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Language, Volume 96, Number 4, December 2020, pp. 841-873 (Article)

Published by Linguistic Society of America

DOI: <https://doi.org/10.1353/lan.2020.0064>

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FORMS AND FUNCTIONS OF BACKWARD RESUMPTION:
THE CASE OF KARUK

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This article examines obligatory backward resumption in Karuk (kyh; isolate), a verb-final language of Northern California, and argues that it is the result of conflicting word-order requirements. This conceptual analysis is further developed within the chain-resolution framework of Landau 2006, in which resumption is the result of partial deletion. The Karuk facts indicate that partial deletion targets spellout domains and not phases, contra van Urk 2018. Examination of two case studies from the literature and a reinterpretation of the Dinka resumption data discussed in van Urk 2018 further demonstrate that partial deletion of spellout domains has broader empirical coverage than partial deletion of phases. The second part of the article pivots to the predictions made by the chain-resolution analysis about alternatives to backward resumption. These predictions are shown to be borne out in three other verb-final languages, namely Hindi-Urdu, Persian, and Turkish. The article closes with an examination of the parallels between backward resumption and regular forward resumption and concludes that both may be derived by movement or by base-generation of the proform.*

Keywords: resumption, chain resolution, extraposition, spellout domains, Karuk

1. ACKNOWLEDGMENT. The research on Karuk reported here is the outcome of a collaboration between Karuk master speakers and Elders Sonny Davis, Julian Lang, the late Vina Smith, Nancy Super (née Jerry), the late Peter Super, Sr., and the late Charlie Thom, Sr.; Karuk language learners, researchers, and teachers Tamara Alexander, Robert Manuel, Crystal Richardson, Susan Gehr, Arch Super, Florraine Super, and Franklin (Frankie) Thom; and UC Berkeley linguists Andrew Garrett, Erik Maier, Line Mikkelsen, Karie Moorman, Ruth Rouvier, and Clare Sandy in Yreka, California, starting in 2010 and continuing through 2020. The work includes language documentation, linguistic analysis, language learning, development of language curriculum, educational support, language teaching, working through texts, (re)transcribing legacy recordings,

* Many people have contributed to this work, including our Karuk collaborators Susan Gehr, Julian Lang, Robert Manuel, Crystal Richardson, Arch Super, Florraine Super, and Franklin (Frankie) Thom, three collaborators who wish to not be named, and the earlier generations of Karuk Elders who worked tirelessly to document and preserve their language, including Abner's mother, Lottie Beck, Julia Bennett, Maggie Charley, Grace Davis, Madeline Davis, Emily Donahue, Fritz Hansen, Benonie Harrie, Margaret Harrie, Daisy Jones, Phoebe Maddux, Mamie Offield, Chester Pepper, Nettie Ruben, Julia Starritt, Violet Super, and Yaas. We also thank the University of California, Berkeley linguists who have worked with Karuk language starting in the 1940s and continuing to this day, including Bill Bright, Andrew Garrett, Monica Macaulay, Erik Maier, Karie Moorman, Clare Sandy, Nicholas Baier, Kayla Begay (née Carpenter), Erin Donnelly, Matthew Faytak, Kelsey Neely, Melanie Redeye, Tammy Stark, Shane Bilowitz, Anna Currey, Kourous Falati, Nina Gliozzo, Morgan Jacobs, Olga Pipko, Jeff Spingeld, and Whitney White. Collectively, their work made this work possible. Our current project is a collaboration between the Karuk Tribe and the University of California, Berkeley. Spoken language and texts are the intellectual and cultural property of their creators or heirs. Further gratitude goes to Veneeta Dayal and Emily Manetta for answering our questions about Hindi-Urdu, to Ashi Göksel, Jaklin Kornfilt, and Sumru Özsoy for help with the Turkish data cited in this article, and to Simin Karimi and Ahmad R. Lotfi for their insights on Persian word order. Christine Beier, Vera Gribanova, Leanne Hinton, Jim McCloskey, Dixie Rogers, and Claudette Rogers (née Starritt) provided useful feedback along the way, and financial support was provided by a Mellon Project Grant and by the University of California, Berkeley.

linguistic elicitation with verbal and visual stimuli, and the development of *ararahih-urípih* (= Karuk language net; <http://linguistics.berkeley.edu/~karuk/index.php>), an online dictionary and morphologically parsed text corpus. Spoken language and texts are the intellectual and cultural property of their creators or heirs.¹

2. INTRODUCTION. Many languages make use of resumptive pronouns in establishing certain syntactic dependencies. Two important environments for resumption crosslinguistically are contrastive left dislocation, illustrated with Dutch in 1, and relativization, illustrated with Irish in 2.

- (1) Jan_i [waar heb je **die**_i gezien]?
 Jan where have you him seen
 ‘Where did you see Jan?’ (van Riemsdijk 1997:4)
- (2) an ghirseach_i [ar ghoid na síogaí **í**_i]
 the girl C stole the fairies her
 ‘the girl who the fairies stole’ (McCloskey 2006)
- (3) XP_i [... **pronoun**_i ...]

In each of these environments, a resumptive pronoun mediates the syntactic dependency between the left-peripheral XP and the local syntactic environment of the resumptive pronoun, as schematized in 3. However, there are also instances where the dependency goes the other way, as illustrated with the Karuk example in 4.²

- (4) a. xas uum vúra **vaa**, kích u-kupí-tih-anik
 and he EMPH that only 3SG-do-DUR-ANC
 [p=óo-thtí-tih-anik]_i.
 COMP=3SG-gamble-DUR-ANC
 ‘And all that he used to do was to gamble.’ (Fritz Hansen, ‘Mourning Dove
 Young Man gambles away his Doodle Bug grandmother’s dress’; JPH-KT-06:5)
- b. [... **pronoun**_i ...] XP_i

In this example the proform *vaa* precedes the complement clause that it is coindexed with (*p=óothiitihnik*). The term **BACKWARD RESUMPTION** is intended to capture this configuration. This article is primarily concerned with backward resumption and seeks to make four contributions. First, it seeks to expand our empirical understanding of the phenomenon through a detailed description of backward resumption in Karuk (§3). The second goal is to advance our analytic understanding of both regular forward resumption and

¹ All six authors were involved in the research reported in §3, and that section uses ‘we’ to refer to the authors. Mikkelsen is responsible for the other sections of the article, which use ‘I’ to refer to her as author.

² All Karuk examples are given in the Karuk Practical Spelling System, adopted by the Karuk Tribe in 1989 (see Richardson & Burcell 1993 and Bright & Gehr 2005:xi–xii for details). Individual Karuk examples are identified by speaker and either text title or date of elicitation. If a textual example is part of *ararahih-urípih*, the online Karuk text database described in n. 3, it is further tagged with text ID and line number. If not, it is tagged with the publication in which the text appears plus page number. Glossing conventions follow the Leipzig glossing rules (<http://www.eva.mpg.de/lingua/resources/glossing-rules.php>), with the following additions (where glossing assumes a particular analysis of a Karuk morpheme, references to relevant discussion are included): ANC: ancient past, ANT: anterior, CHAR: characterized by (Bright 1957:74–75, Moorman 2014), DESID: desiderative, DO: object marker, EMPH: emphatic particle, ERG: ergative (Bright 1957:129, Macaulay 2000), EV: evidential, FACT: factive, HAB: habitual, IRR: irrealis (Bright 1957:126, Peltola 2008), ITER: iterative, PL.AC: plural action, PRF: perfect (Bright 1957:138–39, Carpenter 2013:13), PROSP: prospective (Bright 1957:124–25, Carpenter 2013), RES: resumptive proform, VBL: verbalizer (Bright 1957:84–85, Macaulay 1989). Following Bright 1957:58–64, verbal agreement prefixes in Karuk transitive clauses are glossed for subject and object person and number: for example, 3SG>1PL for a 3SG subject acting on a 1PL object; see Macaulay 1992 for an inverse analysis of the agreement system and subsequent formal analysis in Béjar 2003:159–62 and Campbell 2012:135–47.

backward resumption by showing that a shift in theoretical assumptions is necessary (§4). In particular, I show that the partial deletion operation that leads to resumption does not target phases, as claimed in van Urk 2018, but rather spellout domains. I argue that this shift has conceptual support as well. Third, the article provides a crosslinguistic examination of backward resumption and alternative strategies that languages employ to resolve the kinds of word-order conflicts that typically lead to backward resumption (§5). I show how that variation can be understood in terms of the formal analysis developed in §4. Finally, the article brings out the parallels between forward and backward resumption and proposes that either can be derived by movement or by base-generation of the proform (§6). Section 7 concludes.

METHODOLOGY. The backward resumption pattern illustrated in 4 has not been identified in the existing literature on Karuk, nor have the word-order restrictions and phonological requirements that cause it. An independent goal of §3 is therefore to establish these facts as carefully as I can. To that end, I draw on my own and colleagues' fieldwork with Karuk speakers in Yreka, California, from 2010 until 2017 and on the large corpus of textual material from earlier generations of Karuk speakers that was gathered, transcribed, and published by various researchers over the last century (Harrington 1930, 1932a,b, de Angulo & Freeland 1931, Bright 1957, Lang 1994). A significant portion of this material (about 7,000 sentences) has been digitized and linguistically annotated in the online searchable database *ararahih'urípih* (Karuk language net).³ All claims made in this article have been systematically checked against that corpus and against the material in Harrington 1932a and Harrington 1932b. At this point in time, the window for grammatical elicitation is effectively closed. There are few first language speakers of Karuk, and the ones involved in language work are devoting their time and energy to language revitalization work.⁴ This means that some of the generalizations from the corpus materials that I present below have not been confirmed through elicitation work, and in some key cases negative evidence is lacking.

3. BACKWARD RESUMPTION IN KARUK. The general profile of backward resumption in Karuk is given in 5.

(5) Karuk backward resumption: [... [**pronoun**_{*i*} TRIGGER] ... V] ... XP_{*i*}

It involves a dependency between a preverbal proform and a fully articulated postverbal XP, and the proform forms a syntactic constituent with a preverbal triggering element. Backward resumption is productive and robust in the language: all speakers for whom we have recorded linguistic material in which the conditions for backward resumption are met use it. At the same time, backward resumption is highly circumscribed by grammatical factors, which makes it a valuable window onto parts of Karuk syntax about which very little is presently understood.

All instances of Karuk backward resumption involve a dependency across the verb, but differ in the category of the extraposed XP and the trigger. We have identified two categories that undergo obligatory rightward displacement: complement clauses and quotes, and two environments in which this displacement consistently results in backward resumption: when the displaced XP is the associate of a focus particle (6) and when it is the complement of a postposition (7).

³ <http://linguistics.berkeley.edu/~karuk/>. This database project is a collaboration between the Karuk Tribe and the University of California, Berkeley.

⁴ On the history of Karuk language work and current vitality of the language, see Lang 1994, Bright & Gehr 2005:i–xvi, and Sandy 2017:7–9.

- (6) a. uum **vaa**, kích u-’ítaap-ti [pa=’árah u-patum-kôo-ti
 she this only 3SG>3-know-DUR COMP=person 3SG-suck-to-DUR
 kuma-’ánav]_i.
 kind-medicine
 ‘She only knows how [to treat] the person with the sucking kind of
 medicine.’ (Nettie Ruben in conversation with Lottie Beck; LA 078, tape 1,
 side A, line 397 of William Bright’s transcription)
- b. xás **vaa**, kích kun-ipí-tih [‘pu=kín-taapxuv-eesh-ara’]_i.
 then that only 3PL-say-DUR NEG=1PL.NEG-capsize-PROSP-NEG
 ‘And they said only that, “We won’t capsize.”’
 (Nettie Ruben, ‘The boy from Itúkuk’; WB-KL-57:93)
- (7) xás u-pêer ‘**vaa**, ík vúra kóo ôok i-kûuntakoo-vish
 and 3SG-tell that must EMPH as.much.as here 2SG-sit-PROSP
 [pa=ni-’ipak-ahaak]_i, xasík i-kôoh-eesh.’
 COMP=1SG-return-IRR then 2SG-stop-PROSP
 ‘And he told it, “You must be sitting here like that until I come back, then
 you can stop.”’ (Julia Starritt, ‘Coyote goes to a war dance’; WB-KL-06:15)

In 6a the complement clause appears to the right of the matrix verb *u’ítapti* ‘know’, and the proform *vaa* appears left-adjacent to the preverbal focus particle *kích*. Similarly, in 6b, the quote appears to the right of the verb of saying, *upítih*, and the proform *vaa* accompanies the focus particle in preverbal position. In 7 the clause [*pani’ipakahaak*] ‘until I come back’ is a dependent of the postposition *kóo* ‘as much as’ and expresses the standard of comparison (i.e. how long the addressee must sit there). The postposition appears before the matrix verb *ikûuntakoovish* ‘sit’ and is accompanied by the proform *vaa*, whereas the dependent clause appears after the matrix verb.⁵

The idea that we develop here is that in each of the environments in 6 and 7, there is a tension between the general requirement that complement clauses and quotes appear after the verb and a specific requirement for phonological manifestation of the clause or quote preverbally. In 6 the requirement for preverbal phonological manifestation comes from the focus particle, in 7 from the postposition.

We start by establishing some basic properties of argument realization in Karuk (§3.1). Section 3.2 describes complement clauses in Karuk, in particular their internal structure and obligatory postverbal surface position. In §3.3 we turn to focus particles and establish that they must appear preverbally, that they form a syntactic constituent with their associate, and that they require the associate to be phonologically realized. In §3.4 we show that *koo* must appear preverbally and requires its complement to have in-situ phonological realization. Section 3.5 brings all of these observations together and shows how they conspire to produce the observed patterns of backward resumption.

In what follows we concentrate on backward resumption of complement clauses, as in 6a and 7, since they are found in both environments. Backward resumption of quotes is more limited, because the distribution of quotes is more limited. As far as we can tell, quotes never function as complements of postpositions, presumably because there are no postpositions of saying.

3.1. ARGUMENT REALIZATION. Karuk is a head-marking, polysynthetic language of the Klamath River of Northern California. It is an isolate within the Hokan stock (Golla 2011:82–127). Karuk phonology and morphology is thoroughly described in Bright’s (1957) grammar, which also contains a chapter on the syntax of the language (pp. 119–

⁵ *ík* and *vúra* are second-position clitics. Because the PP is clause-initial in 7, *ík* and *vúra* intervene between *vaa* and *kóo*.

42).⁶ As Bright's description makes clear, Karuk exhibits the three surface characteristics of a nonconfigurational language: arguments can be omitted, split, and freely ordered (Hale 1983). These properties are illustrated in 8–10.

- (8) a. *púyava kári pa='áraar pa='urípi u-p-ithyúru-ripaa.* [SOV]
 you.see then the=human the=net 3SG>3-ITER-pull-out
 'Then the Indian pulled the net out of the water.'
 (Julia Starritt, 'Salmon fishing'; WB-KL-69:16)
- b. *xás pa=pihnñich u-píimni pa=mú-'aramah.* [SVO]
 then the=old.man 3SG>3-fall.in.love the=3SG.POSS-child
 'And the old man fell in love with his child.'
 (Julia Starritt, 'Coyote marries his own daughter'; WB-KL-16:3)
- c. *ta'ítam kun-ífik-aheen pa=xuntápan pa='asiktávaan-sa.* [VOS]
 so 3PL>3SG-pick.up-ANT the=acorn the=woman-PL
 'Then the women gathered the acorns.'
 (Mamie Offield, 'Coyote gives salmon and acorns to mankind'; WB-KL-17:34)
- (9) *xás t-u-'áv.*
 then PRF-3SG>3-eat
 'Then he ate it.'
 (Julia Bennett, 'Screech Owl and Coyote'; ALK-14-35:16)
- (10) a. *púyava táay tá kun-'úupva pa=tayíith.*
 you.see much PRF 3PL>3SG-dig.roots the=brodiaeas
 'So they dug a lot of brodiaeas.'
 (Nettie Ruben, 'The story of Skunk'; WB-KL-46:14)
- b. *pa=vírusur íshyaav kusrah-kêem kári koovúra eeráriiv-ak kúuk tá*
 the=bear winter sun-bad then all den-LOC to PRF
kun-pá-vyíihma.
 3PL-ITER-go.to.PL
 'In the winter, in December (the bad month), the bears all go into dens.'
 (Nettie Ruben, 'Bear hunting'; WB-KL-71:1)
- c. *á 'iknêechhan pirishkâarim mu-hrôoha.*
 falcon grizzly 3SG.POSS-wife
 'Duck Hawk's wife was Grizzly Bear.'
 (Lottie Beck, 'Duck Hawk and his wife'; WB-KL-25:1)

The examples in 8 illustrate the relatively rare case of a transitive verb with two overt DP arguments and show that there is no grammatically fixed order for subject, object, and verb. Example 9 illustrates pro-drop of subject and object. Examples of split DPs are given in 10. In 10a the quantified object DP *táay pa=tayíith* is split across the verb, so that the quantifier precedes the verb and the rest of the DP follows the verb. In 10b a quantified subject DP is split before the verb, with the determiner and noun appearing clause-initially and separated from the quantifier by temporal adverbs. Finally, in 10c, a possessor is split from the possessed nominal in a nonverbal predication structure. (See Maier 2015 for detailed discussion of split DPs in Karuk.)

3.2. COMPLEMENT CLAUSES. Karuk complement clauses are finite and carry the same tense, aspect, mood, and agreement morphology as root clauses. For instance, the complement clause in 6a, repeated below in 11, expresses agreement (3SG *oo-*), aspect (du-

⁶ Important aspects of Karuk morphosyntax have been insightfully analyzed by Monica Macaulay in a series of papers (Macaulay 1989, 1992, 1993, 2000, 2005). None of these is concerned with word order per se. To the best of my knowledge, this article, along with Maier 2015, is the only work since Bright 1957 to examine word order in the language. Sandy 2017 provides a comprehensive analysis of the accentual system and its complex interplay with morphophonology.

rative *-tih*), and tense (ancient past *-anik*). This inflection is entirely analogous to that found in the corresponding root clause in 12.

- (11) p=óo-thtii-tih-anik
 COMP=3SG-gamble-DUR-ANC
 ‘that he was gambling’

- (12) ú-thtii-tih-anik.
 3SG-gamble-DUR-ANC
 ‘He was gambling.’

Complement clauses are uniformly marked by the proclitic *pa=*, which we analyze as a complementizer and gloss COMP.⁷ If the complement clause contains additional preverbal material, the complementizer may attach to that material, as in 13, or to the verb, as in 14.⁸

- (13) naa íp ni-pasúpiichv-at [pa=sôomvaan t-i-’ípasuk].
 1SG PST 1SG-reveal-PST COMP=prospective.wife PRF-2SG-bring.back
 ‘I revealed that you were bringing home a new wife.’
 (Mamie Offield, ‘Duck Hawk and his wife’; WB-KL-27:23)

- (14) ni-krûunti [iim p=ee-mnísh-eesh].
 1SG-wait.for 2SG COMP=2SG-cook-PROSP
 ‘I am waiting for you to cook.’ (Vina Smith, September 8, 2013)

As far as we can tell, there are no clausal subjects in Karuk, but clausal complements are attested with propositional attitude verbs, aspectual verbs, and verbs of communication. An exhaustive list of these is given in Table 1.⁹

aachíchha	‘to be glad’	kúupha	‘to do’
áapunma	‘to know’	mah	‘to see, to find’
imus	‘to look at’	pasúpiichva	‘to reveal’
ikrûunti	‘to wait for’	piip	‘to say’
ikyâavarihva	‘to try’	pikrôok	‘to remember’
ipêer	‘to tell’	pikyaar	‘to finish’
ipshinvárhva	‘to forget’	táapkup	‘to like’
ítap	‘to know’	thitiv	‘to hear’
káriha	‘to be ready’	ûurih	‘to be unwilling’
kôoha	‘to stop’	víiha	‘to dislike’

TABLE 1. Karuk verbs that allow clausal complements.

Adverbial clauses are formed the same way as complement clauses.¹⁰

- (15) [p=oo-’áaksur] pirishkâarim sáruk u-ikyív-unih.
 COMP=3SG-release.arrow grizzly.bear downhill 3SG-fall-down
 ‘When he released the arrow, Grizzly Bear fell downhill.’
 (Lottie Beck, ‘Duck Hawk and his wife’; WB-KL-25:23)

⁷ If the host of the complementizer proclitic begins with a vowel, as is the case in 11, the vowel of the proclitic coalesces with the stem-initial vowel through a regular phonological process (Bright 1957:34–35). *a+u* yields *oo* (as in 11); *a+i* yields *ee* (as in 14 below).

⁸ An alternative analysis of 14 would treat the second-person pronoun *iim* as a dependent of the matrix verb and pro-drop in the complement clause. That analysis is ruled out by the agreement prefix on the matrix verb, which is sensitive to object person features (Bright 1957:60). *ni-* is the form used with 1SG subject and third-person object (or no object); *nú-* is used for 1SG subject and 2SG object.

⁹ According to Bright 1957:57, 134, verbs of emotion, like *víihi* ‘to dislike’ and *ithóonha* ‘to be eager’, may also take a bare verb root as their complement, optionally prefixed with the impersonal possessive *va-*. There are only a handful of examples of this construction in the corpus; in all of them the complement is postverbal. We have nothing more to say about this construction.

¹⁰ Here we illustrate with temporal clauses. Other types of adverbial clauses, including locative clauses, purpose clauses, reason clauses, and conditional clauses, are formed the same way and exhibit the same freedom of position as temporal clauses. Locative clauses may additionally feature a verbal suffix *-irak*.

- (16) káři xás tá kun-taxísh~xish [pa=t-óo msip].
 then then PRF 3PL>3SG-scrape~ITER COMP=PRF-3SG cool.off
 ‘And they scraped it when it was cool.’

(Nettie Ruben, ‘Bear hunting’; WB-KL-71:23)

Adverbial clauses may precede the main clause, as in 15, or follow it, as in 16. This freedom of position is typical of adverbial clauses in languages with an initial subordinator (Diessel 2001:442ff.). In contrast, complement clauses must follow the main verb. This restriction is observed in the textual material and confirmed in elicitation. When translating English sentences with complement clauses into Karuk, speakers invariably produce structures in which the complement clause follows the main verb. Examples of such translation tasks are given in 17 and 18.

- (17) naa vúra ni-tapkúupi-ti [pa=ni-’uufíthvu-tih].
 1SG EMPH 1SG-like-DUR COMP=1SG-swim-DUR
 ‘I like to swim.’

(Vina Smith, September 7, 2013)

- (18) ni-krúunti [iim p=ee-mnísh-eesh].
 1SG-wait.for 2SG COMP=2SG-cook-PROSP
 ‘I am waiting for you to cook.’

(Vina Smith, September 8, 2013)

When presented with a version of the Karuk sentences in which the complement clause precedes the main verb, the speaker either rejected it as ‘no good’ (19) or reinterpreted the complement clause as an adverbial clause and adjusted the aspectual inflection of the matrix clause accordingly (20).

- (19) *naa vúra [pa=ni-’uufíthvu-ti] ni-tapkúupi-ti.
 1SG EMPH COMP=1SG-swim-DUR 1SG-like-DUR
 intended: ‘I like to swim.’

(Vina Smith, September 7, 2013)

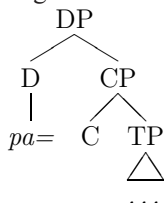
- (20) [iim p=ee-mnísh-eesh] ni-krúuntih-eesh.
 2SG COMP=2SG-cook-PROSP 1SG-wait.for-PROSP
 ‘If you are going to cook, I will wait.’

(Vina Smith, September 8, 2013)

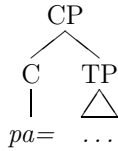
This state of affairs is also expected on typological grounds: complement clauses tend to be positionally restricted and to favor postverbal position (Dryer 1980, Schmidtke-Bode & Diessel 2017).

Before we turn to the environments that trigger backward resumption, one matter deserves further attention. As example 16 makes clear, the complementizer proclitic is segmentally identical to the definite determiner. Bright (1957:121–22) distinguishes the two based on the morphophonological processes they trigger, and identifies the first as a nominalizer and the second as an article. Bright does not give any specific evidence that the *pa=* that marks subordinate clauses is a nominalizer, and it is not easy to distinguish a nominalization analysis from a complementizer analysis. One thing that makes it difficult is that Karuk subordinate clauses exhibit the full gamut of verbal inflection. So if they involve nominalization, it is very high nominalization: that is, nominalization at the CP-level in the typology of Kornfilt & Whitman 2011. The analytic issue is thus to differentiate the nominalized structure in 21 from the plain CP structure in 22.

- (21) High nominalization analysis of Karuk complement clauses



(22) CP analysis of Karuk complement clauses



As far as we know there is no positive evidence for a nominalization analysis: *pa*-clauses are not case-marked, they do not expone number, and they do not bear possessive marking.¹¹ By contrast, there is indirect evidence for the complementizer analysis of *pa*= from embedded questions. Karuk generally exhibits WH-movement to the left periphery in constituent questions, and in embedded constituent questions the question word invariably precedes *pa*=.¹²

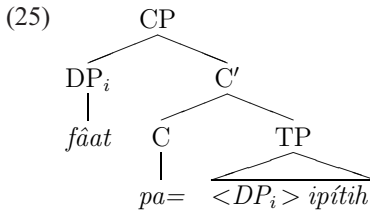
- (23) *i-pikrôok-ti húm [fâat p=ee-pí-tih]?*
 2SG-remember-DUR Q what COMP=2SG-say-DUR
 ‘Did you remember what you said?’

(Charlie Thom, Sr., ‘Sentences from Now you’re speaking Karuk’; CT-01:25)

- (24) *chavúra pu=mah-ára, [hôoy p=oo-’aramsüpriv-tih].*
 finally NEG=see-NEG where COMP=3SG-come.from-DUR
 ‘In the end he didn’t find where it came from.’

(Chester Pepper, ‘Coyote tries to reach the sun’; WB-KL-12)

Under the CP analysis, the relative order of the question word and *pa*= follows straightforwardly from WH-movement targeting Spec-CP, as shown in 25 for the embedded clause in 23.¹³



Under the nominalization analysis, we expect the opposite order of *fâat* and *pa*=, since *pa*= heads the projection above CP, and some additional movement process is required to bring the question word to a position above the nominalizer. We therefore adopt the CP analysis in 22 and analyze *pa*= as a complementizer.¹⁴

¹¹ The absence of case, number, and possessive marking on *pa*-clauses does not amount to a direct argument against the nominalization analysis, since their absence can be explained in terms of independent restrictions. Only external arguments and instruments are ever case-marked (Macaulay 2000), and *pa*-clauses function only as internal, noninstrument arguments, so the opportunity for case marking of a *pa*-clause does not arise. Similarly, only human-denoting nouns expone number, and *pa*-clauses do not denote humans, hence no potential for number marking. Finally, *pa*-clauses appear to be excluded from possessive constructions, plausibly on semantic grounds.

¹² Karuk question words are indeterminate pronouns in the sense of Shimoyama 2008—their interpretation depends on syntactic and semantic context: an indefinite reading is associated with in-situ realization, and the question interpretation with movement to the left edge. This pattern holds in root and embedded contexts.

¹³ Recall that *a+i* yields *ee*, so *pa*= + *ipítih* yields *peepítih*.

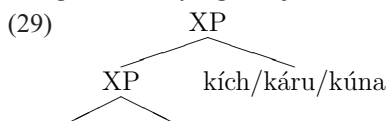
¹⁴ Complementizer *pa*= is also used to form clefts, as discussed in Garrett & Mikkelsen 2015.

In summary: Karuk complement clauses are finite CPs and displaced to postverbal position. Next we turn to the environments for backward resumption of postverbal complement clauses, starting with focus particles.

3.3. FOCUS PARTICLES. Karuk has three focus particles, *kích* ‘only’, *káru* ‘also’, and *kúna* ‘in addition’.

- (26) naa *kích*
1SG only
‘only me’
- (27) naa *káru*
1SG also
‘me too’
- (28) fâat *kúna*
what in.addition
‘what else’

These focus particles appear immediately following the element they associate with, and we argue that they right-adjoin the associate, as shown schematically in 29.



The first generalization that we want to establish is that such overtly focus-marked constituents must precede the verb, though they need not be immediately preverbal, as 32 shows. Representative textual examples are given in 30–33.

- (30) xás [**pa=’únuhich kich**] t-u-páth-ih.
then the=kidney only PRF-3SG>3-throw-BEN
‘Then he threw only the kidney to him.’
(Julia Bennett, ‘Screech Owl and Coyote’; ALK-14-35:13)
- (31) [**uumkun káru**] kun-pakúriihva.
3PL also 3PL>3SG-sing.songs
‘They (the Does) were singing too.’ (after saying that Coyote was singing when he met the Does)
(Mamie Offield, ‘Coyote trades songs and goes to the sky’; WB-KL-09:4)
- (32) [**âanxus uum káru**] pákuri u-thiiná-tih.
weasel 3SG also song 3SG-have-DUR
‘Weasel had a song.’ (after the Old Woman sings her song)
(Lottie Beck, ‘The perils of Weasel’; WB-KL-18:19)
- (33) [**pa=mu-hrôoha kúna**] ú-kfuukiraa.
the=3SG-wife in.addition 3SG>3-grab
‘He grabbed his wife in turn.’ (after grabbing his child)
(Lottie Beck, ‘The greedy father’; WB-KL-23:67)

Postverbal placement of a focus-marked phrase is judged ungrammatical (34), and preverbal placement is invariably volunteered (35).

- (34) *tá nu-’ákih [**uxnáhich kich**].
PRF 1SG>2SG-feed strawberries only
intended: ‘All I gave you were strawberries.’ (Vina Smith, June 16, 2013)
- (35) [**uxnáhich kich**] tá nu-’ákih.
strawberries only PRF 1SG>2SG-feed
‘All I gave you were strawberries.’ (Vina Smith, June 16, 2013)

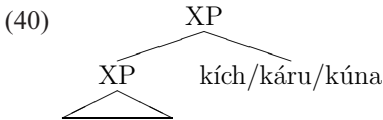
There are three indications that strict preverbal position is due to focus marking. First, as shown in §3.1, DPs may generally precede or follow the verb, suggesting that the strict preverbal position of the focus-marked DPs in 30–35 is due to the presence of the focus particle. Second, focus particles may associate with categories other than DP, and when they do, these also must appear preverbally. This is shown for a locative adverb in 36, a temporal adverb in 37, and an adverbial clause in 38.¹⁵

- (36) *viri vaa kumá'ii vaa káan kich kun-'áaraahi-tih-anik pirishkâarim.*
 so that because.of so there only 3PL-live.PL-DUR-ANC grizzly.bear
 'For that reason grizzly bears lived only there.'
 (Mamie Offield, 'Duck Hawk and his wife'; WB-KL-27:31)
- (37) ... *axakyâanich vúra kich pa=kun-'íp-aam-tih.*
 twice EMPH only COMP=3PL-ITER-eat-DUR
 '... it is only twice that they eat.'
 (Phoebe Maddux, 'Their daily life and how they smoked'; Harrington 1932b:199)
- (38) *pa=pishiip t-óo kyáa-haak mit kich símsiim ú-hruuv-tih-at.*
 COMP=first PRF-3SG>3 make-IRR PST only knife 3SG-use-DUR-PST
 'When he first made them was the only time he used a knife.'
 (Phoebe Maddux, 'How they dress off the outside and make it smooth'; Harrington 1932b:150)

Finally, textual material and elicitation work both suggest that any focused constituent must appear preverbally in Karuk, whether it is marked by a focus particle or not. This requirement is illustrated by the elicited dialogue in 39. The questioner asks whether the addressee's knife is dull. The addressee denies this and says that his axe is dull. In this exchange, the axe is contrasted with the knife and is thus in contrastive focus. The volunteered form is 39a, where the contrastive constituent precedes the verb. The order in 39b, where the contrastive constituent follows the verb, is judged infelicitous.

- (39) Q: Is your knife dull?
 a. *púuhara, pa=nani-'akôor u-múmu-hi-tih.*
 no the=1SG.POSS-axe 3SG-dull-VBL-DUR
 'No, my axe is dull.'
 b. *#púuhara, u-múmu-hi-tih pa=nani-'akôor.*
 no 3SG-dull-VBL-DUR the=1SG.POSS-axe
 (Sonny Davis, Jr., November 8, 2015)

So far we have established that focus-marked constituents must appear preverbally in Karuk. Next we want to argue that the focus particle forms a syntactic constituent with the associate in support of the adjunction structure in 29, repeated here as 40.



The first piece of evidence that the associate and focus particle form a constituent is that they can be the target of constituent negation. Karuk has bipartite negation, which consists of a proclitic *pu=* and a suffix *-ara* or *-hara*.¹⁶ In clausal negation, *-(h)ara* attaches

¹⁵ The realization of 3sg *u-* as *oo-* in the subordinate clause in 38 is due to the vowel coalescence process described in n. 7. The temporal particle *mit* that follows the embedded verb in 38 is part of the matrix clause, and the expected position is immediately preceding the matrix verb *úhruuvtihat*. We have no explanation for why it shows up to the left of *kich* in this example.

¹⁶ Bright (1957:137–38) analyzes the two forms of the negative suffix as allomorphs: *-ara* occurs with verbal stems, *-hara* with nonverbal stems. Macaulay (1989) decomposes *-hara* into verbalizer *-ha* followed by *-ara*. The argument about constituency made here goes through under either analysis.

to the predicate and *pu=* attaches at the left edge of the scope of negation, which may be the predicate, as in 41, or some preverbal dependent of the predicate, as in 42 and 43.

- (41) *xás háari vúra ára pu=xú-tih-ara, víri vúra t-óo piip*
 and sometimes EMPH person NEG=think-DUR-NEG and EMPH PRF-3SG say
p=eethvuy.
 the=name
 ‘Sometimes a person just wasn’t thinking, so he said the name.’
 (Julia Starritt, ‘Swearing’; WB-KL-0:6)
- (42) *áf-eer tá kun-vítrip, vaa uum pu=kúkuum p-íif-tih-ara, ...*
 bottom-CHAR PRF 3PL-pull.up thus 3SG NEG=again ITER-grow-DUR-NEG
 ‘Root and all they pull them out, so they will not grow up again, ...’
 (Phoebe Maddux, ‘Practices bordering on a knowledge of tillage’; Harrington 1932b:73)
- (43) *víri chavúra pu=’áaraar iim-tih-ara, ...*
 and finally NEG-person die-DUR-NEG
 ‘Finally no person died ...’
 (Mamie Offield, ‘A trip to the land of the dead’; WB-KL-58:56)

In 41 the indefinite subject *ára* ‘person’ appears to the left of the negative proclitic and is interpreted outside the scope of negation. In 42, *pu=* attaches to the adverb *kúkuum* ‘again’ and takes scope over the adverb: the interpretation is that it is not the case that the plants will regrow, not that again the plants will fail to grow. Similarly, in 43, *pu=* attaches to the indefinite subject *áaraar* ‘person’ and takes scope over it, resulting in the interpretation that no one died. If negation had narrow scope relative to the subject, the sentence would mean that some person did not die, analogous to the interpretation of narrow-scope negation in 41.¹⁷ When negation targets a smaller constituent, one that does not include the predicate, negation ‘wraps around’ that constituent, as shown in 44, where negation targets the quantifier *táay* ‘much’.¹⁸

- (44) *apmáan-kam káru vúra t-u-píshusurishuk, vúra pu=táay-hara.*
 mouth-side also EMPH PRF-3SG-come.out EMPH NEG=much-NEG
 ‘It (= smoke) comes out of his mouth too, but not much.’ (Phoebe Maddux,
 ‘How they take the tobacco smoke into the lungs’; Harrington 1932b:193)

With this much in place, consider the example in 45, where negation wraps around a focus particle and its associate.

- (45) *pu=fáthip kich-ara p=eekôor kun-iká-ar-tih,*
 NEG-manzanita only-NEG the=stone.pipe.bowl 3PL-make-INS-DUR
xavish’úhraam káru vúra ikôor kun-iká-ar-tih.
 arrowwood also EMPH stone.pipe.bowl 3PL-make-INS-DUR
 ‘Manzanita was not the only kind that they put stone pipe bowls onto, the
 arrowwood also they fitted with stone pipe bowls.’
 (Phoebe Maddux, ‘Stone pipe bowls’; Harrington 1932b:151)

The verb is not included in the scope of negation, since the first clause presupposes that they did put stone pipe bowls onto manzanita pipes. Rather, negation targets the ex-

¹⁷ It is an accident that 43 has *áaraar* for ‘person’, where 41 has *ára*. Both forms occur with narrow and wide scope with regard to negation and other scope-taking elements.

¹⁸ The exact meaning and morphology of the verb stem *píshusurishuk* is uncertain. We gloss it ‘come out’ based on the translation of the sentence in Harrington 1932b:193 and the discernable presence of the directional suffix *-rishuk* ‘out’.

haustivity of the focus particle. The interpretation is that it is not the case that the only type of pipe outfitted with a stone pipe bowl is the manzanita pipe. If the focus particle forms a constituent with its associate, as we propose here, a very simple and appealing generalization emerges: Karuk negation targets constituents of any size, and *pu=* and *-ara* mark the edges of that constituent. Elements inside of that constituent are interpreted within the scope of negation; elements outside of that constituent are interpreted as outside the scope of negation.

A second observation in support of the structure in 40 is that the focus particles always surface right-adjacent to their associate, modulo second-position clitics. In this respect, Karuk focus particles differ from their English counterparts, which famously may be linearly separated from their prosodically marked associate.

- (46) I only heard that the man with the green sweater was arrested.
- a. I only [HEARD] that the man with the green sweater was arrested.
 - b. I only heard that the [MAN] with the green sweater was arrested.
 - c. I only heard that the man [WITH] the green sweater was arrested.
 - d. I only heard that the man with the [GREEN] sweater was arrested.

In Karuk, there appears to be no prosodic correlate of associated foci, nor of free focus (focus that is not associated with a focus particle). Both are characterized by preverbal position, and associated foci are further identified by the position of the focus particle. The latter is straightforwardly accounted for by the adjunction structure in 40.

The third important fact is that the associate of a focus particle must be overt. Recall from §3.1 that Karuk allows pro-drop for nominal arguments. However, when a nominal argument is the associate of a focus particle, it is invariably pronounced, even when the referent of the focus-marked DP is recoverable from context and/or verbal agreement. Consider the example in 31, reproduced below in its narrative context, which is the beginning of a traditional story about Coyote trading songs and going to the sky.

- (47) a. So Coyote was traveling, he was singing.
 b. And he met two young women.
 c. They were does.
 d. [**uumkun káru**] kun-pakúriihva.
 3PL also 3PL-sing.songs
 ‘They (the Does) were singing too.’

(Mamie Offield, ‘Coyote trades songs and goes to the sky’; WB-KL-09:4)

The associate of the focus particle in 47d is the third-person plural pronoun *uumkun*. The verb is intransitive, and the associate of the focus marker is thus unambiguously the subject of the verb. The person and number of the subject (3PL) is encoded in the agreement prefix on the verb, and given the preceding context, the subject referent is unambiguously recoverable as the does. The conditions for pro-drop are clearly met, and yet an overt pronoun is used. Similarly, in the text excerpt in 48, the first-person pronoun *naa* is dropped in the first clause of the quote (48a) and again in the last clause of the quote (48d), but not in 48c where the pronoun is the associate of a focus particle.

- (48) *xás u-piip*
 and 3SG-say
 ‘And she (Tan Oak Acorn) said’
- a. *pûu, vaa vúra ní-thxuun-eesh, (...)*
 no thus EMPH 1SG>3-wear.on.head-PROSP
 ‘No, I’ll wear it this way (though it is only woven halfway)’
 - b. ‘They’ll know that Tan Oak Acorn has come to grow.’

- c. *kíri naa vúra kích yaas'árara ìin na-'ám-ti*
 DESID 1SG EMPH only mankind ERG 3SG>1SG-eat-DUR
 'May Mankind eat me alone'
- d. *káru tápas n-eeekyâa-vish.*
 and best 3SG>1-make-PROSP
 'and take care of me!'

(Lottie Beck, 'The story of Tan Oak Acorn'; WB-KL-30:12–14)

We attribute the distinctive use of overt pronouns in 47d and 48c to a requirement that the associate of Karuk focus particles must be pronounced. Based on the adjunction structure in 29, this requirement can be stated as in 49.

- (49) P-REQUIREMENT OF KARUK FOCUS PARTICLES: The sister of a Karuk focus particle must be pronounced.

It seems plausible that this requirement could be derived from a more general principle that foci must be phonologically realized. In a language like English, where focus is marked by pitch accent, the motivation for such a requirement is obvious: if the associate is not phonologically realized at all, it cannot realize the required pitch accent. In a language like Karuk that does not mark the associate prosodically, one cannot derive the obligatory overtness of the associate as straightforwardly, and here we simply state it as a requirement imposed on the associate by its sister.

Next we turn to the second trigger for backward resumption, which is the postposition *koo*.

3.4. POSTPOSITIONAL *koo*. The postposition *koo* is used to express the standard of comparison in comparisons of equality. Typical examples are shown below.

- (50) [*ishvít kóo*] t-u-'uum.
 half as.much.as PRF-3SG-arrive
 'He arrived as far as halfway (up the tree).'
- (Lottie Beck, 'The perils of Weasel'; WB-KL-18:15)
- (51) *xás xunyêep u-píip 'naa yáas [áachip kóo] ni-víik-tih.'*
 and Tan.Oak.Acorn 3SG-say 1SG just middle as.much.as 1SG-weave-DUR
 'And Tan Oak Acorn said, "I've just woven it halfway."'
- (Lottie Beck, 'The story of Tan Oak Acorn'; WB-KL-30:10)
- (52) ... [*ihêeraha kóo*] u-'úux.
 tobacco as.much.as 3SG-be.bitter
 '... it tastes as bad as tobacco.'

(Phoebe Maddux, 'How it tastes'; Harrington 1932b:49)

In each case the complement of *koo* establishes the standard of comparison—the halfway point of the tree in 50, the middle of the basket cap in 51, and tobacco in 52—and *koo* expresses that the event in question meets this standard in the relevant dimension.

While some Karuk PPs exhibit the same freedom of position as DPs, most PPs must appear preverbally. This is true of PPs headed by *koo*. When presented with a version of 52 in which the PP appears after the verb, the speaker judged it ungrammatical (53) and then volunteered a reformulation that places the standard of comparison after the verb, but does not involve a PP (54).

- (53) **u-'úux [ihêeraha kóo]*
 3SG-be.bitter tobacco as.much.as
 intended: 'It tastes as bad as tobacco.' (Vina Smith, January 15, 2014)
- (54) *u-'úux, kúnish ihêeraha.*
 3SG-be.bitter sort.of tobacco
 'It is bitter, sort of like tobacco.' (Vina Smith, January 15, 2014)

Karuk allows pro-drop of all DP arguments to verbs (subject, direct object, indirect object, and applied object), but DP complements of postpositions are not dropped.¹⁹ Nor are postpositions ever stranded under extraction in question formation. Instead the postposition is pied-piped to the left edge of the clause, as illustrated for the postposition *kumá'ii* 'because of' in 55.

- (55) kun-píip **fâat kumá'ii** p=eekmaháchraam tá nu-p-sámkir?
 3PL-say what because.of the=sweathouse PRF 1PL>3-ITER-leave
 'They said: "What did we leave him there for in the sweathouse?"'
 (Yaas, 'How Grizzly Bear got his ears burnt off'; JPH-KT-01a:13)

This suggests that postpositions are like focus particles in requiring their sister to be phonologically realized.

3.5. RESOLVING WORD-ORDER CONFLICT THROUGH BACKWARD RESUMPTION. Taking stock, we have arrived at the following generalizations about Karuk word order:

- (i) DPs may appear before or after the verb.
- (ii) Complement clauses must appear postverbally.
- (iii) Focus particles
 - a. must appear preverbally.
 - b. cannot be separated from their associate.
 - c. require their associate to be phonologically realized.
- (iv) The postposition *koo*
 - a. must appear preverbally.
 - b. cannot be separated from its complement.
 - c. requires its complement to be phonologically realized.

When the associate of the focus particle is a DP, the requirements in (iii) dictate that the DP appears preverbally, immediately followed by the focus particle. Similarly, when the complement of *koo* is a DP, the requirements in (iv) force the DP to appear immediately before *koo* in the preverbal field. Both are allowed given (i). However, when the associate of a focus particle is a complement clause, a conflict arises: (ii) requires the complement clause to be after the verb, but the focus particle requires its associate to be preverbal in order to satisfy (iii). When the complement of *koo* is a clause, the exact same conflict arises: the postposition must be preverbal by (iv)a and requires its complement to immediately precede it (by (iv)b,c and the fact that it is a postposition), but the complement clause is not allowed to surface in preverbal position. Backward resumption resolves this conflict, as illustrated in 56.

- (56) [... [**vaa**, trigger] ... V] CP_i

The proform *vaa* meets the linearization requirements of the trigger (a focus particle or the postposition *koo*) without running afoul of the requirement that complement clauses appear postverbally. The CP itself is thus free to appear after the verb, meeting the requirement for postverbal realization.

¹⁹ The locative postposition *kuuk* 'to(ward)' at first glance appears to falsify this claim, as it can occur by itself with the meaning 'to(ward) the contextually salient location'. However, there are good indications that *kuuk* does not take a DP complement to begin with, but rather what Bright (1957:69) calls an ADVERBIAL NOUN. Direct evidence for this comes from *kuuk* appearing with adverbial complements like *yüvâri* 'rather far', and from the observation that regular nouns bear the locative suffix *-ak* when serving as the complement of *kuuk*, for example, *eerâriiv-ak kúuk* 'den-LOC toward' in example 10b above. Thus the use of *kuuk* without an overt complement does not violate the generalization that DP complements to postpositions may not be dropped.

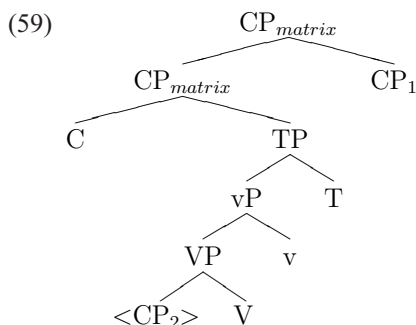
4. BACKWARD RESUMPTION AS THE OUTCOME OF CHAIN RESOLUTION. Above we have seen in an intuitive way how conflicting linearization requirements result in backward resumption. In this section, I cash out that intuition within the CHAIN-RESOLUTION framework of Landau 2006. The core idea of Landau's theory is that syntactic movement creates chains that must be resolved for pronunciation and interpretation at the PF (phonetic form) and LF (logical form) interface, respectively. At PF two opposing principles govern chain resolution: P-RECOVERABILITY (protecting chain members from deletion) and ECONOMY OF PRONUNCIATION (forcing deletion of chain members where possible).

(57) P-RECOVERABILITY (Landau 2006:56): In a chain $\langle X_1 \dots X_i \dots X_n \rangle$, where some X_i is associated with phonetic content, X_i must be pronounced.

(58) ECONOMY OF PRONUNCIATION (Landau 2006:57): Delete all chain copies at PF up to P-recoverability.

The key notion of P-recoverability is being 'associated with phonetic content'.²⁰ A chain member can be associated with phonetic content inherently or by virtue of the structural position it occupies (Landau 2006:56). The latter plays a crucial role in the analysis of Karuk backward resumption. To my knowledge, this is the first application of Landau's framework to rightward movement. Further applications to leftward movement are found in Harizanov & Mikkelsen 2018, van Urk 2018, and Scott 2020, all of which figure into the discussion below.

I start from the assumption that Karuk is underlyingly verb-final and more generally head-final, except for the CP projection (Mikkelsen 2017). All arguments, including complement clauses, are base-generated to the left of the verb, and all complements of adpositions (including DPs and CPs) are base-generated to the left of the adposition. Following Moulton 2015 I propose that clausal complements (of V or P) must move, as they cannot be interpreted in their base position. In English they move to the left, but in Karuk they move to the right to adjoin matrix CP.²¹



Under the COPY THEORY OF MOVEMENT (Chomsky 1993, 1995, Bobaljik 2002, Bošković & Nunes 2007, among others), this movement creates the two-member chain in 60.²²

²⁰ This should be read as 'obligatorily associated with phonetic content'. For consistency with Landau's work I use his original phrasing throughout. 'Being associated with phonetic content' simply means that the chain member in question must be pronounced, though not necessarily in its fullest form.

²¹ In English, leftward movement of CP is accompanied by remnant AspP fronting, resulting in V CP surface order (Moulton 2015:310, 320–25).

²² By convention, the highest member of the chain is written leftmost in the linear notation and the lowest member rightmost. This results in a noniconic ordering for rightward movement. A referee asks which version

(60) <CP₁, CP₂>

At PF the chain is resolved according to two general principles of chain resolution, namely P-recoverability (57) and economy of pronunciation (58), and a language-particular requirement that the highest chain member realize full phonetic content (61).

(61) In Karuk the highest chain member realizes full phonetic content.

Van Urk (2018:971) proposes that languages vary parametrically as to which chain member realizes full phonetic content. Evidence that in Karuk it is always the highest chain member comes from constituent questions, which always realize the higher copy (in Spec-CP). This is especially clear in object questions where the WH-phrase surfaces initially (63), deviating from unmarked SOV order (62).

(62) *virusur pa=’áama u-’ám-tih.*
 bear the=salmon 3SG-eat-DUR
 ‘The bear’s eating the salmon.’ (Lucille Albers, October 24, 2010)

(63) *fâat iim i-’áv-eesh?*
 what 2SG 2SG-eat-PROSP
 ‘What are you going to eat?’ (Vina Smith, October 20, 2012)

Returning to extraposition of a clausal complement, let us first consider a typical case where the CP is a complement of V and no focus is involved, as in 64. In this case, only the highest copy (CP₁) is pronounced.

(64) *naa íp ni-pasúpiichv-at [pa=sôomvaan t-i-’ípasuk].*
 1SG PST 1SG-reveal-PST COMP=prospective.wife PRF-2SG-bring.back
 ‘I revealed that you were bringing home a new wife.’
 (Mamie Offield, ‘Duck Hawk and his wife’; WB-KL-27:23)

This is derived as follows: the chain in 60 is subjected to P-recoverability, economy of pronunciation, and the requirement to fully pronounce the highest chain member. As the highest chain member, the postverbal CP₁ is therefore pronounced in full. The preverbal CP₂, however, is not associated with phonetic content. First, it is the bottom of the chain and therefore not privileged by 61. Second, the verb does not require the pronunciation of its sister, as evidenced by the fact that verbs allow nominal objects to go unrealized (see §3.1), as well as clausal complements (65).

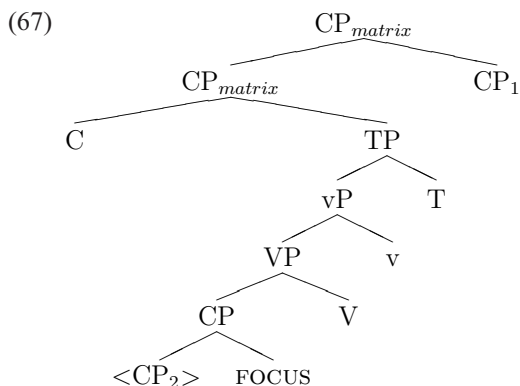
(65) *naa ni-’aapúnmu-tih.*
 1SG 1SG>3-know-DUR
 ‘I understand.’ (Vina Smith, October 20, 2012)

Since CP₂ is not associated with phonetic content and CP₁ satisfies P-recoverability, economy of pronunciation demands that CP₂ not be pronounced, resulting in the realization in 64.

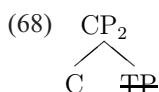
Consider now the case of focus on a complement clause, as in 66 and schematized in 67.

(66) *xas uum vúra vaa_i kich_i u-kupí-tih-anik [p=’óo-thtii-tih-anik].*
 and he EMPH that only 3SG-do-DUR-ANC COMP=3SG-gamble-DUR-ANC
 ‘And all that he used to do was to gamble.’ (Fritz Hansen, ‘Mourning Dove
 Young Man gambles away his Doodle Bug grandmother’s dress’; JPH-KT-06:5)

of the copy theory of movement is assumed. The analysis developed below does not depend on a particular version. The only requirement is that lower chain members are fully articulated, independent copies, as proposed, for example, in Chomsky 1995:202–5; see also Chomsky 2008:140–41, n. 17.



Again, the highest (i.e. rightmost) copy, CP_1 , is pronounced by 61. The lower copy, CP_2 , is now associated with phonetic content because Karuk focus particles require their sister to be pronounced (see 49). Thus the lower copy must also be pronounced, but economy of pronunciation requires it to be minimally pronounced. Following van Urk 2018, I assume that minimal pronunciation is the result of partial deletion. The pressure to delete comes from economy of pronunciation, and the pressure to delete only partially comes from P-recoverability. In other words, deletion targets syntactic structure up to pronounceability. In the case of 67 this amounts to deleting the TP complement of the lower C head, as in 68.



This deletion leaves just the C head, which is then subject to VOCABULARY INSERTION. I propose that there are two vocabulary items involving C. One is *pa=*, which is used only in the context of a TP sister (69a), and the other is resumptive *vaa*, which I am treating as the elsewhere case (69b).

- (69) a. [C] \Leftrightarrow *pa=* / TP
 b. [C] \Leftrightarrow *vaa*

These vocabulary items, together with deletion of TP in the lower CP copy, ensure that the lower copy of CP in 67 is realized as *vaa*, whereas the C head of the higher copy is realized as *pa=*.

We can extend the analysis to examples like 70, where *vaa* functions, on its own, as a complement of the clausal complement-taking verbs *ipshinvárhva* ‘forget’ and *áapunma* ‘know’.

- (70) **váa** vúra pu=na-pi-pshinvárhvu-tih-ara **váa** vúra
 that EMPH NEG=1SG>3-ITER-forget-DUR-NEG that EMPH
 ni-’áapunmu-tipayêem.
 1SG>3-know-ITER now

‘I’ll never forget that, I know it today.’

(Vina Smith, ‘I’ll never forget those days’; VS-22:28)

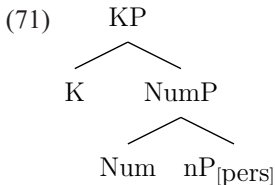
Such verbs have the option of taking either a fully articulated CP as a complement or a CP that is simultaneously minimal and maximal, because it contains nothing but the C head itself (see Chomsky 1994). This minimal CP is not subject to movement, because CP pro-forms can be interpreted in situ (see Moulton 2015:318). It is, of course, subject to vocabulary insertion and matches the vocabulary item in 69b, resulting in a preverbal *vaa*.

The derivation of backward resumption inside PPs proceeds analogously to 67, the only difference being that it is the postposition rather than a focus particle that requires pronunciation of the lower copy. In both cases economy of pronunciation forces deletion up to pronounceability and, given the vocabulary items in 69, realization of C as *vaa*.

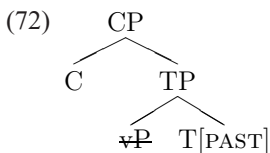
With the mechanics of the analysis in place, it is time to consider some of its implications. Existing accounts focus on multiple spellout of DP chains (van Urk 2018, Scott 2020) and VP chains (Landau 2006, Harizanov & Mikkelsen 2018). The analysis of Karuk offered here shows that the theory also applies to CP chains. In fact, we can hypothesize that any movable phrase will exhibit multiple spellout if (i) a lower chain member is associated with phonetic content and (ii) the highest copy is privileged.

Moreover, the realization of the lower copy will depend on the vocabulary of the language in question: economy of pronunciation forces deletion up to the smallest constituent that results in vocabulary insertion of a nonnull exponent. For instance, partial vP deletion is realized as V itself in Hebrew, which lacks verbal proforms (Landau 2006), whereas it is realized as a proform in Danish (Harizanov & Mikkelsen 2018). In that sense, the same syntactic mechanisms can lead to different outcomes based on the inventory of overt forms in the vocabulary.

In the analysis developed above, the target of deletion is the sister of C. C is a phase head, and its TP sister is a spellout domain. It seems very natural that the target of deletion should be a spellout domain, since spellout domains are the units shipped to PF, and deletion is fundamentally about realization at PF. However, in his analysis of nominal resumption in Dinka, van Urk (2018) argues that it is phases themselves that are the targets of partial deletion. The empirical evidence for this comes from number being reflected in the resumptive element, rather than just category information. Van Urk adopts the DP structure in 71 and the assumption that nP is a phase alongside KP. (On nP being a phase, see Arad 2003 and Marantz 2007, among others.)



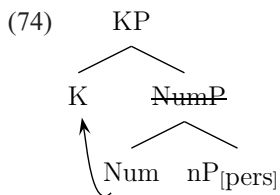
Person features reside in nP, whereas number features reside in Num. Deletion cannot target the highest phase, KP, since that would leave no material for vocabulary insertion and hence no pronunciation. Instead, deletion targets the lower phase, nP, eliminating person features. Number features, being outside nP, survive deletion. The result is that Dinka resumptives show number information, but are neutralized for person. Could we pursue an analogous analysis of Karuk CP backward resumption? As in the Dinka case, the CP chain copy contains two phases: CP and vP. CP cannot be the target of deletion, since it would result in null pronunciation and we are interested in contexts where the lower CP copy is associated with phonetic content. Could it be the outcome of vP deletion? That would be analogous to van Urk's analysis of Dinka resumption: deletion of the lower phase. This analysis, however, runs into problems when it comes to vocabulary insertion. To see why, consider the postdeletion structure in 72.



When this structure is submitted to morphology it will undergo vocabulary insertion. The relevant vocabulary items are in 73.

- (73) a. [C] \Leftrightarrow pa= / TP
 b. [C] \Leftrightarrow vaa
 c. [T PAST] \Leftrightarrow -anik

T[PAST] matches the vocabulary item in 73c, and C matches the vocabulary item in 73a. This results in the form *pa=anik*, which is unattested. The correct form, *vaa*, cannot be generated from the structure in 72 because the local syntactic environment of C in 72 is identical to its environment without deletion of vP, namely TP. This means that vocabulary insertion cannot distinguish no deletion from partial deletion, incorrectly producing *pa=* in both cases.²³ In contrast, deletion of TP produces the right result: the only vocabulary item that matches a lone C is 73b, correctly producing *vaa*. So the conclusion we are left with is that partial deletion can target spellout domains. This is at odds with van Urk's claim (2018:986) that partial deletion targets only phases. I see three ways to resolve this conflict. The first is to say that partial deletion may target phases or spellout domains. This is a weaker theory than one that restricts partial deletion to phases or restricts it to spellout domains. The second is to appeal to crosslinguistic variation: some languages, including Dinka, allow only deletion of phases, and other languages, including Karuk, allow (only) deletion of spellout domains. Unless we can correlate this distinction with other properties of the languages in question this is also a weak hypothesis. The third and more interesting approach to resolving this conflict is to attempt to reanalyze van Urk's data as involving deletion of spellout domains rather than phases. In fact, van Urk himself considers an alternative analysis of Dinka resumption in which deletion targets spellout domains rather than phases (2018:966). In the structure in 71, NumP is a spellout domain by virtue of KP being a phase. Deleting the spellout domain deletes number information, unless Num moves to K, as in 74. In exactly this situation, Num escapes deletion, and the resulting resumptives will show number in accordance with the Dinka facts.

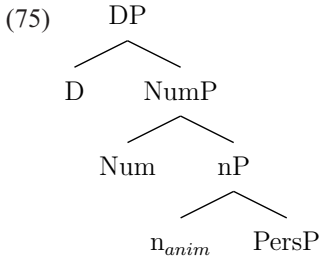


If we adopt this head-movement analysis of Dinka resumption, the Karuk and Dinka facts are no longer at odds: both involve deletion of the spellout domain of the highest phase head (C and K, respectively). Van Urk's criticism of the analysis in 74 is that it requires one to posit head movement of Num to K, which currently lacks independent support. However, van Urk does not cite evidence against it, so it seems to be a live possibility. Moreover, when we look at other cases of multiple spellout we see that these appear to involve deletion of spellout domains and not phases themselves.

Consider first Scott's (2020) analysis of resumption in Swahili. Swahili has two series of resumptive pronouns. One series shows person distinctions; the other does not. Scott demonstrates that the former are base-generated and the latter the outcome of movement. We thus have a situation analogous to the one van Urk discusses for Dinka:

²³ Here I assume that the only syntactic element that a vocabulary item can reference is its sister.

movement results in a reduced resumptive pronoun. The structure that Scott adopts is slightly different from van Urk’s. In particular, person is separated from nP into its own projection, and n is the host of gender (noun class) information.

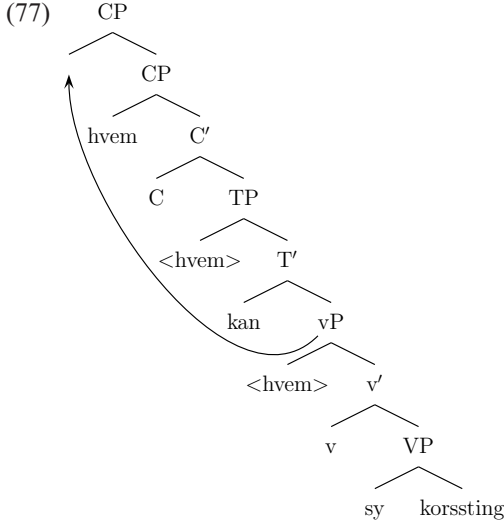


The Swahili movement resumptives lack person but show gender and number. Scott’s analysis is therefore that partial deletion targets PersP. Assuming nP is a phase in Swahili—and again, we have no evidence to the contrary—this is deletion of a spellout domain rather than a phase. It is also worth noting that the Swahili facts cannot be accounted for under van Urk’s conjecture that only phases are targets of partial deletion, unless PersP is a phase in Swahili. This would run contrary to Arad 2003 and Marantz 2007’s claim that the DP-internal phase is nP, and Scott herself explicitly rejects such an analysis (2020:23).

Next, we need to consider the case of multiple spellout in Danish vP LEFT DISLOCATION analyzed in Harizanov & Mikkelsen 2018.²⁴ In this construction a fully articulated vP moves to adjoin CP, and a resumptive *det* appears in its base position.

- (76) [Sy korssting]_i hvem kan det_i?
 sew cross.stitch who can RES
 ‘Who can do cross stitch?’

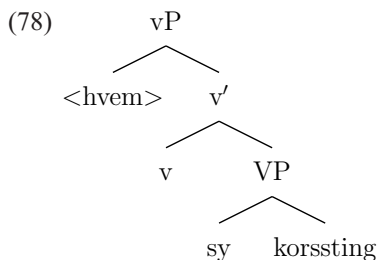
(Harizanov & Mikkelsen 2018:15)



(adapted from Harizanov & Mikkelsen 2018:19, ex. 13)

The internal structure of the lower copy is as in 78.

²⁴ Harizanov and Mikkelsen do not distinguish vP from VP, but it is clear from their discussion that if that distinction is made, it is vP and not VP that moves.



vP is a phase, so if only phases were possible targets of deletion, deletion would have to target vP. This would incorrectly result in lack of pronunciation. If the target of deletion is spellout domains, partial deletion targets VP, leaving the v phase head intact. I propose that this is exactly what happens in Danish and that the relevant vocabulary items are as in 79.

- (79) a. [v] ⇔ ∅ / V
 b. [v] ⇔ det

Following Gribanova and Mikkelsen’s (2018) analysis of Danish vP ellipsis, I assume that V and v are unified by amalgamation in the morphology and not by syntactic head movement (see Harizanov & Gribanova 2019 for this distinction). Amalgamation takes place before vocabulary insertion, and therefore v is in the context of V when vocabulary insertion occurs. This means that, in the general case, v matches the vocabulary item in 79a and has zero exponence. However, deletion bleeds amalgamation, and deletion of VP therefore blocks amalgamation of V and v. As a result, v no longer matches the context of 79a. Instead the elsewhere form *det* is inserted.²⁵ Again, we see partial deletion targeting a spellout domain (VP) and not the phase itself.

Table 2 summarizes the four case studies above.

PHASE HEAD	SPELLOUT DOMAIN DELETED	INSTANTIATION
C	TP	Karuk backward resumption
v	VP	Danish vP left dislocation
K/D	NumP	Dinka WH-movement
n	PersP	Swahili relativization and clefting

TABLE 2. Deletion of spellout domains.

As Table 2 shows, the hypothesis that partial deletion in chain resolution targets spellout domains, rather than phases themselves, has some traction. For each of the four major phase heads (C, v, D/K, n), deletion of their associated spellout domain is attested. We can generalize this preliminary result into the hypothesis in 80.

- (80) DELETION OF SPELLOUT DOMAINS HYPOTHESIS: Partial deletion of lower copies in chain resolution targets only spellout domains.

There is also conceptual support for this hypothesis. The first piece of support was already alluded to above. Spellout domains are the units shipped off to PF for pronunciation. This makes them natural targets for deletion, which is fundamentally about pronunciation. Moreover, phases are natural candidates for movement. If deletion tar-

²⁵ Gribanova and Mikkelsen (2018:116–17) assume that amalgamation takes place as usual in the context of deletion. This assumption actually leads to a problem for their account. If T can lower and amalgamate to v in the context of vP ellipsis, we expect a tenseless clause with vP ellipsis to be grammatical, contrary to fact (see their example 23, p. 117).

gets phases, this will typically result in full deletion of a lower chain member. This does not solve the problem partial deletion was invoked to solve, namely, how to ensure that deletion results in pronounced material. But deletion of the spellout domain of a moved phase is a straightforward way to ensure minimal pronunciation: deletion of the spellout domain leaves just the phase head behind for pronunciation. These conceptual considerations of course only go so far. The hypothesis in 80 requires systematic crosslinguistic examination of resumption in movement chains.

Let us end the discussion of the chain resolution by briefly considering the proposed analysis of Karuk in the broader context of resumption. One of the most robust generalizations about resumptive elements is that they are identical to pronouns or, more generally, proforms (McCloskey 2006, 2017). This is true of Karuk *vaa* as well. We see this in 70 where *vaa* functions as a proform complement of *ipshinvárhva* ‘forget’ and *áa-punma* ‘know’, and we see it in 81.

- (81) *xás pa=’avansáxiich u-xús fâat áta kúth pá=vaa*
 then the=boy 3SG-think what maybe because.of COMP=so
kanée-peen-tih
 3PL>1SG-say.to-DUR
 ‘And the boy thought, “I wonder why I was told that?”’

(Lottie Beck, ‘The kidnapped child’; WB-KL-61:22)

Example 81 comes from a traditional narrative. The immediately preceding sentence is ‘And the one who stole him told him, “Don’t shoot up over the hill!”’, and *vaa* refers back to the CP in the quote. Thus the generalization that resumptive proforms are identical to proforms in the language holds of Karuk as well. As for the status of resumptive elements, Sichel (2014) argues, based on her analysis of resumption in Hebrew, that some resumptive elements must be the result of syntactic derivation and not items merged from the lexicon. The present analysis of Karuk supports this conclusion as well.

5. ALTERNATIVES TO BACKWARD RESUMPTION. According to the chain-resolution analysis developed in the previous section, the factors that lead to backward resumption are movement of CP and association with phonetic content in the lower chain position. This section examines alternatives to backward resumption that arise when either of these factors is not present. The empirical focus is on Hindi-Urdu, Persian, and Turkish, which share with Karuk a verb-final clause structure.²⁶

5.1. WORD-ORDER PRELIMINARIES. Hindi-Urdu, Persian, and Turkish are head-final languages, which nonetheless require finite CP complements to follow the verb.²⁷

²⁶ The comparison with Hindi-Urdu, Persian, and Turkish draws on the existing literature on complement clauses and focus in these languages (Karimi 2005, Aghaei 2006, Lotfi 2006, Öhl & Lotfi 2006, and Adli 2010 for Persian; Subbarao 1984, Mahajan 1990, Butt & King 1996, Dayal 1996, Sharma 2003, Bhatt & Dayal 2007, Manetta 2012, Bajaj 2016, and Carruth 2016 for Hindi-Urdu; Erguvanli 1984, Bayer 1996:209–10, Vallduvi & Engdahl 1996:488–92, Kural 1997, Göksel & Özsoy 2003, İşsever 2003, and Kornfilt 2005 for Turkish) and follow-up consultations with some of these researchers. I am deeply grateful to Veneeta Dayal, Aslı Göksel, Simin Karimi, Jaklin Kornfilt, Ahmad R. Lotfi, Emily Manetta, and Sumru Özsoy for generously sharing their expertise and patiently answering my questions. None of them should be taken to necessarily agree with the perspective on the data I develop below. I use ‘Persian’ instead of ‘Farsi’, following the practice in the cited literature, and I use the term ‘Hindi-Urdu’ following the reasoning in Kidwai 2000:153.

²⁷ Persian *ke* and Hindi-Urdu *ki* are cognates, and Turkish borrowed *ki* from Persian.

(82) Persian

- a. Man midoonam [ke zamin gerd-e].
I know.1SG.PRS that the.earth round-is
'I know that the earth is round.' (Lotfi 2006, ex. 3a)
- b. *Man [ke zamin gerd-e] midoonam.
I that the.earth round-is know.1SG.PRS (Lotfi 2006, ex. 3d)

(83) Hindi-Urdu

- a. Siita-ne kah-aa thaa [ki Mohan aay-aa thaa].
Sita-ERG say-PFV AUX.PST that Mohan come-PFV AUX.PST
'Sita said that Mohan had come.' (Manetta 2012, ex. 2a)
- b. *Siita-ne [ki Mohan aay-aa thaa] kah-aa thaa.
Sita-ERG that Mohan come-PFV AUX.PST say-PFV AUX.PST
(Manetta 2012, ex. 2b)

(84) Turkish

- a. sank farket-ti [ki hakim uyuyakal-mış].
accused notice-PST that judge fall.asleep-EV.PST
'The accused noticed that the judge had fallen asleep.'
(Jaklin Kornfilt, p.c., July 9, 2017)
- b. *sank [ki hakim uyuyakal-mış] farket-ti.
accused that judge fall.asleep-EV.PST notice-PST
(Jaklin Kornfilt, p.c., July 9, 2017)

The relationship between word order and focus is a good deal more complex than in Karuk, but the important point for present purposes is that there is a robust preference for preverbal focus in all three languages. The situation is perhaps clearest in Turkish, which İşsever (2003:1028) characterizes as follows: '[t]he entire preverbal area, including the verb itself, is the "focus field" in Turkish', whereas '[t]he post-verbal area is reserved for tails' (in the sense of Vallduví & Engdahl 1996). According to Adli (2010: 2261–63), the situation is similar in Persian. Focus appears preverbally, including, but not limited to, the specifier of a designated focus projection. She characterizes postverbal elements as topics, though notes that adjuncts expressing destinations may appear postverbally regardless of information-structural status (p. 2263). Finally, Butt and King (1996:5) conclude that in Hindi-Urdu 'topics appear sentence initially, foci immediately before the verb, and backgrounded material is postverbal'.

Thus the question of how to realize focus on a CP complement arises in these three languages as well.

5.2. BACKWARD RESUMPTION. If CPs move away from their focus particle and the vacant focus-associated position is associated with phonetic content, we expect backward resumption. This is indeed what we find in all three languages, as shown in 85–87. In each example the focus particle is underlined and the resumptive pronoun is in bold and coindexed with the bracketed postverbal complement clause.

(85) Persian

- Man faghat **in-*o*_i** midunam [ke zamin gerd-e]_i.
I only this-do know.1SG.PRS that the.earth round-is
'I know only that the earth is round.' (Ahmad Lotfi, p.c., July 9, 2017)

(86) Hindi-Urdu

- a. ham **yeh**_i bhii nahii jaante [ki vah aa nahii sakaa]_i.
we this also not know that he could.not.come
'We did not even know it that he could not come.' (Subbarao 1984:146)

- b. wo **yeh**_i **hii** kah-tee haiN [ki bhaarat to match
3PL this only say-HAB.PL AUX.PL that India EMPH match
jit-ega]_i
win-FUT.M.SG
'They only say that India will win the match. (They don't say anything
else.)'
(Emily Manetta, p.c., July 2, 2017)

(87) Turkish

- a. sanik **şun-u**_i **sadece** farket-ti [ki hakim uyuyakal-mış]_i.
accused that-ACC only notice-PST that judge fall.asleep-EV.PST
'The accused only noticed this, that the judge had fallen asleep.'
(Jaklin Kornfilt, p.c., July 9, 2017)
- b. **Şun-u**_i **da** anla-dı-m [ki çabalarımız bir sonuç
that-ACC also understand-PST-1SG that our.efforts a result
ver-me-yecek]_i.
give-NEG-FUT
'I also understood that our efforts won't produce any result.'
(Aslı Göksel, p.c., July 22, 2017)

This shows that backward resumption is not particular to Karuk, but a more widespread strategy for resolving a word-order tension induced by focus association with a finite complement clause across the verb. Assuming that the postverbal position of CP is derived by movement, we can straightforwardly extend the chain-resolution analysis developed for Karuk to these three cases.²⁸

5.3. NOMINALIZATION. Backward resumption arises when a CP moves and the lower focus position is associated with phonetic content. If the CP does not move, we expect no backward resumption. Not moving the CP is not an option in any of the languages under consideration.

(88) Persian

- *Man **faghat** [ke zamin gerd-e] midunam.
I only that the.earth round-is know.1SG.PRS
intended: 'I know only that the earth is round.' (Ahmad Lotfi, p.c., July 9, 2017)

(89) Turkish

- a. *sanik **sadece** [ki hakim uyuyakal-mış] farket-ti.
accused only that judge fall.asleep-EV.PST notice-PST
intended: 'The accused noticed only that the judge had fallen asleep.'
(Kornfilt 2005:166, ex. 3')
- b. *[ki çabalarımız bir sonuç ver-me-yecek] **da** anla-dı-m.
that our.efforts a result give-NEG-FUT also understand-PST-1SG
intended: 'I also understood that our efforts won't produce any result.'
(Sumru Özsoy, p.c., August 7, 2017)

However, if the complement clause is nominalized it may stay in situ and associate directly with the focus particle.²⁹

(90) Persian

- Man **faghat** [in-ke zamin gerd-e ro] midunam.
I only this-that the.earth round-is do know.1SG.PRS
'I know only that the earth is round.'
(Ahmad Lotfi, p.c., July 9, 2017)

²⁸ The literature on this point is inconclusive; for discussion of the Hindi-Urdu situation see Subbarao 1984, Mahajan 1990:126–27, 1997:205–6, Dayal 1996:4–5, Bhatt & Dayal 2007, and Manetta 2012.

²⁹ The nominalization strategy is absent in Karuk, which I have argued lacks nominalized complement clauses.

(91) Hindi-Urdu

mujhe [uskaa hasnaa] hii/bhii pasand hai.
 I.DAT he.GEN laugh.INF only/also pleasing is

‘I only/also like his laughing.’

(Veneeta Dayal, p.c., July 15, 2017)

(92) Turkish

a. sanık sadece [hakim-in uyuyakal-dıĝ-in-i] farket-ti.
 accused only judge-GEN fall.asleep-FACT.NMLZ-3SG-ACC notice-PST

‘The accused noticed only that the judge had fallen asleep.’

(Kornfilt 2005:164, ex. 1)

b. [çabalarımız-in bir sonuç ver-me-yecceg-in-i] de
 our.efforts-GEN a result give-NEG-FUT-3SG-ACC also
 anla-dı-m
 understand-PST-1SG

‘I also understood that our efforts won’t produce any result.’

(Sumru Özsoy, p.c., August 6, 2017)

A natural interpretation of this is that there is no requirement for DPs to move. Hence the requirement for phonetic content imposed by the focus particle is satisfied by the DP in situ. Without movement, there is no chain and thus no chain resolution, which in turn means no partial deletion and no backward resumption. These observations fit with a broader typological generalization established in Schmidtke-Bode & Diessel 2017: 21–32: the morphosyntactic properties of complement clauses correlate with their position relative to the matrix verb. Finite, unreduced, nonnominalized complement clauses tend to follow the verb, whereas nonfinite, reduced, nominalized complement clauses tend to precede the verb.

5.4. POSTVERBAL FOCUS PARTICLE AND LONG-DISTANCE ASSOCIATION. Above we considered alternatives to backward resumption resulting from lack of movement. The other factor in generating backward resumption is for the lower chain member to be associated with phonetic content. There are at least two ways of obviating this requirement: the CP could pied-pipe the focus particle along to its postverbal position, or the focus particle could fail to require phonetic content of its associate.

In the first case the requirement for phonetic content is met inside the higher movement copy: the CP is a sister to the focus particle and therefore satisfies its requirement for phonetic content. As long as the position of the lower member of the movement is not independently associated with phonetic content, we expect no resumption. From what I have been able to learn, this is not a preferred strategy in any of the three languages.³⁰ It is outright impossible for Hindi-Urdu *hii* and *bhii* (Veneeta Dayal, p.c., July 18, 2017; Emily Manetta, p.c., July 2, 2017), and marginal for Persian *faghat* (Ahmad Lotfi, p.c., July 9, 2017) and Turkish *sadece* (Jaklin Kornfilt, p.c., July 22, 2017). As for *da*, at least some Turkish speakers accept *da* following a postverbal complement clause, but only under certain circumstances (Aslı Göksel, p.c., July 22, 2017; Sumru Özsoy, p.c., August 6, 2017). A second way the phonetic content requirement could be voided is if the focus particle in question fluctuates between requiring phonetic content and not requiring it. The former would give rise to backward resumption; the latter would not. There is some variation between the languages as to whether this is possible. Persian allows it, as seen in 93.

³⁰ In all three languages it is of course possible for a focus particle to occur inside a postverbal complement clause, associating with some constituent of the complement clause.

(93) Man faghat midoonam [ke zamin gerd-e].

I only know.1SG.PRS that the.earth round-is

‘I know only that the earth is round.’

(Ahmad Lotfi, p.c., July 9, 2017)

Example 93 is grammatical and, as indicated in the English translation, allows a reading in which the focus particle associates with the complement clause. This long-distance association with focus is familiar from English *only*, but absent in Karuk, where a focus particle must be adjacent to its associate. Long-distance association is also marginally possible in Turkish with the preassociate particle *sadece* ‘only’.

(94) ?sank sadece farket-ti [ki hakim uyuyakal-mış].

accused only notice-PST that judge fall.asleep-EV.PST

‘The accused noticed only that the judge had fallen asleep.’

(Kornfilt 2005:165, ex. 3)

In contrast, long-distance association is not possible with Turkish *da* (see 95), nor with Hindi-Urdu *bhii* (see 96) or *hii* (Veneeta Dayal, p.c., July 15, 2017).³¹

(95) *da anla-di-m [ki çabalarımız bir sonuç ver-me-yecek].

also understand-PST-1SG that our.efforts a result give-NEG-FUT

intended: ‘I also understood that our efforts won’t produce any result.’

(Sumru Özsoy, p.c., August 6, 2017)

(96) *ham bhii nahii jaante [ki vah aa nahii sakaa]

we also not know that he could.not.come

intended: ‘We did not even know it that he could not come.’

(Subbarao 1984:146, ex. 34)

The empirical observations made so far are assembled in Table 3.³²

	KARUK	HINDI-URDU	TURKISH (<i>da</i>)	TURKISH (<i>sadece</i>)	PERSIAN
Backward resumption	✓	✓	✓	✓	✓
Nominalization	*	✓	✓	✓	✓
Long-distance association	*	*	*	?	✓
Postverbal focus particle	*	*	%	?	?
Preverbal CP	*	*	*	*	*

TABLE 3. Strategies for focus association with complement clauses in Karuk, Hindi-Urdu, Persian, and Turkish.

Other than nominalization, the alternatives to backward resumption are quite restricted. On the one hand, this indicates just how strong the word-order requirements for complement CPs and focus particles are, and, on the other, how strong the requirement is for focus particles to be associated with phonetic content. It also means that we expect to find backward resumption more broadly. In the next section, I turn to two final case studies, namely backward resumption in Dutch and in English.

6. BACKWARD RESUMPTION THROUGH BASE-GENERATION. Germanic languages like Dutch and English also show backward resumption in the context of adpositions with CP complements. The Dutch example in 97 illustrates this.

³¹ While the sample is small, this distribution suggests a correlation between the relative order of particle and associate and their ability to associate long-distance: particles that precede the associate allow long-distance association (Persian *faghat*, English *only*, and Turkish *sadece*), and particles that follow their associate do not allow long-distance association (Turkish *da*, Hindi-Urdu *hii* and *bhii*, and Karuk *kich*). From the perspective of chain resolution, this indicates that focus particles that follow their associate impose stricter phonetic requirements on their sister than do focus particles that precede their associate.

³² ✓ indicates that the strategy, to the best of my knowledge, is fully and uniformly grammatical in the language in question, * indicates that the strategy is fully and uniformly ungrammatical, ? indicates that it is grammatical, but degraded somehow, and % indicates interspeaker variation in judgments.

- (97) *dat wij er op rekenden [dat hij kwam]*
 that we there on counted that he came (Hoekstra 1984:110)

As in the Karuk PP case, the clausal complement of the adposition (*dat hij kwam*) occurs in clause-final position, and the preverbal adposition (*op*) is accompanied by a proform (*er*).³³ The standard analysis of 97 is that the *er* proform is base-generated inside the PP and not the spellout of a trace of movement. Instead, the dependent clause is argued to be base-generated in its postverbal position, and a linking rule is assumed to relate the proform to the CP (van Riemsdijk 1978:185–86, Hoekstra 1984:110, Bennis 1986:103–8, Koster 1987:263, Broekhuis 2013:181–83).³⁴ Does this mean that the chain resolution is on the wrong track? No, in fact this is what we expect if backward resumption is the mirror image of resumption. It is well established that resumptive proforms can arise either through movement (via spellout of lower chain members) or through base-generation of the resumptive element (see Sichel 2014 and references cited there on this point). All other things being equal, we thus expect backward resumption to be derivable through movement and through base-generation.

Turning to English, the situation is less clear. There are at least three cases to consider: extraposition from subject position (98), extraposition from object position (99), and extraposition from PP (100).

- (98) **It** is surprising [that Kim left].
 (99) She mentioned **it** to me [that Kim left].
 (100) I am counting on **it** [that you bring cookies].

In each case the proform *it* precedes a CP with which it is intuitively associated. In light of the discussion above, this raises the question of whether CP and *it* are related by movement or base-generation.

The literature is inconclusive on this point. While it has been suggested that the CP and *it* are related by movement (Iwakura 1994), others have argued against a movement analysis (Baltin 1982:10–16, Safir 1985:71–79, Authier 1991, McCloskey 1991, Zaring 1994, Groat 1995:360, Landau 2001:121–24). Some offer analyses analogous to the one discussed for Dutch above (e.g. Zaring 1994); others propose a weaker link between the expletive and the CP (e.g. Authier 1991 and Landau 2001:121–24). I am not in a position to settle this matter here, but on a referee's suggestion I sketch a movement analysis of 98–100 and point out some challenges for this approach.³⁵

Consider first subject extraposition in 98. Under a chain-resolution analysis, the CP would move from a base-generated VP-internal position to subject position and then from there to a right-peripheral position. There are three problems with this analysis. First, it requires the CP to pass through subject position, but CPs generally cannot occupy subject position in English (Koster 1978, Alrenga 2005). Second, there is agreement in

³³ One twist to the Dutch construction is that the proform occurs to the left of the preposition, while regular adpositional complements occur to the right.

³⁴ Thanks to Jason Merchant, Marcel den Dikken, Mark de Vries, Hans Broekhuis, and Jan-Wouter Zwart for discussion of the Dutch data and help with the literature.

³⁵ Various alternatives to a movement relationship between *it* and CP have been proposed. One such alternative is constituency. Rosenbaum 1967 and Higgins 1973 argue that *it* and CP form a nominal constituent underlyingly and that the CP moves to clause-final position, stranding the expletive in argument position. More recently it has been proposed that *it* originates in Spec-CP and the expletive moves, while the CP stays in situ (Stroik 1996, Iwakura 2002, Kondo 2015). As an alternative to constituency analyses, Zaring 1994 argues that the expletive and CP form a nonmovement chain. Yet others have proposed a less direct relationship between CP and *it*, in which the CP either stays in situ or extraposes to adjoin VP and the expletive is inserted for independent reasons, such as the extended projection principle (EPP) or case assignment (Baltin 1982:10–16, Safir 1985:71–79, Authier 1991, McCloskey 1991, Groat 1995:360, Landau 2001:121–24).

the literature that the surface position of the extraposed CP is quite low, either VP-internal (Rosenbaum 1967, Higgins 1973:173–77, Emonds 1976:121–24, Rothstein 1995: 501, Stroik 1996:241, Iwakura 2002:203, Kondo 2015:347) or adjoining VP (Reinhart 1980, Baltin 1982:10–16, Landau 2001:120). This means that the second movement step (from subject position to surface position) would be downward movement, which is problematic on theoretical grounds. Finally, in order to yield a pronoun in subject position, it further has to be assumed that subject position is associated with phonetic content. However, it is perfectly grammatical for subject extraction to leave the subject position phonologically empty, as in 101.

(101) Who do you think ___ painted the shed?

These considerations cast doubt on a chain-resolution analysis of subject extraposition.³⁶

Consider next the case of object extraposition in 99 (Postal & Pullum 1988, Stroik 1996, Iwakura 2002:204–8). Here a chain-resolution analysis would have the CP base-generated as a complement to V and moving to adjoin VP. This in and of itself is not problematic. What is a challenge is the motivation for the expletive. Under a chain-resolution analysis a pronounced chain member is due to a requirement that the position of that chain member is associated with phonetic content. That logic forces us to posit that the complement position of *mention* is associated with phonetic content. However, the presence of the expletive in 99 is optional, as shown by the grammaticality of 102.

(102) She mentioned to me [that Kim left].

One move one could make is to analogize this to the analysis of long-distance association with focus above. The proposal there was that relevant focus particles fluctuate between requiring and not requiring phonetic content in its complement. Here one could posit that a verb like *mention* may or may not impose a phonetic content requirement on its sister.

Similar considerations apply to extraposition from PP in 100. Under a chain-resolution analysis, the complement position of P must be associated with phonetic content. However, extraction from PP does not generally involve a resumptive.

(103) Who do you count on (*her)?

Here we could posit that *on* requires phonetic content when its complement is a CP, but not when its complement is a DP. The worry about this approach is that, in the absence of supporting evidence, it is stretching the chain-resolution analysis to the point of triviality. One possible scenario is that English resumptive *it* is derived by movement in some constructions (extraposition from object position) but base-generated in others (extraposition from subject position and from inside PPs). If so, that would be another parallel between backward and forward resumption: several languages have been shown to have both movement resumptives and base-generated resumptives (see e.g. Sichel 2014 on Hebrew and Scott 2020 on Swahili).

7. CONCLUSION. This article set out to make four contributions. The first contribution is the documentation of backward resumption in Karuk: when and where it occurs and what causes it. The second contribution is a demonstration that the Karuk facts force a rethinking of the formal derivation of resumption, in particular a shift away from the

³⁶ A referee suggests a different interpretation of 98 and 101: in 98 ‘[t]he CP moves to Spec-TP, where it is spelled out as *it* (circumventing the ban on an overt CP subject), with the CP spelled out in its base position (or an extraposed position in the VP). Note that, although [101] is a problem for the idea that the EPP is phonetic, there is something unusual going on in English subject extraction (as the *that*-trace effect shows, these CPs might be truncated in some fashion)’.

idea that partial deletion targets phases to the hypothesis that deletion targets the complement of phase heads, that is, spellout domains. This conclusion was supported by case studies of resumption in Swahili relativization and Danish vP left dislocation. The formal analysis of backward resumption developed for Karuk identifies the factors necessary for backward resumption to arise. This allowed us to make predictions about what would happen if one or more of those factors were absent. Section 5 examined these predications against three verb-final languages and showed that all predicted outcomes are attested among the three languages. What remains to be investigated is how and why languages differ in which strategies they allow. Finally, based on constructions in Germanic languages, the article pointed out a parallel between backward resumption and regular forward resumption: both can be derived either by movement (the focus of the present article) or by base-generation.

The article also raises a number of questions. All of the instances of backward resumption examined here involve CPs. Is that an accident or reflective of a deeper regularity, perhaps that the relevant type of rightward movement is restricted to CPs? Does the hypothesis that the partial deletion operation responsible for resumptives targets only spellout domains hold up crosslinguistically? And if it does, is there a deeper explanation for it, perhaps related to independent principles of movement? Finally, if ellipsis is also derived by deletion, does it involve the same mechanism as deletion of movement copies, as Chomsky (1995:251–53), among others, suggests? If it does, ellipsis should also be restricted to spellout domains. Merchant's (2001) analysis of sluicing as deletion of TP fits this pattern, as does Merchant's (2013) analysis of VP ellipsis as deletion of vP under a Voice phase head.

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[Received 11 June 2019;
revision invited 13 August 2019;
revision received 5 December 2019;
revision invited 22 February 2020;
revision received 9 May 2020;
accepted pending revisions 27 May 2020;
revision received 3 July 2020;
accepted 20 July 2020]