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1 Introduction

This study presents a relatively detailed description of the grammatical categories of mood and aspect in three Mixtec languages.[1] Our goals include morphology in a broad sense, covering both meaning and form. Our focus is a grammatical category known in Mixtec studies as 'aspect', which distinguishes three forms of every verb, generally called completive, continuative, and potential. We present a view of the system that differs somewhat from previous work, suggesting that the system is primarily modal, not aspectual in character. Partly, this is just a matter of how terms like 'mood' and 'aspect' are defined, but there is a more fundamental difference. We would like to suggest that the system is best analyzed in terms of two binary divisions, one between realis and irrealis mood, and a second within realis mood between perfective and imperfective aspect. We believe this leads to an insightful understanding of the meaning and usage of these categories, and also of their formal expression, inasmuch as it mirrors their semantic structure.

In the process, we are also able to give a first description of this system in three previously unstudied Mixtec languages. Our perspective is a comparative one, concentrating on those characteristics that are common to all three languages, and especially those which are found throughout Mixtec. Nevertheless, we have not attempted to survey the entire family; readers interested in a broader perspective should consult Bradley and Hollenbach (to appear). Also, we have not systematically explored uses of the three forms in complement clauses with different matrix verbs, nor have we been able to work out all the

details of tone and tone sandhi, since the tonal systems are as yet unanalyzed. In the future, we hope to address these deficiencies.

The three languages that we discuss are listed in (1), together with the names of our colleagues who specialize in each language, and who have collaborated closely with us.[2]

(1) Santiago Nuyóo (Nuy) - Larry Harris, Mary Harris
Santo Domingo Nuxáa (Nux) - Susan Hugghins, Inga McKendry
Municipio of Tezoatlán (Tez) - John L. Williams, Judith Williams

Indeed, the whole project has been a group effort, and could not even have been begun without the contributions of everyone. Our responsibility as authors has consisted in directing and coordinating the work of the others, and in producing the present analysis and discussion. Bickford is primarily responsible for the material in section 2 on the meanings and uses of the elements in the system, while Marlett is primarily responsible for the material in section 3 on their formal expression.

2 Grammatical categories of Mood and Aspect

Within the verbal paradigm, three basic forms are generally recognized under the labels Completive, Continuative, and Potential.[3] As we shall see below, it is initially tempting to analyze these as past, present, and future tense, respectively, since these represent their most common uses. However, this characterization is too narrow, as is well recognized by the conventional description of these three forms as Aspects, not Tenses.

However, the 'Aspects' of Mixtec differ in important ways from aspects of other languages. The traditional terminology adopts 'Aspect' as a general cover term for a system of verbal inflection which includes kind of action and possibly other factors in addition to time of action.

In what follows, we follow Comrie 1976 and Chung and Timberlake 1985 in using the term 'aspect' in a more restricted and precise sense which is more useful for cross-linguistic comparison; aspect in this sense is a grammatical category which refers only to the relationship of a situation[4] to some time interval selected by the speaker (Chung and Timberlake 1985:213-4). To put it another way, aspect refers to the internal temporal structure of a situation, rather than its location in time. This narrower sense includes concepts such as perfective, imperfective, habitual, and progressive. These terms are defined by Comrie (1976) in largely language-independent terms, yet they also work very well for characterizing the Mixtec system. We have therefore used them to facilitate comparison of Mixtec with other languages; we will give precise characterizations of them later.

Our primary difference with the traditional understanding of the Mixtec 'Aspects' is not terminological, however. We claim that the system does not involve a simple three-way distinction. Rather, there is a primary division of mood, between realis (actual) and irrealis (non-actual). The single Irrealis (= Potential) form stands in contrast to two realis forms, which are distinguished from each other as Perfective (= Completive) and Imperfective (= Continuative) aspect. A small class of motion verbs makes a further aspectual distinction between two types of imperfectivity, Habitual and Progressive. The structure of the whole system is represented in (2).

(2) Mood: Realis   vs.   Irrealis

Aspect: Perfective vs. Imperfective

Habitual vs. Progressive

In this view, then, aspectual distinctions are only relevant for the realis forms, while all forms include modal elements in their meanings. In particular, any precise characterization of the semantic structure of the Perfective, Imperfective, Habitual, and Progressive must recognize that realis mood is an important component of their meaning. This point will be demonstrated in detail below.

It will be necessary first to present the aspectual distinctions (section 2.1), since a familiarity with them is needed before we can proceed to the more fundamental distinction between them and the Irrealis (section 2.2). Section 2.3 summarizes the semantic discussion and pulls together in one place the reasons for considering the system as being primarily modal, with aspect secondary, as opposed to other reasonable alternatives.

2.1 Aspectual distinctions within Realis mood

As indicated above, a naive analysis of the two principal realis forms would claim that they indicated past and present tense. Indeed, this hypothesis would cover most instances of their use, especially in ordinary conversation, and is reflected in the labels given to them in many practical grammars of Mixtec languages written for nonlinguists, such as Alexander 1980:22ff, Dyk and Stoudt 1965:125ff, North and Shields 1976, Pensinger 1974:142ff, and Stark Campbell, Johnson Peterson, and Lorenzo Cruz 1986:161ff (although several of these sources also point out that temporal labels do not adequately characterize the meanings of these forms).

The Perfective is used for isolated past events, or for a series of past events in narrative discourse. It is normally indicated by a clitic **n(i▪)** preceding what we call the *Realis* form of the verb, together with as-yet unanalyzed tonal changes. (Part of our analysis

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involves positing a Realis prefix within this form which distinguishes
it from the Irrealis form. Throughout section 2, we do not isolate this
prefix, leaving such matters to section 3.)

(3) iku   ñ   ku?wi =nì?. (Nuy)
    yesterday Perf sick   1s
    I was sick yesterday.

(4) ñ   sà?ánoo =ránì? nùu?ⁿ yuuⁿ
    Perf clear   1pe   face ground
    We (excl.) cleared the field

    xee ñ   tee =ránì? nùnì?. (Nuy)
    and Perf plant 1pe   corn
    and we planted the corn.

(5) iku   niⁿ seeⁿ =δa waaⁿ kʷi?i. (Nux)
    yesterday Perf buy   1r much fruit
    Yesterday I bought a lot of fruit.

(6) niⁿ teku waaⁿ =niⁿ te niⁿ kee =yaⁿ ke?eⁿ. (Nux)
    Perf listen mother 1 and Perf go.out 3r outside
    My mother heard, and she came outside.

(7) kúú nìⁿ saà =ta,
    and Perf arrive 3s,
    And he arrived,

    kúú nìⁿ nàní?ìⁿ tuku =ta ta θito ilo. (Tez)
    and Perf find   again 3s 3s uncle rabbit
    and he again found uncle rabbit.

The Imperfective is used to refer to present situations, specifically
events in progress at the moment of speech.

(8) té?néni =nì? čìxi =nì?. (Nuy)
    Impf/hurt 1s stomach 1s
    My stomach hurts.

(9) tee   =δa waaⁿ tu?uⁿ. (Nux)
    Impf/write 1r much words
    I am writing many words.

(10) sásá?aⁿ =naⁿ. (Tez)
     Impf/eat 3s
     He/she is eating.

However, other data shows that the distinction is aspectual, not
temporal. When Perfective and Imperfective forms occur together, the
Perfective refers to a span of time which is completely included in the

span referred to by the Imperfective. In this case, the Imperfective, as well as the Perfective, is used for past time.

(11) iku   ká?wi   wí?í ini =yaⁿ
     yesterday Impf/worry much inside 3f
     Yesterday, she was very worried

        sá   ñ   nenta =rè?. (Nuy)
        while Perf arrive 3m
        when he arrived.

(12) weeⁿ=yi seki   nuči
     FOC=3m Impf/plant beans
     He was planting beans

        te niⁿ see   yaniⁿ =yi. (Nux)
        and Perf arrive brother 3s
        when his brother arrived.

(13) síonooⁿ ta θito ilo   sásá?aⁿ =ta yúkù;
     Impf/walk 3s uncle rabbit Impf/eat 3s mountain
     Uncle rabbit was walking along eating in the country;

        iiⁿ kuù nàⁿkitá?aⁿ =ta sí?íⁿ ta θito nikʷè?í. (Tez)
        one day meet   3s with 3s uncle coyote
        one day he met up with uncle coyote.

As can be seen from these examples, Perfective forms are frequently used for the basic plot line of a narrative, while Imperfective forms are used for background material. This is a consequence of the fact that most background situations occur over a longer span of time than the events that make up the plot line, and include them.

What is common to all uses of the Perfective is that it presents a situation as a complete whole, whose actual internal complexity (if any) is not relevant to the discourse. Thus, it is used for most past situations, which are viewed 'from the outside' (at the moment of speech); the sequence of subevents that make them up is in such cases not of interest, only the event taken as a whole.

In contrast, the Imperfective presents a situation whose internal complexity (e.g., the series of states that make up a process) is relevant to the discourse, and views situations 'from the inside out'.[5] Note that this is not a matter of the situation itself, but rather of how the speaker chooses to represent it and its relationship to other situations. There are two possible ways of understanding how a speaker's conceptualization of a situation as Imperfective involves an 'inside out' perspective.

From one point of view, the internal structure of a situation is relevant because some portion, but only a portion, of its time span coincides with some other significant location in time, or reference point. In its use for present situations, the reference point is the moment of speech. In its use in contrast to the Perfective, the reference point is the time of the Perfective situation.

From the other point of view, the internal structure is relevant because only the first portion of the situation is realis with respect to the reference point (either the present moment or a Perfective situation). As we discuss in the next section, one of the senses of the realis forms is that of relative nonfuture. When the entire situation is realis with respect to the reference point, a Perfective form is used; when only a portion is realis, Imperfective is used instead.

In addition to these uses in past and present, both Perfective and Imperfective forms can be used for future situations, although such uses involve complexities that are best postponed until the discussion of the Irrealis. Thus, the association of Perfective with past and Imperfective with present is not due to anything inherent in their meaning, but is simply a matter of customary usage. Both forms can be used, with the same essential aspectual meanings, for situations without regard to their location in time.[6]

In much work on Mixtec, such as Daly 1973:17ff, and the papers in Bradley and Hollenbach (to appear), the Perfective is called <u>Completive</u>, and the Imperfective is called <u>Continuative</u>. The term 'Continuative' should not be confused with the term 'continuous', which is generally used to represent that portion of imperfectivity which is not habitual (Comrie 1976:26, Crystal 1985:247).[7] However, the Mixtec Imperfective (= Continuative) is used for habituality as well as continuousness.

(14) sáʔá   ránìʔ wiko   ta   *Semana Santa.* (Nuy)
     Impf/do 1pe   fiesta every week   holy
     We have a fiesta every (year during) Holy Week.

(15) setu   =yi niaaniⁿ nuu. (Nux)
     Impf/work 3m all   day
     He works every day.

(16) niθaa kuù kúčóoⁿ   =naⁿ. (Tez)
     every day Impf/work 3r
     He/she works every day.

These examples are consistent with the characterization of the Imperfective given earlier, provided that we understand habitual situations as consisting of a macrosituation formed of several component situations. When this macrosituation includes the present moment, it is viewed from the inside out, just as with simple situations in progress in the present.

However, that portion of the macrosituation highlighted by the Imperfective need not be the present moment; it can also be the time referred to by an adverbial phrase, such as 'every May' or 'every year' in (17).

(17) ta   yòo?   Mayú?/kʷìyaˈí
      every month May /year
      Every month of May / every year

      sá?ánoo   =ránì? nùu?ⁿ yu?uⁿ
      Impf/clear 1pe   face ground
      we (excl.) clear the fields

      xee táxi   =ráñ? nùni?.   (Nuy)
      and Impf/plant 1pe corn
      and plant the corn.

To show the unity of meaning of the Imperfective, the same verb form can be used with a nonhabitual reading, which can be forced with the proper adverbial.

(18) wita táxi   =ránì? nùnì?.   (Nuy)
      today Impf/plant 1pe   corn
      We (excl.) are planting the corn today.

Similarly, the Imperfective can be used for habituality in the past, at least in Nuyóo. The following examples are from a discussion of former marriage customs:

(19) xá?a   =ráa ntewísí?...   (Nuy)
      Impf/give 3p soft.drink
      They (the bride's family) used to give soft drinks (to the
            suitor's family)...

(20) ...kʷáno?o =ráa náke?eⁿ =ráa ya?aⁿ.   (Nuy)
      Impf/go   3p Impf/get 3p woman
      ...they used to go get the bride (after the wedding feast
            was over).

As a further clarification of the meaning of the Imperfective, we must add that mere habituality of a situation is not sufficient to place a verb in the Imperfective.

```
(21)  sá    ñ     nee =nì? yuuⁿ nuyóó
      while Perf live 1s  town Nuyóo
      While I lived in Nuyóo,

      xee ñ     yaxi =nì? we?i alwétó?.  (Nuy)
      and Perf eat   1s  house Alberto
      I ate (used to eat) at Alberto's house.
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Since the time span of the macrosituation of habitually eating coincides exactly with the time span of living in Nuyóo, the internal structure of both situations is irrelevant to the discourse. Both can be treated as complete wholes, in the Perfective. In other words, what makes most habitual situations Imperfective is not habituality *per se*, but the coincidence of some other time span (such as the moment of speech) with a portion of the habitual macrosituation, imposing an 'inside out' perspective on it.

These considerations result in interesting pairs such as (11), repeated here as (22), and (23).

```
(22)  iku     ká?wi     wí?í ini  =yaⁿ
      yesterday Impf/worry much inside 3f
      Yesterday, she was very worried

      sá    ñ    nenta =rè?.  (Nuy)
      while Perf arrive 3m
      when he arrived.

(23)  ñ    kà?wi wí?í ini   =yaⁿ
      Perf worry much inside 3f
      She was very worried

      yà    ntu  ñ    kenta =rè? iku.  (Nuy)
      that Neg  Perf arrive 3m  yesterday
      that he didn't arrive yesterday.
```

In (22), the worrying forms a backdrop to a single action of arriving, so 'worry' is in the Imperfective. However, in the very similar (23), the time span of worrying is identical to that of the non-arrival, so Perfective forms are used in both clauses.

A handful of motion verbs meaning 'go' and 'come' in each language make a distinction between two types of imperfectivity, Habitual (sometimes called 'Iterative') and truly continuous, or Progressive.[8] This extra aspectual distinction was first described in Texmelucan Zapotec, another Otomanguean language, by Speck and Pickett (1976).[9] Subsequently, Macaulay (1985) has argued that it is also present in two Mixtec languages, Chalcatongo and Diuxi, and that positing three aspects for verbs of motion solves several problems in an earlier analysis of Diuxi (Kuiper and Merrifield 1975), which only recognized two. In

particular, it allows a straightforward account of the fact that Perfective forms generally represent a round trip, whereas Progressive forms are used for motion in one direction only.

We illustrate with examples from Nuxaɔ and Tezoatlán, for which this analysis also seems to be correct. (The analysis of motion verbs in Nuyóo has not been completed.)

(24) kʷaʔaⁿ =yi nuuⁿ nuwa. (Nux)
Prog/go 3m Oaxaca.City
He went to Oaxaca (and hasn't returned).

(25) nìⁿ sàʔàⁿ nàʔí wíiⁿ =i ninòⁿ káa,
Perf go poor self 1s below there
I went down there, poor me,

níⁿ sà nèʔé =í noòⁿ ití =ì. (Tez)
Perf Dur see 1s face cornfield 1s
and looked at my corn field.
(spoken after returning home)

Under an analysis that posits the extra Habitual/Progressive distinction, all such verbs refer to motion away from a point and subsequent return to the same point. (The differences between the different 'go' and 'come' verbs depend on the location of this point with respect to both the place of speech ('here') and the subject's 'home base', or customary location.) Perfective forms, representing the action as a complete whole, naturally refer to round trips.[10] Progressive forms, being imperfective, refer to a trip in progress at the moment of speech, that is, one that has begun but has not been completed by return to the point of origin. They can also refer to a trip that is begun, but never completed, or whose completion is irrelevant to the discourse. That is, one-way trips are generally expressed in the Progressive, even trips mentioned as one of a series of events in the past, a context that would require the Perfective for other verbs.

(26) niⁿ nakʷiʔnuⁿ =niⁿ lona paa =niⁿ. niⁿ sika =niⁿ.
Perf put.on 1 cloak father 1 Perf walk 1
I put on my father's cloak. I walked.

kʷaʔaⁿ =niⁿ kʷeeniⁿ nuⁿ nee kolo. (Nux)
Prog/go 1 slowly place be turkey
I went slowly to the place where the turkey was.

(27) θa nìⁿ kàki =tí kʷaʔàⁿ-wa =tí. (Tez)
then Perf escape 3a Prog/go 3a
Then he escaped, and went away.

(28) θá nì^n kee =ta kʷa?à^n =ta
    then Perf leave   3m Prog/go 3m
    Then they left, they went,

    nì^n saà =ta ini^n wìni^n yoó^n. (Tez)
    Perf arrive 3m in   pond there
    and they arrived at a pond.

This results in an apparent anomaly in translation between Mixtec and a language (such as English) in which motion verbs are unidirectional. The Progressive form in these examples, even though it is imperfective, is most appropriately translated with a perfective form. Yet, the anomaly disappears when one takes into account the differences in the meanings of the verbs in each language.

Habitual forms of these verbs hold no surprises under this analysis; they simply indicate that a round trip was repeated habitually over a period of time. Note the use of the Habitual alongside an ordinary verb in the Imperfective.

(29) kúú niθaá kuù wa   sá?à^n =ti seí   =ti =á^n. (Tez)
    and every day Intens Hab/go 3a Impf/eat 3a 3n
    And every day he used to go and eat them.

This sentence occurs in a story immediately preceding a sequence of verbs in the Perfective, and forms the background against which the sequence is presented. This shows that the Habitual of motion verbs is imperfective in the same way as Imperfective forms of other verbs.

In general, the Habitual form is morphologically identical to what one would expect as the Imperfective form of these verbs. To the extent that inflection is regular, Imperfective forms consist of the bare Realis form, analyzed in more detail in section 3. That is, the segmental material of these forms is identical to what is found in the Perfective, minus the proclitic **n(i=)**. The same is true of Habitual forms for motion verbs; for example, consider the motion verbs of Tezoatlán in (30).

(30)

	Perf	Hab	Prog	Irrealis
Go from base	nì sà?à^n	sá?à^n	kʷà?à^n	kù?ù^n
Go to base	nì nò?ò^n	nó?ò^n	kʷànó?ò^n	no?ò^n
Come from base	nì kisi	kísi	wàsi	kisi
Come to base	nì nisi	nisi	kònii/	nisi
			kʷè^{n}nisi	

As can also be seen in (30), the Progressive is always morphologically distinct from the Imperfective form of other verbs.

It would appear, then, that the Habitual *is* the Imperfective form of motion verbs. That is, the bare Realis form is generally used with a broad imperfective meaning, but for those verbs which have a special Progressive form, the meaning of this form is narrowed to cover just habituality.[11] Or, to put it another way, the bare Realis form is the general purpose means of indicating imperfectivity, although other, more specific forms (such as the Progressive) may encroach on part of its semantic territory at times, leaving it with a narrower meaning. The meaning of the bare Realis form, which we have glossed either Imperfective or Habitual, is thus 'that portion of imperfectivity which is not covered by a competing form (if any)'.

To sum up, then, the Perfective ignores the internal structure of a situation, and presents it as an unanalyzed whole. The Imperfective, on the other hand, accords prominence to the internal structure of a situation, and in particular, to some subportion of its time span. A few motion verbs make finer distinctions within imperfective aspect, and have special Progressive forms; the Imperfective form of these verbs consequently refers only to habituality.

2.2 Realis vs. Irrealis

We turn now to the Irrealis form, often called 'Potential' in other Mixtec studies. For many verbs, the Irrealis is identical (except for tone) to the Realis form, but for others, the two forms are segmentally as well as tonally distinct. Section 3 discusses the differences in more detail.

The Irrealis designates situations that are nonactual, as opposed to the Perfective and Imperfective, which are used only for actual, or *realis* events. In Mixtec languages, there are three basic ways that situations can be non-actual. They can represent an imposition of the speaker's desires on the world around him, as in a command or wish; they can be statements about situations which are not yet actual (because they are future);[12] or they can be statements about hypothetical (or even contrafactual) situations, as in conditional clauses.

The simplest type of command uses the Irrealis without any additional imperative morphology, and generally lacks an overt subject noun phrase.[13]

(31) ko?o   waaⁿ   (Nuy)
     Irr/drink it
     Drink it!

(32) ko?o   ráń. (Nuy)
     Irr/drink you(pl.)
     (Y'all) drink!

(33) kasi   δita. (Nux)
     Irr/eat tortilla
     Have a tortilla!

(34) koo. (Tez)
     Irr/sit
     Sit down!

(35) kata   =nín. (Tez)
     Irr/dig 2sr
     Dig!

All of the above examples use the bare Irrealis form, without additional modal morphemes, and express a strong, direct, positive command. Positive commands that are more polite, and all negative commands, require special particles or special constructions in addition to the irrealis.

The clearest cases of this are in Nuyóo, where polite commands are not expressed syntactically as commands at all. For example, the most polite way to express a request is to phrase it as a yes-no question in the Irrealis, and to include the morpheme šá, which elsewhere seems to express an extreme degree of an abstract quality.

(36) a kuwí   kuwín   =nú šá   sè?yá =nì?. (Nuy)
     Q Irr/able Irr/care.for 2 **extreme** child 1
     Would you be able to care for my child, please?

However, the most common way of forming a polite command in Mixtec languages is apparently to use the Irrealis preceded by the particle **na(ⁿ)**, which is variously described as 'hortatory' (Bradley 1970:41, Bradley and Hollenbach, to appear), 'subjunctive' (Alexander 1980:35, Macaulay 1987:116-21), 'permissive imperative' (Stark Campbell, Johnson Peterson, and Lorenzo Cruz 1986:164), the 'prefix of permission' (Pensinger (1974:141), or a 'particle of constraint' (Daly 1973:17). Macaulay (1987) suggests the gloss 'Optative' (following Bybee (1985:166)), at least for most dialects. This seems to capture the core of its meaning in Tezoatlán, in that it expresses a wish or desire of the speaker.

(37) nán kuθì   wà?a =nín. (Tez)
     Opt Irr/sleep good   2r
     May you sleep well.

(38) θá   nán saà   ilo,
      then Opt Irr/arrive rabbit
      Then the rabbit will hopefully arrive,

      θá   nán tìiⁿ   =tí kana?à   =tì šaàⁿ. (Tez)
      then Opt Irr/grab 3a Irr/stick 3a there
      and will (hopefully) grab and be stuck there.

In Nuxáa, **naⁿ** almost always occurs when the subject is first
person. When the subject is first person singular, it expresses what
the speaker intends to do.

(39) naⁿ čikʷa?a   =δa =si; tasi   =ni nuuⁿ kee =si. (Nux)
      Opt Irr/measure 1r 3   Irr/give 1 Loc place 3
      I intend to measure it; give me something to put it in.

When the subject is first person plural, the expressed desire can be
understood, by implicature, as a polite command.

(40) naⁿ ki?iⁿ =no. (Nux)
      Opt Irr/go 1
      Let's go! (= May we go!)

In Tezoatlán, on the other hand, **naⁿ** is always optative, without ever
having the force of a command.

Negative commands use various negative particles in place of **naⁿ**.
In Nuyóo, a negative statement in the Irrealis can be used with the
force of a command.

(41) n- kó?o   =ń waaⁿ. (Nuy)
      Neg Irr/drink 2 3n
      Don't drink it! / You are not going to drink it.

More commonly, however, a negative command consists of **(ko)to** 'negative
imperative' followed by, oddly enough, the Imperfective form of the
verb.

(42) koto   táhi   =ń sè?ya =nì?. (Nuy)
      Neg/Imp Impf/give.me 2 child 1
      Don't give me my child!

This use of the Imperfective in what appears to be an irrealis context
remains unexplained. Inasmuch as language-particular categories rarely
coincide completely with universal ones, perhaps no explanation is
necessary; this is apparently just a quirk in the system.

Nuxáa uses the Irrealis with the ordinary negative particle **yaⁿ**
plus a special negative imperative particle **si**.

(43) yaⁿ si   kasi   =ni =si.   (Nux)
      Neg Neg/Imp Irr/eat 2r 3
      Don't eat it!

Tezoatlán uses the Irrealis with **náθá?ani** 'negative imperative' for direct commands, and the milder (k)os(a) for giving advice or suggestions.

(44) náθá?ani ka?ⁿ   =òⁿ.   (Tez)
      NegImp   Irr/speak 2
      Don't speak!

(45) kòs(à) ká?àⁿ   =níⁿ.   (Tez)
      NegAdv Irr/speak 2r
      You shouldn't speak.

In summary, then, with the exception of one construction in Nuyóo, Irrealis forms are used for expressing wishes and commands.

The second major use of the Irrealis is for future situations, those that are not yet actual.

(46) nénù? ke?eⁿ   ránì? aros kaxi?   ránì?.   (Nuy)
      where Irr/buy 1pe   rice Irr/eat 1pe
      Where will we (excl.) buy rice to eat?

(47) ki?iⁿ   =δa kaδi   =δa ya?a.   (Nux)
      Irr/go 1r Irr/grind 1r chili
      I am going to go and grind chili.

(48) ko?òⁿ   =ì kʷiiⁿ   =i yà?aⁿ kasá?aⁿ =i.   (Tez)
      Irr/go 1s Irr/buy 1s thing Irr/eat 1s
      I am going to buy things to eat.

A sentence with the appropriate subject can thus function equally as a statement about the future or as a command. The pragmatic context of such an utterance must be considered to determine if it is a command or statement; the semantic structure of Mixtec does not distinguish the two. Looking at translations into languages like English, which formally distinguish commands and future statements, one might be tempted to say that the Irrealis is ambiguous between the two readings. However, this is not true ambiguity, but simply vagueness. Both commands and future time involve non-actuality; this is all that the Irrealis expresses, without making any finer distinctions.

In subordinate clauses, the Irrealis expresses situations subsequent to that expressed by the matrix verb, i.e. situations that are relative future with respect to the main verb.

(49) íyó   kɨʔɨʔ =nìʔ *tienda*
     Impf/exist Irr/go 1   store
     I was going to go to the store
     (lit., It was existing that I would go to the store),

    soo ñ̀   kinòo =nìʔ weʔi. (Nuy)
    but Perf stay   1   house
    but I stayed home.

(50) satíyúⁿ =ó   nèèʔ kʸaa   =rèʔ. (Nuy)
     Irr/work 1pi until Irr/arrive 3m
     We will work until he arrives.

(51) a. θá   nìⁿ ka?aⁿ =tà θito   nikʷèʔí keí-yáⁿ   =tà,
        then Perf think 3m uncle coyote Irr/eat-DO 3m
        Uncle Coyote thought he would eat him (rabbit),

    tíθo nìⁿ θanàʔí-yáⁿ =tà θito   ilo. (Tez)
    but Perf trick-DO   3m uncle rabbit
    but Uncle Rabbit tricked him.

   b. nìⁿ kaa =tí keí-yáⁿ   =tí
      Perf say 3a Irr/eat-DO 3a
      He said that he would eat him,

      kúú witiwiti-o nìⁿ seí-yáⁿ =tí. (Tez)
      and right.away Perf eat-DO 3a
      and right away he did eat him.

As the examples in (51) show, it is not the actuality of the event from the speaker's point of view at the moment of speech that is relevant in subordinate clauses. The actuality of these situations is judged from the time of the matrix, so that situations subsequent to that represented by the matrix verb are encoded as Irrealis.[14]

Similarly, embedded commands are Irrealis, in that the imperative modality is judged with respect to the matrix subject, not the speaker. In this example, the speaker did in fact go to tend the oxen; the proposition expressed by the embedded command was thus realis with respect to the speaker at the moment of speech. Yet, the Irrealis is used, because the embedded proposition is irrealis with respect to the matrix clause.

(52) niⁿ ka?aⁿ δito =niⁿ
    Perf tell uncle 1
    My uncle told me

        ha ki?iⁿ =niⁿ kunʸa?a =niⁿ njikutu =yaⁿ. (Nux)
        Comp Irr/go 1 Irr/tend 1 oxen 3r
        to go look after his oxen.

A special case of this use for relative future is that all clauses expressing purpose are Irrealis. This can be seen in several examples above, especially when the main verb is a verb of motion; such verbs frequently appear with purpose clauses. However, all of the previous examples involve purpose relative to future situations, so that the purpose clause might also be claimed to use Irrealis because it itself is future with respect to the present moment. The following examples show that Irrealis is also used to express purpose relative to present and past situations. The purpose clauses are in brackets; note that both adverbial and relative clauses of purpose use Irrealis.

(53) tá kiwɨ ké?eⁿ =nì? yutu
    every day Impf/buy 1 wood
    Every day I buy wood

        [(sáwa) sa?á we?i]. (Nuy)
        (for.to) Irr/make house
        to make a house.

(54) na órá? kéne =nú
    what hour Impf/leave 2
    What hour do you leave

        [nasánoo =nú itu]? (Nuy)
        Irr/clear 2 field
        to clean the fields?

(55) kʷiniⁿ =yi ha δiko =yi nuku [či kʷeeⁿ
    Impf/want 3m Comp Irr/sell 3m wood because Irr/buy
    He wants to sell wood, so as to buy

        yi yuku [ha ko?o aδi?i =yi]]. (Nux)
        3m medicine Comp Irr/drink wife 3m
        medicine for his wife to drink.

(56) káwànìóⁿ kasá?á   yu?ù kenu   =ì yà?a [kasá?a =nu]
     lack   Irr/begin I Irr/prepare 1s thing Irr/eat 1pe
     Just before I began to prepare things for us to eat,

     kuu sà   nìⁿ kàsáà wa =na. (Tez)
     and Recent Perf arrive just 3
     they arrived.

Interestingly, there is one type of future situation which is classified as realis. A subordinate clause will generally use realis forms if it is presupposed.[15] This is true whether the main clause is a command or statement.

(57) ni súkʷá?a =nì? sekuntáriá? inka kʷlya?
     while Impf/study 1 secondary   other year
     While I study in the secondary school next year,

     xee kɨ?ɨ? =nì? kaxi   =nì? we?i násúčí =nì?. (Nuy)
     and Irr/go 1 Irr/eat 1   house aunt   1
     I will eat at my aunt's house.

(58) ki niⁿ nani?i =δa ha   niⁿ sewa?a =δa kiδi
     when Perf finish 1 COMP Perf make   1 pot
     When I finish (have finished) making the cooking pot,

     δate kawa?a   =δa iiⁿ šoo. (Nux)[16]
     then Irr/make 1r one griddle
     I will make a griddle.

(59) tá kʷa?à =òⁿ
     when Prog/go 2
     When you go,

     ta ki?i =oⁿ iiⁿ kiló níkà, kì?o ló?ò. (Tez)
     then Irr/get 2 one kilo banana sister little
     get a kilo of bananas, sister.

(60) tá nìⁿ ni?i   nìⁿ siiⁿ =nu tatà,
     when Perf finish Perf buy 1p medicine
     When we finish (have finished) buying medicine,

     θa ko?òⁿ =nu we?e ta Ninfa. (Tez)
     then Irr/go 1p house Dim Ninfa
     then we will go to Ninfa's house.

Apparently the presupposition that some future situation will occur is sufficient to classify it as actual, and thus a realis form is used instead of the Irrealis. It is thus necessary to amend the statement given earlier that Irrealis mood is used for future situations. To be

more precise, Irrealis includes only situations that are asserted in the future.

Note that the basic aspectual distinctions discussed in section 2.1 determine the choice of form here. Progressive with motion verbs is used for trips begun but not completed. Imperfective is used with other verbs for situations whose time span includes that of the main verb. Perfective is used for situations that can be treated as complete wholes, typically because they are terminated before the time of the main verb.[17]

The third major use of the Irrealis is for hypothetical situations, i.e., those that are discussed in general terms, with no claim or presupposition as to their actuality. Mostly, these occur in conditional clauses, in which the main clause serves as the consequent.

(61) ré ke?e^n =nì? t^{y}uú^n wita
      if Irr/buy 1   chicken today
      If I buy a chicken today,

      xee kaxi   =nì? wa^n tee. (Nuy)
      and Irr/eat 1   3Indef tomorrow
      I will eat it tomorrow.

(62) te no^n na^n kasi =δa waa^n ha wiδi
      and if Opt Irr/eat 1r much Rel sweet
      And if I eat a lot of sweets (as I would like to do),

      te kunu?u =δa. (Nux)
      and Irr/fat 1r
      I will be fat.

(63) totá ná^n koo^n θal,
      if   Opt Irr/fall rain
      If it rains,

      kúú nasi   wa   θá?ò^n káa. (Tez)
      and Irr/get.wet Intens clothes those
      the clothes over there will get wet.

Typically, the consequent is also hypothetical, and thus is also Irrealis. However, a hypothetical condition can also be paired with a realis consequent, as in a procedural discourse like a recipe.

(64) ré yà? kaxi? ntayú?ún wí
     if that Irr/eat now   is
     If it's to eat now,

          xee wìtá sá?á   ráa   waⁿ. (Nuy)
          and soft Impf/make 3pIndef it
          then they make it soft.

The Imperfective form in the consequent expresses what is habitually
done under the circumstances expressed by the Irrealis form in the
condition. Because of the habituality, the consequent can be construed
as actual, and expressed with a realis form.

   Closely related semantically to hypothetical situations are
contrafactual ones, i.e., situations that are presupposed to be false.
However, there are extra formal complications with contrafactual
conditions in Mixtec. Surprisingly, many contrafactual conditions
require realis forms, even though they refer to situations that are
presupposed to be nonactual. The contrafactual consequents continue to
be in the Irrealis.

(65) rfá? iyo   šú?ù =nì?
     if   Impf/exist money 1
     If I had the money,

          soo kɨ?ɨ? =nì? siné? yakʷáá? wita. (Nuy)
          but Irr/go 1   movie night   today
          I would go to the movie tonight.

(66) rià? ñ   kuneí Maximiliano ñ   kàntá?áⁿ
     if   Perf win Maximilian Perf fight
     If Maximilian had won the war,

          soo ka?niⁿ   Juarez. (Nuy)
          but Irr/kill Juarez.
          he would have killed Juárez.

(67) totá níⁿ   kóoⁿ θaì,   kúú
     if   Neg/Perf fall rain   and
     If it had rained,

          nasi   wa θá?òⁿ yoóⁿ níⁿ   kúú. (Tez)
          Irr/get.wet Intens clothes those Neg/Perf happen
          the clothes would have gotten wet, (but) it didn't
               happen.

In other contrafactual conditions, however, Irrealis forms are used.
Such sentences are apparently identical to the hypothetical
condition/consequent pairs discussed above.

(68) ré kuu   sàwì yàne?eⁿ wita
     if Irr/fall rain morning today
     If it had rained this morning,

     saa   naxi   nùu?ⁿ yu?uⁿ. (Nuy)
     while Irr/wet face ground
     the ground would be wet (now).

The generalization, which holds in other examples that we have tested, seems to be that the form used in the condition indicates the time at which the contrafactuality of the consequent is evaluated. A Perfective form in the condition indicates that the consequent is contrafactual in the past, i.e., the situation would have happened in the past. An Imperfective form in the condition indicates that the consequent is contrafactual in the future. An Irrealis form in the condition indicates that the consequent is contrafactual in the present.

Although our understanding of these sentences is imperfect, it would seem that in this one corner of the grammar, the three basic mood/aspects are used in a way that is completely different from their ordinary uses. It is probably best simply to accept this as a quirk in the Mixtec modal system, without requiring further explanation for it.

Overall then, with a couple of idiosyncratic exceptions, the Irrealis is used for situations that are nonactual, such as wishes and commands, future situations, and hypothetical or contrafactual situations. Realis forms are used for actual situations. In main clauses, actuality is evaluated from the perspective of the speaker; in subordinate clauses, it is evaluated with respect to the subject and verb of the matrix clause.

2.3 On the nature of Mixtec 'Aspects'

The Mixtec system of 'Aspects', then, can be seen to be dominated primarily by the modal categories Realis and Irrealis. As we have seen, Perfective and Imperfective forms are used only for actual situations (with only minor, idiosyncratic exceptions); and Irrealis forms are used only for nonactual situations. A full characterization of the meaning of the first two forms must therefore include the modal specification that these two forms are realis, at least in their most general usage. On the other hand, the aspectual distinctions, such as perfectivity, are relevant only for the realis forms, not for the Irrealis. Mood is thus more important than aspect in this system, in that the modal specification of realis vs. irrealis must be included in the meaning of all three basic forms, whereas aspectual specifications need only be included for realis forms.

As we pointed out earlier, it is clear that the system is not one of absolute tense. Imperfective forms may be used for past as well as present situations, and both Perfective and Imperfective forms may be used for future situations, if they are presupposed.

It is not so obvious that the system could not be analyzed as one of relative tense, in which Perfective would be analyzed as Relative Past, Imperfective would be Relative Present, and Irrealis would be Relative Future. Many of the uses noted above could be accounted for in this way. For example, in cases where the Perfective is used with future reference in presupposed subordinate clauses, it is always relative past with respect to the situation in the main clause.

Such an analysis falls short in at least two ways. First, it doesn't account for the use of the Irrealis to indicate hypothetical situations, which are essentially timeless. Indeed, if this was a tense system, one might expect a (Relative) Present to be used for hypothetical situations, paralleling the facts in many true tense systems. The fact that one form is used both for future and hypothetical situations shows that it is broader in meaning than Relative Future; it is Irrealis. The relativity that is clearly present is a normal part of modal systems; that is, mood in subordinate clauses is normally evaluated with respect to the matrix subject and verb. (See Chung and Timberlake 1985:241ff.)

Second, an analysis of relative tense fares even more poorly when considering the uses of Perfective and Imperfective together in the same sentence. In all cases, it is true, the Imperfective indicates a situation that is present relative to the situation expressed with the Perfective. However, the Imperfective is not always in a subordinate clause, as would be expected in a system of relative tense. Worse, the Perfective form does not express a situation that is prior to the situation expressed in the Imperfective. Even though relativity enters into the modal distinction which is relevant for comparing the Perfective and Imperfective to the Irrealis, relativity is not important in the aspectual distinctions within the realis domain. Further, an analysis of relative tense would not provide any way of characterizing the difference between Progressive and Habitual forms of motion verbs; aspectual distinctions would be needed at least for these forms.

On the whole then, the system is best analyzed in terms of mood, with aspect secondary. It is not in any way a tense system, either absolute or relative.

3 The formal expression of mood and aspect

The analysis of the Mixtec verb system presented above finds some support in the segmental and suprasegmental facts. This support is not as strong as one might expect, and previous studies have not given much importance to the facts discussed below. Nevertheless, in this section we show the extent to which these facts can be taken in support of the analysis given above according to our present understanding of them.

At least some verbs in Mixtec languages with which we are familiar display the pattern shown in (69) with respect to the segmental alternations.

(69)   Imperfective   Perfective   Irrealis

        B+C   A B+C   D+C

These patterns can be seen in the forms of the verb 'walk' from Tezoatlán given in (70).

(70)   Imperfective   Perfective   Irrealis

        sika   ni^n sika   kaka   'walk' (Tez)

The syllable ka occurs in all forms. However, the syllable si occurs in the Imperfective and Perfective forms and not in the Irrealis form.

We must be quick to point out that most verbs in Mixtec do not show such alternations. Nevertheless, we take these facts as supporting the view that the Imperfective and Perfective forms should be grouped together as realis forms. In fact, at least for a small class of verbs, there is an overt marker of realis mood and an overt marker of irrealis mood. We now turn to the analysis of mood morphology.

The basic division of Mixtec verbs, in our analysis, is along the following lines:

(71)   a.   Regular consonant-initial
        b.   Regular vowel-initial
        c.   Irregular consonant-initial

There are some irregular verbs which do not fit into these groups, which we mention below but of which we do not give an integrated account. As it turns out, the regular consonant-initial verbs are the most numerous across Mixtec, but they are also the verbs which typically reveal the least information about the segmental morphology of mood. The regular vowel-initial verbs preserve some of the segmental information, but it is actually the irregular consonant-initial verbs which give the most information.

The picture which emerges is that in many Mixtec languages the Irrealis mood is marked with a prefix which has two underlying forms: /k-/ and /ku-/. Their distribution is generally not predictable. The Realis mood prefix has one underlying form (except for an occasional irregular verb), which varies throughout the family. In Nuyóo it is /xi-/ and in Tezoatlán and Nuxáa it is /si-/ (where the s is phonetically [š] before front vowels and sometimes all non-low vowels).

In the following sections we discuss the mood morphology of the Mixtec verb as it is found in Nuxáa, Nuyóo, and Tezoatlán Mixtec. The discussion is organized around the three classes of verbs mentioned above.
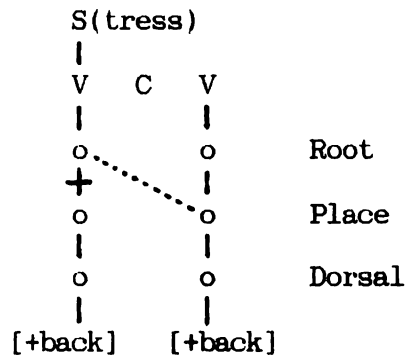
3.1 Irregular consonant-initial roots

The verb roots in the first class which we discuss are all monosyllabic and begin with consonants. Some examples are given in (3). (The missing Tezoatlán forms are not cognate.) Other verbs which usually belong to this group include: -ta 'sing' and -nuⁿ 'run'.

(72)	Nuyóo		Nuxáa		Tezoatlán	
	Irr.	Real.	Irr.	Real.	Irr.	Real.
'walk'	ka-ka	xi-ka	ka-ka	si-ka	ka-ka	si-ka
'throw'	ku-teʔ	xe-teʔ	ku-te	si-te	ku-te	si-te
'clear field'	ku-tu	xi-tu	ku-tu	si-tu		
'take care of'	ko-to	xi-to	ko-to	si-to		

We take the underlying form of the allomorphs ku-, ko- and ka- to be /ku-/. The surface forms are derived by the rule given in (73) which is a rule of complete vowel harmony (via the Root node) formulated in current feature notation (Clements 1985, Sagey 1986, Archangeli, to appear).

(73) Vowel Harmony (Nux, Nuy, Tez):

```
S(tress)
|
V   C   V
|       |
o.      o      Root
+  ·..  |
o     ·.o      Place
|       |
o       o      Dorsal
|       |
[+back] [+back]
```

The reason for positing the prefix /ku-/ exclusively with these verbs is based on the observation that there are no inflected verbs of the shapes **ku-ka**, **ka-to**, or **ko-ku** superficially in these languages. The underlying form ku- is necessary for verbs like **ku-te** 'throw'. Rule (73) accounts for all of the data without positing any other underlying form.

In Nuyóo we see an additional vowel harmony rule operating in the Realis form, with i changing to e before a root with e. (This harmony rule may be collapsible with the previous rule, although we do not collapse the rules here.)

(74) Vowel Harmony (Nuy):

```
V   C   V
|       |
o.      o
+  ·..  |
[-bac] [-bac]
       [-hi ]
```
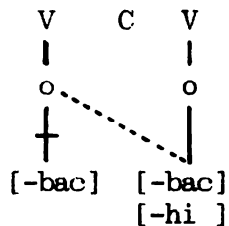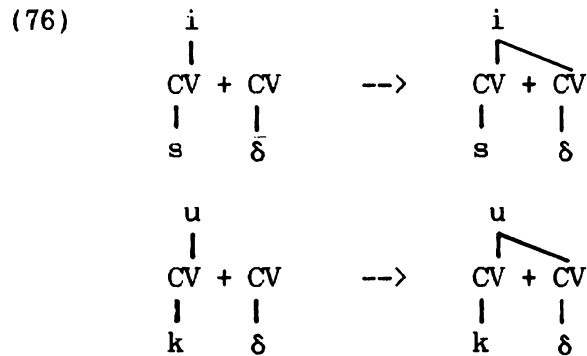
The phonological alternations are more radical with the verbs 'drink' and 'sleep', as shown in (75). No vowel remains constant and the two vowels in any verb form are identical. (Nuyóo also has an irregular allomorph of the realis prefix with the verb 'sleep': **ki-**.)

(75)

	Nuyóo		Nuxáa		Tezoatlán	
	Irr.	Real.	Irr.	Real.	Irr.	Real.
'drink'	koʔo	xiʔi	koʔo	siʔi	koʔo	siʔi
'sleep'	kusuʔ	kisiʔ	kuðu	siði		

We propose that these verbs contain an underspecified vowel position in the root which is associated with the vowel of the prefix,

as shown in (8). This analysis assumes the segregation of vowels and consonants into different planes (see McCarthy 1986, to appear). The lowering of the u to o in the Irrealis form of 'drink' is not directly accounted for, however; another rule (not given here) is necessary.

(76)

```
        i                      i
        |                      |‾‾＼
     CV + CV      -->       CV + CV
     |    |                 |    |
     s    δ̄                 s    δ


        u                      u
        |                      |‾‾＼
     CV + CV      -->       CV + CV
     |    |                 |    |
     k    δ                 k    δ
```

The phonological alternations which these verbs illustrate are not shared by other consonant-initial roots. The irregularity of the members of this class of verbs appears to be related to the fact that they all have monosyllabic roots superficially. This is not true of the great majority of roots (verb or noun); Mixtec roots are typically bisyllabic superficially. If we assume that stress is usually assigned to the penultimate (or only) syllable of the root, then these roots are irregular in that they throw stress back leftward one more syllable, onto the prefix. The result is a stressed prefix vowel which does not undergo the deletion rules described for regular consonant-initial roots below.[18]

3.2 Vowel-initial roots

Vowel-initial verb roots are not as common as consonant-initial roots in Mixtec, but like the verbs of the previous class they display the mood morphology we are proposing. All of them are polysyllabic superficially. Most take the /ku-/ allomorph of the Irrealis morpheme (underlyingly); the exceptions are some a-initial verbs, some of which take /ku-/ (which surfaces as kʷ) and some of which take /k-/. Some vowel-initial roots are given in (77), grouped by the initial vowel of the root. (Some gaps are due to the fact that the language in question does not have the cognate root. Others are due to the fact that the language does not have roots beginning with that vowel. In some cases, our data are simply incomplete.)

(77)   Realis   Irrealis

a.   i-initial

	Realis	Irrealis	
Nux	s-i?ni^n	k-i?ni^n	'tie'
Nuy	x-i?ni?^{n}	ku?-ni?^{n}	'tie'
Tez	s-i?o	k-i?o	'give'

b.   e-initial

Nux	s-e?ne	k-e?ne	'harvest, cut'
Nuy	x-e?ne?	k-e?ne?	'cut'
Tez	(none)		

c.   o-initial

Nux	s-oδo	k-oδo	'water'
Nuy	y-oso?	k-oso?	'be on'
Tez	s-o?ni^n	k-o?ni^n	'tie'

d.   u-initial

Nux	(none)		
Nuy	y-unu?^{n}	k-unuʔ^n	'love'
Tez	(none)		

e.   a-initial

Nux	s-eδi	k-aδı	'close'
Nuy		k-asɨ	'close'
Tez	s-aθi	k-aθi	'close'
Nux	s-e?ni^n	k-a?ni^n	'kill'
Nuy		k-a?ni^n	'kill'
Tez	s-a?ni^n	k-a?ni^n	'kill'
Nux	s-esi	k-asi	'eat'
Nuy	y-axi	k-axi	'eat'
Tez	s-asi	k-asi	'eat'
Nuy	x-aku?	k^w-eku?	'laugh'
Tez	s-aki	k^w-aki	'laugh'
Nux	s-e?e^n	k^w-a?a^n	'go'
Nux	s-e?e	k^w-a?a	'give'
Nuy	x-a?a	ku?-wa	'give'
Nux	s-eni^n	k-ani^n	'lay'
Nux	s-eδe	k-aδa	'do'

Nux	s-ee	k-aa	'rise'
Nuy	x-e?ne?ⁿ	k-e?ne?ⁿ	'cut'

The allomorph **y** of the Realis prefix appears only in Nuyóo (of these three languages) and only with verbs which begin with round vowels. We take it as a suppletive allomorph and do not discuss it further here.

In Nuyóo and Tezoatlán, as in most other Mixtec languages apparently, the vowel of the Realis prefix (/xi-/ (Nuy) or /si-/ (Tez)) simply deletes before a vowel-initial root. The rule, given in (78), also applies in Nuxáa, although it interacts with another rule that we discuss below. (Under assumptions of Strict Cyclicity, rule (78) applies only to derived vowel clusters.)

(78) Vowel Deletion (Nux, Nuy, Tez):

V --> Ø / ___ V

The **u** of the prefix /ku-/ does not delete by rule (78), however; underlying /ku-aki/ 'Irr-laugh' (Tez) surfaces as **kʷaki**. We assume that the prefix /ku-/ syllabifies as **kʷ** before rule (78) applies in Nuxáa and Tezoatlan.

In Nuyóo the sequence /ku-V?.../ surfaces as **ku?** (see the verb 'give' and 'tie'); the vowel of the root simply deletes by a rule which applies before Vowel Deletion (78). This rule is given in (79), where **?** stands for the feature [constricted glottis] in the laryngeal tier. This feature is retained although the root-initial vowel is lost.

(79) Root Vowel Deletion (Nuy):

V   V
| +
o.   o
| `. / \
o   o o
| | |
u   ? [-lab]

The surface forms of Irrealis forms of verbs beginning with u and o are predictable regardless of which underlying form is chosen (/k-/ or /ku-/). Since Mixtec has a general ban on two tautosyllabic labial segments, underlying sequences /ku-u.../ and /ku-o.../ could not surface as kʷ-u... and kʷ-o...; in both cases the Irrealis prefix surfaces simply as **k**.
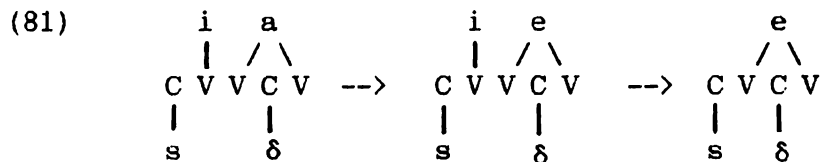
Stems beginning with **a** in Nuxáa are e-initial in the Realis form. We assume here that there is spreading of the feature [-back] from the

i to the a and that the prefixal vowel deletes by Vowel Deletion (78).
This spreading rule is shown in (80).

(80) Raising (Nux):

```
        V       V
        |       |
        o     ͵o
        |͵ˌ⁻⁻ ͵͵  ┼
     [-back] [+low]
```
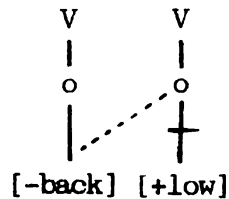
When both syllables of a root contain the vowel **a**, as with the
root /-aδa/ 'do', both vowels become **e** in the Irrealis. This
alternation is readily accounted for without an extra rule if we assume
the Obligatory Contour Principle and a multiplane analysis of consonants
and vowels (McCarthy 1986, to appear). Under these assumptions, the
features which constitute the vowel **a** appear only once in the root for
'do' since the vowels and consonants are segregated on different planes
and contiguous identical elements are prohibited. The analysis is
illustrated in (81).

(81)
```
            i    a              i    e                  e
            |   / \             |   / \                / \
           C V V C V   -->   C V V C V   -->   C V C V
            |     |            |     |              |    |
            s     δ            s     δ              s    δ
```

3.3 Regular consonant-initial roots

The most common verb roots in Mixtec belong to what we call the
regular consonant-initial class. They do not throw the stress back,
unlike the verbs in the irregular consonant-initial class, and these
roots are superficially always polysyllabic. (See note 18.)

The most notable fact about the mood morphology with these verbs
is that it often does not show up at all. One analysis would be to
posit suppletive zero allomorphs of the mood prefixes for these verbs.
Another analysis (more in line with what previous analysts have done) is
to take the entire verb form as an indivisible form. Another
alternative, which we adopt here, posits the same underlying forms as
for the previous verbs and takes advantage of the phonological shape and
prosodic structure of these words to account for the surface forms. Our
analysis makes use of Stray Erasure, where unlicensed segments are
deleted at the end of the phonological cycle. For example, it is
predictable that the prefix /k-/ will not surface in Mixtec before
consonant-initial roots since it cannot be syllabified. (Most Mixtec
languages have a simple CV syllable as the maximal syllable, and none
licenses consonant clusters such as kt or kn.) If we assume that in
most languages an unstressed pretonic i is deleted, the deletion of the

fricative consonant of the Irrealis prefix is also explained by Stray Erasure. Stray Erasure is only circumvented if some other rule, such as an epenthesis rule, applies so as to create a structure in which the stray consonant will be licensed by the prosodic structure. Therefore we posit the following deletion rule for all three varieties of Mixtec:

(82) Deletion (Nux, Nuy, Tez):

$$
\begin{array}{c}
\text{W(eak) (unstressed)} \\
| \\
\text{V} \longrightarrow \emptyset \ / \ \underline{\qquad} \ \text{C V} \\
| \\
\text{i}
\end{array}
$$

This rule deletes only segmental material, not tones. In fact, the tonal evidence seems to support this 'abstract' analysis for regular consonant-initial roots. It appears to be the case that the Realis prefix is composed of the phonemic melody /si-/ (or its cognate) and a high tone (or its cognate -- our personal knowledge of Mixtec tone systems is very slight). The segmental material may delete under the conditions described above but the tonal material remains and is associated with the verb root, causing some widely attested tone sandhi in which high tone participates. (An alternative analysis for this tone is sketched out in the following section.) Some typical examples of regular consonant-initial roots are given below.

(83) (Tez)	Realis	Irrealis	
a.	kani^n	kani^n	'hit'
	θiko	θiko	'sell'
	noto	noto	'wake up'
	kawaʔa	kawaʔa	'do'
b.	naka	ka-naka	'take care of'
	nati	ka-nati	'wait for'
	kuu	ka-kuu	'be'

(84) (Nuy)	Realis	Irrealis	
a.	saʔa	saʔa	'do, make'
	tutuʔ	tutuʔ	'whistle'
	kaʔa	kaʔa	'talk'
b.	nee^n	ku-nee^n	'hold in arm'
	yatuʔ	ku-yatuʔ	'hurt'
	niso	ku-niso	'carry'

W believe that these roots indirectly display both allomorphs of the
I ealis prefix; underlying /k-/ surfaces as null (deleting by Stray
 .sure), and underlying /ku-/ as ka- in Tezoatlán by rule (85). (This
 le might alternatively be formalized as a delinking of the vowel

features which are specified underlyingly; the default feature specification would yield the surface vowel **a**.)

(85) Lowering (with unrounding) (Tez):

```
W(eak)  (unstressed)
 |
 V  -->  V  /  __ [ C
 |       |
 u       a
```

We do not take the vowel **a** as epenthetic for two reasons. First, in other Mixtec languages, (e.g. Ñumí), the **u** usually lowers to **o**. Therefore we know that a lowering rule is operative in some languages. Second, no epenthetic vowel occurs in the Realis form. Therefore we have no reason to believe that Stray Epenthesis (the epenthesis of a vowel before a stray consonant) is operative in Tezoatlán, unlike in Nuxáa (see below).

The regular consonant-initial verbs of Nuxáa divide into two groups. In the larger group, Stray Epenthesis is also not operative, as in the other two languages. Examples are given below.

(86) (Nux) Realis   Irrealis

           kani[n]   kani[n]   'hit'
           δiko   δiko   'sell'
           noto   noto   'wake up'

In the smaller group of verbs in Nuxaa, Stray Epenthesis is operative.[19] The inserted vowel is **e** after **s**, and **a** after **k**.[20]

(87) (Nux) Realis   Irrealis

           se-čii   ku-čii   'bathe'

           se-wa?a   ka-wa?a   'make'
           se-tone   ka-tone   'try'
           se-nodo   ka-nodo   'put'
           se-δini[n] ka-δini[n] 'have supper'

3.4 Perfective and Imperfective aspect

In many Mixtec languages Perfective morphology consists of the (usually optional) morpheme ni[n] (or its cognate) and a tone (Mid in some languages, Low in Nuyóo) which is associated with the verb (first syllable in some languages) and which is not optional. The fact that the presence of the tone is not dependent on the presence of the morpheme ni[n] seems to indicate that the tone alternations in Perfective

forms are not due to a tone stranded by the deletion of segmental material.

The morpheme niⁿ has sometimes been treated as a prefix and sometimes as a separate word, and it is certainly possible that it must be analyzed differently in different languages. We believe that it is probably best in most cases to take it as a phonologically dependent word, a clitic. In most languages it apparently cliticizes to the verb which follows it. In Nuyóo, however, it cliticizes to the preceding word since a pause may follow it but may not precede it.

We assume that Imperfective aspect is not marked directly. As mentioned in the previous section, a high tone typically occurs on Imperfective forms. We take this tone to be directly related to the high tone which occurs with the prefix /si-/ or its cognate and assume that Perfective aspect displaces it. An alternative analysis would take the High tone of the Imperfective form as a morpheme indicating Imperfective aspect and which is mutually exclusive with the tone indicating Perfective aspect. It is likely that only a very complete analysis of the tone sandhi patterns in Mixtec would allow us to choose between these alternatives.

Examples of Perfective and Imperfective aspect are given below. Surface tones are marked for Nuyóo and Tezoatlán, but not for Nuxáa. Unfortunately, analyses of the tone patterns in these languages are just beginning; therefore we are able only to point out that these languages follow the general patterns sketched above.

(88)   Imperfective Perfective

(Nux)

a.   s-i?niⁿ   niⁿ s-i?niⁿ   'tie'
      si-ka   niⁿ si-ka   'walk'

(Nuy)[21]

b.   x-á?a   ǹ x-à?a   'give'
      x-í?ní?ⁿ   ǹ x-i?ni?ⁿ   'tie'
      xí-ka   ǹ xì-ka   'walk'

(Tez)

c.   s-a?níⁿ   nìⁿ s-à?niⁿ   'kill'   (Irr: k-a?níⁿ)
      sí-kà   nìⁿ si-kà   'ask for' (Irr: ka-kà)
      s-í?o   nìⁿ s-ì?o   'give'   (Irr: k-ì?o)
      káníⁿ   nìⁿ kaniⁿ   'hit'   (Irr: kaniⁿ)

NOTES

[1]Mixtec languages are spoken in various regions in south central Mexico, chiefly in the state of Oaxaca. Together with Cuicatec and Trique, they form the Mixtecan family of the Otomanguean phylum (Longacre 1957, Campbell 1979). The various Mixtec languages are frequently referred to as 'dialects' of Mixtec; however, mutual intelligibility in different parts of the Mixtec region is sufficiently low to establish many of them as distinct languages (Egland 1972:25-37).

[2]This collaboration began in a workshop which we directed at the Summer Institute of Linguistics in Tucson in the spring of 1988. The people listed in (1) are conducting on-going research on these languages under the auspices of the Institute. This paper has also benefited from many helpful suggestions and comments by Barbara Hollenbach. Finally, we wish to acknowledge the contribution of those many native speakers who have generously and patiently shared their knowledge with us and our colleagues.

We have attempted to use a common orthography for all three languages, whose phonologies are for the most part very similar. However, the tonal systems of the three languages differ radically, and are not sufficiently analyzed at this point to make definitive statements. Indeed, the system in Nuxáa is too complex to even notate tone at this point, and we have provisionally adopted a transcription system that assumes three tones in Nuyóo and Tezoatlán (´ high, ` low, mid unmarked), although there is a possibility of a fourth tone in both systems. No conclusions should be drawn from our transcription of tone, beyond those that we indicate in the text.

Through the Mixtec family, all morphemes are classified in the lexicon either as nasal or oral (Marlett, in preparation); we have written nasal morphemes with a superscript final 'n' ([n]). Nasalization of a morpheme is realized phonetically by spreading leftward through sonorants (with a few exceptions) from the end of the morpheme. Besides nasalizing vowels, this spreading also selects the nasal allophones of three consonants.

	Oral words	Nasal words
/n/	n^d	n
/y/	y ~ ž	n^y
/w/	β ~ v	m

The only exception to this is in Nuyóo, where [n] occurs in both nasal and oral words as the only allophone of /n/; there is no [n^d]. Low level phonetic rules sometimes obscure the effects of nasal spreading, either nasalizing or removing nasalization from vowels adjacent to nasal consonants. For more details, see Williams and Williams 1988 (Tezoatlán) and Hugghins and McKendry 1988 (Nuxáa).

Clitics abound in these languages. For the most part we have written them as separate words, sometimes adding an equal sign (=) to indicate phonological dependency. This is especially true for pronominal clitics, which occupy syntactic positions such as subject, object, and possessor, but are phonologically dependent on the items to their left. The clitic pronouns may, under some circumstances, be replaced with various types of free pronouns, some indicating emphasis, others simply providing more semantic information (such as number) not available in the clitic pronouns. Clitic pronouns are glossed with a number indicating person, followed by one or more of the following abbreviations:

s	singular (non-honorific)
p	plural (non-honorific)
1pi	1st plural inclusive
1pe	1st plural exclusive
r	respect (singular or plural)
m	masculine (adult)
f	feminine (adult)
n	neuter
c	child
a	animal
i	inanimate
Indef	indefinite

Free pronouns are glossed either by the above abbreviations, or by the closest English equivalent.

The following additional abbreviations are the most important ones used in glosses. (The meanings of others are obvious from context.)

Hab	Habitual
Imp	Imperative
Impf	Imperfective
Irr	Irrealis
Neg	Negative
Opt	Optative
Perf	Perfective
Prog	Progressive

[3] Throughout, we use capitalized words (e.g. 'Perfective', 'Aspect') to refer to language-particular grammatical categories, i.e. convenient labels attached to specific elements in Mixtec. Words entirely in lower case (e.g. 'perfective', 'aspect') are used to refer to categories defined independently of individual languages. Our goal is to characterize the language-specific categories in terms of the universal ones.

[4] Throughout, we use 'situation' as a cover term for events, states, and processes.

[5] This characterization of the perfective/imperfective distinction is based on Comrie (1976:16-24). There, he argues for this characterization as opposed to various others, such as punctiliar vs. durative, short vs. long (in absolute terms), or completed vs. not (yet) complete. Indeed, Nuxáa has explicit morphology which indicates a situation as not yet complete, which is independent of the perfective/imperfective distinction. For an alternative characterization of perfectivity in terms of 'closure', see Chung and Timberlake (1985:217,219).

[6] We have found no uses of the Perfective with present time reference. However, we attribute this to the fact that (virtually) all situations occupy some time span with nonzero length, while the present moment is apparently treated linguistically as having zero length. It is extremely unlikely that any presently occurring situation would be represented as a complete whole, or viewed 'from the outside in'. The prominence of that portion of the situation which coincides with the present moment is simply too great for it to be ignored, as it would with a Perfective form. Even if there are verbs which are inherently momentary, such as verbs of arrival (cf. Macaulay 1985), it would be difficult to distinguish present reference of a perfective form from immediate past reference, e.g. 'He arrives' vs. 'He just arrived'.

[7] Similarly, as Barbara Hollenbach has pointed out, 'Imperfective' should not be confused with the 'Imperfect' in languages such as Spanish, which in our terms is a *past* imperfective.

[8] Inasmuch as these are motion verbs, the normal way to achieve habituality is by iteration, so that either label is appropriate. Further, since these verbs are dynamic, the Progressive could equally be called 'Continuous'. (On the importance of dynamicity to the distinction between progressive and continuous, see Comrie (1976:32-35) and Chung and Timberlake (1985:218-9).) We avoid the term 'Continuous', because of the frequent use of 'Continuative' in Mixtec studies to designate the Imperfective.

[9] Kent Wistrand apparently also noticed it about this time, but we don't know who discovered it first.

[10] In Tezoatlán, Perfective forms are sometimes used for one-way motion. That is, motion verbs in this language seem to be developing senses in which return to the point of origin is not important.

[11] This provides a further reason for not confusing the term 'Continuative' (= Imperfective) with 'continuous', inasmuch as 'continuous' means 'non-habitual'. That is, the Continuative of motion verbs is specifically not continuous.

[12] It may seem odd to include future time as one instance of a category of mood. However, the usage is justified in that many languages do not distinguish between irrealis mood and future tense. Even in English, future tense has an extended sense to refer to present situations which are very likely but not known to be actual.

John will (most likely) be married by now.

If 'mood' is defined as morphology which expresses the actuality of a situation, then future can plausibly be seen as one type of nonactuality. Languages, then, differ in what is classified as nonactual for the purposes of a particular modal system, and thus terms like 'realis' and 'irrealis' will always require definition with respect to a particular language. (Cf. the discussion in Chung and Timberlake 1985:243ff.)

[13] We have not been able to discover all the factors that determine whether the subject will be overt or absent in particular sentences. When absent, it is always understood to be a second person pronoun; i.e., only second person pronouns can be omitted. However, the exact details vary considerably in the three languages, due in part to the differences in their pronominal systems.

[14] The relative future sense of the Irrealis also comes out in some discourses, where the reference point from which the actuality of a proposition is judged is apparently in some other sentence. For example, the following is from a text describing former marriage customs.

kenta   =raa kuk^{w}éntu =raa
Irr/arrive 3p Irr/chat 3p
They would arrive and chat

xií^n tátá? ya?a^n. (Nuy)
with father woman
with the father and mother.

Such uses are not yet well understood.

[15] By presupposition, we mean that portion of the meaning of the whole sentence which is stable under negation and yes-no questioning. It is material that is assumed to be known and accepted as true by both speaker and hearer.

[16] In Nuxáa, the use of realis forms for presupposed situations can be overridden by including the optative particle na^m. In Nuxáa, this particle is frequently used in contexts where other Mixtec languages would not use it. It always seems to express the desirability of the situation, from the point of view of the speaker, and always takes the Irrealis.

```
ki   naⁿ kuu  =nuⁿ ha  kučii   =nuⁿ,
when Opt finish 3f   Comp Irr/bathe 3f
When she finishes bathing,
```

```
δate ki?iⁿ =niⁿ ha  kučii   =niⁿ.  (Nux)
then Irr/go 1   Comp Irr/bathe 1
then I can go (to) bathe.
```

[17]Certain clauses in Nuyóo seem to have both a presupposed temporal ('when') interpretation and a hypothetical ('if') one. At any rate, we have not been able to determine any way to distinguish the two interpretations in conversations with our Nuyóo consultant. In both interpretations, Irrealis forms are used in the subordinate clause.

```
ré  kikaⱳa       =nì? yakʷáá? ⱳita
if  Irr/lie.down 1   night    today
If/when I lie down tonight,
```

```
(soo) kusu      ⱳà?a =nì?.  (Nuy)
 but  Irr/sleep good 1
I will sleep well.
```

It may be that 'when' clauses simply do not exist as such, and hypothetical 'if' clauses have expanded their meaning slightly to fill the void. Whatever the explanation, this represents a possible exception to the analysis given in the text. Note, however, that in Nuyóo temporal clauses beginning with **ni** 'while', realis forms are used, as in (57).

[18]Regular consonant-initial roots may also be monosyllabic underlyingly, in our view, but they retain the stress and undergo a lengthening rule. This rule changes underlying CV to CVV and underlying CV? to CV?V.

[19]This division of the lexicon is reminiscent of that found in Zapotec languages (Marlett and Pickett 1987).

[20]An alternative which is worthy of consideration takes the **se** as an allomorph of /si-/ by a lowering rule rather than by epenthesis. Another alternative which might be considered would posit roots beginning with **a** for verbs like 'make', /-aⱳa?a/. Raising (80) and vowel deletion (78) would account for most of the surface allomorphy. The main problem with this alternative is that it does not account for the **e** in the Realis form of the verb 'bathe'.

[21]The segment **x** is often deleted phonetically when it is preceded by the Perfective morpheme **n** in Nuyóo.

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