ACCOUNTING FOR THE MIRROR PRINCIPLE AND ITS EXCEPTIONS IN CAUSATIVE-APPLICATIVE INTERACTIONS: THE CASE OF ISIXHOSA

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Abstract. Causative-Applicative interactions in the Southern Bantu language isiXhosa exhibit paradoxical behavior with regard to the Mirror Principle (Baker 1985), in some cases seeming to strongly support it, but in others appearing to violate it. We motivate a three-way taxonomy of Applicatives in isiXhosa: Low Applicatives, High Applicatives, and Super High Applicatives. The Causative must follow Low Appl, must precede Super High Appl, and may either precede or follow High Appl. We propose an adaptation of the raising analysis of High Applicatives (Georgala 2012; Paul & Whitman 2010, Nie 2019), according to which High Applicatives are not (in all cases) theta-positions, but instead licensors of oblique arguments whose thematic roles come from elsewhere. We show that this approach makes strong predictions about the sorts of apparent Mirror Principle violation involving Causatives and Applicatives that can occur, including: (i) only High Appl can participate in such violations, not Low Appl; (ii) only Caus-Appl can give rise to apparent Mirror Principle violations; Appl-Caus orders never can. We argue that these predictions are correct.

1. Introducing the Puzzle

isiXhosa (Nguni, Bantu; spoken in South Africa and Zimbabwe), like most Bantu languages, has both causative and applicative morphology.[1]

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[1] Here and throughout, the causative morpheme <u>*-is*</u> will be underlined and the applicative morpheme **-el** will be bolded in the examples, to make the affixes themselves easier to find and their ordering easier to perceive at a glance. Judgments are those of the second author, who is a native speaker of isiXhosa. The dates next to each example record when the relevant judgment was elicited.

Glossing conventions: 1, 2, 3... 15 = noun classes of third-person nouns and noun-class agreement morphology; APPL = applicative; CAUS = causative; COMP = complementizer; DISJ = disjoint morpheme (used roughly when VP is empty save for the verb itself); EXPL = expletive; FV = final vowel (a suffix whose allomorphy reflects certain types of inflectional information); INS = instrumental; NMLZ = nominalizer; OBJ = object marker; PASS = passive; PRF = perfect; REFL = reflexive; SBJV = subjunctive; SBJ = subject marker; TR = transitive.

Like the rest of our joint work, the jumping-off point for this project was the Linguistic Field Methods class at Boston University in Spring 2016, for which the first author was the instructor and the second author was the native-speaking consultant. We'd both like to thank all the students in that class for their work with us, especially Dallas Walter, whose final project on affix order in causativized applicatives and applicativized causatives inspired our continuing work.

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(1)   Causativization in isiXhosa

   a. Inkwenkwe   i-fun-e   ithoyi.
       9boy   9SUBJ-want-PERF   9toy
      'The boy wanted a toy.' (11/14/2017)

   b. Intengiso   i-fun-<u>is</u>-e   inkwenkwe   ithoyi.
       9advertizement 9subj-want-caus-perf   9boy   9toy
      'The advertisement made the boy want a toy.' (11/14/2017)

(2)   Applicativization in isiXhosa

   a. uDallas   w-ong-e   abantwana.
       1Dallas   1SUBJ-look.after-PERF   2children
      'Dallas looked after the children.' (11/14/2017)

   b. uDallas w-ong-**el**-e   uZoli   abantwana.
       1Dallas 1SUBJ-look.after-APPL-PERF 1Zoli   2children
      'Dallas looked after the children for Zoli.' (10/20/2017)

These morphemes can be combined in the same verb form in isiXhosa. This happens in ways that are rather more liberal than is typically the case in Bantu languages (see especially Hyman 2003), in that both Caus-Appl and Appl-Caus orders are allowed, depending on various factors we will address in this paper (see especially Satyo 1985 on suffix ordering in isiXhosa). Some of these combinations are well-behaved from the perspective of semantic compositionality and the observation known as the Mirror Principle (Baker 1985), but others are not. Let us illustrate the issue with respect to a specific verb, namely *ceng-* 'beg'. This verb in its bare form takes a subjunctive CP complement, as shown in (3).

(3)   uThemba u-ceng-e   uDallas ukuba a-theng-e   isonka.
       1Themba 1SUBJ-beg-PERF 1Dallas C   1.SBJV-buy-PERF 7bread
       'Themba begged that Dallas buy bread.' (10/20/2017)

This verb can alternatively take an infinitive complement in an object control configuration, in which case the object controller is apparently introduced by the applicative suffix *-el*.

(4)   uThemba u-ceng-**el**-e   uDallas uku-theng-a isonka.
       1Themba   1SUBJ-beg-APPL-PERF 1Dallas INF-buy-FV   7bread
       'Themba begged Dallas to buy bread.' (10/20/2017)

Examples like (4) can themselves be causativized using the causative suffix *-is*, in which case an Appl-Caus affix order is allowed, as shown in 0. This affix order is not surprising given the Mirror Principle and given the fact that the object controller here is a participant of the begging event, not the causing event.

(5)   uZoli u-ceng-el-is-e   uThemba uDallas uku-theng-a isonka.
         1Zoli 1subj-beg-appl-caus-perf 1Themba 1Dallas inf-buy-fv   7bread
         'Zoli made Themba beg Dallas to buy bread.' (10/20/2017)

Rather more problematic is the fact that the opposite order is also permitted, with no apparent change in meaning, and no change in the ordering of the causee relative to the applied argument. Examples like (6) seem to be in clear violation of the Mirror Principle.

(6)   uZoli u-ceng-<u>is</u>-el-e   uThemba uDallas   uku-theng-a isonka.
         1Zoli 1SUBJ-beg-CAUS-APPL-PERF 1Themba 1Dallas   INF-buy-FV   7bread
         'Zoli made Themba beg Dallas to buy bread.' (10/20/2017)

The goal of this paper is to arrive at an explanation for the interactions of causative and applicative morphology in isiXhosa, one that will explain both its well-behaved manifestations exemplified by 0 and its problematic ones illustrated by (6). Said explanation will follow from the semantic and syntactic properties of the morphemes involved, with no need for stipulations specifically designed to capture affix order. Section 2 will introduce a taxonomy of applicatives in isiXhosa, dividing them into three syntactic groups based on their interaction with the causative, and will sketch our analysis. Our claim is that two of these types of applicative map perfectly onto Pylkkänen's proposed distinction between *Low Applicatives* and *High Applicatives*, whereas a third requires the postulation of a new category that we will call *Super High Applicatives*. This categorization, combined with Myler and Mali's (2021) conclusion that the causative in isiXhosa is *verb-selecting* in the terminology of Pylkkänen (2008), will ultimately explain the key facts. Section 3 therefore briefly rehearses some of the arguments for Myler and Mali's analysis of the isiXhosa causative. Section 4 shows that the three way distinction amongst applicatives we propose is supported by the semantics of the relevant constructions. Section 5 then concludes by returning to the problematic data we began with, showing how the account explains apparent Mirror Principle violations like (6) given certain well-established properties of High Appl.

2. A Structural Taxonomy of Applicatives in isiXhosa

Applicatives come in multiple subtypes in isiXhosa, many of which can be combined (Satyo 1985). Combinations of up to three applicative suffixes on the same verb are attested, as illustrated by the following example, adapted from one of Satyo's.

(7)   Indoda i-m-val-**el**$_1$-**el**$_2$-**el**$_3$-a   ni   umfama   iinkomo?
         9Man 9SUBJ-1OBJ-close-APPL-APPL-APPL-FV what 1farmer   10cows
         'Why does the man lock up the cattle for the farmer?' (08/08/2016)

There are three applicative suffixes in (7), each performing different functions. The innermost one, *-el*$_1$, makes the root *val-* 'close' mean 'to close up' or 'to lock up'.

There are a couple of verbs that allow this particle-like interpretation listed by Satyo (1985, p.196-197), and the possibility is probably not fully productive. The middle one, *-el₂*, is a benefactive applicative, which is associated here with the argument *umfama* 'farmer'. The final one, *-el₃*, could be called a rationale applicative. The main way to form *why* questions in isiXhosa is to have such an applicative introducing the wh-word *(nto)ni* 'what' (so that 'why' = 'what for').

As anticipated in the introduction, our claim is that each of the applicative suffices in example (7) instantiates a different syntactic subtype of Appl, and that every instance of an applicative suffix in isiXhosa falls into one of these three subtypes. Specifically, we propose the following taxonomy, using example (7) for reference.

(8)   Proposal 1: Appl Taxonomy in isiXhosa
        a.   *-el₁* instantiates Pylkkänen's Low Appl.
        b. *-el₂* instantiates Pylkkänen's High Appl.
        c. *-el₃* instantiates a new category we will call Super High Appl.

Hence, the thematic domain of example (7) will be structured as follows, according to our proposal:

(9)
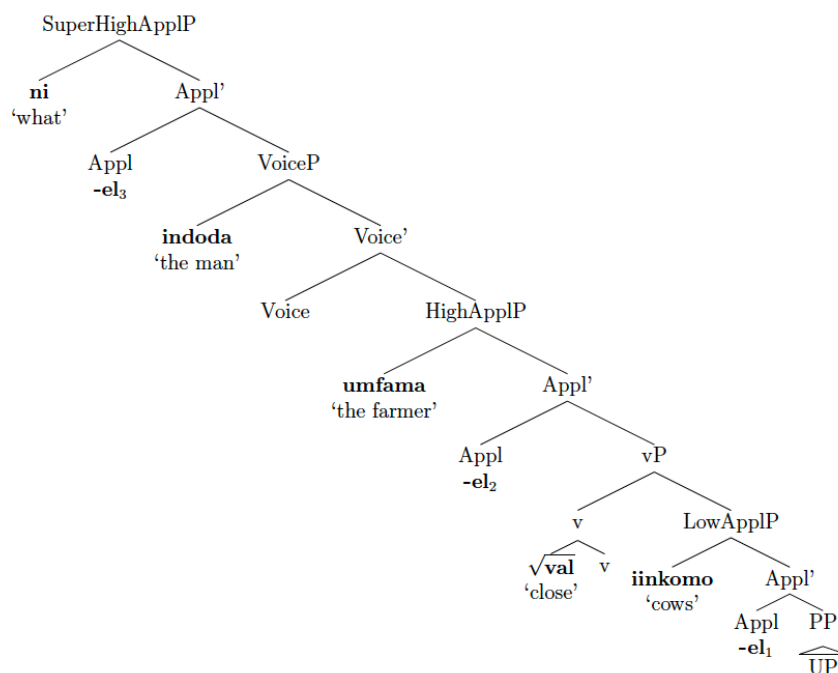
Our proposal that Super High Appl is above VoiceP has an antecedent in Buell's (2005) analysis of locative applicatives in Zulu. This idea is also supported by the fact that Satyo (1985) reports that some isiXhosa speakers allow our Super High Appl (but no other types of Appl) to embed the passive morpheme (although the second author does not allow this in her isiXhosa).

Evidence for this three-way syntactic distinction, and for the analysis of it illustrated in (9), comes from the interaction between applicatives and the causative suffix -*is*. As shown by the following four examples, causative -*is* may not precede -*el*$_1$, may precede or follow -*el*$_2$ (with no apparent change in meaning[2]), and may not follow -*el*$_3$.

(10) *uThemba u-yi-val-<u>is</u>-**el**₁-**el**₂-**el**₃-a   ni indoda umfama iinkomo?
      1Themba 1SUBJ-9OBJ-close-CAUS-APPL-APPL-APPL-FV what 9man 1farmer 10cows
      'Why does Themba make the man lock up the cattle for the farmer?' (08/17/16)

(11) uThemba u-yi-val-**el**₁-<u>is</u>-**el**₂-**el**₃-a.   ni indoda umfama iinkomo?
      1Themba 1SUBJ-9OBJ-close-APPL-CAUS-APPL-APPL-FV what 9man 1farmer 10cows
      'Why does Themba make the man lock up the cattle for the farmer?' (08/17/16)

(12) uThemba u-yi-val-**el**₁-**el**₂-<u>is</u>-**el**₃-a   ni indoda umfama iinkomo?
      1Themba 1SUBJ-9OBJ-close-APPL-APPL-CAUS-APPL-FV what9man 1farmer10cows
      'Why does Themba make the man lock up the cattle for the farmer?' (08/17/16)

(13) *uThemba u-yi-val-**el**₁-**el**₂-**el**₃-<u>is</u>-a   ni indoda umfama iinkomo?
      1Themba 1SUBJ-9OBJ-close-APPL-APPL-APPL-CAUS-FVwhat 9man 1farmer 10cows
      'Why does Themba make the man lock up the cattle for the farmer?' (08/17/16)

While we have illustrated these restrictions using an example with multiple applicatives for clarity and brevity, it is important to emphasize that these restrictions generalize to simpler examples involving only one applicative. That is, there is a class of applicative in the language that consistently requires the causative to follow it when the two are combined (of which -*el*$_1$ in (7) is one), regardless of whether any other applicative suffixes are present; the same applies *mutatis mutandis* to -*el*$_2$, -*el*$_3$, and the classes of which they are representative.

These ordering facts are themselves explained given the structural proposals in (8), combined with the following ones concerning the causative:

(14) Proposal 2: Caus-Appl Interactions
      a. The productive morphological causative in isiXhosa is verb selecting in the sense of Pylkkänen (2008).
      b. High ApplP "counts as" a vP for the purposes of the causative's selectional requirement, but Super High ApplP does not.

Proposal (14)a has been demonstrated in earlier published work of ours (Myler and Mali 2021), and we recapitulate some of the arguments in section 3 of the present paper.

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[2] Because this particular example involves a benefactive applicative, no detectable change in the truth conditions is expected in any case, as noted by Buell and Sy (2006:218) in a discussion of Wolof. Since the causing event and the locking-up event are linked in a causal chain, it would not be false that the farmer benefits from the causing event even if the assertion is that he benefited from the locking-up event, and *vice versa*. However, as we have already seen in the *ceng* 'beg' examples from the Introduction, High Appl's variable ordering obtains even in cases where the interpretation would seem to be compatible with only one of the two orders.

Proposal (14)b will rest as a stipulation here, but it may ultimately be derivable from the fact that High Appl merges with vP and Super High Appl merges with VoiceP, if, in the spirit of Wood and Marantz (2017), argument introducers inherit properties from the things they combine with. Taken together, the proposals in (14) entail that there will be exactly two positions in a structure like (9) at which the causative can merge: either immediately above vP, in which case it will precede High Appl (as in (11)), or immediately above HighApplP, in which case it will follow High Appl (as in (12)). No matter which of these two positions the causative is placed in, it will always follow Low Appl, and it will always precede Super High Appl. This explains the ungrammaticality of (10) and (13).

The remaining sections of this paper expand on various aspects and consequences of this analysis, including the semantic character of each subtype of Appl in isiXhosa, and how the account explains apparent Mirror Principle violations involving causative-applicative combinations, given the idea that not all applied arguments are first-merged in spec-ApplP (following Georgala 2012 and others). First, however, we defend the key assumption in (14)a, that the causative is verb-selecting in isiXhosa.

3. The Productive Morphological Causative in isiXhosa is Verb-Selecting

A key distinction that has emerged from the generative literature on causatives going back to the 1970s is that there is cross-linguistic and intra-linguistic variation in the properties of causees (that is, the logical subject of the causativized predicate); see especially Kayne (1975) and Aissen (1979), amongst many others. Specifically, in some languages/constructions, causees retain many properties of subjects, including being targetable by agentive modification, and counting as a subject for the purposes of the binding principles. In other languages/constructions, causees lack these properties. In much recent literature in the tradition of Pylkkänen (2008), this division has been interpreted in terms of the size of the verbal substructure embedded by the causative morpheme. In so called Phase-Selecting or Voice-Selecting causatives, the causative embeds a complete thematic domain in which the causee in a transitive can be introduced in spec-VoiceP, just like any other external argument, in which case it will exhibit the mentioned subject properties. If, on the other hand, the causative embeds a vP, then the causee, if it can be included at all, has to be merged somewhere other than spec-VoiceP, with the consequence that it will lack the same subject properties. Such cases are called "verb-selecting" by Pylkkänen (2008).

Myler and Mali (2021) argue that the productive causative of isiXhosa is verb selecting in Pylkkänen (2008)'s sense, showing that the causee does not have subject properties with regard to agentive modification, defining a binding domain for the purposes of Principle B of the binding theory, and being able to bind the reflexive marker (which is subject-oriented in isiXhosa). They show that the same diagnostics do not require the subject to be in spec-TP in the language, defending the idea that VoiceP really is the locus of the relevant properties, and completing the argument that VoiceP must be absent from the structure the causative embeds. Finally, they show that the causative cannot embed the passive in isiXhosa. The following diagram illustrates the analysis Myler and Mali (2021) propose; in the absence of a VoiceP embedded under the causative, the causee (bolded) is instead introduced in the specifier of the causative head itself.

(15) uSaraj w-ong-is-e uDallas abantwana.
     1Sarah 1SUBJ-look.after-CAUS-PERF 1Dallas 2children
     'Sarah made/helped Dallas look after the children.' (11/14/2017)

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                    VoiceP
                   /      \
                 DP        Voice'
                 /\       /      \
              uSarah  Voice{D}    CausP
                             /         \
                           DP          Caus'
                           /\         /      \
                       uDallas   Caus{D}      vP
                                  -is        /   \
                                            v     DP
                                           / \    /\
                                    √ong-  v{}  abantwana
                                 'look after'  'the children'
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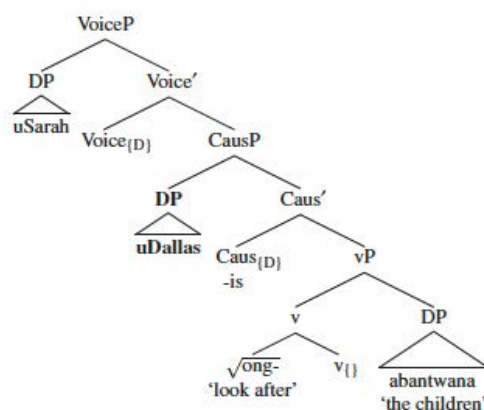
Below, we briefly recapitulate some of Myler and Mali's arguments, leaving out others and many descriptive details (including the alternation between unmarked causees and instrumental-marked causees, which is a key focus of Myler and Mali (2021), and the sociative causative reading found in the unmarked causee construction) for reasons of space.

3.1 Agentive Modification

Subjects in isiXhosa can generally be targeted by agentive modifiers such as *ngabom* 'on purpose'.

(16) uZoli w-aphul-e iglasi ngabom.
     1Zoli 1SUBJ-break.TRANS-PERF 9glass on.purpose
     'Zoli broke the glass on purpose.' (02/06/2018)

The causee in the morphological causative construction, on the other hand, cannot be targeted in the same way.

(17) uDallas$_i$ w-aphul-<u>is</u>-e uZoli$_j$ iglasi ngabom$_{i/*j}$.
     1Dallas 1SUBJ-break.TRANS-CAUS-PERF 1Zoli 9glass on.purpose
     'Dallas [[made Zoli break the glass] on purpose].' (02/06/2018)
     NOT: *'Dallas [made [Zoli break the glass on purpose]].'

Strikingly, the same does not hold of the causee in the following periphrastic causative construction.

(18) uDallas$_i$ w-enz-e ukuba uZoli$_j$ a-phul-e iglasi ngabom$_{i/j}$.
     1Dallas 1SUBJ-make-PERF C 1Zoli 1SUBJ-break-SBJV 9glass on.purpose
     'Dallas$_i$ made Zoli$_j$ break the glass on purpose$_{i/j}$.' (03/20/2018)

These patterns follow if (i) modifiers like *ngabom* are adjuncts to Voice', and (ii) Voice is absent from the complement of the causative morpheme in (17). The periphrastic causative, on the other hand, embeds an entire CP (witness the complementizer in example (18)), and so there is a VoiceP in the embedded clause in that construction that can accommodate *ngabom*, as well as one in the matrix clause, giving rise to the attachment height ambiguity we see.

3.2 Reflexives

The isiXhosa reflexive morpheme must be bound by the subject of its local clause, as shown by the following example.

(19)　uZoli$_i$ u-th-e　　　　[$_{CP}$ umntwana$_j$　　u-z$_{*i/j}$-ong-ile].
　　　1Zoli 1SUBJ-say-PERF　[　1child　　　　1SUBJ-REFL-look.after-DISJ.PERF]
　　　'Zoli said that the child$_i$ looked after herself$_i$.'
　　　NOT: *'Zoli$_i$ said that the child$_j$ looked after her$_i$.' (02/28/2019)

Causees in the morphological causative construction do not count as subjects for the purposes of reflexive binding; instead, the causer argument must be interpreted as the antecedent.

(20)　uThemba$_i$　u-z$_{i/*j}$-ong-<u>is</u>-e　　　　　　　　abantwana$_j$　abagulayo.
　　　1Themba　1SUBJ-REFL-look.after-CAUS-PERF　2children　　2sick
　　　'Themba made himself look after the sick children.'
　　　NOT: *'Themba made the sick children look after themselves.' (11/18/2016)

As we would expect, this pattern is reversed in the periphrastic causative construction, in which the causee is the subject of the clause in which the reflexive marker is bound.

(21)　uThemba$_i$ w-enz-e　　　ukuba abantwana$_j$ abagulayo ba-z$_{j/*i}$-ong-ile.
　　　1Themba　1SUBJ-make-PERF C 2children 2sick　2SUBJ-REFL-look.after-DISJ.PERF
　　　'Themba made the sick children look after {themselves/*him}.' (08/19/2016)

3.3 Principle B

The causee in the morphological causative construction does not act like a subject for the purposes of calculating the binding domain for a pronoun under Principle B of the Binding Theory. This is shown by the fact that the causer and the causee cannot be co-referent if the latter is replaced by a pronominal object marker (such as *-m-* in (22)). As shown in the parenthesized ungrammatical reading of (22), it is impossible for such a pronoun to refer to the theme argument even if it isn't co-referent with the causer in the unmarked causee construction; this is for an independent reason discussed in Myler and Mali (2021:18-25).

(22) uThemba_i u-m*_{i/j}-ong-<u>is</u>-e   abantwana   abagulayo.
      1Themba 1SUBJ-1OBJ-look.after-CAUS-PERF 2children   2sick
      'Themba_i made him*_{i/j} take care of the sick children.' (10/03/2017)
      NOT *'Themba_i made the sick children look after him_i.'
      (NOT * 'Themba_i made the sick children look after him_j.')

Once again, and unsurprisingly, things are different in the periphrastic causative construction. We illustrate here only with the case of a pronoun referring to the theme argument of the embedded verb, since obviation effects associated with the subjunctive interfere with constructing an example where the causee is pronominalized.

(23) uThemba_i w-enz-e   ukuba abantwana abagulayo ba-m_{i/j}-ong-e.
      1Themba 1SUBJ-make-PERF C   2children 2sick   2SUBJ-3OBJ-look.after-SBJV
      'Themba_i made the sick children look after him_{i/j} .' (08/19/2016)

3.4 Interim Summary

This section has overviewed Myler and Mali (2021), which establishes a key premise of the present account of causative-applicative interactions: namely that the causative morpheme *-is* selects a vP (which, by hypothesis, also allows it to select HighApplP in our approach). This, in combination with our proposal that isiXhosa applicatives always instantiate either a Low Appl, a High Appl, or a Super High Appl head, explains the affix ordering facts introduced in section 2 of the paper. In the next section, we return to this taxonomy. We show that the three subgroups we propose have a large degree of semantic coherency to them, and furthermore that the Low Applicatives and High Applicatives by and large have meanings of a sort that is expected on Pylkkänen's (2008) view of such morphemes. We take it that this supports the overall approach.

4. Semantic Sanity Check: Supporting the Taxonomy

In the following lists, we show the semantic subtypes of applicative construction that fall under our Low Appl, High Appl, and Super High Appl designations, as diagnosed by affix order possibilities with the causative. These lists probably do not exhaust the semantic subtypes of applicative that might be found in isiXhosa, but they do contain all of the types we have found in our investigations so far. (See duPlessis and Visser 1992 and Satyo 1985 for general discussions of isiXhosa applicatives.)

(24)   Cases of Low Appl (only Appl-Caus ordering possible)
        a. The Verb 'send'
        b. Directional Goals of (Unaccusative) Motion Verbs
        c. Resultative Particle-like Interpretation
        d. The Target of Hatred

(25)   Cases of High Appl (both Appl-Caus and Caus-Appl ordering possible)

    a. Benefactive Applicatives
    b. Locative Applicatives
    c. Directional Goals of (Unergative) Motion Verbs
    d. Targets of Some Other Emotion Verbs
    e. The Adverb *phantsi* 'at a low level/volume'
    f. Introducing an Object Controller

(26)   Cases of Super High Appl (only Caus-Appl ordering possible)

    a. *Why* Questions
    b. *because of* DP

As we can see, the types that fall under Low Appl all (with the possible exception of the target of hatred, on which see below) involve arguments which we would expect to find in the complement of the verb. Likewise, almost all of the High Appl subtypes involve relating an individual to an event rather than to another individual. The only potential exceptions appear to be the targets of some other emotion verbs and the directional goals of motion verbs which we might expect on crosslinguistic grounds to be unergative (there are apparently no agreed-upon unaccusativity diagnostics for isiXhosa or for Bantu languages more generally; but the motion verbs in question here are manner-of-motion verbs, which often pattern with unergatives). But the latter group may not be an exception after all, if the directional goals of unergative motion verbs are syntactic adjuncts rather than complements of the verb, as argued for English recently by Biggs (2018) (we discuss the former in the next subsection). Finally, while Super High Appl is not found in Pylkkänen's original taxonomy, there is a clear semantic unity to this class as well: they consist of *why* questions and a certain kind of answer to such questions.

For space reasons we cannot illustrate and discuss all of the subtypes listed in (24), (25), and (26). Hence, we restrict ourselves here to two of the more interesting and problematic cases: the issue of verbs of emotion, and the rationale applicative (we also discuss High Applicatives introducing the adverb *phantsi* later in the paper, in section 5.2).

4.1 Hatred vs Other Emotions

The verb 'to hate' in isiXhosa is formed by applicativizing the verb meaning 'to be annoyed'. The new object so introduced is interpreted as being the target of the emotion in question.

(27)   Inkwenkwe i-chaphuk-**el**-a   umngqusho.
    9boy   9SUBJ-annoyed-APPL-FV 3samp
    'The boy hates samp.' (11/14/17)

This applicative falls into our Low Appl class, as shown by the fact that it must precede the causative morpheme, and may never follow it.

(28) Eso sehlo   si-caphuk-**el**-<u>is</u>-e   inkwenkwe umngqusho.
      7that 7experience 7SUBJ-annoyed-APPL-CAUS-PERF 9boy   3samp
      'That experience made the boy hate samp.'(11/14/17)

(29) *Eso sehlo   si-caphuk-<u>is</u>-**el**-e   inkwenkwe umngqusho.
      7that 7experience 7SUBJ-annoyed-CAUS-APPL-PERF 9boy   3samp
      'That experience made the boy hate samp.'(11/14/17)

The verb 'to hate' is unique in this respect, in that other verbs of emotion we have found which take the target of the emotion as an applied argument all seem to employ a High Appl for the purpose, as illustrated here for the verb *vuy* 'to rejoice'.

(30) Abantu ba-za   ku-vuy-**el**-a   imali.
      2person 2SUBJ-FUT   INF-rejoice-APPL-FV 9money
      'People will rejoice over the money.' (11/17/2016)

(31) Indoda i-za   ku-vuy-**el**-<u>is</u>-a   abantu imali.
      9man 9SUBJ-FUT   INF-rejoice-APPL-CAUS-FV 2person 9money
      'The man will make the people rejoice over the money.' (01/30/2022)

(32) Indoda i-za   ku-vuy-<u>is</u>-**el**-a   abantu   imali.
      9man 9SUBJ-FUT   INF-rejoice-CAUS-APPL-FV 2person 9money
   'The man will make the people rejoice over the money.' (01/30/2022)

Why should 'to hate' be different in this regard? A clue seems to lie in the shape of its stem *caphuk*, which ends in a -*Vk* sequence. There is a morpheme of this shape, dubbed the *stative* by McLaren (1944:114-117). As well as deriving stative passives in a somewhat productive fashion (in which case the vowel is /e/), this morpheme also appears in the intransitive variant of many (anti-)causative verbs, alternating with a suffix in -*Vl*. The following pair illustrates this for the verb 'to break'; McLaren lists several other such pairs.

(33) uZoli w-aphul-e   iglasi.
      1Zoli 1SUBJ-break.TRANS-PERF   9glass
      'Zoli broke the glass on purpose.' (01/30/2022)

(34) Iglasi   y-aphuk-ile.
      9glass   9SUBJ-break.INTRANS-DISJ.PERF

(35)   'The glass broke.' (01/30/2022)

We thus propose that *caphuk* is an unaccusative verb, which optionally takes a Low Appl as its complement, in which case it is interpreted as 'to hate'. We would thus have the following syntax for example (27).[3]

(36)   Inkwenkwe i-chaphuk-**el**-a   umngqusho.
      9boy   9SUBJ-annoyed-APPL-FV   3samp
      'The boy hates samp.' (11/14/17)
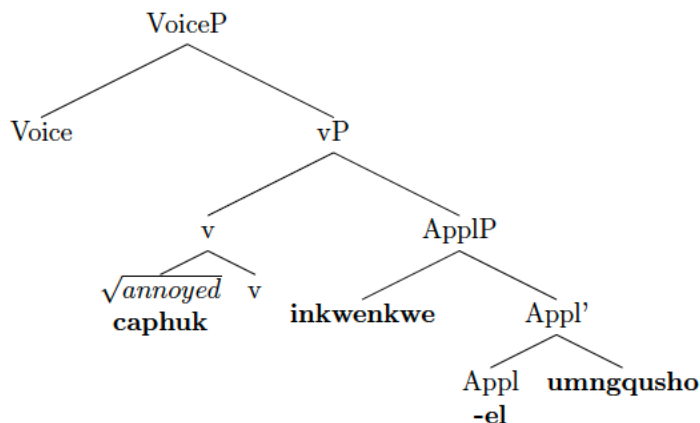
The other verbs of emotion, which differ from *caphuk* in showing no morphological sign of being unaccusative, would then be analyzed as unergative verbs which either have no complement or are unable to syntactically license one in their bare form, meaning they resort to a High Appl to license the target of emotion.

4.2 Rationale Applicatives

Why-questions in isiXhosa are constructed by adding an applicative suffix to the main verb, and placing the question word *(nto)ni* immediately after the verb. In the event that the verb in question has a direct object, that object is obligatorily doubled by an object marker on the verb itself (a fact that we will not address in this paper, although we suspect that it has to do with *(nto)ni* disrupting a licensing relationship between the verb and the direct object in some way).

(37)   Umqeshi   u-m-gxoth-**el**-e   ni   umsebenzi?
      1boss   1SUBJ-1OBJ-fire-APPL-PERF   what   1worker
      'Why did the boss fire the worker?' (06/17/2016)

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[3] This analysis entails that the experiencer argument is a complement of the verb in clauses containing *caphuk* 'be annoyed', but in spec-ApplP in clauses containing *caphukel* 'hate'. A reviewer points out that this violates the strong version of the Uniformity of Theta Assignment Hypothesis (Baker 1988:46). We do not shy away from this consequence. We agree with Marantz (2013:164) and related work that the experiencer thematic role has no single syntactic structure associated with it; instead, psych constructions are parasitic on a range of other types of syntactic structure.

The applicative suffix found in *why*-questions may never precede the causative suffix, and instead always follows it. This identifies it as a Super High Appl in our analysis, merged above VoiceP.

(38) *iCEO i-m-gxoth-**el**-<u>is</u>-e   ni   umqeshi umsebenzi?
9CEO 9SUBJ-1OBJ-fire-APPL-CAUS-PERF   what 1boss   1worker
'Why did the CEO make the boss fire the worker?' (08/31/2016)

(39) iCEO   i-m-gxoth-<u>is</u>-**el**-e   ni   umqeshi umsebenzi?
9CEO   9SUBJ-1OBJ-fire-CAUS-APPL-PERF what 1boss   1worker
'Why did the CEO make the boss fire the worker?' (08/31/2016)

It is possible to answer a *why*-question with a DP applied argument. Such applied arguments, unlike all others in the language, must apparently follow the base verb's internal argument; we have no explanation for this ordering restriction.

(40) Umqeshi u-gxoth-**el**-e   umsebenzi   ubu-leyithi.
1boss   1SUBJ-fire-APPL-PERF 1worker   NMLZ-late
'The boss fired the worker for lateness.' (08/31/2016)

(41) *Umqeshi u-gxoth-**el**-e   ubu-leyithi   umsebenzi.
1boss   1SUBJ-fire-APPL-PERF NMLZ-late   1worker
'The boss fired the worker for lateness.' (08/31/2016)

These applicatives are also Super High, according to the affix order diagnostic. Curiously, the version of the causative construction with an unmarked causee is rather awkward in *why*-questions, but they are completely ungrammatical with the affix order Appl>Caus.

(42) ??iCEO   i-gxoth-<u>is</u>-**el**-e   umqeshi umsebenzi ubu-leyithi.
9CEO   9SUBJ-fire-CAUS-APPL-PERF 1boss   1worker   NMLZ-late
'The CEO made the boss fire the worker for lateness.' (08/31/2016)

(43) *iCEO   i-gxoth-**el**-<u>is</u>-e   umqeshi umsebenzi ubu-leyithi.
9CEO   9SUBJ-fire-APPL-CAUS-PERF 1boss   1worker   NMLZ-late
'The CEO made the boss fire the worker for lateness.' (08/31/2016)

It is unclear to us whether the awkwardness of (42) is a processing effect induced by the presence of too many unmarked internal arguments in the same sentence (since isiXhosa, like Bantu languages generally, is mostly devoid of case marking) or is to be accounted for in the grammar in some way; what is clear is that the issue is not one of incompatibility between the causative construction *tout court* and this kind of applicative, since the equivalent of (42) is perfect if the causee is marked instrumental.

(44) iCEO i-gxoth-<u>is</u>-**el**-e   umsebenzi ubu-leyithi ngo-mqeshi.
9CEO 9SUBJ-fire-CAUS-APPL-PERF 1worker   NMLZ-late INSTR-1boss
'The CEO made the boss fire the worker for lateness.' (08/31/2016)

The affix order Appl>Caus remains completely ungrammatical even with the causee in the instrumental, as expected given our analysis.

(45)   *iCEO   i-gxoth-**el**-<u>is</u>-e   umsebenzi ubu-leyithi ngo-mqeshi.
       9CEO   9SUBJ-fire-APPL-CAUS-PERF 1worker   NMLZ-late   INSTR-1boss
       'The CEO made the boss fire the worker for lateness.' (08/31/2016)

4.3 Conclusion to Section 4

In this section, we have seen that the three-way distinction suggested by the permitted affix ordering of the applicative with the causative is independently supported by the syntactic and semantic functions of the applicatives in each group. With this conclusion in hand, we return to causative-applicative interactions, explaining how Mirror Principle violations can be handled on our view, and briefly discussing how lexicalized causatives interact with our proposal.

5. Conclusion: Back to Caus-Appl Interactions

5.1 An Approach to Mirror Principle Violations

Recall the puzzle involving the verb *ceng* 'to beg' which we discussed in the introduction. This verb takes an applicative suffix when used as an object control verb, seeming to suggest that the object controller is the applied argument (repeated here in example (46)). The Mirror Principle then leads us to expect that causativizing such a configuration should yield the morpheme ordering Root>Appl>Caus, since the applied argument is an argument of the begging event rather than the causing event. This ordering is indeed grammatical (as shown in (47)), but so too is the order Root>Caus>Appl, with no change in meaning or in the word order of the causee and the object controller. Both in its meaning and in the hierarchy of its arguments, example (48) appears to be a Mirror Principle violation.

(46)   uThemba u-ceng-**el**-e   uDallas   uku-theng-a isonka.
       1Themba 1SUBJ-beg-APPL-PERF 1Dallas   INF-buy-FV   7bread
       'Themba begged Dallas to buy bread.' (10/20/2017)

(47)   uZoli u-ceng-**el**-<u>is</u>-e   uThemba uDallas uku-theng-a   isonka.
       1Zoli 1SUBJ-beg-APPL-CAUS-PERF 1Themba 1Dallas INF-buy-FV   7bread
       'Zoli made Themba beg Dallas to buy bread.' (10/20/2017)

(48)   uZoli u-ceng-<u>is</u>-**el**-e   uThemba uDallas uku-theng-a isonka.
       1Zoli 1SUBJ-beg-CAUS-APPL-PERF 1Themba 1Dallas INF-buy-FV   7bread
       'Zoli made Themba beg Dallas to buy bread.' (10/20/2017)

Here we will pursue an approach to Mirror Principle violations that the first author has dubbed the *syntactic/semantic reconceptualization approach*. At the core of this approach is the observation that claims of the form "the interaction of affixes X and Y{violates/obeys} the Mirror Principle" are always made with some analysis of the syntactic and/or semantic properties of X and Y in mind. The possibility then arises that

at least some apparent Mirror Principle violations are illusions, caused by our own misunderstanding of how one or both of the affixes actually work(s). A relatively recent subtradition in the analysis of applicatives argues that precisely this has happened in their analysis: contrary to the tradition associated with Pylkkänen (2008), Appl is sometimes just an argument *licensor*, rather than an argument *introducer* (see Paul and Whitman 2010; Georgala 2012; and Nie 2019 for examples of this approach in action).

Suppose that this is true at least some of the time for High Appl in isiXhosa. Then, given the analysis of isiXhosa causatives motivated in section 3 (adopted from Myler and Mali 2021), the structure of example (48) could look as follows:

(49)
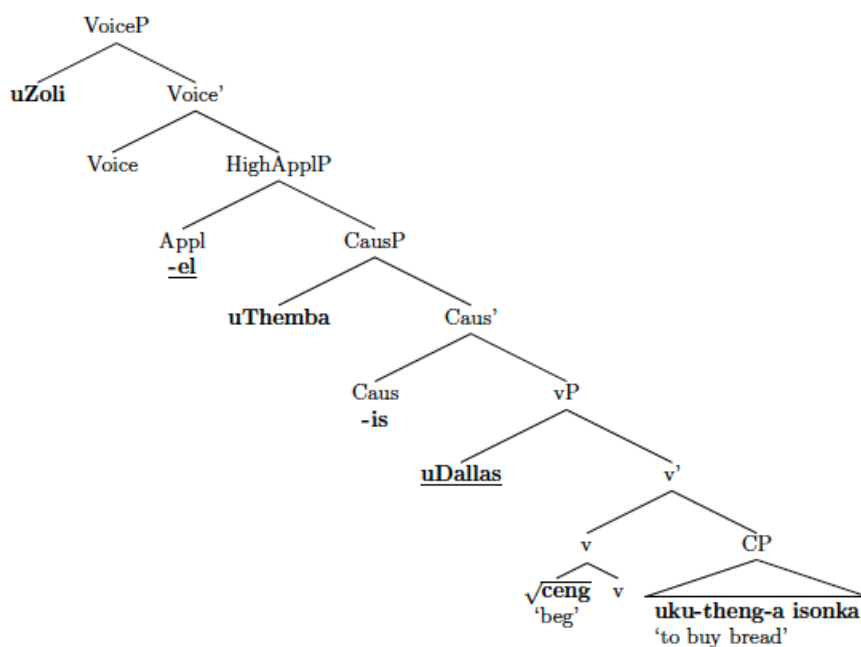
The claim is that *ceng* 'beg' is semantically capable of integrating the object controller into its event structure (as an addressee of the begging event), but is not capable of syntactically licensing this additional argument on its own; this is the role of High Appl, which licenses the object controller in-situ (this licensing relationship between the two is indicated by underlining in the diagram in (49)). This is why neither the meaning nor the word-order changes with the change in affix order in (47) versus (48).

A general prediction of this approach is that apparent Mirror Principle violations involving causatives and applicatives should always involve the applicative morpheme surfacing "higher" than it should if it were introducing the applied argument. This is because, by hypothesis, such licensing relationships always proceed "down" the tree, rather than upwards. This prediction is correct in the case at issue, and is compatible with all of the

data we have on causative-applicative interactions in isiXhosa. Indeed, we know of no true counter-examples to this prediction, in Bantu or elsewhere.[4]

Another potential advantage of this approach is that it may yield a pathway to a syntactic account of a type of applicative behavior observed for Kinyarwanda by Jerro (2016) (of which the above isiXhosa case involving *ceng-el* is arguably one). Jerro notes the existence of a number of situations in Kinyarwanda in which the applicative, when used, is associated with a thematic role conditioned in some way by the lexical semantics of the base predicate, rather than being drawn from the generic set often associated with applicatives cross-linguistically (benefactive, malefactive, instrumental, etc.). He offers a lexicalist analysis in which the applicative in such cases lambda-abstracts over a variable in the verb's lexical semantic representation which, in the absence of the applicative, is existentially closed by default. Hence, the applicative in Jerro's analysis essentially "unlocks" a thematic role which is latent in the semantics of the base predicate, but which could not otherwise be expressed in the syntax. From the present perspective, the possibility that some instances of High Appl are licensors allows us to translate Jerro's insight into syntacticist terms in the way we have already suggested for *ceng-el* above. Specifically, certain roots will be assumed to be semantically capable of accommodating an (additional) internal argument, but as a matter of language-specific (and perhaps also root-specific) stipulation, cannot combine with a variant of 'v' or Voice capable of licensing such an additional argument. In such cases, High Appl can be resorted to in order to provide the syntactic licensing needed to express the argument in question.

To briefly summarize the main result of this subsection: High Appl in isiXhosa can occur either inside or outside of the causative, because the latter c-selects something of category 'v', and High Appl counts for this purpose in isiXhosa, by hypothesis. Because at least some instances of High Appl license their associated argument at a distance rather than introducing it, causative-applicative ordering can arise even when the applied argument is lower in the structure than the causative morpheme, creating the illusion of a Mirror Principle violation.

**5.2 A Brief Look at Lexicalized Causatives**

As well as the periphrastic causative and the productive morphological causatives discussed in section 3, isiXhosa also has lexicalized morphological causatives which have idiomatic interpretations. One case of this kind involves the verb *theth*, meaning 'to speak'. The causative version of this verb has the idiomatic meaning 'to scold', as well as the expected literal meaning.

(50)   uNeil u-theth-<u>is</u>-a   uDallas.
        1Neil 1SUBJ-speak-CAUS-FV 1Dallas
        'Neil is making Dallas speak.'

---

[4] There are examples of unexpected Root-Appl-Caus order in Hyman (2003), but Hyman argues on the basis of their morphophonology that they involve the causativization operation happening before applicativization, which in our terms means that they have a Root-Caus-Appl structure underlyingly.

(51)   Neil is scolding Dallas.' (06/09/2016)

Following Pylkkänen's (2008) distinction between root-selecting causatives and verb-selecting causatives, we propose that the ambiguity in (50) is actually a structural ambiguity, with the idiomatic meaning reflecting a structure where *-is* spells out a 'v' head that merges directly with the root and conditions the special meaning 'scold', and the literal meaning involving the true causative selecting a vP.

(52)

Lexicalized Causative 'to scold'

Productive Causative 'to make speak'
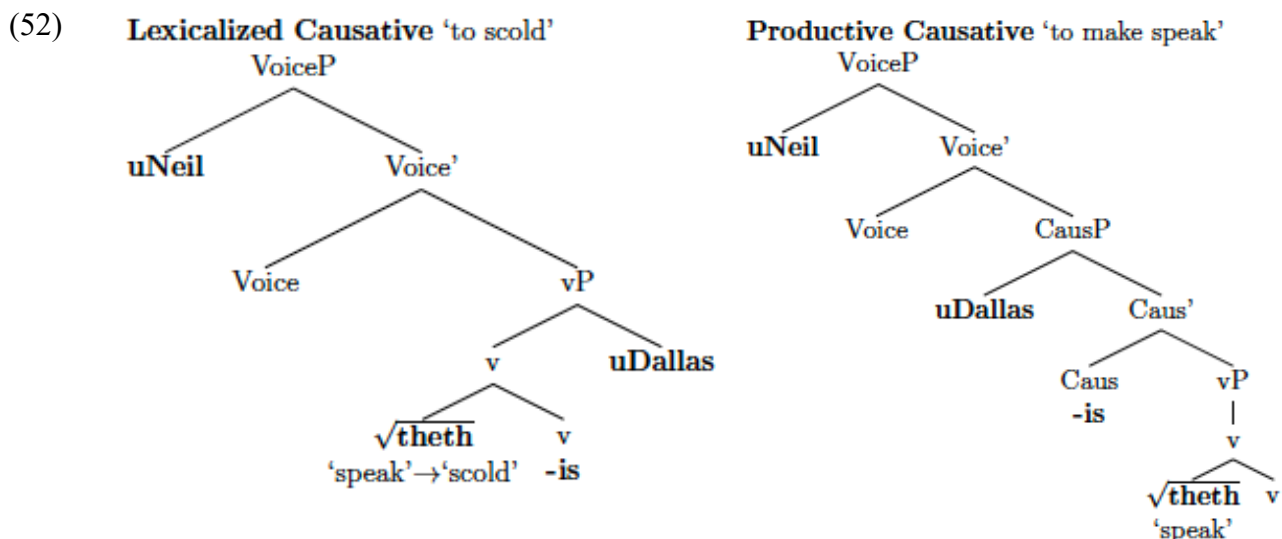
This structural approach to the ambiguity in (50) predicts that the lexicalized causative and the productive causative should be able to co-occur, and indeed they can.

(53)   uThemba u-theth-<u>is</u>-<u>is</u>-e   uNeil uDallas.
        1Themba 1SUBJ-speak-CAUS-CAUS-PERF 1Neil 1Dallas
        'Themba made Neil scold Dallas.' (08/11/2016)

Another prediction of this approach is that the affix order Root-Appl-Caus should be incompatible with the idiomatic reading, because any applicative will be further from the root than the 'v' head that merges directly with the root. The literal reading of this form, on the other hand, should permit Root-Appl-Caus order (as well as Root-Caus-Appl, if the applicative in question is a High Applicative).

Consider then the adverbial *phantsi*, which is obligatorily introduced by an applicative morpheme.

(54)   uDallas u-theth-*(**el**)-e   phantsi.
        1Dallas 1SUBJ-speak-APPL-PERF down
   'Dallas spoke at a low level.' (08/08/2016)

Since the semantics here involve *phantsi* modifying the speaking event, and no direct object is present, we expect this to be an instance of a High Applicative. Just as predicted, the applicative associated with *phantsi* can follow the causative, in which case both the idiomatic and the literal readings of the causative are available.

(55)   uNeil u-theth-<u>is</u>-**el**-e   uDallas   phantsi.
       1Neil 1SUBJ-speak-CAUS-APPL-PERF 1Dallas   down
       'Neil made Dallas speak at a low level.'
       'Neil scolded Dallas at a low level.' (08/08/2016)

Also, in accordance with our prediction, this applicative may precede the causative morpheme, but in such a case the idiomatic reading disappears, leaving only the literal one.

(56)   uNeil u-theth-**el**-<u>is</u>-e   uDallas   phantsi.
       1Neil 1SUBJ-speak-APPL-CAUS-PERF   1Dallas   down
       'Neil made Dallas speak at a low level.'
       NOT: *'Neil scolded Dallas at a low level.' (08/08/2016)

A final point of interest in the interaction of the causative and the applicative in such cases is that they provide yet another instance in which the notion that High Appl may be a licensor rather than an argument-introducer once again pays dividends. Despite the difference in the position of the applicative morpheme between (55) and (56), there is no change in the relative order of the causee and the adverbial even on the non-idiomatic reading, nor is there a change in the scope of the adverbial, which modifies the speaking event rather than the causing event in each case. Our analysis captures this, as illustrated for the literal reading of (55) in the following diagram (again, underlining indicates the relationship between High Appl and the element it licenses).

(57)
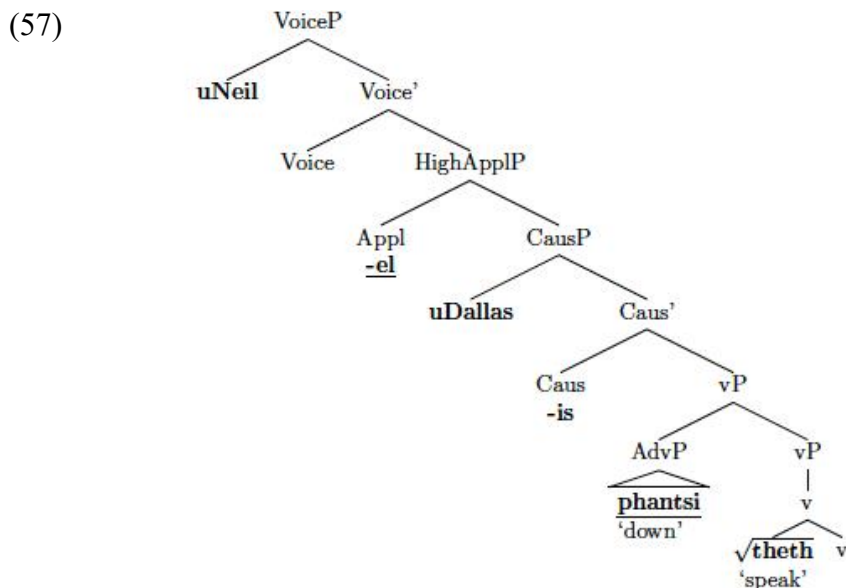
5.3 Final Summary

Let us close by reiterating the core proposals we have made.

(58) Proposal 1: Appl Taxonomy in isiXhosa

    a. *-el*$_1$ instantiates Pylkkänen's Low Appl.

    b. *-el*$_2$ instantiates Pylkkänen's High Appl.

    c. *-el*$_3$ instantiates Super High Appl (novel to this paper)

(59) Proposal 2: Caus-Appl Interaction in isiXhosa

    a. The productive morphological causative in isiXhosa is verb selecting in the sense of Pylkkänen (2008) (i.e., it selects something of category vP, rather than a VoiceP).

    b. High ApplP counts as a vP in the relevant sense, but Super High ApplP does not.

These proposals are supported by independently established facts regarding the syntactic and semantic contributions of the causative head and of the various applicative heads themselves. Together, they yield a principled account of causative-applicative affix ordering interactions in isiXhosa, requiring no *ad hoc* devices specific to affix ordering. The account also explains the fact that apparent (but illusory!) Mirror Principle violations involving causative-applicative order exist, given that High Appl is sometimes a licensor rather than an argument-introducer, as argued on independent grounds by Georgala (2012), amongst others.

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