The tɨ- in Tigrinya: An Analysis of Valence-Decreasing Morphology in Tigrinya

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Abstract

The Tigrinya prefix tɨ- appears on verbs in several semantically distinct functions: passive, inchoative (intransitive), reflexive, and reciprocal. With these different meanings tied to one phonetic string, the question of what the correct analysis is, as well as how it fits into the wider verbal system, arises. I follow Harbour's (2009) account of Distributed Morphology, using homophony to disambiguate the tɨ- prefix from agreement morphemes pronounced the same way. I come to the conclusion that the Voice prefix is just one morpheme, the semantics of which is conditioned by surrounding grammatical structure (using several different accounts of allosemy). This is proven by showing the complementary distribution of what I argue are the two main allomorphs of the tɨ- prefix, phonetic variation and requirements from a few vowel melodies notwithstanding. I show that the tɨ- prefix adheres well to a theory of underspecified Voice in Hebrew by Kastner (2020), arguing that it is the spellout of Voice when specified to disallow the presence of an external argument, denoted [-D]. This allows Tigrinya's other voice prefix to slot in as the spellout of Voice when specified to require an external argument, denoted [+D]. However, this analysis is not without its problems. I highlight a possible violation of complementary distribution while proving allosemy, leaving the matter open to further research. I also note some issues with applying the underspecified Voice analysis to Tigrinya with no changes and propose two possible solutions, the testing and confirmation of which I again leave to be pursued in further research. Ultimately, the arguments and conclusions put forward in this paper, as well as the questions that they leave to be answered, help lay the foundation for further research on allosemy (particularly with respect to the Tigrinya verbal system), on the structure and behaviour of Voice in Tigrinya, and on the application of the theory of the [D] feature on Voice in other languages as well.

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1 Introduction[1]

According to Sokol (2024), nearly all verbs in Tigrinya can be put into one of two overarching categories based on the inherent transitivity of their unmarked forms[2]. Following the convention in Sokol (2024), an unmarked intransitive verb is referred to as inherently inchoative while an unmarked transitive verb is denoted as inherently causative.

(1) a. gɨza nɨdid-u
         house burn-3MSGS
         "The house burned."

     b. ɨt-i   sɨbʔay gɨza a-ndid-u
         the-MSG man   house CAUS-burn-3MSGS
         "The man burned the house."

                                                    (2b & 3b) in Sokol (2024).

(2) a. ɨt-a   sɨbeti n-ɨt-i   ɨnk'aqʷ'ɨħɔ sɛr-at-ɔ
         the-FSG woman ACC-the-MSG egg   break-3FSGS-3MSGO
         "The woman broke the egg."

     b. ɨt-i   ɨnk'aqʷ'ɨħɔ tɨ-sɛr-u
         the-MSG egg   INCH-break-3MSGS
         "The egg broke."[3]

In the examples above, the verb $\sqrt{ndd}$ "to burn" is inherently inchoative, and in order to add an agent the causative *a-* prefix is added to the verb. Conversely, $\sqrt{s(b)r}$ "to break"[4] is inherently causative, and must take the *tɨ-* prefix to be made inchoative. Inchoatives in Tigrinya can have a passive meaning, and when getting one from an inherently causative verb, *tɨ-* appears again. In other words (2b) could also mean "the egg was broken (by someone)". The prefix *tɨ-* appears on two other verb forms as well: reflexives and reciprocals.

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[1]The glossing abbreviations used in this paper are as follows: 1 - first person, 2 - second person, 3 - third person, ACC - accusative, AUX - auxiliary verb, CAUS - causative, F - feminine, FPL - feminine plural, FSG - feminine singular, FUT - future tense, M - masculine, MPL - masculine plural, MSG - masculine singular, MIS - *mis-* prefix, NPST - nonpast tense, P - pronominal base, PASS - passive, PF - perfect, PL - plural, POSS - possessive, PST - past tense, O - object, S - subject, RECIP - reciprocal, RED - reduplication, REFL - reflexive.

[2]Sokol (2024) does also note that some verbs in Tigrinya appear to lack unmarked forms. However, there are barely a handful able to be confirmed as such within the data gathered, and will therefore be ignored as outliers in the majority of this paper, though it would be prudent to return to these in future research

[3]"Egg" appears transcribed as *ɨnkʷaquħɔ* in these examples originally, but as *ɨnk'aqʷ'ɨħɔ* in later data. I believe the latter to be more accurate, and have subbed it in here.

[4]This root has a medial consonant that disappears in some forms. The consonant does appear in (27).

(3) a.   isi-χum nibs-ixum   ti-hat͡s'ib-kum
         P-2MPL self-2MPL.POSS REFL-wash-2MPLS
         "You washed yourselves."

     b. it-ɛn   aɣʷalit ti-hat͡s'at͡s'ib-ɛn
         the-FPL girl.PL RECIP-wash.RED-3FPLS
         "The girls washed each other."

It is important to note that the prefix is mandatory in all cases shown. If it were taken away in both sentences in (3), for example, the sentences would probably translate as "you washed your bodies" and "the girls washed [it] over and over" respectively.

With the *ti-* prefix appearing in each of these different cases with a different meaning, a question arises: what is this prefix? More accurately, are all of these cases just highly coincidental homophony, or is this truly a singular prefix with a variety of related meanings? Over the course of this paper, I will put forward that these are all one prefix, with self-similar morphology and grammatically-conditioned meanings. I will also show how the *ti-* prefix fits into the wider picture of Tigrinya's voice system through Kastner's theory of underspecified voice.

Before delving into the theory and data, I will highlight in Section 1.1 some quirks present in data throughout this paper due to the difficulties posed by transcription. Section 2 is where I will introduce the theoretical background of allosemy. In Section 2.1, I detail why, although helpful, homophony is not the be-all and end-all solution, while in Section 2.2 I introduce the concepts of polysemy and allosemy, disambiguate the two, and shows how allosemy may be demonstrated with data. Section 3 is where I show why allosemy is the most likely explanation for the behaviour and distribution of *ti-*. I show its functionality and allomorphy in past, present and future contexts for passive, inchoative, and reflexive meanings (Section 3.1) and reciprocal meanings (Section 3.2), as well as apparent exceptions. Section 4 focuses largely on the behaviour and distribution of *ti-* in the context of a wider proposal of underspecified voice in Tigrinya. In Section 4.1, I summarise the distribution of Tigrinya's two voice prefixes, *ti-* and *a-*, and introduce the theory of underspecified feature [D] on Voice by Kastner. However, it is not a perfect fit, and in Section 4.2 I address some of the problems that remain (with inchoatives in Section 4.2.1; with reflexives, reciprocals, and Voice[-D] in Section 4.2.2; and with largely unexplored verb forms in Section 4.2.5), as well as some potential solutions (one which

adheres more closely to Kastner's proposal in Section 4.2.3, and one that diverges somewhat in Section 4.2.4. Finally, I summarise my findings and proposal in Section 5 at large, and discuss where the remaining issues may take this research next in Section 5.1.

1.1 Transcription and Glossing Information

The Tigrinya-language data and examples shown in this paper are not written in a transliteration of the native Ge'ez script, as some other papers do. Rather, they are written as they were originally phonetically transcribed during fieldwork, following International Phonetic Alphabet conventions, with the exception of using ⟨y⟩ for /j/. As a result, there may be inconsistencies between two almost identical sentences. One example of this is whether a consonant or vowel appears in a certain position, such as with the word *(n)ħidħɨd* "each other" or conjugational prefixes, respectively. Another, much more common one is the realisation of vowels, as some vowels appear to be rather variable. This will only be noted when particularly necessary, since it does not always cause problems for the analyses herein. One alternation that will be transcribed but not noted is that of voiceless velar plosives, which have a tendency to spirantise. Tigrinya /k/ and /kʷ/ commonly surface as [x], [xʷ]. Their ejective counterparts, /k'/ and /kʷ'/, tend to undergo some backing, surfacing as [q'], [χ'], and [qʷ'], [χʷ'] in various examples given in this paper.

Another feature that appears at least slightly variable in this paper is tense. Categorising tense in Tigrinya is not the easiest feat, and there have been times during fieldwork when a present tense sentence in English has yielded a "past tense" sentence in Tigrinya. Meyer (2016) argues that this is because although Tigrinya, as one of the Ethiosemitic languages, may have both tense and aspect at play in its verbs, aspect is the much older category and tense is mostly achieved through non-inflectional means. Because of this, tense/aspect will largely be left unglossed, with the exception of the future tense since it is formed with its own dedicated prefix, *ki-*. However, translations will reflect tense as accurately as possible.

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2 Theoretical Background

2.1 Homophony

According to Harbour (2009), the use of excessive homophony to account for all of the posssible meanings of a single morpheme, instead of natural classes, has caused some who subscribe to the theory of Distributed Morphology to avoid homophony at all costs, calling such practices "homophonophobia". Harbour argues that, while using pure homophony for every disparate morpheme that sounds the same is of no help, neither is completely avoiding homophony, since it does have its uses, particularly when a natural class does not exist. He specifically cites the example of the Hebrew agreement prefixes for the 2nd person (in all genders and numbers) and the 3rd person feminine singular, which both realise as *t-*. Since the 2nd person and the 3rd person feminine singular do not form a natural class, simple homophony would be the most likely explanation for their similar sound but significantly different meanings.

Homophony plays a similar but slightly expanded role with regards to the *tɨ-* prefix. This is because there are two other *tɨ-* morphemes that are analogous to the *t-* ones in Hebrew that Harbour mentions, but are unrelated to the passive/inchoative/reflexive/reciprocal one. These prefixes are both part of the prefix conjugation paradigm, which will be touched upon in more detail later. Like their Hebrew counterparts, they agree with the 2nd person (in all genders and numbers) and the 3rd person feminine singular respectively. For the 2nd person *tɨ-*, its status as person inflection can be shown by contrasting with the 1st person plural, as shown below in (4). It should be noted that the vowels in these agreement prefixes tend to elide in the future tense allowing them both to surface here as individual consonants. They may resurface in careful speech, though.

(4) a. nɨbs-ɨna   kɨ-n-ħit͡s'ɨb   i-na
         self-1PL.POSS FUT-1S-wash.REFL AUX-1PLS
         "We will wash ourselves."

     b. nɨbs-ɨxa   kɨ-t-ħit͡s'ɨb   i-xa
         self-2MSG.POSS FUT-2S-wash.REFL AUX-2MSGS
         "You will wash yourself."

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Not unlike the 2nd person *ti-*, the 3rd person feminine singular *ti-* can also be shown by contrasting it with other person marking, the example in this case being *yi-*, the 3rd person masculine (and plural) agreement prefix. The prefix shown in (5a) agrees with "mother", whereas the one shown in (5b) agrees with "father".

(5) a. n-it-a   kʷ'ɔlʕa adiʔ-a   kullu gɨze ti-ħaχʷ'if-a
         ACC-the-FSG child   mother-3FSG.POSS always   3FS-hug-3FSGO
         "The mother always always hugs the child"

     b. ʔabw-a   n-it-a   kʷ'ɔlʕa kullu gɨze yi-ħaχʷ'if-a
         father-3FSG.POSS ACC-the-FSG child   always   3MS-hug-3FSGO
         "The father always always hugs the child"[5]

These two instances of *ti-*, for the 2nd person and the 3rd person feminine singular, are certainly agreement morphemes, but nothing yet has shown these two to be distinct and homophonous morphemes rather than a singular, polysemous one. While I believe that a detailed proof of this is out of scope for this paper, I do find the argument for *t-* homophony in Hebrew put forward by Harbour (2009) to be rather convincing. In brief, part of Harbour's argument is that since 2nd person *t-* has the feature [+participant] and can be either [+feminine] or [-feminine] as well as [+singular] or [-singular], while the 3rd person feminine singular must be [-participant], [+feminine], and [+singular], they cannot be the same morpheme. Harbour does also mention Tigrinya, noting that, after taking certain sound changes into account, there is a clear correspondence between the systems in Tigrinya and Hebrew.

Now that the two agreement instances of *ti-* are disambiguated, they can now be disambiguated from the voice-related *ti-* prefix(es). There are several possible ways to prove that they are homophones and not one singular morpheme, but the most straightforward one is as follows. It must first be proved that the inchoative/passive, reflexive, and reciprocal instances of the *ti-* prefix are all different but related meanings of the same prefix (i.e., polysemy/allosemy, more on that later). This is so that there is only one thing to disambiguate from everything else, and will be proven in detail later, but must be presumed for now. Normally, it would then be shown that the agreement *ti-* prefixes have different allomorphs to the inchoative/etc. one, as this alone would show that they are polysemous but not allosemous. However, in this case we

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[5]The gender of *kʷ'ɔlʕa* "child" seems variable; in a prior example, it was masculine, but it is feminine here.

can skip this step, because if it is demonstrable that they co-occur (i.e., they are not in similar or complementary distribution), they cannot be the same affix and must be purely homophonous. Consider the verb in (6):

(6) t͡s'ɨbaɦ   kɨ-nɨ-tɛ-ɦaχʷ'aχʷ'ɔf   i-na
     tomorrow FUT-1S-RECIP-hug.RED.RECIP AUX-1PLS
     "We will hug each other tomorrow."

The verb $\sqrt{\hbar\chi^{w'}f}$ "to hug" here shows both first person subject marking and the *tɨ-* prefix, which surfaces as *tɛ* in this specific verb form for reasons that will be explained later. As demonstrated in (4), the agreement *tɨ-* prefix occupies the same pre-verbal "slot" as the 1st person agreement prefix *nɨ-*. Because of this, if the subject of the verb were a 2nd person (regardless of number or gender) or 3rd person feminine singular argument, we would expect it to begin *kɨ-tɨ-tɛ-*, showing that the two affixes can co-occur and are not, in fact, the same. This is exactly what the verb below shows.

(7) kɨ-tɨ-tɛ-ɦagagaz-u   tɨ-χɨʔɨl-u   i-χum
     FUT-2S-RECIP-help.RED.RECIP-MPLS 2S-can-MPLS AUX-2MPLS
     "You (MPL) can help each other."[6]

Given all of this, the voice-related *tɨ-* can be confidently separated from the two agreement *tɨ-* prefixes. To differentiate this voice-related *tɨ-* from those two inflectional morphemes, the former will herein either be called "voice *tɨ-*", or depending on its role in the sentence, "inchoative/passive/reflexive/reciprocal *tɨ-*". An important sticking point remains, however: the data thus far presupposes—without proof—that voice *tɨ-* is one prefix with several different, but related meanings. How can it be proven that they are not several different homophonous prefixes? The answer lies in allosemy and distribution, both of which will be touched on later.

2.2 Polysemy and Allosemy

Though the terms seem similar, polysemy and allosemy are not the same. Though their precise definitions do vary, a common thread is that allosemy is either a kind of polysemy, or a closely

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[6]The vowels in the verb form for "can" appear to show a passive/inchoative/reflexive form, but I am not entirely sure what function that has here so I have left it unglossed.

related concept. I follow the division that Carston (2024) uses to distinguish the two. Here, polysemy is still the overarching name for when a word or morpheme (or in the case of Carston, root) has two separate but "interrelated" meanings, even if these meanings are across different grammatical categories, such as with "bank" being both a noun (financial institution) and a verb (to have an account at such an institution). Allosemy, then, is something else.

What, exactly is it then? Carston (2024) simply describes it as a kind of polysemy wherein grammatical context conditions meaning and said functions do not cross grammatical categories. This is in line with Wood & Marantz (2015), Kastner (2020), and Wood (2023), and hinges, like Distributed Morphology accounts of allomorphy, on underspecification. To paraphrase Kastner (2020), the difference between allomorphy and allosemy comes down to where multiple different interpretations of an underspecified morpheme compete for insertion. If the competition is at PF, then the result is allomorphy, since it is a phonetic process. If the competition is at LF, the result is allosemy, since it is a grammatical one. Interestingly enough, both come into play with voice *tɨ-*.

Both underspecification and allophony (as it relates to allosemy with regards to *tɨ-*) will be touched upon in more detail later.

How, then, does one discern allosemy from run-of-the-mill polysemy? Firstly, it must be proven that there is any polysemy in the first place, rather than just homophony, as explored in Section 2.1, clearly showing that each of the meanings do not co-occur. This should also include highlighting any allomorphy, and showing that allomorphs retain their same meaning (for example, if an affix with both passive and reflexive meanings can have a passive meaning for all of its allomorphs, it is expected that the reflexive meaning should be). After this, it is necessary to establish the grammatical conditions in which each of the meanings appear.

To illustrate this more clearly, let us go through a brief example of allosemy in English: the participial suffix (D. Harbour, personal communication, August 7, 2024; also Stowell 2022). Consider the following pair of sentences:

(8)   a.   The toaster was broken.

        b.   The toaster has broken.

In (8a), the *-en* suffix forms the passive participle, while in (8b), it forms the perfect participle. Going step by step, these are naturally homophonous affixes, their distribution is nearly the same, and they do not co-occur. Depending on the analysis, either they have no allomorphs or they share various allomorphs in non-strong verbs. Thus, the deciding factor appears to be in the verbs they accompany. Hallman (2021) comes to a similar conclusion, arguing against the position that *-en* participles are all passive, and that *have* reverts this. He instead posits that there are no inherently passive *-en* participles, with the tense- and voice-sensitive meanings being conditioned by the passive and non-passive versions of *be* that have different structures at LF.

On the topic of LF structure, there is another important question to consider: what the LF structure involving *ti-* actually is. One possibility is that passives/inchoatives, reflexives, and reciprocals each have a noticeably different structure in Tigrinya. This would support either the homophony theory, which has already been ruled out, or non-allosemic polysemy. However, the approach that Wood & Marantz (2015) take is different, following the notion that it is possible for different structures to result in the same semantics, and for the same structure to result in different semantics. Getting the same semantics from different structures could be particularly helpful for causatives in Tigrinya, since where inherently causative verbs can add the causative *a-* prefix to add an external causer, inherently inchoative verbs must do so with a periphrastic construction instead. On the other hand, getting different semantics from the same structure is directly relevant to *ti-* and its various meanings.

This is where underspecification comes into play. Recall that earlier, it was presumed that all of the meanings of *ti-* corresponded to a single prefix. In order for this to be the case, the prefix itself would have to be semantically underspecified so that its meanings can be grammatically conditioned, per allosemy. If these meanings are, in fact, grammatically conditioned, then according to Wood & Marantz, the LF structure that *ti-* is a part of is not required to undergo any kind of change in order to derive its various interpretations. In other words, the LF structure of passives, reflexives, and reciprocals, as well as some inchoatives, would be unified in Tigrinya. In the following sections, I will endeavour to prove that this does appear to be the case, that allosemy is the correct analysis, and that an allosemic analysis helps to contextualise

the place of the *ti-* prefix within Tigrinya verbal morphology.

3 Proving Allosemy

3.1 Passives, Inchoatives, and Reflexives

Tigrinya exhibits two main patterns of subject agreement, prefixal and suffixal. The former usually consists of a prefix alone or a discontinuous affix, wherein the prefixed part expones person (with a gendered allomorph in the 3rd person feminine singular) while the suffixed part, when present, expones gender and number[7]. On the other hand, the latter is straightforwardly just a suffix exponing person, gender, and number.

(9)   a.   kullu gɨze nɨbsɨ-na   nɨ-ħit͡s'ɨb
                always   self-1PL.POSS 1PLS-wash.REFL
                "We always wash ourselves."

        b.   nɨbsɨ-na   ti-ħat͡s'ɨb-na
                self-1PL.POSS REFL-wash-1PL
                "We washed ourselves."

As exemplified above, the prefix conjugation ("nɨ-") tends to have a present tense meaning in English while the suffix conjugation ("-na") has more of a past tense meaning, though there are exceptions to this. The future tense uses the prefix conjugation as well, though as mentioned earlier, the vowel of the prefix is commonly elided. Compare the full prefix *nɨ-* in (9a) to the reduced *-n-* below:

(10)   nɨbsɨ-na   kɨ-n-ħit͡s'ɨb   i-na
        self-1PL.POSS FUT-1PLS-wash.REFL AUX-1PLS
        "We will wash ourselves."

When looking at (9a), (9b) and (10) side by side, it becomes apparent that, despite the verbs in (9a) and (10) lacking the *ti-* prefix to make them reflexive, a reflexive meaning is still there. At the same time, the vowels between the consonants of the root (the "vowel melody"), are different: *CaCɨC* in the suffix conjugation, *CɨCɨC* in the prefix conjugation. This is not solely

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[7]This behaviour appears consistent with Harbour's account of discontinuous agreement, see Harbour (2023).

to do with tense, as plain (i.e., transitive but not reflexive) verbs in the prefix conjugation also have a different vowel melody.

(11)   kullu gɨze dɨmmu nɨ-ħat͡s'ɨb
       always   cat   1PLS-wash
       "We always wash the cat."

Comparing the vowels in the verb above (*CaCɨC*) with those of the verb in (9a), which is a reflexive version of the same verb in the same tense, they are not identical. The first vowel of the plain melody is [a], while the first vowel of the reflexive melody is [ɨ]. Putting these facts together, *tɨ-* and the *CɨCɨC* melody are—with some exceptions that will be discussed later—solidly in complementary distribution. Since their meaning is the same and their distribution is complementary, it is logical to conclude that *tɨ-* and *CɨCɨC* are allomorphs. Or, in more concise terms:

$$(12)\quad \text{REFL} \Longleftrightarrow \begin{cases} \textit{tɨ-} \text{ in a [PST] context} \\ \\ \textit{CɨCɨC} \text{ in a [NPST] context} \end{cases}$$

If it were the case that all three meanings of *tɨ-* (passive/inchoative, reflexive, and reciprocal) were separate, homophonous prefixes, then it would be a particularly odd coincidence for all three of them to not only have the same *tɨ-* form, but also the same vowel melody allomorph. The passive/inchoative certainly does:

(13)   ɨt-a   kʷ'ɔlʕa kullu gɨze bɨ ʔabw-a   tɨ-ħɨχʷ'ɔf
       the-FSG child   always   by father-3FSG.POSS 3FS-hug.PASS
       "The child is always hugged by the father."

Here, as in (5a), the *tɨ-* is the homophonous—but unrelated—third person feminine singular agreement marker. Additionally, I deem it likely that the [ɔ] here appears to come from the medial consonant rounding (or perhaps backing) an underlying [ɨ], which would mean that the vowel melody *CɨCɔC* still matches the reflexive one *CɨCɨC*. Thus, these are both the same *tɨ-* morpheme, with different but related meanings. The case of the reciprocal and its melody is not dissimilar, albeit with added complications.

3.2   Reciprocals and Exceptions

As seen earlier, Tigrinya forms reciprocals in the suffix conjugation with the *ti-* prefix.The reciprocal is always accompanied by reduplication of the medial consonant in 3-consonant roots, which differentiates it from reflexives:

(14) a. ħagiz-at-ɔ
          help-3FSGS-3MSGO
          "She helped him."

      b. ħaw-ɛy-ɨn   ħaft-ɛy-ɨn   ti-ħagagiz-ɔm
          brother-1SG.POSS-and sister-1SG.POSS-and RECIP-help.RED-3MPLS
          "My brother and my sister helped each other."

Note how the medial consonant of the root $\sqrt{ħgz}$, [g], appears just once in (14a), but twice in (14b). There may also be reduplication of the previous vowel, but the apparent melody, $C_1aC_2aC_2iC_3$, may also turn out to be the standard vowel melody for reduplicated verbs in the suffix conjugation.

From this, we can conclude that reduplication is certainly not the context that conditions the reciprocal meaning, as the *a-* prefix is shown to be compatible with reduplication (see (18c)), and this vowel melody can also apply to inherently inchoative verbs with 4-consonant roots (such as in (15) below). Thus, it seems that the vowel melody, rather than reduplication, is the context which causes a reciprocal interpretation, since the 4-consonant roots do not require any reduplication for their reciprocals.

(15) a. ɨt-ɔm awɨdat n-ɨt-ɛn   aɣʷalit a-friħ-ɔm-ɛn   /
          the-MPL boy.PL ACC-the-FPL girl.PL CAUSE-be.scared-3MPLS-3FPLO /
          a-sɛmbid-ɔm-ɛn
          CAUSE-be.scared-3MPLS-3FPLO
          "The boys scared the girls."

      b. ɨt-ɔm awɨdat (nɨ-ħidħid-ɔm)   ti-firariħ-ɔm   /
          the-MPL boys (ACC-each.other-MPL) RECIP-be.scared.RED-3MPLS /
          ti-sɨnabid-ɔm
          RECIP-be.scared-3MPLS
          "The boys are scared (of each other)."

Though *ti-* is glossed as RECIP in the example above, the meaning appears to be more stative

than many other reciprocals encountered so far (such as (18c), (20), and (21a))—it is not clear whether that is to do with the inherent transitivity of the verb, though. In contrast to these stative cases, some inherently inchoative verbs appear unable to be reciprocalised (see (16) below), which is the expected behaviour if *tɨ-* takes an argument away.

(16)   a.   ɨt-i   wɨddi kab-t-ɔm   gɨbabɨl   dɨħin-u
             the-MSG boy   from-the-MPL crocodile.PL be.safe-3MSGS
             "The boy is safe from the crocodiles."

        b.   ɨt-ɔm awɨdat kab-t-ɔm   gɨbabɨl   nɨ-nɨbs-ɔm   ħaliy-ɔm
             the-MPL boy.PL from-the-MPL crocodile.PL ACC-self-3MPL.POSS keep.safe-3PLS
             "The boys kept themselves safe from the crocodiles."

        c.   ɨt-ɔm   awɨdat nɨ-nhɨdħɨd-ɔm   tɨ-ħɨlaliy-ɔm   /
             the-MSG boy.PL ACC-each.other-3MPL.POSS RECIP-keep.safe.RED-3MPLS /
             *tɨ-dɨħaħin-ɔm
             RECIP-be.safe.RED-3MPLS
             "The boys saved each other."[8]

This is supported by the fact that roots with 4 consonants rather than 3 need not undergo any reduplication while all reciprocals do involve *tɨ-*, but an [a] still appears between the middle two consonants:

(17)   a.   ɨt-a   mɛrkɨb n-ɨt-a   d͡ʒalba t͡ʃʼafliχʼ-at-a
             the-FSG ship   ACC-the-FSG boat   crush-3FSGS-3FSGO
             "The ship crushed the boat."

        b.   ɨt-ɛn   mɛraχɨb nɨ-hɨdħɨd-ɛn   tɨ-t͡ʃʼafaliχʼ-ɛn
             the-FSG ship.PL   ACC-each.other-FPL REFL-crush.RED-3FPLS
             "The ships crushed each other."

Seeing the 4 consonants of the root in (17b) fit into the melody just fine, the motivation for reduplication with 3-consonant roots appears to be fitting the *CaCaCiC* melody. Distinguishing this is important, since reduplication can be used without *tɨ-* with the same melody, usually with a frequentative or intensive meaning.

(18)   a.   ɨt-i   wɨddi n-ɨt-i   ʕɨyɔ gɨza zɨkir-uw-ɔ
             the-MSG boy   ACC-the-MSG homework remember-3MSGS-3MSGO

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[8]Upon closer inspection, $\sqrt{\hbar ly}$ "to keep safe" could actually be an inherently causative verb meaning "to protect", but this is unconfirmed, so the gloss has been made to match the translation more closely.

"The boy remembered his homework."

b.　ɨt-i　　mɨmhɨr n-ɨt-i　　wɨddi a-zɨkir-uw-ɔ
　　the-MSG teacher ACC-the-MSG boy　CAUS-remember-3MSGS-3MSGO
　　"The teacher reminded the boy."

c.　ɨt-i　　mɨmhɨr n-ɨt-i　　wɨddi a-zɛxaxir-uw-ɔ
　　the-MSG teacher ACC-the-MSG boy　CAUS-remember.RED-3MSGS-3MSGO
　　"The teacher reminded the boy."

Though the first vowel after *a-* is not the same as the one in the melody in (17b), they may actually be the same underlying vowel phoneme. There appears to be an amount of variation with this vowel, which was captured in transcription. Some, such as $\sqrt{mkx}$ "to melt", have the first vowel transcribed as [ɨ] (like in (24) later on). Others, like the verb in (18c), show [ɛ] in the same place. Assuming that this variation is purely phonetic, which I do, the melody remains the same. It is also worth noting that although the translations for (18b) and (18c) are identical, the meaning for the latter is something closer to "reminded over and over" or "remind forcefully", but this was not specified at the time of elicitation.

In order for the theory that all three meanings of the *tɨ-* prefix are the same to hold, we should expect to see a similar sort of vowel melody to *CɨCɨC* in the prefix conjugation forms of reciprocals as well. This is complicated by additional phonological requirements imposed by reduplication. Compare the verb in (17b) to the one in the future tense phrase below:

(19)　kɨ-t͡ʃ'ɛfalɔχ'-u　　iy-ɔm
　　　FUT-crush.RECIP-MPL AUX-3MPLS
　　　"They will crush each other."

Here, not unlike in (13), the final vowel within the root appears to have been affected by the final consonant and become [ɔ] where there is likely an underlying [ɛ]. Unlike with some of the suffix conjugation reciprocals, the first vowel was clearly an [ɛ]. However, there is an inconsistency with transcription of underlying *ɨ* as [ɛ] and vice versa. If the vowel here is, in fact, the vowel in the other vowel melody allomorph of *tɨ-*[9], then this *CɛCaCɛC* is likely the reduplicated equivalent of *CɨCɨC*, confirming that the passive/inchoative, reflexive, and

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[9]Another possible explanation for the [ɛ] is that the reduplicative [a] is attempting to impose features on the underlying /ɨ/, resulting in the in-between realisation [ɛ]. However, this remains to be confirmed.

reciprocal *ti-* prefixes are most likely all one prefix and not just homophones. This conclusion cannot be drawn immediately, due to the fact that a different melody, *CɛCaCaC*, is seen in other verbs.

(20) kɨ-sɛʕaʕam-u   iy-ɔm
      FUT-kiss.RED.RECIP-MPL AUX-3MPLS
      "They will kiss each other."

This melody is similar to, and possibly the same as, the one seen in (19) (i.e., the [ɔ] is a backed *a* rather than *ɨ* or *ɛ*).

However, the presence of this melody is further complicated by the main exception to the complementary distribution of the *ti-* prefix and its vowel melodies: pharyngeal-initial roots. I have observed that *ti-* is always retained on reciprocal verbs in the prefix conjugation whose roots begin with one of the pharyngeal consonants *ħ* and *ʕ*.

(21) a. ħid͡ʒħid͡ʒ nɨ-tɛ-ħaχʷʼaχʷʼɔf   allɛ-na
          now.RED 1-RECIP-hug.RED.RECIP AUX-1PLS
          "We are hugging right now."

      b. mɨs-tɨ-ʕararɨy-u   iy-ɔm
          MIS-RECIP-fix.RED.RECIP AUX-3MPLS
          "They adjusted/orientated each other."[10]

Note how, unlike (20) or (19), the melody appears to be *CaCaCɛC*, individual vowel allophony and transcription notwithstanding. Though upon zooming out ever so slightly, the intial *ɛ* remains, preserved as the vowel in the reciprocal prefix. Including the prefix in the melody, we get *tɛCaCaCɛC*. This appears to just be the melody in (20) but shifted over by one syllable, suggesting that *ti-* is taken into account when the root and melody interact. Harbour (personal communication, August 18 , 2024) has likened this to two prefixes in Hebrew, *t-* and *sh-*, which he noted form their own small verb templates. He gave the example of $\sqrt{pqd}$, wherein the forms *piqed* ("to command") and *tifqed* ("to function") receive the same vowel melody: *CiCeC* for *piqed*, and *CiCCeC* for *tifqed*.

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[10]This example is complicated by an unrelated prefix *misti-*, the function and breakdown of which remains uncertain. I analyse it here as some prefix *mis-* + the reciprocal *ti-*, but this is by no means a definitive conclusion.

4   Voice and Tigrinya

4.1   *ti-* and *a-* as Voice

As mentioned earlier, most all Tigrinya verbs fall into one of two categories, inherently inchoat-
ive and inherently causative (Sokol 2024), based on the valency of their unmarked forms. These
categories are defined along somewhat semantic lines, with inherently inchoative verbs largely
being patientive verbs and inherently causative verbs largely agentive (Sokol 2024). In order to
change the valency of any of these verbs, valency-changing prefixes must be used, *ti-* reducing
valency and *a-* increasing it. For *a-*, this includes both introducing an external argument to an
unmarked intransitive verb and introducing an external causer to an unmarked transitive verb.
Notably, these two prefixes never co-occur—this will become relevant later.

In Section 1, the prefix *ti-* was shown to be required to make the passive/inchoative, reflex-
ive, and reciprocal forms of verbs. However, this is only the case for most inherently causative
verbs[11], with inherently inchoative verbs behaving differently. Since inchoatives in Tigrinya,
both inherent and derived from causatives, may also have a passive meaning, inherently inchoa-
tive verbs cannot be passivised with the *ti-* prefix like inherently causative verbs can.

(22)   a.   ɨt-a   gʷal n-ɨt-i   t'aula a-t͡s'ɨtim-at-ɔ
            the-FSG girl ACC-the-MSG table CAUS-blacken-3FSGS-3MSGO
            "The girl blackened the table."

     b.   ɨt-i   t'aula b-ɨt-a   gʷal t͡s'ɨlim-u   / *ti-t͡s'ɨlim-u
            the-MSG table by-the-FSG girl blacken-3MSGS / PASS-blacken-3MSGS
            "The table was blackened by the girl."

(23)   a.   ɨt-i   dɔktɔr n-ɨt-i   kʷ'ɔlʕa rɨʔiy-uw-o
            the-MSG doctor ACC-the-MSG child   see-3MSGS-3MSGO
            "The doctor sees the child."

     b.   ɨt-i   kʷ'ɔlʕa bɨ ħakim ti-raʔiy-u
            the-MSG child   by doctor PASS-see-3MSGS
            "The child is seen by the doctor."

Note how even thought there was an attempt to put the *ti-* on the inherently inchoative verb

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[11]Some verbs, regardless of inherent transitivity, appear to have no prefix in the reflexive, such as $\sqrt{\hbar\chi^{w'}f}$ "to
hug", which is inherently causative.

$\sqrt{\widehat{ts}'lm}$ "to blacken" in (22b) to passivise it, this was considered ungrammatical. The exception to this appears to be reciprocals, which appear to require the *ti-* prefix regardless of their inherent valency, as demonstrated with the inherently inchoative verb $\sqrt{mkx}$ "to melt" below.

(24) ɨt-ɔm   ħadɨsti rɔbɨtat nɨ-nħɨdħɨd-ɔm   ti-mɨxaxɨx-ɔm
      the-MPL new.PL robot.PL ACC-each.other-3MPL.POSS RECIP-melt.RED-3MPLS
      "The new robots melted each other."   (14b) in Sokol (2024).

Reflexives of inherently inchoative verbs differ from reciprocals in that, since these verbs cannot take the *ti-* prefix to form a reflexive, the causative prefix *a-* is used instead:

(25) a. ɨt-ɔm   rɔbɨtat nɨ-bɨʕal-ɔm   ti-sɛr-ɔm
          the-MPL robot.PL ACC-self-3MPL.POSS REFL-break-3MPLS
          "The robots broke themselves."

      b. ɨt-ɔm   aruktɔt rɔbɨtat nɨ-bɨʕal-ɔm   a-mkɨx-ɔm
          the-MPL old.PL robot.PL ACC-self-3MPL.POSS CAUS-melt-3MPLS
          "The old robots melted themselves."

                                                  (9 & 10) in Sokol (2024)[12].

Here, $\sqrt{s(b)r}$ "to break" is inherently causative, taking the *ti-* prefix, while $\sqrt{mkx}$ "to melt" is inherently inchoative, taking the causative *a-* prefix. This use of two prefixes with opposite effects on verb valency to express the same meaning is unexpected, even counterintuitive at first. Compare the sentences in (25) with the sentences below, which have the respective verbs in their voice-unmarked forms.

(26) a. ɨt-i   ʕabi   rɔbɨt n-ɨt-i   niʔiʃtɔ   sɛr-ɨw-ɔ
          the-MSG big.MSG robot ACC-the-MSG small.MSG break-3MSGS-3MSGO
          "The big robot broke the small [one]."

      b. t͡ʃɔkolɛt mɨxɨx-u
          chocolate melt-3MSGS
          "The chocolate melted."

Comparing (26a) to (25a), the latter lacks the object ("the small [one]"), and the word for "self"

_____

[12]This word for "self", *biʕal-*, is different from the one seen before, *nɨbs-*. In Tigrinya, there are at least three, two of which have appear to have other meanings: *nɨbs-* also shows up for "body/soul", and *riʔs-* also means "head".

comes in to aid the reflexive meaning. This is not unlike the inchoative/passive (*tɨseru* "it broke/was broken") in that we are dropping a unique argument, but with the reflexive a coindexed referent remains. The matter of reflexives and coindexed arguments will come into play again later.

In contrast to the inherently causative verbs, the inherently inchoative (26b) has only one nominal present to begin with. Leaving aside the difference the two sentences' subjects, such as in (25b), *tɨ-* does not appear. Instead, the causative *a-* appears. As mentioned earlier, *a* is used with inherently inchoative verbs to form plain transitives (e.g., *amkixatɔ* "she melted it.MSG", cf. (26b)). In addition to this, usage, it can also be used on an inherently causative verb to introduce an external causer of the action. Ignoring agreement, compare the verb form *asbir-* below to *sɛr-* in (26a).

(27)   zɛk nɨ rɔmi n-it-i   mɔskɔt a-sbir-uw-a
        Zek ACC Romy ACC-the-MSG window CAUS-break-3MSGS-3FSGO
        "Zek made Romy break the window."

The cases of adding an external causer to an inherently transitive verb and adding an agent to an inherently inchoative verb have two important things in common: adding an argument, and the *a-* prefix. Taking this together with the converse behavior of *tɨ-* with removing arguments, we can conclude that in Tigrinya:

(28)   a.   When a verb has fewer core arguments than it "expects", *tɨ-* appears.

        b.   When a verb has more core arguments than it "expects", *a-* appears.

        c.   When a verb has the exact number of core arguments that it "expects", no prefix appears.

Naturally, neither of these prefixes appear when a verb occurs with the "right amount" of arguments that its inherent valency requires.

This pattern matches almost exactly to the proposal of an underspecified voice morpheme in Hebrew by Kastner (2020). Kastner posits that the Voice head carries a feature [D], and can be either [+D], [-D], or unspecified ([±D]), where [+D] requires an external argument, [-D]

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prohibits an external argument, and the requirement of [D] is dependent upon the individual characteristics of each verb. The form that Kastner says gets unspecified [D] is the *CaCaC* template, and inherently unaccusative, unergative, transitive, and ditransitive verbs are found adhering to this template.

I posit that the Hebrew *CaCaC* template is analogous to the unmarked verb form in Tigrinya, with the individual roots specifying whether an external argument should be present or not. As such, the spellout of Voice[D] in Tigrinya is null. Thus, with the verb in (2a), the root $\sqrt{s(b)r}$ "to break" would specify that it takes an external argument, but Voice would remain [D]. The opposite would be true for the verb in (1a), with the root $\sqrt{ndd}$ "to burn" specifying that the verb not take an external argument, with the [D] feature on voice remaining unspecified.

As mentioned earlier, in order to get an inchoative from an inherently intransitive verb, *tɨ-* must be used, removing the external argument. Since Voice[-D] bars the presence of an external argument as well, it follows that, in Kastner's terms, the *tɨ-* prefix would be the spellout of Voice[-D] in Tigrinya. Similarly, with Voice[+D] requiring the presence of an external argument in Kastner's system, and the *a-* prefix being used to introduce an argument, it follows that *a-* would be the spellout of Voice[+D]. This is summed up in (29) below.

(29) a. ∅- ⟺ [D]

      b. *tɨ-* ⟺ [-D]

      c. *a-* ⟺ [+D]

On top of formalising the facts (28), it would also explain why they cannot co-occur, since they are the spelled out versions of same head but with different features. However, some problems remain.
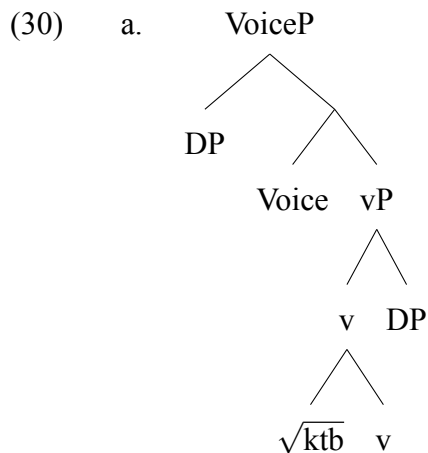
So far, discussion of reciprocals has largely centred on inherently transitive verbs. Since I put forward above that, broad-brush, *tɨ-* takes away an argument while *a-* adds one, taking away an argument from an inherently inchoative verb should yield an avalent verb. This does not appear possible, since the data gathered suggests that passivising inherently inchoative verbs is avoided, if not entirely disallowed, in Tigrinya. However, the system as it stands now does not bar this from occurring.
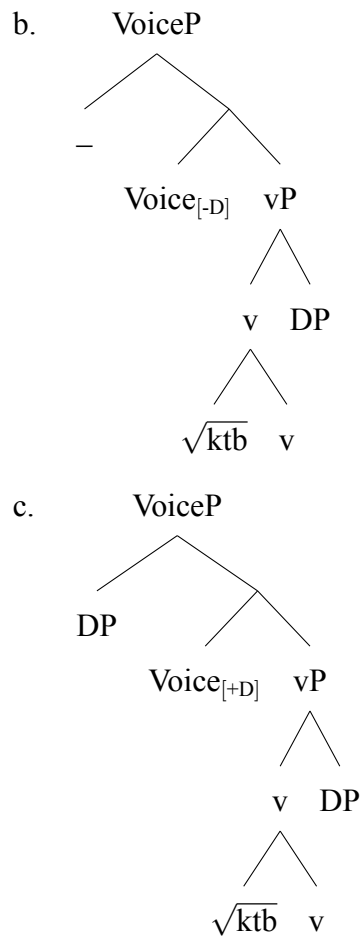
Another issue is with reciprocals and inherently causative reflexives. If the *ti-* prefix (Voice[-D]) truly does remove an argument wholesale, reciprocal sentences and sentences with reflexive forms of inherently causative verbs should lack objects, as only one argument would be left. Yet, they do appear to have objects, as reciprocal and reflexive pronouns co-occur with their respective forms, and furthermore receive accusative (or accusative-looking) marking.

There are two more problems to note that, while referring to verb forms not covered extensively within this paper, are worth covering as well. One of these is the observation that some verbs have an un-prefixed reflexive forms. While this would be (largely) unproblematic if it only occurred inherently causative verbs, some inherently inchoative verbs appear to have unmarked reflexive forms as well. The other problem is that there exists a small group of verbs which appear to lack unmarked forms entirely, which could call the analysis of unmarked verbs as not having an inherent [D] feature into question.

4.2   Problems and Solutions

Recall the proposal of underspecified voice by Kastner mentioned earlier, and how the *ti-* and *a-* prefixes seemed to be the respective realisations of Voice[-D] and Voice[+D] in Tigrinya. Kastner posits the following structures for unspecified Voice, Voice[-D], and Voice[+D], respectively in Hebrew, with the verb $\sqrt{ktb}$ "to write".

(30)   a.   VoiceP
         /\
        DP /\
          Voice vP
                 /\
                v   DP
               /\
          $\sqrt{ktb}$ v

b. VoiceP
```
         VoiceP
        /\
       /  \
      –    /\
          /  \
    Voice[-D]  vP
              /\
             /  \
            v    DP
           /\
          /  \
        √ktb   v
```

c. VoiceP
```
         VoiceP
        /\
       /  \
     DP    /\
          /  \
    Voice[+D]  vP
              /\
             /  \
            v    DP
           /\
          /  \
        √ktb   v
```

(33, 32, 34) in Kastner (2020).

These do not immediately work for Tigrinya, however, as a number of the examples shown before appear to cause problems for this structural analysis. The following sections highlight these problems and propose some possible solutions.

4.2.1 Inchoatives

The first problem is with inherently inchoative verbs, and is a relatively simple one—more of a clarification, even. As mentioned earlier, there is nothing in this current system (at least, as it has been presented so far) to prevent the attachment of the *tɨ-* prefix to an inherently inchoative verb, despite the fact that Tigrinya does not seem to allow this (such as in (22b)). Since the interaction of each verb with the [D] feature on voice specified by the root. The solution to this is simple: note that it is a stipulation of the language that roots which are inherently inchoative/intransitive not be allowed to take the *tɨ-* prefix on their unmarked form. This does bleed into a problem

present in reciprocals, however.

4.2.2 Reflexives, Reciprocals, and Voice[-D]

Beginning with the problem of reflexives of inherently causative verbs, take, for example, the sentence in (25a).

(25a) ɨt-ɔm   rɔbɨtat   nɨ-biʕal-ɔm   tɨ-sɛr-ɔm
       the-MPL robot.PL ACC-self-3MPL.POSS REFL-break-3MPLS
       "The robots broke themselves."

Were there no issues, the presence of the *tɨ*- prefix should preclude the presence of any object-like argument, only allowing the core argument of the verb (which would be "the robots", in this case). That is plainly not the case here, to the extent that there even appears to be accusative marking on the word for "self". The presence of this *nɨ*- marker[13] on words meaning "self" is not entirely consistent, but does appear a significant majority of the time. This kind of marking also appears with reciprocals when the word *(n)ħɨdħɨd*- "each other" is included, as in (17b), but does not appear when it is excluded, as in (14b), both repeated below:

(17b) ɨt-ɛn   mɛraχɨb nɨ-ħɨdħɨd-ɛn   tɨ-t͡ʃʼafaliχʼ-ɛn
       the-FSG ship.PL   ACC-each.other-FPL REFL-crush.RED-3FPLS
       "The ships crushed each other."

(14b) ħaw-ɛy-in   ħaft-ɛy-in   tɨ-ħagagiz-ɔm
       brother-1SG.POSS-and sister-1SG.POSS-and RECIP-help.RED-3MPLS
       "My brother and my sister helped each other."

Of the two, only the latter has a structure that appears to be fully compatible with the structure in (30b), since it lacks any kind of accusative/object marking. If it does not match the expected structure, why is the case marking allowed to be present in the first place? I have thought of two possible reasons for this: one, that the *nɨ*- marker in sentences like (25a) and (17b) is not actually accusative marking; the other, that the structure introduced by Kastner needs to be modified, and (28a) needs to be updated such that only non-coindexed arguments are removed.

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[13]Kifle refers to *nɨ* solely as a "marker", so I will do so as well, though it could possibly be a clitic.

4.2.3 Possible Solution 1: Kastner-Adherent Theory

Beginning with the former, consider this example from Kifle[14]:

(31)   yonas n-ät-i mäṣḥaf nɨ-saba hib-u-wa

       Yonas Obj-Det-3MSg book Obj-Saba.F PerfS.give-SM.3MSg-OM$_1$.3FSg

       "Yonas gave Saba the book."   (124b) in Kifle (2011)

The suffix glossed "OM$_1$" here is one that I have solely glossed as object agreement thus far. According to Kifle (2011), this suffix can agree with a transitive object, a recipient of a ditransitive verb (shown), or an applicative object of an intransitive verb. More importantly, the marker for both the item being given ("book") and the recipient ("Saba") are the same, the feminine agreement showing that it is the latter that is being agreed with in this case.

Kifle notes that not only are direct and indirect objects in Tigrinya marked with *nɨ-*, but also a beneficiary of an action, an applied object, and several other functions. From this, if the reflexive and reciprocal pronouns in were not actually in an object position, but rather a higher indirect object or other oblique position at LF, then the structure in (30b) would for hold for all Voice[-D] reflexives and all reciprocals. This would be very nice and neat, but would also completely disregard how Voice[+D] reflexives (i.e., reflexives of inherently inchoative verbs) add the reflexive pronoun in as they would any other object.

(25b)   ɨt-ɔm   aruktɔt rɔbɨtat nɨ-biʕal-ɔm   a-mkix-ɔm
       the-MPL old.PL   robot.PL ACC-self-3MPL.POSS CAUS-melt-3MPLS
       "The old robots melted themselves."

Compare this verb form with *amkixatɔ* "she melted it.MSG" in (26b). While the verb in (25b) lacks object marking, as most examples of Voice[+D] reflexives have, there have been a handful of examples where it does appear. For one of these instances, it was stated at elicitation that it would be preferred to have no object marking, but that it was still "good" with it.

Ultimately, the fully Kastner-adherent theory requires taking the proposition that different

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[14]NB: Kifle does not present her theories through the lens of Minimalism, preferring Lexical-Functional Grammar theory. Since I am only looking at empirical data and practical observations, this should have no impact on the rest of the paper in terms of theory, other than some minor glossing differences.

structures can result in the same semantics and running with it a little, as it holds that Voice[+D] reflexive pronouns are true objects while Voice[-D] reflexive pronouns are not. When it comes to reciprocal pronouns, the situation gets further complicated, specifically by what the underlying structure of inherently inchoative reciprocals is. Since inherently inchoative verbs do not have a second argument to take away, it seems odd that the argument-subtracting *ti-* prefix would be used at all. The one solution that appears to work best here is that reciprocals of inherently inchoative verbs are actually the reciprocal of a causativised inchoative verb. Consider the verb $\sqrt{mkx}$ "to melt", which is an inchoative verb. Thus, its plain meaning is "Subject melts". Compare this with the reduplicated form in (24), repeated below:

(24)   it-ɔm   ħadisti rɔbitat   ni-nħidħid-ɔm   ti-mixaxix-ɔm
         the-MPL new.PL robot.PL ACC-each.other-3MPL.POSS RECIP-melt.RED-3MPLS
         "The new robots melted each other."   (14b) in Sokol (2024).

If the reciprocal here took its semantics from the unmarked form of the verb, as the reciprocal does with inherently causative verbs, one would expect something along the lines of "(were) melted by each other". Instead, the meaning is a transitive one. Though it is entirely possible that this is simply a stipulated quirk of the language, I find this unlikely, as reciprocalised causatives do fit into the system just fine and cause no problems grammatically. Of course, an alternative version of this Kastner-adherent theory could just be that none of these reflexive pronouns are true objects, analysing them instead as being dative or other non-direct object constituents. This seems a little further-fetched than the base theory, however, as it seems that it would then need to be proved that the *a-* prefix can introduce indirect objects without introducing a direct object, which does not seem right.

4.2.4   Possible Solution 2: Modifying Structure

As mentioned earlier, the second theory involves modifying the structure (or at least behaviour) of Voice[-D] in (30b). Unlike the prior theory, this one has less of a problem with allowing the reflexive and reciprocal pronouns to be proper objects, since it is constructed around not needing to analyse those pronouns as being in a non-object position. In order to do so, there are two main issues to surmount. Firstly, the structure that Kastner gives for Voice[-D] has the

external argument slot blocked, but this would need to be open in order to get both a subject and an object into the same sentence. Secondly, there would need to be some way to have *ti-* avoid removing the reflexive or reciprocal pronouns while still taking away any other argument.

One possibility is to stipulate that Voice[-D] functions the same as in Kastner, but requires an external argument to be introduced by some higher head, or somehow removed from Spec,VoiceP position. Introducing the subject/external argument with some arbitrary higher head seems highly unlikely, and although it would be possible given enough setup elsewhere in the theory, I do not endeavour to do this. The matter of simply removing the external argument from Spec,VoiceP creates more questions than it answers. It would have to be specified where the external argument moves to—if Tigrinya has any raising, this could play a factor—and such movement would necessarily leave a trace behind. The presence of a trace at all, despite the fact that it would likely be null, complicates the situation further. I will not take this idea further, either.

Another way to go about doing this is to introduce two versions of Voice[-D]. The first of these would be the structure for passives and inchoatives. This Voice[-D] would retain the blocked or closed Spec,VoiceP, being identical to the structure shown earlier in (30b). The second version of Voice[-D] would look a lot more like the structure in (30a), but with two major changes: it would be specified to be [-D], and it would be restricted to only allowing an argument in the Spec,VoiceP slot if it is coindexed with the internal argument of the verb. These two restrictions would allow for the behaviour demonstrated in the data so far with no violations to syntactic structure. At this point, it would also be necessary to redefine *ti-*, to bar it from deleting a coindexed argument. With these restrictions in place, passives, inchoatives, reflexives, and reciprocals could still all use the same *ti-* prefix without preventing any of the conditions of allosemy from taking place.

A third option would be the reconciliation of the "two versions of Voice[-D]". This would hold that the *ti-* prefix does not fully block the Spec,VoiceP position, but restricts it so that it may only hold a coindexed referent. This is extremely similar to the second Voice[-D] in the previous section. However, if the idea was left there, then a co-indexed referent could occur with object marking in a passive or inchoative sentence, which is disallowed. A potential

solution to this is to re-evaluate the conditions of allosemy for the *ti-* prefix. Based on the data shown so far, passives and inchoatives do not have the same coindexed object arguments that reflexives and reciprocals do. While reciprocals are disambiguated due to their unique vowel melody requiring an extra vowel, as well as an extra consonant for 3-consonant roots, reflexives are only disambiguated from passives/inchoatives by the presence of a coindexed object. The presence of this object, then, may be the condition that forces the reflexive interpretation at LF. In short, this theory states that if Voice is [-D] and Spec,VoiceP is occupied, the meaning must be reflexive or reciprocal, while if Voice is [-D] and Spec,VoiceP is unoccupied, the meaning must be passive or inchoative. Though I do believe that more research is required to establish this theory solidly, I am partial to it nonetheless, as I see it as being the most elegant of the three.

4.2.5   Remaining Problems

The last two problems come together as a pair of sorts. The first of these continues with reflexive forms in particular. So far, this paper has only looked at reflexives of inherently inchoative and causative verbs that are marked with the *ti-* and *a-* prefixes, respectively. Recalling the position of Wood & Marantz (2015) that different structures can still yield the same semantics, this does not present a problem. Nor, then, should verbs whose reflexive forms lack any prefixes at all, such as the ones below:

(32)   a.   ɨt-ɔm   kʷ'ɔlʕuʔ nɨbs-ɔm   ħaχʷ'if-ɔm
              the-MPL child.PL self-3MPL.POSS hug-3MPLS
              "The children hugged themselves."

        b.   ɨt-ɔm   awɨdat nɨ-bɨʕal-ɔm   fɛrɨħ-ɔm
              the-MPL boy.PL ACC-self-3MPL.POSS be.scared-3MPLS
              "The boys frightened themselves."   (14) in Sokol (2024).

Yet, there is still an issue. While $\sqrt{ħχʷf}$ "to hug" is inherently causative, causing no issue, $\sqrt{frħ}$ "to be scared" is inherently inchoative (cf. (15a)). The system as it is now cannot handle an unmarked inchoative verb with a direct object, and I have no immediate solution beyond one from earlier: maybe the accusative argument being marked is not actually accusative, but some further oblique argument such as a recipient or beneficiary. However, like was stated earlier, I have found no evidence that would point towards such a conclusion, and I will therefore leave

the answer to this problem open to further research.

The second of these paired problems comes in the form of a group of verbs that I have avoided referencing so far: ones that do not appear to have an unmarked form at all. Sokol (2024) notes only three ($\sqrt{k\widehat{ts}'l}$ "to burn", $\sqrt{lʕl}$ "to pick up", and $\sqrt{ʕrɣ}$ "to fix"[15]), and puts these in a separate class (class III), having a regular reciprocal form and the inchoative form of an inherently causative verb (*tɨ-*), as well as the causative and reflexive forms of an inherently inchoative verb (*a-*).

(33)   a.   ɨt-i   sɨbʔay gɨza   a-k'a͡ts'il-u
             the-MSG man   house CAUS-burn-3MSGS
             "The man burned the house."

       b.   gɨza   tɨ-χ'a͡ts'il-u
             house INCH-burn-3MSGS
             "The house burned."   (6) in Sokol (2024).

These verbs lacking an unmarked form appears to throw a bit of a wrench into the system, as what affix a verb gets in the passive/inchoative, causative, and reflexive has thus far been determined by the unmarked form of the verb. Looking back more closely, though, reveals that the true determining factor is not the unmarked form of the verb itself, but rather the specifics given by the root. With inherently inchoative and causative verbs being loosely defined by their roots as inherently intransitive and transitive respectively, I do not know what a root like $\sqrt{k\widehat{ts}'l}$ would be defined as, since the affixes it takes do not strictly follow that of an inherently inchoative or inherently causative verb. Perhaps it is not inherent transitivity deciding how a verb behaves, but rather some arbitrary specification of what forms a given verb takes which affix for. Perhaps these verbs lack inherent transitivity, and are reliant solely on the Voice prefixes to get their meaning. Though I do favour this latter idea, I have no way to argue for or against it. So, much like with the problem of inherently inchoative verbs with unmarked reflexive forms, I leave the answer to this question open to further research.

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[15]The definition of this verb is given as "to fix" in Sokol (2024). In further data, this is the same, except in the reciprocal form, where it appears to carry the meaning of "adjust" or "orientate" (as seen in (21b)).

5   Conclusions

In this paper, it has been shown that the Tigrinya verbal prefix *ti-* is one morpheme with 4 possible interpretations under allosemy. The alternatives to allosemy—homophony and regular polysemy—were demonstrated to be insufficient to explain much of the data collected. A method for proving the occurrence of allosemy was put forward, and used to demonstrate that allosemy is the correct analysis, even though some exceptions, such as with the reciprocal form in the prefix conjugation, do occur. It was then shown that Tigrinya voice morphology appears to be well-described at LF by Kastner's proposal for an underspecified trivalent feature on Voice, [D], with *ti-* and transitivising/causativising *a-* shown to be the realisation of Voice[-D] and Voice[+D], respectively. However, it was also noted that this was not a flawless solution, as several issues occurred. One, the lack of restriction on *ti-* to stop it from prefixing onto inchoatives, as this would allow the creation of a fully avalent verb, something Tigrinya seems to avoid. Additionally a two-fold problem: what appears to be object marking on reflexive and reciprocal pronouns, which should not happen if *ti-* is the realisation of Voice[-D]. This is because Voice[-D] should block an external argument from occurring, meaning that there should not be an argument with object marking present. A pair of solutions were proposed, one sticking more closely to the structures proposed by Kastner and the other altering one slightly in order to fit the Tigrinya data. Finally, two more problems were highlighted that would be best solved by future research.

5.1   Future Research

A closer look at the Tigrinya verbal system as a whole through a Minimalist lens, as well as on Kastner's theory of underspecified voice, would help set the groundwork for solving a number of the problems that have been presented in this paper.

The biggest problem faced by the allosemic analysis presented here is the case of reciprocals in the prefix conjugation, wherein the vowel melody and the *ti-* prefix appear to co-occur—something that casts doubt on the prospect of complementary distribution. A more phonemic, rather than phonetic, survey of the various vowel melodies in Tigrinya verbs should be done to

clarify whether this "problem" is actually a failure of structural analysis, or just a byproduct of the interaction between the phonetic system and transcription. This will have the added effect of "smoothing out" the data presented in this paper, as a lot of the uncertainty of the allosemic analysis involved what is most likely phonetic variation, not phonemic variation.

Further research on argument structure would help solve the dual problem of *ti-* seemingly not "taking away" an object, and the presence accusative marking on reflexive and reciprocal pronouns. There are a number of possible approaches that could work, such as constituency tests or scrambling, or attempting to insert object marking (though it has appeared on reflexives before, it has not occurred on those of inherently causative verbs). The result of this should help dictate which of the solutions proposed in Sections 4.2.3 and 4.2.4 is more correct. If one of those two is correct, then it could be used to analyse similar idiosyncrasies in other languages. Additionally, if it is the case that the reflexive pronouns are not true objects, solving the constituency issue would also solve the issue of unmarked reflexive forms of inherently inchoative verbs, which there currently is no analysis for.

Any further work on the LF structure of *ti-*, or the Voice system in Tigrinya as a whole, should also begin to shed light on the true nature of the small class of verbs which lack an unmarked form. If it is argued that these verbs do have some kind of inherent transitivity, such a finding could have a knock-on effect, forcing the reanalysis of the system entirely. On the other hand, if the idea that these verbs lack any specification of inherent transitivity, briefly presented in Section 4.2.5, does hold, exploring its consequences may lead to new insights about the interaction of inherent transitivity and the [D] feature on voice.

All in all, this paper's exploration of the *ti-* prefix, and the Tigrinya voice system as a whole, should provide a foundation for future work on Tigrinya grammar through a Minimalist lens, something that few have opted to do so far. Furthermore, the proof of the prefix's allosemic nature, and the analysis of Voice that it leads into, may also serve to aid the analysis of other languages whose voice systems exhibit similar patters to that of Tigrinya.

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