

Variable realisation of verb-final /n/ in Idi

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The present study reports on verb-final variable realisation of the alveolar nasal /n/ in the Papuan language Idi. Elision of /n/ is correlated with both linguistic and social factors: present tense, a following consonant, and speakers over 60 show significantly greater rates of /n/ elision. Data from a 1988 grammar sketch indicate that for the present tense, variable realisation of verb-final /n/ is a case of stable, and perhaps age-graded, variation. Conversely, spread of n-less-ness into the other tenses may be a case of a change-in-progress, but at present this cannot clearly be confirmed. The older generation (speakers over 60) consistently show the highest rates of /n/ elision in all tenses. Elderly people are seen as the most proficient Idi speakers, and their position in society perhaps allows them to be more variable in their language use.

Keywords: Papuan languages, elision, Pahoturi River, age-graded variation, esoterogeny, non-WEIRD societies

1. Introduction

Idi is a Papuan language of the Pahoturi River family, spoken in Western Province, Papua New Guinea (PNG). This study reports on variable realisation of the alveolar nasal /n/ in this language, specifically, elision of this phoneme at the right edge of a verb. The probability that verb-final /n/ will be elided is correlated with both linguistic and social factors: /n/ is elided in the present tense to a much greater extent than in the other tenses, /n/ is more likely to be elided when followed by a consonant (as opposed to a vowel, a pause or an intonation break), and speakers over 60 show greater rates of /n/ elision. An unpublished grammar sketch based on data collected in 1988 indicates that for the present tense, variable realisation of verb-final /n/ was already established around that time, and thus this appears to be a case of stable, and perhaps age-graded, variation. At this stage, it is too early to tell whether there is an ongoing spread of n-less-ness into the other tenses. Interestingly, it is the older generation (speakers over 60) who consistently show

the highest rates of /n/ elision in all tenses. In the final section of the paper, we discuss the sociocultural and attitudinal factors that may play a role in the patterning of the variation across generations of Idi speakers.

2. The dependent variable: Description

The verb-final alveolar nasal /n/ under discussion here forms part of a set of verbal agreement suffixes. Idi verbal inflection is very complex and it is beyond the scope of this paper to discuss it in detail; see for example, Evans et al., (2018) and Schokkin and Lindsey (under review) for a more in-depth treatment. Verbs consist of a bound root, taking several prefixes and suffixes. The rightmost suffix is most commonly the exponent of agreement with the subject. We find suffixes ending in /n/ indexing first or third person singular in the past and present tenses, third person singular or second person non-singular in the future tense, and on so-called “prefixing” verbs.

The set of suffixes shows considerable allomorphy, which means there is much variation in the melody of the preceding vowel.¹ Firstly, Idi exhibits phonological vowel harmony, lexically determined by the verb root: in a given harmony domain, only vowels from the same harmony set can generally co-occur.² The vowel preceding /n/ will be from one of the two sets, depending on the harmony feature carried by the verb root.

In addition, verbs fall into two different conjugation classes, which show a difference in agreement suffixes for the remote and recent past.³ For Class I, the

1. Idi has six full vowels, /a/ /æ/ /e/ /i/ /u/ /o/, and two reduced vowels, /ɪ/ and /ə/. Full vowels clearly have phonemic status, whereas the status of reduced vowels is somewhat less clear, and they appear to be sometimes phonemic and sometimes epenthetic. Phonetically, reduced vowels are distinct from full vowels: they are significantly shorter, and more centralized. See Schokkin, Gast, Evans, and Döhler (2021) for more detailed discussion.

2. Idi vowels can be divided into the two harmony sets {/a/, /e/, /o/ /ə/} and {/æ/, /i/, /u/ /ɪ/}. In general, only vowels from either of these harmony sets can co-occur within a given phonological domain. Gast (2015) analyses this system as an instance of crossheight harmony. Bar some exceptions, harmony seems to hold within phonological words: verb roots including inflectional prefixes and suffixes, and nouns including case suffixes or enclitics. We call members of the first set “dark” (with the feature [–light]) and members of the second set “light” (with the feature [+light]). Primarily, whether a given form entails a dark or light domain is based on this lexically determined feature [+light] or [–light] (see Schokkin et al. [2021] for more detailed discussion and examples).

3. Conjugation class I includes lexical verbs and the past/future tense auxiliaries. Conjugation class II includes a different set of lexical verbs and the present tense auxiliary. Prefixing verbs follow a different inflectional pattern. While there are differences in lexical semantics between

1|3sg remote/recent past subject agreement suffix has a plain consonantal allomorph /n/ when it follows a vowel (either in the root or in a preceding suffix) and an allomorph /ən/ or /ɪn/ (depending on whether it occurs in a dark or light domain) following a consonant. For class II, the 1sg|3sg subject agreement suffix is a portmanteau, also indicating a tense distinction: /en/ ~ /ɪn/ for remote past, /an ~ /aen/ for recent past and present. Future tense 3sg|2nsg subject agreement forms for both conjugation classes are identical to the past tense forms for Class I. In future tense, 1sg subjects are not indexed by a suffix ending in /n/, but by a plain vowel suffix for Class I verbs, and by a zero morpheme for Class II verbs.⁴

A suffix identical to the Class I also occurs on a number of high-frequency verb roots that, in all or part of their inflectional paradigm, indicate agreement with the subject by prefix instead. The different suffixes with their allomorphs are summarized in Table 1.

There are two further things to note. Firstly, present tense can only be indicated periphrastically, by using an infinitive form of the verb plus an inflected auxiliary, and the present tense auxiliary belongs to Conjugation class II.⁵ Secondly, some verbs show an infrequent allomorph of the suffix, /on/ ~ /un/, when the verb is inflected for ventive directionality. The occurrence of these allomorphs, plus the fact that plain consonantal /n/ suffixes can attach to roots ending in a back vowel, means that all Idi vowels are represented as preceding segments to the nasal under investigation. Still, reduced vowels and front vowels occur more frequently compared to high vowels and back vowels, as shown in Table 2.⁶

roots in the two classes (mostly concerning actionality and telicity), these are not relevant to the discussion in the current paper.

4. For all types of verbs, further tense and agreement distinctions are made in the prefixes, which can partly resolve the underspecification found in the suffixes. Only by combining information from the prefixes, root and suffixes (and sometimes external material such as free pronouns) can the full meaning of the verb be determined. See also Schokkin and Lindsey (under review) for more details.

5. There is no principled reason as to why this is so, it just happens to be a feature of the language (and likely the entire Pahoturi River family), in much the same way as for example, the English progressive aspect, which can only be expressed with the addition of an auxiliary verb, and not fully inflectionally.

6. One anonymous reviewer suggested taking into account the fact that there is sometimes a morpheme boundary present between /n/ and the preceding vowel (when /n/ attaches to a vowel-final root or preceding suffix) and sometimes there isn't, as this may have an effect on the realisation of /n/. This is a valid concern, and I coded the data accordingly. Because most verb roots and suffixes in Idi are consonant-final, there is a morpheme boundary only in about 10% of all tokens (a subset of tokens belonging to Conjugation class I) and no significant effects of this factor were found.

Table 1. Overview of /n/-final verbal inflection suffixes in Idi

| Inflection class | Tense | Subject person/ number | Dark VH domain | Light VH domain |
|-------------------------|-------------|---------------------------|-------------------|--------------------|
| Conjugation class I | Remote | 1 3sg | -n /n/ ~ /ən/ | -n /n/ ~ /ɪn/ |
| | Past | | | |
| | Recent Past | 1 3sg | -n /n/ ~ /ən/ | -n /n/ ~ /ɪn/ |
| | Present | N/A | N/A | N/A |
| Conjugation class II | Future | 3sg 2nsg | -n /n/ ~ /ən/ | -n /n/ ~ /ɪn/ |
| | Remote | 1 3sg | -en /en/ | -in /in/ |
| | Past | | | |
| | Recent Past | 1 3sg | -an /an/ | -än /æn/ |
| Prefixing verbs | Present | 1 3sg | -an /an/ | -än /æn/ |
| | Future | 3sg 2nsg | -n /n/ ~ /ən/ | -n /n/ ~ /ɪn/ |
| | Remote | All | -n /n/ ~ /ən/ | N/A |
| | Past | | | |
| Prefixing verbs | Recent Past | All | -n /n/ ~ /ən/ | N/A |
| | Present | N/A | N/A | N/A |
| | Future | 3sg | -n /n/ ~ /ən/ | N/A |

Table 2. Absolute numbers and proportions of vowels preceding /n/

| Preceding vowel | Proportion in data | N Tokens |
|-----------------|--------------------|----------|
| /i/ | 8% | 265 |
| /e/ | 26% | 865 |
| /æ/ | 13% | 420 |
| /a/ | 9% | 314 |
| /o/ | 2% | 53 |
| /u/ | 3% | 97 |
| /ɪ/ or /ə/ | 39% | 1,300 |
| Total | 100% | 3,314 |

In (1a–c), three example sentences illustrate the occurrence of the n-final suffix in the remote past tense, recent past tense and present tense respectively. For the remote and recent past (1a–b), the verb stem itself is inflected, while for the

present progressive in (1c), the verb appears in its infinitive form and is accompanied by an inflected auxiliary.

- (1) a. *gäd kdha gta ngiä beotn*
 gäd käd=a gəta ɲi=æ be-ot-**ən**
 child small=CORE this coconut=CORE REMPST.3SGO-eat-1|3SGA
 ‘The child ate the coconut.’
- b. *siséri ngn gapa naotn*
 sisiri ɲən gap=a na-ot-**ən**
 now 1SG.NOM water.cassava=CORE RECPST.TR-eat-1|3SGA
 ‘Today I ate water cassava.’
- c. *gäd kdha gta ngiä wot yran*
 gäd kädə gəta ɲi=æ wot j-r-**ən**
 child small=CORE this coconut=CORE eat 3SGO-PRES.NPL.AUX-1|3SGA
 ‘The child is eating the coconut.’

Interestingly, the nasal segment of the suffix is quite often elided. In the present tense, this occurs so frequently that it would probably be hard to miss for a field linguist, even when only starting out with description of the language. A grammar sketch written by an unknown author (Anonymous, n. d.), based on data collected in Dimsisi in the course of three weeks in 1988, also evidences this. This work shows variable spelling of the present tense auxiliaries, called “semi-verbs” here (p. 13): *-wola(n)* for the first and third person singular form of an auxiliary with no object, and *-(y)era(n)* for the first or third person singular form of an auxiliary with a singular object (the part analysed as the subject agreement suffix in the present study is shown in bold). The spelling variants indicate that the variable realisation of /n/ in this environment has been around for at least a generation or so, and was obvious enough to be picked up after only three weeks of data collection. Impressions based on the sketch come with the caveat that it may have been based on work with only two informants, both (at the time) middle-aged men, which makes it impossible to gauge the distribution of the variable in the wider community at that time.

Although the variability is ubiquitous in the present-day language, it seems to operate below the level of consciousness. When the current author was carrying out their fieldwork (methods of data collection will be discussed in more detail in Section 3), no one in the community ever commented on it by their own volition. When speakers were explicitly asked, they were either trying to come up with a grammatical distinction that isn’t there, or they would remark something along the lines of “Yes, there’s two ways of saying that word. Sometimes we say it like this, sometimes like that. But it’s really the same.” There are therefore no indications that this variable, to native speakers, is a marker of any social category, or a

stylistic feature. Still, statistical analysis shows that the use of the *n*-full versus the *n*-less variant correlates not only with linguistic factors, but also with the social factor Age group. In addition, people who are literate have very clear intuitions that the /*n*/ should be written, even if it is not always heard, similar to what has been observed for related Ende (Lindsey, this issue). Therefore, the *n*-full forms are considered the citation forms of the verbs in question, and the observed variation is considered a case of elision rather than addition.

3. Methods

This section discusses the methods of data collection, the characteristics of the speech community and the sample on which the present study is based, and the principles for coding the tokens of verb-final /*n*/. The final subsection discusses the rationale for including linguistic and social independent variables, and describes each of them.

3.1 Data collection

The Idi data on which this study is based were collected between 2014 and 2016 in Dimsisi village, as part of the ARC Laureate project *The Wellsprings of Linguistic Diversity* (CI Nicholas Evans, 2014–2019). The aims for the Idi sub-project were twofold: on the one hand, it was a language documentation and description project, as there were virtually no existing resources on Idi. On the other, in line with the overarching aims of the *Wellsprings* project,⁷ there was a focus on exploring inter-speaker variation within a PNG speech community. As a result, a diverse suite of data types was collected, some more often associated with the language documentation method (e.g., recordings of legends, oral histories, dance performances, targeted elicitation), and others more in line with variationist sociolinguistic methods, such as word lists and interviews. Interviews were conducted by trained local assistants. They include a semi-structured sociolinguistic questionnaire part, collecting data on for example, birth year, clan affiliation and multilingual portfolio, and a free narrative part, in which the interviewee tells a story, followed by some questions from the interviewer about the story. The most frequent story topics are either planting a coconut tree, or retelling an encounter

7. For information about the project, see <http://www.dynamicsoflanguage.edu.au/the-wellsprings-of-linguistic-diversity/>

with a dangerous animal, often while out hunting.⁸ All recordings used were made with a Zoom H5 digital recorder and transcribed in the field, with the assistance of native Idi speakers. Data in the form of recorded speech is complemented with ethnographic data collected through participant observation and informal conversations with villagers during field stays.

3.2 The speech community and sample

Idi is spoken in the villages of Dimsisi, Sibidiri and Dimiri in the South Fly district of Western Province, Papua New Guinea. Based on the 2000 Census, the number of native speakers is estimated to lie somewhere around 1,600 people. Idi is a member of the small Pahoturi River family, which includes at least five further varieties: Ende (Lindsey, 2019; this issue), Kawam, Agob, Em and Taeme. Throughout the South Fly area, people live in small settlement groups of several hundred people at the most (often significantly fewer) and practice subsistence agriculture supplemented with hunting and fishing.

Interactions between the Dimsisi speech community and the other Idi-speaking communities in Sibidiri and Dimiri appear to be fairly limited. There is considerably more contact with both the Nen (Yam family) and Taeme speech communities, mostly due to the intermarriage practice of symmetrical sister exchange. As a result, many people living away from Dimsisi speak Idi, and a large proportion of the Dimsisi community is fluent in other local languages, most commonly Nen and Taeme.

All data on which the present study is based were gathered either in Dimsisi or the two nearby settlements Birem and Iblamnd, or in Nen-speaking Bimadbn. Only speakers whose speech contained more than 25 tokens of /n/-final verbs were included in the present study. After excluding unsuitable tokens as described in Section 3.3 below, 39 speakers produced enough to be included in the sample. Table 3 below shows the number of speakers included for each age group and gender.

Boundaries between the age groups are somewhat fuzzy, and the groups should be thought of more in the sense of groups of contemporaries, rather than age categories determined by absolute numbers. The members of these groups

8. Across the region, coconut trees are planted to commemorate important events. As part of the *Wellsprings* project, “planting a coconut tree” was chosen as an interview topic for several communities in order to achieve comparability of data across field sites. By choosing this culturally important and engaging topic, we aimed at capturing participants’ most informal speech registers, following Labov (1972).

Table 3. Composition of speaker sample based on age group and gender

| | 20–40 y/o | 40–60 y/o | 60+ y/o | Total |
|--------|-----------|-----------|---------|-------|
| Female | 6 | 4 | 6 | 16 |
| Male | 8 | 9 | 6 | 23 |
| Total | 14 | 13 | 12 | 39 |

have similar histories, share important events and experiences and are in a similar life stage:

- 20–40 years old: these people have grown up after PNG became independent from Australia in 1975, and most have received some form of formal schooling. They are either not married yet, or married with children, but are not grandparents yet.
- 40–60 years old: these people went to school at the time PNG was still an Australian colony or shortly after. Most of them have grandchildren.
- 60+ years old: these people remember the time before independence well, and often have received little or no formal education. Most of them don’t know their exact age. They are often great-grandparents.

Speakers are fairly evenly distributed between the three age groups, but overall the sample contains more male than female speakers, and particularly for the middle-aged group the number of female speakers is low compared to that of men. Elderly women generally were more comfortable with being recorded, and talked for longer, than middle-aged or young women. For men, these differences were not so pronounced. There are no people in the sample who publicly identify as transgender or non-binary, so I employ the labels ‘female’ and ‘male’, as these are the public gender expressions of the participants. Interestingly, gender was not found to have any significant effects in the present study.

All people in the sample have at least one parent who speaks Idi, and can be considered native speakers.⁹ Idi has high vitality, and is passed on to the younger generations without any indication of language shift. With respect to languages that were introduced during the colonial period, there are interesting generational

9. All speakers in the sample have at least one parent who has Idi as their emblematic language (father’s language). When the languages of the parents differ, for most people it is the father who is or was an Idi speaker, for a few it is the mother (in both these cases, the other parent would typically have some degree of fluency as well). Everyone in the sample has had Idi input from at least one parent since birth, which I consider to be a sufficient criterion to regard them as native Idi speakers (see Schokkin [in press] for more details on community patterns of multilingualism and multilingual language ideologies).

differences. Tok Pisin, the established lingua franca in many other parts of PNG, is not widely spoken in this region. Intergroup communication traditionally happens by means of receptive multilingualism in local languages (see Schokkin [in press] for more detailed discussion); occasionally English is used. Elderly people often do not speak English, as they had little formal schooling, but some speak the lingua franca Hiri Motu. Middle-aged people generally speak English well and confidently, whereas the younger generation is reluctant in doing so. One factor in this may be the decline of the school system, with schools being severely underfunded and teacher shortages a continuing issue in Western Province.

3.3 Coding of tokens

In order to boost the number of suitable tokens for verb-final /n/, transcribed texts from all spontaneous speech genres were included in the sample, and thus the sample includes other narratives besides interviews, but not elicitation or word list data. Tokens of /n/-final verbs were extracted using ELAN, an audio and video annotation tool used in language documentation (MPI for Psycholinguistics, 2020), and coded for presence or absence of the final nasal. The dependent variable is coded as binary, and auditory rather than acoustic methods were employed for its coding. In borderline cases, visual inspection of spectrograms created with Praat (Boersma & Weenink, 2020) was used to support the auditory analysis. When no firm decision could be made as to the presence or absence of the nasal, the token was marked as such and subsequently excluded from the sample.

While I am aware of the limitations of the auditory method, this is an exploratory study, the first of its kind for this particular language and family. As pointed out by various authors (e.g., Mansfield & Stanford, 2017), conducting variationist research on an underdescribed language comes with its own set of challenges, one of them the difficulty in determining where the loci of variation can be found, in the absence of native speaker intuitions or support from diachronic evidence. This study is a first step in exploring a possible locus of variation. It is likely that acoustic measurements will reveal varying degrees of reduction for the nasal (cf. also Lindsey, this issue), and so this remains an area for further research.

Any tokens followed by a word starting with a nasal segment (/m/, /n/, /ɲ/ or /ŋ/) were excluded. Also excluded were: (1) tokens for which no principled decision could be made as to the presence or absence of /n/, due to background noise or being borderline cases (as discussed above), (2) tokens occurring in utterance-initial verbs, as Idi is a verb-final (SOV) language and these tokens did not pattern with those in other verbs, and (3) tokens occurring in the verb ‘to plant’, as due to

the topic of the interviews, this verb was much more frequent in the corpus than would be expected of a lexical verb. Each token was additionally coded for a range of linguistic factors, discussed immediately below, and speakers were coded for various social characteristics, described in Section 3.4.2. A total of 3,314 tokens of the dependent variable, occurring in 618 distinct verb forms, were used for the statistical analysis in this paper.

3.4 Data analysis

This section first discusses the linguistic factors for which the data were coded, followed by the rationale for including them. After that, the discussion will turn to social factors.

3.4.1 *Linguistic factors*

Below, linguistic factors for which the data were coded are listed.

1. Preceding vowel, specified by height, and whether it is full or reduced. This factor contains four levels:
 - a. High: token is preceded by a full high vowel /i/ or /u/
 - b. Mid: token is preceded by a full mid vowel /e/ or /o/
 - c. Low: token is preceded by a full low vowel /æ/ or /a/
 - d. Reduced: token is preceded by a short central vowel /ɪ/ or /ə/
2. Following segment. This factor contains four levels:
 - a. Consonant: token is followed by a consonant segment
 - b. Vowel: token is followed by a vowel segment
 - c. Pause: token is followed by a short pause within an intonation unit
 - d. Final: token occurs at the end of an intonation unit
3. TAM (Tense-Aspect-Mood). This factor contains four levels:
 - a. Remote Past: token occurs in a verb with remote past tense inflection (typically referring to an event that occurred before the previous night)
 - b. Recent Past: token occurs in a verb with recent past tense inflection (typically referring to an event that occurred between the previous night and the moment of speech)¹⁰
 - c. Present: token occurs in an auxiliary verb in a periphrastic present progressive construction (typically referring to an event occurring at the moment of speech)
 - d. Future: token occurs in a verb with future tense inflection (typically referring to an event that will happen after the moment of speech)
4. Verb type. This factor contains four levels:

- a. Copula: token occurs in a verb functioning as a copula
 - b. Auxiliary: token occurs in a verb functioning as an auxiliary
 - c. Lexical: token occurs in a lexical verb with subject agreement by suffix
 - d. Prefixing: token occurs in a verb with subject agreement by prefix
5. Inflection class. This factor contains four levels:
- a. 1 – Conjugation class I
 - b. 2 – Conjugation class II
 - c. 3 – Prefixing verbs
 - d. 4 – Other irregularly inflected verbs
6. Word frequency. This factor contains three levels: High (> 80 tokens of the word form), Medium (between 10 and 80 tokens) and Low (< 10 tokens).
7. Root frequency. This factor contains three levels: High (> 400 tokens containing the root), Medium (between 30 and 400 tokens) and Low (< 30 tokens).
8. Person/number value of the subject, as evident from the immediate discourse context.¹¹ This factor contains 10 levels:
- a. First person singular, dual and plural (1sg, 1du, 1pl)
 - b. Second person singular, dual and plural (2sg, 2du, 2pl)
 - c. Third person singular, dual and plural (3sg, 3du, 3pl)
 - d. Unclear: person/number of the subject could not be established based on the immediate discourse context
9. Subject expression, specifying whether and how the subject is co-expressed within the same clause. This factor contains four levels:
- a. Dem: subject is additionally expressed by a demonstrative
 - b. Pro: subject is additionally expressed by a free pronoun
 - c. NP: subject is additionally expressed by a full NP
 - d. Zero: subject is not additionally expressed in the same clause

As this study is a first quantitative analysis of variation observed in Idi, these factors were chosen in order to probe possible correlations of linguistic factors with the realisation of the dependent variable, rather than trying to confirm or reject preconceived hypotheses based on earlier research. Nevertheless, factors

10. The temporal boundary between Remote Past and Recent Past is chosen based on native Idi speaker intuitions, combined with analysis of the occurrences of the different tenses in a corpus of naturalistic speech.

11. As discussed above, Idi verbal affixes are often underspecified with respect to person/number values of core arguments they are indexing. Full specification can only be achieved by combining information from the verb root, affixes, free pronouns (if present) and other information in the immediate discourse context, and isn't always possible.

that have emerged as significant in the study of elision processes in other languages have been included, as have factors that could reasonably be expected to be significant based on impressionistic evidence from *Idi* itself.

Following evidence from the grammar sketch plus the author's informal observations based on their own data, it was expected that /n/-elision would occur more often in the present tense as compared to the other tenses, which is why TAM was included as a factor. Given the fact that different verb types and conjugation classes show different forms and functions for the /n/-final suffix, Verb type and Inflection class were included in order to investigate whether this had an effect on /n/-elision.

It was also expected that the immediate phonological and phonetic environment, in the form of the preceding and following segments, would have an impact on the realisation of /n/. Height and duration of the preceding vowel is often considered a factor in historical processes of nasal deletion and vowel nasalization, for example in the Romance family, although cross-linguistic evidence is inconclusive as to which vowel features favour or inhibit these processes (Hajek, 1997; Hajek & Maeda, 2000). The effect of the following segment has an obvious phonotactic explanation: it is expected that a following vowel reduces the likelihood of /n/-elision, as this has the result of two vowels being in hiatus. Conversely, a following consonant would increase the likelihood that /n/ is elided. Comparable effects of the following segment have been found in sociolinguistic studies of word-final nasal elision in other languages, such as the Flemish dialect of Dutch (Van de Velde & Van Hout, 1998), African American English (Wolfram, 1989) and Caribbean varieties of Spanish (Cedergren, 1973; Poplack, 1980; Terrell, 1975).

Frequency is often linked to elision processes, although again findings from the existing literature are inconclusive (cf. Bybee, 2006, 2007; Labov, Ash, & Boberg, 2006; Phillips, 2006). The general argument from exemplar- and usage-based theories of language is that reduction in form is more likely to happen for frequently occurring items than it is for infrequent ones. Because of the complexity in the *Idi* inflectional system, word frequency (referring to inflected forms) and root frequency (referring to the underlying bound root) were considered separately. A given token of /n/ can occur in a form that has both high root frequency and low word frequency, due to a rare combination of affixes. Categories were chosen such that they contain roughly the same number of observations.¹²

12. Frequency categories are based on data in the sample only, and may not be a representative reflection of language use across the board, particularly in the case of word frequency. For instance, there are many more instances of verbs inflected for remote past in the dataset compared to those for recent past or future, due to the predominant genre in the corpus (narration

Lastly, there is possibly a relation between characteristics of the subject referent and its expression elsewhere, and whether and how agreement with that subject is explicit in the verb form (cf. Schnell, 2018). For that reason, both person and number reference of the subject, and whether and how the subject was co-expressed within the same clause, were considered. The hypothesis (which was not borne out) is that there is a greater likelihood of /n/-elision when the subject is co-expressed, as this makes the information in the agreement suffix effectively redundant.

The sample was first explored using the recursive partitioning tree method (Strobl, Malley, & Tutz, 2009; Tagliamonte & Baayen, 2012), using the R packages *party* (Hothorn, Hornik, & Zeileis, 2006), *data.table* (Dowle & Srinivasan, 2019) and *ggplot2* (Wickham, 2016). This method forms decision trees by making recursive binary splits in the data. At any step, a test of independence of a predictor and the resulting data is carried out. If there is more than one useful predictor, the predictor with the strongest association with the observed data is selected, the p-value of the test is recorded, and a binary split on the basis of that variable is implemented. Then the process is repeated until there are no more useful predictors left. Thus, stronger predictors will show up higher in the tree, with weaker predictors causing splits lower in the tree, and predictors whose p-value doesn't reach a set criterion not showing up in the tree at all.

When including only linguistic factors (mincriterion 0.99),¹³ primary splits in the data were based on the factors TAM and Following segment, with present tense and following consonant correlating with higher proportions of nasal elision. Figure 1 below shows the resulting tree; the dark red area under each terminal node represents the proportion of elided verb-final /n/, whereas the light grey area represents the proportion of retained /n/. Further splits were due to Subject expression, Preceding segment and Inflection class: verbs ending in a low vowel before /n/, and verbs from the prefixing inflection class show higher rates of /n/ elision.

We can also observe from the tree that the effect of Subject expression is contrary to expectation. Idi shows a relatively large proportion of tokens where there is no co-expression of the subject in the same clause (1,356 tokens or about 41% of the sample). However, there is no split between those ones and tokens where the

of events that happened some time ago). It is expected that recent past and future forms are more frequent in everyday conversation than they are in the corpus.

13. The mincriterion value is used to control for the number of splits in the tree. A split is implemented when the criterion exceeds the value given by mincriterion as specified. For example, when mincriterion = 0.99, the p-value of the predictor must be smaller than 0.01 in order to split this node.

subject is co-expressed, as would be expected. Rather, there is a split between co-expression by a free pronoun, and all other levels of this factor: when the subject is co-expressed by a free pronoun, there is a lower likelihood of /n/-elision compared to co-expression in a different way, or zero co-expression. It is unclear why the free pronoun category appears to be singled out; it may be due to an unknown animacy effect, or an artefact of the present sample. This remains an area for further study.

The split we see for Inflection class is interesting, because this indicates that in cases where the /n/-final suffix has a lower functional load (as in prefixing verbs, where it does not primarily indicate subject agreement), there may be a higher likelihood of nasal elision. All splits due to linguistic factors except those for TAM and Following segment disappear, however, when social factors are added (see Section 3.4.2); furthermore, they did not come up as significant in the regression models.

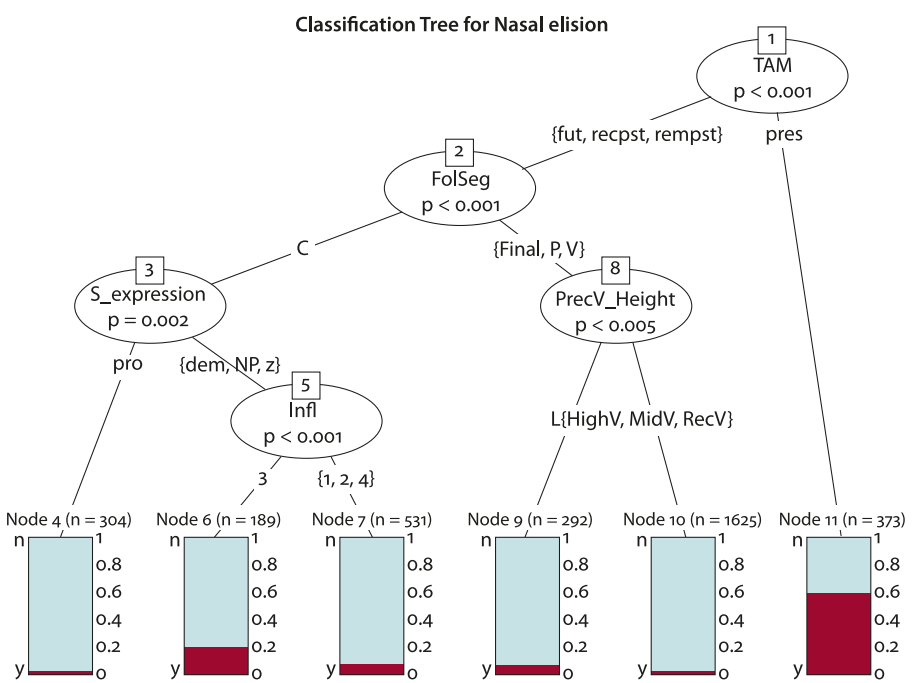


Figure 1. Classification tree for linguistic factors

It needs to be pointed out that many of the linguistic factors are not independent of each other. For instance, a token coded for present tense can only be either a copula or an auxiliary, as lexical and prefixing verbs cannot be inflected for present. Likewise, present tense forms generally have a low preceding vowel, show

high frequency and belong to either Inflection class 2 or 4. It is to be expected that non-present forms that share features, such as a low preceding vowel, with the present tense forms are more likely to show elision, and this is confirmed by the split we see for the Preceding segment.

While classification trees can handle collinearity, for regression models it is better avoided (Strobl et al., 2009), and therefore a single factor was chosen out of the ones just discussed. Since TAM appears to be the most powerful explanatory factor based on the classification tree, it was favoured over the factors Preceding vowel height, Verb type, Inflection class, and Root and Word frequency, which also have some explanatory power, when modelling the data. Indeed, mixed effect models including TAM provide a better fit to the data, compared to any models not including the factor. When TAM is removed from a full model including all linguistic factors except Subject Person/number,¹⁴ AIC significantly increases from 1566.208 to 1581.371 ($\chi^2(3) = 21.163$, $p < 0.00001$). Conversely, each time one of the related factors is removed, this lowers AIC and thus results in a model that better fits the data. Also see Section 4 for further detail.¹⁵

3.4.2 *Social factors*

Two social factors were considered for the present study:

1. Age group. This factor contains three levels:
 - a. 20–40 years old
 - b. 40–60 years old
 - c. 60+ years old
2. Sex. This factor contains two levels: Male and Female.

The data were coded for additional social factors such as Clan, Village of origin, Mother's language, and others. While informative, these were not considered for this quantitative study. Some of the factors have many levels (there are e.g., about

14. When this factor was included the model failed to converge even when using an optimizer. Consequently it was not included in any further modelling.

15. There is a linguistic argument, in addition to a statistical one, to select TAM as the single factor out of this group of interdependent factors, rather than for example, Verb type. While verbs inflected for present tense are always either an auxiliary or a copula, the reverse is not true, that is, auxiliaries and copulas do not occur *only* in the present tense. In fact, periphrastic constructions comprising an uninflected lexical verb stem plus an auxiliary frequently occur in the other tenses as well. The auxiliaries used for past and future show different roots and inflectional patterns compared to the present tense auxiliary.

10 clans in Dimsisi), and for others there are missing data. This limits their suitability for statistical analysis.¹⁶

When adding social factors to the classification tree (mincriterion 0.99), the data are now split according to three factors: TAM, Age group and Following segment (Figure 2). The primary split is still based on TAM, with present tense showing a higher likelihood of nasal elision. People over 60 show a higher likelihood of eliding the nasal compared to people under 60. In both these groups, the nasal tends to be elided more often when followed by a consonant, as opposed to a vowel, pause or intonation break.

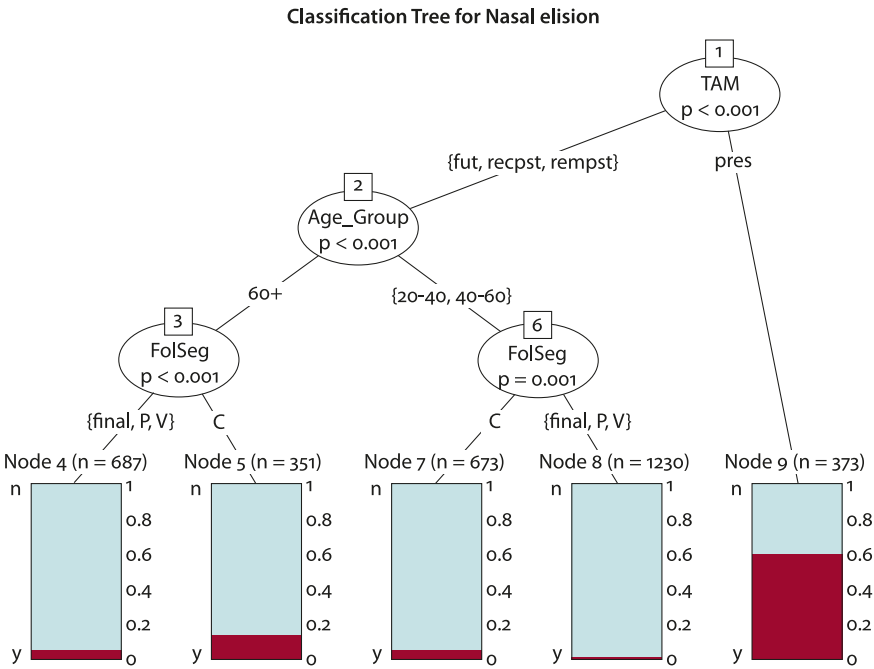


Figure 2. Classification tree for linguistic and social factors

16. A further social factor, Orator status, proved to be significant in Ende, where a parallel elision process is happening (Lindsey, this issue). While it may have some relevance for Idi too, there is currently too little data available to code all speakers in the sample reliably for this factor. Not surprisingly, the factor did not come up as significant and has consequently been left out of the analysis.

4. Results

Comparison of proportions of /n/-realisation between the different tenses shows that rates of elision are indeed much higher in the present tense; see Table 4.

Table 4. Proportions of n-less forms by TAM, plus absolute numbers of word-final /n/ tokens

| TAM | Proportion of n-less forms | N tokens |
|---------------------|----------------------------|--------------|
| Present | 60% | 373 |
| Recent past | 9% | 153 |
| Future | 7% | 341 |
| Remote past | 5% | 2,447 |
| Total sample | 11% | 3,314 |

Cross-tabulations of the factors TAM and Age group, and Following segment and Age group are shown in Tables 5 and 6. The percentages in these tables are based on the number of n-less tokens for that category, divided by the total number of tokens for the same category. So, for the younger generation, this means that for example, 37 out of 82 tokens for present tense were n-less (absolute numbers of tokens are shown in Table 8). There is a clear linear trend of increasing rates of /n/-elision with increasing age within all tense categories except Remote Past, and for a following Consonant or Intonation break. The levels Vowel and Pause do not show the consistent higher rates of elision across the generations, but this is probably due to a low absolute number of tokens for both these levels. Interestingly, only in the youngest age group do we see categorical absence of elision: this occurs in both the future and the recent past tense.

Table 5. Total n-less forms (proportions and absolute numbers) cross-tabulated by TAM and Age group

| | 20–40 y/o | | 40–60 y/o | | 60+ y/o | | Across age groups | |
|---------------|-----------|----|-----------|-----|---------|-----|-------------------|-----|
| | Prop. | N | Prop. | N | Prop. | N | Prop. | N |
| Future | 0% | 0 | 4% | 5 | 10% | 16 | 7% | 21 |
| Present | 45% | 37 | 61% | 82 | 66% | 103 | 60% | 222 |
| Recent past | 0% | 0 | 5% | 3 | 16% | 10 | 9% | 13 |
| Remote past | 4% | 31 | 2% | 23 | 9% | 69 | 5% | 123 |
| Across tenses | 8% | 68 | 9% | 113 | 17% | 198 | 11% | 379 |

Table 6. Total n-less forms (proportions and absolute numbers) cross-tabulated by Following segment and Age group

| | 20–40 y/o | | 40–60 y/o | | 60+ y/o | | Across age groups | |
|------------------|-----------|----|-----------|-----|---------|-----|-------------------|-----|
| | Prop. | N | Prop. | N | Prop. | N | Prop. | N |
| Consonant | 10% | 31 | 13% | 56 | 21% | 84 | 15% | 171 |
| Vowel | 5% | 5 | 3% | 4 | 3% | 3 | 3% | 12 |
| Pause | 10% | 5 | 5% | 4 | 11% | 7 | 9% | 16 |
| Intonation break | 7% | 27 | 8% | 49 | 17% | 104 | 11% | 180 |
| Across segments | 8% | 68 | 9% | 113 | 17% | 198 | 11% | 379 |

Based on the exploratory results from the classification trees and cross-tabulations, the factors Following Segment, TAM and Age group were added as fixed effects to a generalised linear mixed model (GLMM) using the R package *lme4* (Bates, Maechler, Bolker, & Walker, 2015) with Speaker ($N=39$) and Word ($N=618$) added as random effects (Johnson, 2009).¹⁷ Possibly due to the high number of levels for the random effect Word, there were convergence issues with the GLMM, and an optimizing algorithm (*bobyqa*) was selected to address these. The social factor Sex had no significant effect and did not improve the model. In Table 7, a summary of the best-fitting model is provided.

The model package uses alphabetical order to decide which level of a variable is the baseline. The table shows that all levels of Following segment have a significant negative effect on the likelihood of /n/-elision as compared to the baseline level, a following consonant. Present tense has a significant positive effect on the likelihood of /n/-elision as compared to the baseline level, future tense, whereas recent and remote past have no significant effect. There is no significant difference between the 40–60 years olds and the 20–40 year olds (the baseline level), whereas being over 60 proves to be a significant predictor of /n/ elision, having a positive effect.

A likelihood ratio test of the full model in Table 7 against reduced models without each of the variables in question revealed significant differences between models, with the following figures for each significant factor:

1. TAM ($\chi^2(3)=50.461, p<0.00001$): /n/ is more likely to be realised in remote past, recent past and future tense, and less likely to be realised in present;

17. The figure for the factor Word is based on inflected verb forms: each differently inflected verb form was counted as an individual word, so $N=618$ means that there are 618 unique verb forms in the sample.

Table 7. Summary of the model including Following segment, TAM and Age group

| RANDOM EFFECTS | | | | | |
|------------------------------------|----------|------------|---------|----------|-------|
| Groups | Variance | Std. Dev. | | | |
| Word | 1.1239 | 1.0601 | | | |
| Speaker | 0.4835 | 0.6953 | | | |
| N= 3,314; Words= 618; Speakers= 39 | | | | | |
| FIXED EFFECTS | | | | | |
| Independent variables | Estimate | Std. Error | Z-value | P-value | Sign. |
| (Intercept) | -3.6246 | 0.4665 | -7.769 | <0.00001 | *** |
| Following segment: final | -0.7519 | 0.1584 | -4.746 | <0.00001 | *** |
| Following segment: pause | -0.9517 | 0.3652 | -2.606 | 0.00917 | ** |
| Following segment: V | -1.5014 | 0.3505 | -4.284 | <0.00001 | *** |
| TAM: present | 3.9893 | 0.5454 | 7.314 | <0.00001 | *** |
| TAM: recent past | 0.4129 | 0.5211 | 0.792 | 0.42813 | n.s. |
| TAM: remote past | -0.2136 | 0.3643 | -0.586 | 0.55763 | n.s. |
| Age group: 40-60 | 0.2825 | 0.3532 | 0.800 | 0.42371 | n.s. |
| Age group: 60+ | 1.0935 | 0.3482 | 3.141 | 0.00169 | ** |

- Following segment ($\chi^2(3) = 37.892$, $p < 0.00001$): /n/ is less likely to be realised when followed by a consonant, as opposed to a vowel, pause or intonation break;
- Age group ($\chi^2(2) = 10.164$, $p = 0.006208$): speakers under 60 are more likely to realise /n/, compared to speakers over 60.

A few interactions between factors are apparent in the data. When cross-tabulating all tokens based on Age group and TAM, it appears that there are differences between the groups in the proportions of use of each TAM category. Table 8 shows the proportions of use of each TAM by the different age groups for all extracted tokens, not just the n-less ones. Younger people use less future tense than the sample average, while people over 60 use more future tense, and also slightly more present tense. Middle-aged people pattern very closely to the average.

It is likely that these patterns are an artefact of this particular data sample, rather than a reflection of actual language use by the different generations. Some categories have more tokens than others: as can be seen from Table 8, for instance, 75% percent of all tokens are in a verb inflected for remote past tense, while only 5% are coded as recent past. These kinds of imbalances in the data lead to low

Table 8. Extracted tokens (proportions and absolute numbers) cross-tabulated by TAM and Age group

| TAM | 20–40 y/o | | 40–60 y/o | | 60+ y/o | | Entire sample | |
|-------------|-----------|-----|-----------|-------|---------|-------|---------------|-------|
| | Prop. | N | Prop. | N | Prop. | N | Prop. | N |
| Future | 6% | 50 | 10% | 127 | 14% | 164 | 10% | 341 |
| Present | 10% | 82 | 11% | 134 | 13% | 157 | 11% | 373 |
| Recent Past | 4% | 30 | 5% | 60 | 5% | 63 | 5% | 153 |
| Remote Past | 80% | 689 | 75% | 947 | 68% | 811 | 75% | 2,447 |
| Total | 100% | 851 | 100% | 1,268 | 100% | 1,195 | 100% | 3,314 |

token counts in some of the cells, and the interactions are thus considered products of the current sample, rather than factors having a bearing on each other in a principled way.

5. Discussion

Two linguistic factors, TAM and Following Segment, and one social factor, Age group, have a significant effect on retention versus elision of /n/. The much higher rates of elision for the present tense set this category apart from the other tenses. As expected, there was a significant effect of the following segment, for phonotactic reasons: a following vowel reduces the likelihood of /n/-elision, but a following consonant increases the likelihood that the /n/ is elided. A following pause or intonation break does not appear to have a strong effect either way, as the proportions of /n/-elision for these two levels of the variable show proportions very similar to the overall elision rate of 11%.

There is still the caveat that we may not yet see the full picture in terms of which linguistic constraints have an effect on the dependent variable, and in what ways. As mentioned, absolute numbers of tokens are very different across the tenses. A more balanced data set, including more tokens from recent past, present and future, would both make it possible to look at effects *within* each tense category, and to better compare the different tenses with each other. Secondly, we do not have a full picture of the diachronic development of subject agreement suffixes, both across the family and for individual languages. This means that the /n/-final suffix may show different behaviour in different parts of the inflectional paradigms; for example, for some cells, historically we may see /n/-addition rather than elision. More descriptive and comparative work on Pahoturi River will hopefully fill this gap.

5.1 /n/-elision as stylistic variation

Following native speaker intuitions, the n-full variants of the verbs in question are considered the citation forms. If /n/-elision is analysed as a change-in-progress, this would mean that the n-full form is the conservative variant, and the n-less form the innovative one. There is, however, also a possibility that /n/-elision is stable, stylistic variation. We know from earlier sociolinguistic work (discussed e.g., in Eckert [2008]) that often, speakers consider full forms of variables to be “better” or “more standard” compared to reduced ones which are considered “lazy” and “sloppy”. These attitudes may play a role in cases like the well-known English (ing) variable, where the alveolar variant shows higher degrees of reduction as compared to the velar variant. This may be a factor in why the alveolar variant is regarded the non-standard one. Along the same lines, Idi speakers may be more likely to regard n-full forms as citation forms. We will return below to the question whether /n/-elision could be an example of stylistic variation.

5.2 Stable variation or a change-in-progress?

The question arises whether the observed variation is best analyzed as stable, or as a change-in-progress, in the absence of historical or real-time evidence. A change-in-progress would see increasing rates of /n/-elision as time goes by, ultimately leading to a complete loss of n-full forms. Conversely, we may observe age-graded variation: throughout their lifetime, speakers show variable use of the different variants, increasing their use of n-less forms as they get older. There is also a third possible scenario. Recall that from earlier descriptive work, the variability for the present tense was already attested more than thirty years ago. In addition, the rates of /n/-elision for the present tense are so different from those of the other tenses that we may be looking at two qualitatively different phenomena. It is possible that for the present tense, we see stable variation, while for the other tenses, which show much lower rates of elision, we see a change-in-progress (if only supported by the Age factor).

One argument against the analysis as stable variation in the present tense is the apparent lack of conscious native speaker awareness. This is suggested by the variants showing no evidence of having any social indexical or stylistic connotations, and not functioning as markers or stereotypes (Labov, 1971; Eckert, 2008). From this, it follows that they may be less likely to be in stable variation. However, Dorian (2001) observes, based on her work on Scottish Gaelic, that linguistic variants are not necessarily associated with social norms in all speech communities (see also Satyanath, 2015). This suggests that lack of conscious native speaker awareness may not always be a good criterion to distinguish between stable variation and

change-in-progress: in some contexts, variants may exist alongside each other for an extended time without necessarily becoming the subject of normative judgments or being associated with particular groups in society.

An argument in favour of the analysis of /n/-elision “bleeding into” the other tenses from stable variation in the present is the fact that, after the present, we see the highest rates of elision in the recent past tense. This tense is formally the most similar to the present, and it could be argued that the variable realisation of /n/ has been extended to this tense by analogy. Once it gained a foothold in one tense other than the present, it spread also to the remote past and future tense. The question remains whether this spread has stabilised, or can be expected to increase over time.

5.3 A surprising effect of age

Another question that remains to be answered is why we consistently see the highest rates of n-elision in the oldest age group. Firstly, it is important to acknowledge the Principle of Sociolinguistic Distance (Mansfield & Stanford, 2017). We cannot assume that the same social factors are operating within the Idi speech community compared to in better-studied societies, or in the same ways. We should therefore entertain the possibility that Age as a social factor operates differently. One obvious difference between the Idi speech community and a typical Western one is the ways in which social networks run across generations. With multiple generations living in the same household, the different generations in this community would be expected to engage in much more daily face-to-face contact than is typical for the modern Western world. The grandparental generation is often highly involved in looking after children, and younger people have much more exposure to their elders’ varieties. It seems reasonable to suggest that under these circumstances, /n/ elision which is typically associated with the older generations potentially has a higher chance of being propagated, as opposed to when contact between different generations is sporadic and most of younger peoples’ interactions take place in peer groups, as is typical for urbanized environments.

There are however no clear precedents in the existing literature that discuss innovative variants spreading into the wider population from elderly people. One possible exception is a case study by Duhamel (2020), looking at variable deletion of the velar fricative /ɣ/ in Raga, a language of Vanuatu, which she analyses as a change-in-progress, as the deleted variant is most prevalent in the speech of young adults and there is little evidence to suggest that the variation is stylistic. While it is the younger men who display the highest deletion rates, they are closely followed by a number of older men, with middle-aged men showing considerably lower rates of deletion. Duhamel argues that there may be two reasons

as to why we see this non-linear effect of age, which is surprising in the context of a change-in-progress. Firstly, it is the younger men who spend most time with the elderly men, accompanying them at the men's house and preparing their kava, while middle-aged men have other occupations. Secondly, older men are highly venerated and have high status in the community, and this, according to Duhamel, may inhibit negative social evaluation of the deleted variant associated with them. These two factors may conspire to facilitate the transmission of an innovation that may have originated with the elderly men. It may have started to spread into the wider community by means of the younger men, due to their frequency of interaction with the older men.

The outcomes for Raga are different from the ones for Idi in the sense that in Raga we do see the highest rates of deletion in the younger generation. Thus, the evidence is more conclusive that we are indeed dealing with a change-in-progress. For Idi, the current picture better fits an analysis as age-graded variation. Nevertheless, both studies show clear indications that the relevant age-related dynamics are very different from the ones in better-studied societies. This is another instantiation of the Principle of Sociolinguistic Distance, in that we cannot expect processes of social evaluation to be organized on the same principles everywhere. In the next section, we will discuss two further considerations that are particularly relevant on a local level, with respect to what we observe for Idi *n*-elision.

5.4 Attitudinal factors

There are two considerations related to cultural and language attitudes that may be important for understanding the unexpected effect of age on variable /n/-realisation in Idi specifically. Firstly, older people are regarded as the most competent and articulate Idi speakers, and therefore it is possible here as well that younger speakers model their speech on that of their elders, so that they are more likely to pass as proficient language users. Secondly, reaching old age may free speakers from the demands their society places on them, as they have already gained all the status and social capital they are going to. Note that a similar mechanism is invoked in order to explain age-graded variation in Western societies; see for example, the discussion in Meyerhoff (2019, pp. 166–167). In the absence of socio-economic class as an indicator of social capital, it is likely there are other factors at work in the Idi speech community. One to think of is whether a person has a position in the community as for example, teacher, pastor or magistrate; others could be marital status, intermarriage ties with other clans, and number of children in higher education and/or paid employment. Note that these ways of gaining status are available to both men and women, although it appears that it is generally men who hold official positions such as that of magistrate. For

elderly people, most of these accomplishments are already done and dusted, but a younger individual may still be striving to better their station with respect to them, and thus stand to lose more based on their present actions. Age is the sole explanatory social factor that came up in the study. Male and female speakers behave very similarly in their elision of the final /n/, and consequently, no significant gender effects were found. This may be another indication that we are looking at age-graded variation. However, in the context of southern New Guinea, it is not unheard of to find negligible gender effects (cf. Kashima [2020; this volume]), another reminder that we should keep in mind the Principle of Sociolinguistic Distance.

One observation, also discussed earlier in the paper, is that elderly speakers of both genders generally felt more comfortable with being recorded. Their age may come with a feeling of liberty to loosen the reins, also with respect to their language use, and they may thus show more variability and idiosyncrasy compared to younger individuals. Again, this may be seen by younger individuals as an “expert mumble” and may be picked up by them as a way to achieve in-group status.

While this explanation is speculative, and nothing can be concluded with certainty in the near absence of real-time data, nevertheless we think it is justified to bring these considerations to the fore. In particular, the present article is not the first to make observations similar to the ones above. Various authors have made qualitative statements with respect to the New Guinea region, and the term *esoterogeny* (first coined by Thurston, [1989]) has been invoked as a driving factor in the exuberant linguistic diversity of the region. Esoterogeny refers to a process of making a language more esoteric and thus more difficult to understand for non-speakers. Ross (1996, p. 183) defines it as “the process which operates on a group’s emblematic language so that it becomes an ‘in-group’ code from whose use outsiders are excluded” and specifically mentions elision in this context: “processes of elision and assimilation result in phonological compactness, in allophony and allomorphy” (1996, p. 183). The exact mechanisms of language variation and change through which esoterogeny can operate, however, remain poorly understood. The present variationist sociolinguistic study, which shows a surprising effect of age, may be one step towards understanding these mechanisms better.

6. Conclusion

The present study has shown that two linguistic factors, TAM and Following segment, and one social factor, Age group, have a significant effect on verb-final /n/-elision in Idi. Moreover, it has found an unexpected effect of age, in that the

oldest age group was showing the highest proportions of a variant that could be considered innovative. While there are still many questions remaining, it is clear that in order to gain a better understanding of the cross-linguistic forces operating on language variation and change, it is imperative that we broaden our understanding of lesser studied languages and speech communities, and not allow the pre-existing Western experiences to dominate our perceptions of sociolinguistics settings elsewhere. Different social evaluation of variables can lead to variation patterning differently across age groups. Older speakers have high status in Idi society, and it may be possible that their speech serves as a model for others, often younger than they are. In the absence of more familiar social variables such as socio-economic class, other locally relevant factors play a role in acquiring social status, leading to similar age-grading effects as in better-studied societies. Still, these effects may propagate differently depending on the wider social and cultural context. This mix of the familiar and the novel is what makes the study of sociolinguistic variation in new contexts so exciting.

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References

- Anonymous (n.d). *The Dibla:g language (Idi)*. Unpublished manuscript.
- Bates, Douglas, Maechler, Martin, Bolker, Ben, & Walker, Steve (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software*, 67(1), 1–48.
<https://doi.org/10.18637/jss.v067.i01>

- Boersma, Paul, & Weenink, David (2020). Praat: doing phonetics by computer (Version 6.1.09) [Computer program]. Retrieved March 14, 2020, from <http://www.praat.org>
- Bybee, Joan (2006). From usage to grammar: The mind's response to repetition. *Language*, 82(4), 711–733. <https://doi.org/10.1353/lan.2006.0186>
- Bybee, Joan (2007). *Frequency of use and the organisation of language*. Oxford: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195301571.001.0001>
- Cedergren, Henrietta (1973). Nasals: A sociolinguistic study of change in progress. In Charles A. Ferguson, Larry M. Hyman, John J. Ohala (Eds.), *Nasálfest: Papers from a symposium on nasals and nasalization* (pp. 67–80). Stanford: Language Universals Project.
- Dorian, Nancy C. (2001). Surprises in Sutherland: Linguistic variability amidst social uniformity. In Paul Newman & Martha S. Ratliff (Eds.), *Linguistic fieldwork* (pp. 133–151). Cambridge/New York: Cambridge University Press. <https://doi.org/10.1017/CBO9780511810206.007>
- Dowle, Matt, & Srinivasan, Arun (2019). data.table: Extension of 'data.frame'. *R package* (Version 1.12.2). Retrieved from <https://CRAN.R-project.org/package=data.table>
- Duhamel, Marie-France (2020). *Variation in Raga: A quantitative and qualitative study of the language of North Pentecost, Vanuatu*. Doctoral dissertation, The Australian National University, Canberra.
- Eckert, Penelope (2008). Variation and the indexical field. *Journal of Sociolinguistics*, 12(4), 453–476. <https://doi.org/10.1111/j.1467-9841.2008.00374.x>
- Evans, Nicholas, Arka, Wayan, Carroll, Matthew, Choi, Yun Jung, Döhler, Christian, Gast, Volker, Kashima, Eri, Mittag, Emil, Olsson, Bruno, Quinn, Kyla, Schokkin, Dineke, Tama, Philip, Van Tongeren, Charlotte, & Siegel, Jeff (2018). The languages of Southern New Guinea. In Bill Palmer (Ed.), *The languages and linguistics of New Guinea: A comprehensive guide* (pp. 641–774). Berlin: Mouton de Gruyter. <https://doi.org/10.1515/9783110295252-006>
- Gast, Volker (2015). Advanced tongue root harmony in Sibidiri Idi, a language of Southern New Guinea? Paper presented at the *11th Association for Linguistic Typology Conference*, Albuquerque, New Mexico.
- Hajek, John (1997). *Universals of sound change in nasalization*. Oxford/Boston: Publications of the Philological Society.
- Hajek, John, & Maeda, Shinji (2000). Investigating universals of sound change: The effect of vowel height and duration on the development of distinctive nasalization. In Michael B. Broe & Janet B. Pierrehumbert (Eds.), *Papers in Laboratory Phonology V* (pp. 52–69). Cambridge: Cambridge University Press.
- Hothorn, Torsten, Hornik, Kurt, & Zeileis, Achim (2006). Unbiased recursive partitioning: A conditional inference framework. *Journal of Computational and Graphical Statistics*, 15(3), 651–674. <https://doi.org/10.1198/106186006X133933>
- Johnson, Daniel E. (2009). Getting off the GoldVarb standard: Introducing Rbrul for mixed effects variable rule analysis. *Language and Linguistics Compass*, 3(1), 359–383. <https://doi.org/10.1111/j.1749-818X.2008.00108.x>
- Kashima, Eri. 2020. Language in my mouth: *Linguistic variation in the Nmbo speech community of Southern New Guinea*. Doctoral dissertation, The Australian National University.

- Kashima, Eri. 2021. Word-initial [h]-drop variation in Nmbo: Change-in-progress in an egalitarian multilingual speech community of Papua New Guinea. *Asia-Pacific Language Variation* 6(2): 250–277. <https://doi.org/10.1075/aplv.20002.kas>
- Labov, William (1971). The study of language in its social context. In Joshua A. Fishman (Ed.), *Advances in the sociology of language*, volume 1, (pp. 152–216). The Hague: Mouton. <https://doi.org/10.1515/9783111417509-004>
- Labov, William (1972). Some principles of linguistic methodology. *Language in Society*, 1(1), 97–120. <https://doi.org/10.1017/S0047404500006576>
- Labov, William, Ash, Sharon & Boberg, Charles (2006). *Atlas of North American English: Phonetics, phonology and sound change*. Berlin: Mouton de Gruyter. <https://doi.org/10.1515/9783110167467>
- Lindsey, Kate L. (2019). *Ghost elements in Ende phonology*. Doctoral dissertation, Stanford University.
- Lindsey, Kate L. (This issue). Variable /n/-realisation in Ende.
- Mansfield, John, & Stanford, James N. (2017). Documenting sociolinguistic variation in lesser studied indigenous communities: Challenges and practical solutions. In Kristine A. Hildebrandt, Carmen Jany, & Wilson Silva (Eds.), *Documenting variation in endangered languages. Language Documentation and Conservation Special Publication*, 13, 116–136. Honolulu: University of Hawai'i Press. <http://hdl.handle.net/10125/24751>
- Max Planck Institute for Psycholinguistics (2020). *ELAN* (Version 5.9) [Computer program]. Retrieved June 17, 2020 from <https://archive.mpi.nl/tla/elan>
- Meyerhoff, Miriam (2019). *Introducing sociolinguistics* (3rd edition). New York: Routledge.
- Phillips, Betty S. (2006). *Word frequency and lexical diffusion*. Basingstoke: Palgrave Macmillan. <https://doi.org/10.1057/9780230286610>
- Poplack, Shana (1980). Deletion and disambiguation in Puerto Rican Spanish. *Language*, 56(2), 371–385. <https://doi.org/10.1353/lan.1980.0033>
- R Core Team (2019). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. Retrieved from <https://www.R-project.org/>
- Ross, Malcolm D. (1996). Contact-induced change and the comparative method: Cases from Papua New Guinea. In Mark Durie & Malcolm D. Ross (Eds.), *The comparative method reviewed: Regularity and irregularity in language change* (pp. 180–217). Oxford: Oxford University Press.
- Satyanath, Shobha (2015). Language variation and change: the Indian experience. In Dick Smakman & Patrick Heinrich (Eds.), *Globalising sociolinguistics: Challenging and expanding theory* (pp. 107–122). London: Routledge.
- Schnell, Stefan (2018). Whence subject-verb agreement? Investigating the role of topicality, accessibility, and frequency in Vera'a texts. *Linguistics*, 56(4), 735–780. <https://doi.org/10.1515/ling-2018-0010>
- Schokkin, Dineke (in press). The integration of languages and society: A view from multilingual Southern New Guinea. In Alexandra Y. Aikhenvald, Robert M. W. Dixon, & Nerida Jarkey (Eds.), *The integration of language and society in typological perspective*. Oxford: Oxford University Press.
- Schokkin, Dineke, Gast, Volker, Evans, Nicholas, & Döhler, Christian (2021). Idi phonetics and phonology. In Kate L. Lindsey & Dineke Schokkin (Eds.), *Phonetic fieldwork in southern New Guinea. Language Documentation and Conservation Special Publication* 24, 76–107. Honolulu: University of Hawai'i Press. <http://hdl.handle.net/10125/24995>

- Schokkin, Dineke, & Lindsey, Kate L. (under review). The Pahoturi River language family, with special reference to its verbal puzzles. Submitted to *Linguistic Typology*.
- Strobl, Carolin, Malley, James, & Tutz, Gerhard (2009). An introduction to recursive partitioning: Rationale, application, and characteristics of classification and regression trees, bagging, and random forests. *Psychological Methods*, 14(4), 323–348.
<https://doi.org/10.1037/a0016973>
- Tagliamonte, Sali A., & Baayen, R. Harald (2012). Models, forests and trees of York English: Was/were variation as a case study for statistical practice. Retrieved November 21, 2019, from <http://read.psych.uni-potsdam.de/attachments/article/78/TagliamonteBaayen.pdf>
- Terrell, Tracy (1975). La nasal implosiva y final en el español de Cuba [The implosive and final nasal in Cuban Spanish]. *Anuario de Letras, Universidad Nacional Autónoma de México*, 13, 257–271.
- Thurston, William R. (1989). How exoteric languages build a lexicon: Esoterogeny in West New Britain. In Ray Harlow & Robin Hooper (Eds.), *VICAL 1, Oceanic languages: Papers from the 5th International Conference on Austronesian Linguistics* (pp. 555–759). Auckland: Linguistic Society of New Zealand.
- Van de Velde, Hans, & van Hout, Roeland (1998). Dangerous aggregations: A case study of Dutch (N) deletion. In Claude Paradis, Diane Vincent, Denise Deshaies & Marty Laforest (Eds.), *Papers in Sociolinguistics* (pp. 137–147). Québec: Éditions Nota bene.
- Wickham, Hadley (2016). *ggplot2: Elegant graphics for data analysis*. New York: Springer-Verlag. <https://doi.org/10.1007/978-3-319-24277-4>
- Wolfram, Walt (1989). Structural variability in phonological development: Final nasals in American Black English. In Ralph W. Fasold & Deborah Schiffrin (Eds.), *Language change and variation* (pp. 301–332). Amsterdam/Philadelphia: John Benjamins.
<https://doi.org/10.1075/cilt.52.18wol>

Abstract (Dutch)

Dit artikel behandelt variatie in de uitspraak van de medeklinker /n/ in Idi, een Papoea taal die behoort tot de Pahoturi River familie. In deze taal wordt de slot-n van een werkwoord vaak niet uitgesproken. Dit blijkt samen te hangen met zowel linguïstische als sociale factoren: /n/ wordt significant vaker weggelaten in de tegenwoordige tijd dan in de verleden en toekomstige tijd, wanneer het volgende woord met een medeklinker begint, en door mensen van boven de 60. Uit data in een niet-gepubliceerde grammatica uit de jaren '80 blijkt dat deze variatie zo'n 30 jaar geleden al aanwezig was in de tegenwoordige tijd, en dus wellicht stabiele, leeftijdsgebonden variatie betreft. Omgekeerd lijkt het erop dat de verspreiding van het weglaten van de /n/ in de andere werkwoordstijden nog gaande zou kunnen zijn. Hoe dan ook is het de oudere generatie die consequent het vaakst de /n/ weglaat. Oudere mensen worden gezien als de meest competente Idi-sprekers en door deze status genieten ze wellicht meer vrijheid om te variëren in hun taalgebruik. Deze studie laat zien dat het van groot belang is onze blik te verruimen door ons meer te richten op minder bekende talen en culturen, in overeenstemming met eerdere oproepen in de sociolinguïstische literatuur.

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