., the subject of the inner clause.

Root causatives cannot be evaluated by the tests of passivization and reflexivization due to their clause structure. Fortunately, there are other tests developed in the literature, which can be applied to root causatives to establish their inner structure.

Among these are intervening verbal morphology, the scope of adverbs and the availability of causative iteration.

7.1.4.2 Intervening verbal morphology

One of the features that distinguish between low and high attachment causatives is the availability of intervening morphology between the causative morpheme and the root. Low attachment causatives, by definition, do not permit any intervening verbal morphology; however, high attachment causatives allow verbal affixes (such as stative, reciprocal, applicative heads, as well as aspect morphology) to appear between the root and the v_{CAUS} (see Pylkkanen 2002 for a full discussion).

This distinction is clearly attested with Chemehuevi causatives. Within the class of low attachment root+CAUS verbs, we do not find any intervening verbal morphology, which is predictable because the root incorporates directly into the v_{CAUS} . As for high attachment v+CAUS constructions, we find several morphemes that can intervene between the root and the v_{CAUS} : the perfective marker *-kai-* (58), momentaneous aspect *-ngu-* (59), as well as light verbs *-gai-* ‘be’ (60) and *-wai-* ‘become’ (61):

(58) *Haita-’ungwa piwa-ya-vü puni-kai-tu’i-yü-su.*
 then-3sg.anim.invis wife-obl-poss look-perf-caus-Tense-also
 ‘Then he made his wife look too’. (JPH&CL, *Horned Owl*: 11)

(59) *panangk^wa-ngu-ntu’i-v^ya*
 come down-mom-caus-fut
 ‘will cause to descend’ (JPH&CL, *Bat Killed Rattlesnake*: 24)

(60) *Marü-k tavapü-tci ika tüvi-pü-a mutchuu-ng^wai-tu’i-ka-t.*
 3sg.inanim.vis-cop sun-NPN.nom 3.inanim.here ground-NPN-obl hard-be-caus-perf-past
 ‘The sun hardened the ground’. (JHJ)

- (61) Manga-k puhaga-ntü manga-y piso-tsi-a
 3sg.anim.vis-cop healer-NPN.nom 3sg.anim.vis-obl child-NPN-obl

hü'üpiyü-**wai-tu'i**-tcü.
 good-**become-caus**-nomin

'The healer made the child feel better'. (JHJ)

This flexibility of high attachment causatives is predictable from their biclausal structure: the lower clause can have aspect markers, as well as light verbs that have an overt realization, as is the case of little v_{BE} and v_{BECOME} . Chemehuevi also has a variety of directional affixes like *-ngun-* 'back' and *-wa'i-* 'away' that can be incorporated into a verbal stem – these can also intervene between the two events within the high attachment causatives:

- (62) ...payü-**ngun-tu'i**-kwa nangaya'aina-'ümi-urü.
 return-back-caus-3inanim.invis anger-2sg-that.invis
 '...(I) caused to return that anger of yours'. (JPH&CL, Horned Owl: 31)

- (63) Haita-'umü kani-gamü-umü
 then-3pl.anim.invis house-owner.pl-3pl.anim.invis
 'Then they, the house owners, made

paüpita-'umü nawa-upa-'umü hui-**ngun-tu'i**.
 blood-3pl.anim.invis tracks-in.loc-3pl.anim.invis flow-**back-caus**
 blood flow into their tracks'.

(JPH&CL, *Horned Owl*: 24)

- (64) pitsäüü-**wa'i-tu'i**-v^ya
 arrive-away-caus-fut
 'will cause to arrive (away from the speaker)'

(JPH&CL, *Bat Killed Rattlesnake*: 11)

An additional piece of evidence in support of biclausality of v+CAUS verb comes from the fact that the subject agreement marker *-ka* can surface when either the Causer or the Causee has a feature [+several] (Press 1979:80)

- (65) Nüü-k mamü tüka-**ka-tu'i**-vü.
 1sg-cop them(obl) eat-sev-cause-past
 ‘I made them (all) eat’. (Press 1979:80)

This example suggests that even an intransitive causative sentence is biclausal since there is number agreement between the Causee and the causativized verb and subject agreement is usually accessible only within the same clause. Press also gives an example of the same subject agreement marker appearing on a passivized verb, when the ‘demoted’ Agent is plural:

- (66) Puusi-k nümi yaki-**ka-kai**-n.
 cat-cop us(obl) bring-sev-perf-nomin
 ‘The cat was brought by us [all]’. (Press 1979:79)

This example further suggests that the verb agrees in number with whatever is the logical subject of the clause.

Intervening verbal morphology is only one of the syntactic diagnostics of biclausality. In the following sections we will consider several syntactic tests, such as scope of adverbs and control of anaphors and adjuncts, to demonstrate that Chemehuevi high attachment causative verbs are biclausal.

7. 1.4.3 Adverbial modification

Adverbial modification is used as a test of biclausality because adverbs modify events and if there are two events, usually two scopes are available. Potentially ambiguous scope of adverbs in causative sentences indicates that there are two events within a predicate, since each event is a vP that can provide a potential attachment site for an event-modifying adverbial adjunct. Pytkkanen (2002) further demonstrates that adverbs of different types can be used to test the internal structure of causative verbs: "...those which exhibit no ambiguities for verbal modifiers [are] root-selecting; those that exhibit scope ambiguities with non-Agent-oriented verbal modifiers [are] verb-selecting; and those that have no restrictions with regards to adverbial modification [are] phase-selecting [causatives]"(95)⁵⁹.

Turning to the Chemehuevi causatives, we see that root causatives behave predictably with regards to the scope of adverbs. The word *haütcı* 'good/well' in (67) is ambiguous: it can either modify the incorporated root *samita'a-* 'bread' or the action of the bread-maker. However, an Agent-oriented adverbial *nahumpa* 'by oneself' can only modify the Agent in (68):

- (67) Nüüni piya-n **haütcı** samita'a-ru-Ø.
 1sg.obl mother.NPN.nom-1sg good/well bread-caus-pres
 'My mother makes *good* bread'.

⁵⁹ Recall Pytkkanen's discussion of ambiguous scope of adverbs in Bemba verb selectin causatives in chapter 6.

(i) Naa-butwiish-ya Mwape **ulubilo**.

I.PST-run-CAUS Mwape **fast**

'I made Mwape RUN QUICKLY', 'I QUICKLY MADE Mwape run'.

(Givon 1976:343, as cited in Pytkkanen 2002:105)

‘My mother makes bread *well*’. (JHJ)

- (68) Nüüni piya-n **nahumpa** samita’a-ru-Ø.
 1sg.obl mother.NPN.nom-1sg oneself bread-caus-pres
 ‘My mother makes bread by herself’. (JHJ)

When it comes to verb-stem causatives, the scope of manner adverbs is sensitive to their position in the sentence: adverbs clearly mark the vP boundaries in the examples (69) and (70) below.

- (69) Nüü-k manga-y aipa-tci-a **pitangas** nukwi-kai-tu’i-ka-tü.
 1sg-cop 3sg.anim.vis-obl boy-NPN-obl quickly run-perf-caus-perf-nomin
 ‘I made the boy run quickly’. (JHJ)

- (70) Nüü-k **pitangas** manga-y aipa-tci-a nukwi-kai-tu’i-ka-tü.
 1sg-cop quickly 3sg.anim.vis-obl boy-NPN-obl run-perf-caus-perf-nomin
 ‘I quickly made the boy run’. (JHJ)

Moreover, an affixal adverbial *aa-* ‘quietly’ has ambiguous scope when prefixed to a causative verb:

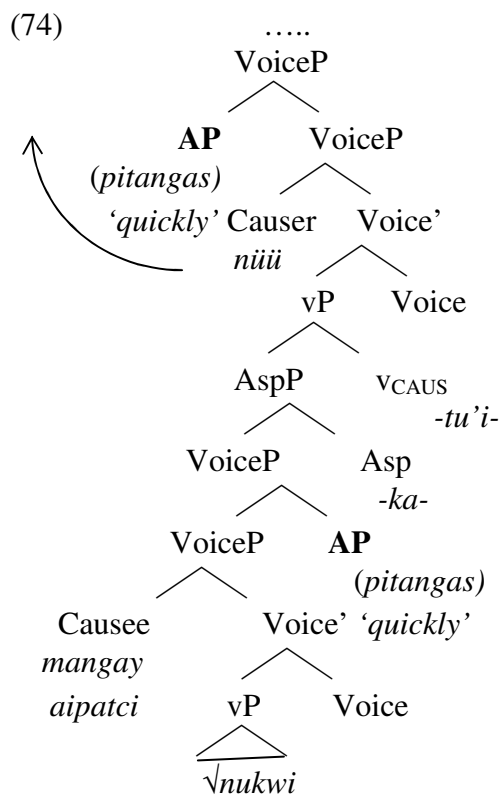
- (71) Nüü-k manga-y naüntci-tci-a **aa**-karü-kai-tu’i-ka-t.
 1sg-cop 3sg.anim.vis-obl girl-NPN-obl quiet-sit-perf-caus-perf-past
 ‘I made the girl sit quietly’.
 ‘I quietly made the girl sit’. (JHJ)

As for the Agent-oriented adverbs, their scope is also sensitive to their position in a sentence: *nahumpa* ‘by oneself’ appears either in the higher or in the lower clause, modifying the Causer in the first case and the Causee in the second:

- (72) Hu-ung **nahumpa** manga-y tukvo-vi-a tügu’uni-kai-**tu’i**-ka-tü.
 emph-3sg.anim.invis oneself 3sg.anim.vis-obl meat-NPN-obl cook-perf-caus-perf-nomin
 ‘He himself made her cook the meat.’ (JHJ)

- (73) Hu-ung manga-y **nahumpa** tukvo-vi-a tügu’uni-kai-**tu’i**-ka-tü.
 emph-3sg.anim.invis 3sg.anim.vis-obl oneself meat-NPN-obl cook-perf-caus-perf-nomin
 ‘He made her cook the meat by herself’. (JHJ)

The schema in (74) identifies the potential attachment sites for adverbial adjuncts. They can attach either to the lower vp/VoiceP or to the causative vp/VoiceP, modifying either the upper or lower predicate. Since adjuncts are not barriers to adjacency (Bobaljik 1994), they do not interfere with the cyclic incorporation of the root. The correct linearization is achieved when the Causer *nüü* 'I' is raised to spec-TP for case and when the root incorporates successively into v, Voice, Asp, v_{CAUS} , Voice, all the way up to Tense in the examples (69) and (70).



7.1.4.4 Control of subject-oriented anaphors and adjuncts

In this section we consider several control facts from Chemehuevi, which provide additional evidence that Chemehuevi high attachment causatives have a biclausal structure. In the first set of examples, the demonstrative *manga-* ‘3sg.anim.visible’ acts as a determiner in DPs *mangak punguruatci* ‘the puppy’ and *mangay naüntci* ‘the girl’ in example (75), and it is also licensed as an pronoun in examples (76) and (77), where the former is a single transitive clause and the latter is a causative formed from a transitive clause.

- (75) [Manga-k pungu-rua-tci manga-y näüntci-tci-a suwai-ngkü-tcü].
 3sg.anim.vis-cop dog-dim-NPN.nom 3sg.anim.vis-obl girl-NPN-obl kiss-appl-nomin
 ‘The puppy kissed the girl’. (JHJ)
- (76) [Manga-k pungu-rua-tci **manga-y** suwai-ngkü-tcü].
 3sg.anim.vis-cop dog-dim-NPN.nom 3sg.anim.vis-obl kiss-appl-nomin
 ‘The puppy kissed her/him/*itself’. (JHJ)
- (77) [Manga-k näüntci-tci
 3sg.anim.vis-cop girl-NPN.nom

 [manga-y pungu-rua-tci-a **manga-y** suwai-ngkü]-tu’i-tü.
 3sg.anim.vis-obl dog-dim-NPN-obl 3sg.anim.vis-obl kiss-appl-caus-nomin
 ‘The girl_i made the puppy kiss her_i/*itself’. (JHJ)

Since in both (76) and (77) *manga-* is licensed as a pronoun, and according to condition B of binding theory pronouns must be free within the clause (as illustrated in (76)), we can conclude that the causative sentence in (77) is biclausal.

The next set of examples also points toward biclausality of Chemehuevi verb-stem causatives: a subject-oriented anaphor possessive marker *-anga-* ‘3sg.anim.vis’ in

an adjunct phrase can be controlled by either higher or lower subject, i.e., by either Causer or Causee.

(78) [Manga-k taw'a-tci
3sg.anim.vis-cop man-NPN.nom

[manga-y aipa-tci-a mo'o-ya-**anga** wünü]-tu'i-ka-tü].
3sg.anim.vis-obl boy-NPN-obl hand-obl-3sg.anim.vis stand-caus-perf-nomin

'The man_i made the boy_j stand on his_{i/j} hands'. (JHJ)

(79) [Manga-k taw'a-tci
3sg.anim.vis-cop man-NPN.nom

[manga-y aipa-tci-a mo'o-ya-**anga** tüka]-tu'i-ka-tü].
3sg.anim.vis-obl boy-NPN-obl hand-obl-3sg.anim.vis eat-caus-perf-nomin

'The man_i made the boy_j eat with his_{i/j} hands'. (JHJ)

In the same manner, subject control adjuncts translated into English as 'while doing X', can be controlled by either Causer or Causee, which means that both Causer and Causee are subjects of their respective clauses.

(80) Tüviya-ro-yü, nüü-k mangay naüntci-tci-a huvi-tu-tu'i-tü.
work-prt-while 1sg-com 3sg.anim.vis-obl girl-NPN-obl song-make-caus-nomin
'While *PRO*_{i/j} working, I_i made the girl_j sing'. (JHJ)

(81) Tükaka-rü-yü, nüük monokos piso'o-tci-a ambaga-tu'i-tü.
eat-nomin-while 1sg-cop several child-NPN-obl talk-caus-nomin
'While *PRO*_{i/j} eating, I_i let my children_j talk'. (JHJ)

In the sections above, we have examined an array of evidence confirming the biclausal nature of high attachment causative verbs. We have seen that with respect to the tests of passivization and reflexivization, *-tu'i* causative verbs built on a transitive stem behave biclausally. We have also established that only high attachment verbs allow

intervening verbal morphology between the root and the causative affix, confirming the availability of two clauses/events in their structure. Facts from adverbial modification and binding of anaphors and adjuncts point to the same conclusion. As for the root causatives, their monoclausal nature is confirmed by the lack of intervening verbal morphology and the absence of ambiguity in the scope of Agent-oriented adverbs. In the next section I present yet another way in which *-tu* causatives differ from *-tu'i* causative.

7.1.5 Availability of causative iteration

Kuroda (1993), following Martin (1975), argues that in Japanese only a lexical causative can be productively causativized, but the analytic causative cannot be iterated. In fact he calls this ability to stack causative morphemes “the double causative test” and uses it to distinguish between lexical and productive causatives in Japanese. Kuroda suggests that the unavailability of the causative iteration is “a morphological, not syntactic or semantic matter” (10). He also points out that if the second causative *-sase* is suppressed, the sentence is grammatical and has the intended double causative meaning. His examples are repeated below: in (82a) a lexical causative is further causativized producing a grammatical structure, but (82b) is ungrammatical because the causativized verb is a productive causative; however if one *-sase* is omitted, the verb is grammatical and can have the double causative meaning (82c):

- (82) a. **ugok-as-ase-**
 move-caus-caus
 ‘make X move Y’ (Kuroda 1993:9)
- b. ***oki-sas-ase**
 stand up-caus-caus (Kuroda 1993:9)
- c. Zyoozi ga Naomi ni Ken o oki-**sase**-ru.
 ‘George makes Naomi cause Ken to stand up’. (Kuroda 1993:10)

The Chemehuevi data follows this pattern: iteration of a causative morpheme of the kind ‘make X make Y’ is available only when a low attachment causative is further causativized, in other words only the pattern ‘*root+caus+caus*’ is attested, but ‘*v+caus+caus*’ is not. The iteration of causatives is clearly seen in examples (83)-(85): the first v_{CAUS} is spelled out as the low attachment /-tu-/~/-ntu-/~/-ntu’i-/, but the second is the invariant high attachment /-tu’i-/:

- (83) Ta’aik^ya-su su-tava ‘uni-k^ya-su kwasu-**ntu-tu’i**-yü-’ümü ...
 day-also all-day do-PAST-same dress-**caus-caus**-past-3sg.anim.invis
 ‘The next day all day he did the same, (he) made dresses for them ...’.
 (JPH&CL *Two Date Worm Girls*: 14)
- (84) Nüü-k manga-y na’üntci-tci huvi-**tu-tu’i**-yü.
 1sg-cop 3sg.anim.vis-obl girl-NPN.obl song-**caus-caus**-pres
 ‘I am making the girl sing’. (JHJ)
- (85) Ann Johni na-ha’ü-s**untu’i**-ngu-**tu’i**-vü.
 Ann-nom John-obl refl-good-think-mom-caus-past
 ‘Ann made John like her/himself’. (Press 1979:49)

Stacking of the high attachment causative is not attested: in examples (86)-(87) *punikai-tu’i* means both ‘show’ and ‘make show’; in other words, when *punikai-tu’i* ‘show’ is causativized only one v_{CAUS} has an overt realization.

(86) Manga-k aipa-tci-a nüüni kan-i-a punikai-**tu'i**-ka-tü.
 3sg.anim.vis-cop boy-NPN-obl 1sg.obl house-NPN-obl see-**caus**-perf-nomin
 ‘The boy showed me the house’. (JHJ)

(87) Ümi-k manga-y aipa-tci-a nüüni kan-i-a
 2sg-cop 3sg.anim.vis-obl boy-NPN-obl 1sg.obl house-NPN-obl

punikai-**tu'i**-ka-tü.
 see-**caus**-perf-nomin

‘You made the boy show me the house’.

(JHJ)

The meaning of examples like (87) above suggests that even though there is only one causative affix overtly pronounced on the causative verb, on the level of Logical Form the causative functional heads are stacked, hence the double causative meaning. So it is not that such triple level of vP stacking is ungrammatical; most likely it is a limitation imposed by the PF component of the grammar.

7.2 Productivity of low and high attachment causatives

As we have established in previous sections, both low and high attachment causative verbs in Chemehuevi are built in syntax by incorporation of a root or a verbal stem into the causative functional head v_{CAUS} . Consequently causativization in Chemehuevi is a fully productive system with a high degree of compositionality, with the exception of a number of root causatives that have been idiomatized. Consider the group of examples with the root *huvi*- ‘song’ in (88)-(91) below: the low attachment causative is formed when the root incorporates directly into v_{CAUS} , spelled out as *-tu-* (88); this root+CAUS verb can be further incorporated into a higher v_{CAUS} *-tu'i-* as in example (89):

(88) Manga-(k) naüntci-tci **huvi-tu-wa.**
 3sg.anim.vis-cop girl-NPN.nom song-caus-pres
 ‘The girl is singing’. (JHJ)

(89) a. Nüü-(k) manga-y naüntci-tci-a **huvi-tu-tu’i-yü.**
 1sg-cop 3sg.anim.vis-cop girl-NPN-obl song-caus-caus-pres
 ‘I’m making the girl sing’. (JHJ)

A slight change in meaning is achieved when root *huvi-* is augmented by the oblique marker *-ya* and this NP complex is causativized: the resulting verb means ‘making x into a song’ or ‘making a song for x’ as opposed to ‘sing’ or ‘make sing’, a clear example of a difference between a root causative and an NP causative. The closer v_{CAUS} is to the root, the more fused is the meaning of the two morphemes.

(90) **huvi-ya-ru’i**-ngu-ga-‘ikwa
 song-obl-caus-mom-prt-3inanim.vis
 ‘making it a song’ (JPH&CL, *The Struggle Over The Mano*: 17)

(91) **huvi-ya-ru’i**-ngkü-mi^ya-’ung^wa
 song-obl-caus-appl-usit-3sg.anim.invis
 ‘she would make a song for him’ (JPH&CL, *Gila Monster Gets Killed*: 7)

Little v_{CAUS} is spelled out as *-ru’i-* because it is adjacent to the oblique marker *-ya-* which has a [+sprnt] feature, causing *tu’i* > *ru’i*; this is also a rare case in which *tu’i-* alternates with *-tu-* with nominals. In both examples, the root is derived into a noun, receives oblique case and is causativized. This verbal complex is then followed by aspectual morphology in example (90), or by an applicative functional head and finite morphology (example (91)).

The fact that both low and high attachment causatives are productive and made in syntax is crucial for our approach to causatives. It shows that in no sense are root

causatives ‘lexical’, and proves that different meanings come from different syntactic structures.

7.3 Conclusion

In this chapter, we have established that Chemehuevi causatives fall into two main groups, those formed from roots and those formed from verbal stems. Root causative verbs are low attachment causatives; they are monadic verbs that are subject to allomorphy and several morpho-phonological rules, as well as meaning drifts. Causative verbs formed from verbal stems are high attachment causatives, consisting of two events and fully compositional. They are not subject to allomorphy or morpho-phonological rules due to their attachment above the phase-defining Voice head. They also exhibit intervening verbal morphology, ambiguous scope of adverbs, subject-oriented anaphors and adjuncts. Unlike root causatives, they can express indirect causation. We have also seen that the only possible iteration of causative affixes is when a low attachment causative is further causativized (root+v_{CAUS}+v_{CAUS}); when a high attachment causative is further causativized (v+v_{CAUS}+v_{CAUS}) only one v_{CAUS} is pronounced.

I have demonstrated that all differences between the two groups of causatives can be derived from the distance of the causative affix from the root. The closer to the root it attaches, the more fused its semantics and pronunciation are with the root and its features. Such fully syntactic approach to causatives is the only approach compatible with a Late

Insertion model of morphosyntax, like DM. Only such an approach can account for full productivity of both high and low attachment causatives.

7.4 Notes for community use: How use the causative construction ‘make someone do something’ in Chemehuevi

In English we need a separate word ‘make’ to express the idea of someone causing someone else to perform an action, but in Chemehuevi there is a causative ending *-tu’i* that can be added to the core to add the meaning of causation. This is a very productive process and any verb can be used with the causative *-tu’i*. Unlike the other causative ending, *-tu’i* does not vary depending on the word it attaches to, so in all examples below you find it following the verb.

- (92) Manga-k aipatci nüüni kania punikai-**tu’i**-ka-tü.
 that-cop boy me house see-make-perf-nomin
 ‘The boy showed me the house’. (JHJ)
- (93) Tükakarü-yü, nüü-k monokos piso’otcia ambaga-**tu’i**-tcü.
 eating-while I-cop several child talk-make-nomin
 ‘While eating, I let my children talk’. (JHJ)
- (94) Nüü-k pitangas manga-y aipatcia nukwi-kai-tu’i-ka-tü.
 I-cop quickly that boy boy run-perf-make-perf-nomin
 ‘I quickly made the boy run’. (JHJ)
- (95) Umi-k manga-y na’üntcicia wünümi-**tu’i**-yü.
 you-cop that girl dance-make-pres
 ‘You are making the little girl dance’. (JHJ)
- (96) Nüüni mua-n mangay aipatcia pungutcia tükapia maga-ka-**tu’i**-ka-tü.
 my father-my that boy dog food give-perf-caus-perf-nomin
 ‘My father made the boy give the dog food’. (JHJ)

In the examples above, *-tu'i* does not change the meaning of the verb it is added to, but adds the causative meaning to it (eg. *dance vs. make someone dance* or *talk vs. let someone talk*). There are other cases, however, when there is a change in meaning that might be hard to detect especially because the English translation uses the same word for both causative and non-causative versions. These are verbs like *boil, burn, or melt* in English: we can say *The ice melted*, or *The sun melted the ice*, and the form of the verb *melt* does not reflect the fact that in the first case there is no external cause mentioned, while in the second the sun is the cause. In Chemehuevi these subtle changes are reflected in the addition of the causative *-tu'i*: if there is a cause to some process, the causative ending will show up. Consider the pairs of sentences below: the examples in (a) describe the process of burning, boiling, or lying down and only the core verb shows up; the examples in (b) also have someone who causes the same process and we find *-tu'i* in all of these examples.

(97) ‘burn’

a.	Haganguntsi	na ^a i-ka-tü	‘ivantü?	
	what	burn-perf-pass	here	
	‘What was burnt here?’			(JPH&CL, <i>Coyote Imitates Antlion</i> : 1)

b.	na ^a i-tu ⁱ -k ^y ai-yü	
	burn-make-res-pres	
	‘having made a fire’	
		(JPH&CL, <i>Two Date Worm Girls</i> : 17)

(98) ‘boil’

a.	noyoga-	
	‘boil’ (as in <i>The water is boiling</i>)	(OCD)

b.	Paaya-ukwa	noyog ^w a-tu ⁱ -karürü-mü.
	water-that	boil-make-sit-they

‘They were sitting, boiling the water’.

(JPH&CL, *Crow Is Made Black*, 11)

(99) ‘lie vs. lay’

a. Haita-’umü havitüa-ru-ngu-ntsi **hahavi**.
 then-they bed-make-mom-after lay down
 ‘Then, having made their beds, they lay down’.

(*Two Date Worm Girls*, 17)

b. napüwüa-’umü **hahavi-tu**’^wi-k^ya-tsi...
 old man-they lie down-make-past-after
 ‘having lain the old man down, they...’

(*The Man Who Was Rooted To The Earth*, 2)

(100) ‘break’

a. **kürukwi**

‘break’ (as in *The stick broke*)

(Press 1979, 160)

b. Manga-k aipatci kaapia **kürukwi-tu**’i-ka-tü.
 that-cop boy cup break-make-perf-nomin
 ‘The boy broke the cup’.

(JHJ)

Overall, causative constructions are very interesting and useful in every day speech. There are many languages in the world that use similar strategies to form causative verbs and it is interesting to see how nicely the Chemehuevi data fits with the data from other completely unrelated languages like Japanese or African languages.

CHAPTER 8

CONCLUDING REMARKS

This dissertation is an attempt to bring together contemporary developments in morphosyntactic theory and the morphosyntax of an understudied endangered language. I focused on the formation of lexical categories in Chemehuevi through the prism of the framework of Distributed Morphology, a Late Insertion model which views word and sentence formation as a single mechanism. I attempted to show that this holistic view of morphosyntax is the way to describe and explain why in a language like Chemehuevi morphemes do not just build words, but phrases and sentences are put together piece by piece, sometimes with words encompassing phrases and whole sentences (like Chemehuevi phrases denoting inalienable possession or attributive adjectives that have the structure of relative clauses). Syntax is the central force of the Chemehuevi morphology – this is the conclusion that emerges after the boundaries between the traditional ‘lexicon’ and ‘syntax’ are removed.

There are two central themes that run through this dissertation. The first one is known as the Root Hypothesis (Arad 2005, following Marantz 2000), arguing that roots are atomic underived lexical elements, underspecified for lexical category. They receive interpretation depending on their structural environment, such as functional heads c-commanding them. In chapter 2, I showed that the Chemehuevi ‘lexicon’, if we were to conceive of it in a traditional sense, should consist of roots, not fully formed words, in

that even such basic elements of a language like common nouns are derived, i.e., built when a Non-Possessed-Noun (NPN) marker is added to the root. The originality of DM is in that there is no lexicon in the traditional sense, so the Chemehuevi roots and the functional elements that derive them into words, phrases and sentences are not stuck into some abstract memory box, but are free to interact with each other. The result of this syntactic interaction of terminal nodes, bundles of features and placeholders in the case of roots (through Merge and Move) is highly compositional syntax and semantics of the Chemehuevi words. Recall from chapter 2 examples of nouns like *ampaga-tu'i-ka-mii* 'council', literally 'the ones that make talk' or *pu'ha-ga-ntü* 'healer', literally 'the one who has spiritual powers'. These words contain roots, verbal and nominal functional heads, and their belonging to a particular 'part of speech' can be determined only post-syntactically, once all the heads are merged and all head-to head movement occurs.

In chapter 4 we saw another clear case of acategorical nature of roots. I showed that the Chemehuevi adjectives do not comprise a uniform class, and that roots with adjectival meanings can be realized as verbs or nominalizations depending on the functional structure into which they are inserted. When c-commanded by a verbal head v^0 , a root like *pa'a* 'tall' forms a stative verb *pa'ayü* 'being tall' with all the corresponding verbal morphology. When it incorporates into an adjective-forming head a^0 , it forms an attributive adjective *pa'antüm* 'tall' that is further nominalized as a part of relative clause modifying a noun (either overt or null). DM allows us to capture this flexibility of roots to occur in different syntactic context to form various lexical categories and at the same time preserving all the meanings associated with them.

Here we come to the second major theme of this dissertation, a notion that the word formation from roots is distinct from the word formation from the existing words, known as the High vs. Low Attachment Hypothesis. Originally proposed by Marantz (2000), this approach captures the double nature of word morphology without assigning productive and compositional derivations to syntax proper, and leaving all idiosyncratic derivations including paradigmatic gaps, idiomatic meanings and morpho-phonological allomorphy to lexicon. Instead all basic word formation happens in syntax through the incorporation of roots into functional heads. The differences between productive and non-productive word formation is explained by the locality constraints on the roots: the first functional head attached directly to the root (i.e., merged ‘low’) determines how the root will be interpreted. For Marantz (2000) and Arad (2003, 2005), root plus the first commanding functional head is a phase, at the edge of which all semantic and phonological information is processed and becomes unavailable for the interpretation of all material attached above. Thus the functional heads that attach above the first ‘little’ *v*, for example, will derive words that do not have access to the root itself and all the idiosyncratic material associated with it (like idiomatic meanings or morpho-phonological alternations). The words derived from the high attachment of a functional head are connected only to the existing word/stem they are based on, not to the embedded root.

This hypothesis has been tested on several morphological processes in many languages, including Hebrew denominal verbs (Arad 2003, 2005), and causative verbs in Tagalog and Malagasy (Travis 2000), and Japanese (Harley 2006a) among others. In this

dissertation we find support for the High vs. Low Attachment approach from the study of Chemehuevi verbs in chapter 3 and especially in chapter 7 on the formation of causative verbs. First of all, in Chemehuevi we find many overt functional heads that derive verbs, which makes it easy to determine their relative position to the root and other functional heads. Secondly, there is a distinct process of morpho-phonological allomorphy in the language that is available only to functional elements within the first phase, which, following Pylkkanen (2002), I define as the Agent-projecting Voice. Using these diagnostics (among others), I show that all verbal functional heads in Chemehuevi can be divided into the ones that attach directly to the root and are thus subject to allomorphy and idiomatic interpretation, and the ones that attach higher.

This approach is successfully applied to the two types of Chemehuevi causative verbs in chapters 6 and 7. Traditionally, the two types would have been divided into lexical and syntactic causatives, missing the obvious fact that both are highly *productive* in the Chemehuevi language, even though root causatives exhibit morpho-phonological allomorphy and availability of non-compositional meanings, while causatives formed from derived verbs result in regular morpho-phonology and semantics. The fact that root causatives consist of one vP/VoiceP and verb stem causatives of two vPs/VoicePs also captures the cross-linguistic observation that ‘lexical’ causatives are monoclausal, while the ‘syntactic’ ones are biclausal, i.e., consist of two events. Without positing two separate places for building causative verbs, I show that all these properties follow from the syntactic structure of each causative type. I apply several syntactic tests to show that causatives formed from existing verbs contain two vPs: they allow intervening verbal

morphology, can express indirect causation and exhibit ambiguous scope of adverbs, subject-oriented anaphors and adjuncts. Since in these causatives, the causative morpheme is attached high above the root and above phase-defining Voice, they are not subject to allomorphy and meaning drifts.

Throughout this dissertation, we find support for the definition of the first phase in Chemehuevi in terms of Voice. I consistently show that all functional heads that have morpho-phonological allomorphs (stemming from widely spread processes of nasalization, spirantization and palatalization in the language) are attached directly to the roots. These include light verbs *-tükaw'i* 'turn', *-tu'a* 'become' and the causative *-tu*. All heads that attach above the first vP/VoiceP, including the passive *-tü* and the high attachment causative *-tu'i*, are not subject to allomorphy. Similar distribution is attested with the nominalizer *-tü*: in low attachment contexts it alternates between *-tü~-ntü~-rü~-tsü*; in high attachment contexts it is invariant. If I am right about the Chemehuevi phase, and Marantz and Arad are right about their definition of phase in English and Hebrew in terms of the first category-forming head, we have an argument in favor of parametric variation in the size of the first phase. I suggest that we can formulate such a parameter in terms of whether or not the Agent-projecting head Voice is separate from 'little' v (as in Chemehuevi), or bundled with it (as in English). Further research will show whether such a parameter is feasible.

The conclusions reached in this study of the Chemehuevi language have many implications for the theory of lexicon and word formation. I offer another argument in favor of a view that syntax drives semantics, against the lexicalist belief that the

semantics of verbs drives their syntax. Under the view supported in this dissertation, there are no verbs (or nouns, or adjectives) ‘before’ syntax, only roots and functional elements. Their combination by syntax results in structures that are interpreted at the levels of PF and LF.

Another implication of this study is for the philosophy of language, specifically the way concepts are reflected in language. It seems to me that we come closer to understanding of concept – word connection by isolating roots as the conceptual nuclei of words, since it is within roots all our knowledge about a particular concept is contained. In a language like Chemehuevi this concept – root connection can be seen clearly since the majority of roots require some derivational morphology to become words, making it easier to isolate the concept that is shared by words formed from the same root. This connection between roots’ semantics and our conceptual system is also promising for understanding language learnability and in case of an endangered language like Chemehuevi could be instrumental in facilitating the learning of the heritage language by the members of the Chemehuevi tribe. If we focus on the meaning of roots to access the conceptual structure of a language, learning and understanding its morphology will become more transparent and effective since the number of functional elements surrounding roots in speech is limited in language. It is my hope that this piece-based approach to the Chemehuevi morphosyntax will become instrumental in the preservation of this language.

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