

The “s”-ence of Pima
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Goals:

- Show that the grammaticality of the *s*- morpheme in Pima correlates best with stative lexical aspect
- Show how stativity in Pima compares cross-linguistically.
- Discuss some of the difficulties in formally analyzing the *s*- within a non-Lexicalist framework (Distributed Morphology).

1. Introduction

- Pima is a language of the Tepiman branch of Southern Uto-Aztecan, spoken in central and southern Arizona.¹ Pima and its close relative Papago (or Tohono O'odham) have been described as dialects of a single language, O'odham (e.g. Saxton 1982).
- Although Papago has been previously documented, very little work has been done to characterize Pima specifically. The data presented here, however, is taken entirely from Pima.
- One interesting morpheme shared by Pima and Papago has the phonological form *s*-, which occurs in certain syntactic environments on many adjectives and a small set of verbs.
- The best description of the set of stems which license this morpheme appeals to the lexical aspect of the stems—specifically, the factor which seems to license the *s*- is stativity.
 - ↳ Zepeda (1983) has claimed that the *s*- in Papago indicates stativity, though Saxton (1982) describes it as a positive polarity item indicating the affirmative for an arbitrary class of stems. Although Zepeda's correlation with stativity does hold for many stems, the grammaticality of the *s*- may be arbitrarily determined for a small number of stems.
- The set of stems which license the *s*- in Pima, however, is distinct from the sets of stems in other languages which are claimed to be stative; for Pima, factors of volitionality and controllability seem to be less important than lexical aspect.
- An analysis within Distributed Morphology (a non-Lexicalist theory of

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morphology) which treats the *s*- as a verb class prefix requires that the relevant feature of the stem is able to percolate higher than the projection which mediates object agreement.

2. Pima clause structure

- Word order in Pima is relatively free; all six possible orders of subject, object, and verb are judged acceptable in simple transitive sentences. (Munro 1984)
- Most indicative sentences include a second-position auxiliary which indicates subject agreement, aspect, and optionally modality and evidentiality.
- Object agreement is indicated by a marker on the main verb. (Agreement has no phonological expression for third person singular subjects or objects.)

- (1) **First position** **Auxiliary**
 Ha-pad:-c 'a-n-t heg heñ-gook kakalit.
 3p:OBJ-bad-CAUS:PFV A-1s:SUB-PFV DET 1s:POSS-two RED:car²
 'I wrecked my two cars.'

- Elements which may occur in first position include argument DPs, VPs without objects (verb, floated quantifier + verb, adverb + verb, postposition + verb), PPs, complementizers, and certain grammatical particles (e.g., focus particle *ge*, clausal negation *pi*, intensifier *si*). Pima, unlike Papago, does not allow object agreement markers alone to occur in first position.

3. Where the *s*- is preferred

- The *s*- morpheme is preferred on a certain set of verbs and adjectives in simple, indicative, non-negated sentences.

- (2) Hega'i gogs 'o ge³ s-'oam.
 that dog IMP FOC ST-brown
 'That dog is brown.'

²Data is presented in the orthography currently used by the UCLA Pima group. All Pima examples taken from Avelino *et al* (2001). A colon is part of a digraph in the orthography, but is also used in glosses where morphemes are not readily segmentable. Where glosses are not one-to-one, multiple words are joined with ' '. Abbreviations: 1s = first person singular, 2p = second person plural, etc., -1 = non-first person; A = filler vowel in auxiliary, ADV = adverbial, CAUS = causative, CMD = imperative, COMP = complementizer, COP = copula, DET = determiner, DEF = definite, DSD = desiderative, DXS = deictic particle, FOC = focus, GA = alienable possession, HSY = hearsay, IMP = imperfective, INCEP = inceptive, INCH = inchoative, INDEF = indefinite, IO = indirect object, IRR = irrealis, NEG = negative, NOM = nominalizer, NT = non-transitory, OBJ = direct object, PFV = perfective, POS = possessive, PROG = progressive, RED = reduplicated, REF = reflexive, SHD = shared knowledge, ST = stative (hypothetical—this gloss is always used for the *s*- prefix), SUB = subject, T = true characteristic, VB = verbalizer.

³ Here I follow Shademan (2001) in glossing *ge* as FOCUS.

- (3) Hega'i s-'oam gogs 'o koosh.
that ST-brown dog IMP sleep
'Your brown dog is sleeping.'

- (4) S-hem-heegam 'a-n-t.
ST-2s:OBJ-jealous A-1s:SUB-PFV
'I am jealous of you.'

Note that the *s-* is separated from the stem by the object agreement morpheme.

- The *s-* is preferred even on derived forms of these verbs and adjectives.
- (5) Mary 'a-t baga-t heg 'e s-heegam-k kun wui.
A-PFV angry-PFV DET 1:REF:POSS ST-jealous-NT husband to
'Mary got angry at her jealous husband.'
- (6) Microsoft 'o si s-heegm-am ñuukud heg 'e
IMP very ST-jealous-ADV guard DET ¬1:REF:POSS
'a'agidag.
RED:secret
'Microsoft very jealously guards its secrets.'
- The set of morphologically simple roots which license the *s-* prefix appears to be almost entirely composed of stative predicates:
- (7) **Adjectives:**
s-'a'agig 'secret', *s-ape* 'good', *s-baga* 'angry', *s-balvañ* 'grooved',
s-bihug 'hungry', *s-biitagi* 'dirty', *s-ceedagi* 'blue, green', *s-cug*
'black', *s-doa* 'alive', *s-eepid* 'cold', *s-gaki* 'skinny, dry', *s-geevkog*
'tired', *s-gevk* 'strong', *s-giig* 'fat', *s-hasig* 'difficult', *s-heegig*
'happy', *s-hotk* 'quick', *s-huug* 'warm', *s-'iovi* 'sweet', *s-juhagi*
'stretchy', *s-juuk* 'deep', *s-keegaj* 'beautiful', *s-ko'osig* 'sleepy',
s-mohogid 'itchy', *s-moik* 'soft', *s-namkig* 'expensive', *s-ñenashan*
'energetic', *s-'oam* 'yellow, brown', *s-pad:ma* 'lazy', *s-peheg* 'easy',
s-sheliñ 'straight', *s-tadañ* 'wide', *s-toa* 'white', *s-toñ* 'hot', *s-tonom*
'thirsty', *s-'uuv* 'smelly', *s-veec* 'heavy', *s-vegi* 'red', *s-vohom*
'correct', *s-wuilogi* 'albino'

Intransitive and Reflexive verbs:

<i>s-baabgii</i> 'slow'	REFLEXIVE: 'be careful'
<i>s-cuhugi</i> 'go dark'	REFLEXIVE: 'faint'
<i>s-'e-mamce</i>	REFLEXIVE: 'study'
<i>s-'e-vamcud</i>	REFLEXIVE: 'be nasty'

Transitive verbs:

s-'amicud 'understand', *s-'eebid* 'fear', *s-heegam* 'jealous', *s-hoohid*
'like', *s-kaim* 'be interested in', *s-ko'ok* 'be pained by', *s-maac*
'know', *s-naak* 'like the taste of', *s-ñeñed* 'watch over', *s-'oohod*
'reject, separate oneself from'

WHAT IS STATIVITY?

- Dowty (1979) explores Vendler's (1967) classification of predicates into four lexical aspects: *states*, *activities*, *accomplishments*, and *achievements*. These can be loosely characterized as follows (examples of each class are taken from Dowty 1979; not all characteristics for each class are shown here):
- (8) **state:** an inactive property holding over an interval of time
➤ can be used with *for an hour*
➤ cannot be used with *in an hour*
➤ do not have habitual interpretation in simple present (in English)
➤ may not occur in the progressive (in English)
Examples: *be red*, *be like*, *know*, *be located*
- activity:** an action holding over an interval of time
➤ can be used with *for an hour*
➤ cannot be used with *in an hour*
Examples: *be brave*, *be a hero*, *roar*, *run*, *seek*
- accomplishments:** an action culminating in an instantaneous event
➤ can be used with *for an hour*
➤ can be used with *in an hour*
Examples: *uncover*, *build*, *run a mile*, *paint a house*
- achievement:** an instantaneous event
➤ cannot be used with *for an hour*
➤ can be used with *in an hour*
Examples: *reach the summit*, *notice*, *awaken*, *realize*
- Some predicates may have different uses which fall into different classes; in addition, the presence of other constituents can cause a predicate to fall into a different class (*run*, an activity, compared with *run a mile* and *run to Phoenix*, accomplishments).
 - Dowty's class of states will be examined in more detail in section 5.

DERIVED STATIVES

- At least six derivational morphemes also appear to license the *s-*. Most of these result in stems with non-active meanings.

-dag 'be able to'

attaches to verbs to make verbs of the same transitivity

- (9) Hega'i 'o'odham 'o med:.
that man IMP run
'That man is running.'

- (10) Hega'i kalit 'o s-mel-dag.
that car IMP ST-run-able.to
'That car is fast.' (*lit.* That car can run.)
↘ This suffix can apparently attach to nouns as well, to make verbs meaning "be *noun*-like"
- (11) 'Oola 'o s-namkig.
gold IMP ST-expensive
'Gold is valuable.'
- (12) Vashai 'o ge s-'oola-dag.
grass IMP FOC ST-gold-like
'The grass was golden.'

-amk 'want to'

attaches to verbs to make verbs of the same transitivity

- (13) S-cu-'aamicud-dam 'o-m hema heñ-'aagid
ST-INDEF:OBJ-understand-NOM IMP-DXS one 1s:IO-tell
heg ha'icu 'aaga.
DET thing story
'A wise person told me a story.'
- (14) M-a-ñ s-hem-'aagid-amk heg 'aaga.
COMP-A-1s:SUB ST-2s:IO-tell-DSD DET story
'I want to tell you a story.'

-g PREDICATIVE

attaches to nouns to make existential predicates

- (15) M-a-ñ ñeid heg toobi.
COMP-A-1s:SUB see DET rabbit
'I saw the rabbit.'
- (16) M-o ge s-totobi-g kui veeco.
COMP-IMP FOC ST-RED:rabbit-VB tree under
'There are rabbits under the tree; it is rabbitly under the tree.'

-im '-ly'? (ADVERBIAL?)

attaches to verbs to make manner adverbs, though apparently these can sometimes be used as predicates themselves

- (17) Ñe'i 'o si gigivk.
music IMP very shiver
'The music was tremulous, was wavering.'
- (18) *Ñe'i 'o s-gigivk.
- (19) Celine Dion 'o s-gigivk-im ñe'e.
IMP ST-shiver-ADV sing
'Celine Dion sings tremulously.'

- (20) ?* Celine Dion 'o gigivkim ñe'e.

cu- 'be a typical subject' (i.e., INDEFINITE NONSPECIFIC OBJECT)

makes the direct object optional; the resulting predicate denotes a typical subject of the verb; different in meaning from the indefinite specific object construction using *ha'icu* 'something'

- (21) S-heegam 'a-n-t heg Brook.
ST-jealous A-1s:SUB-PFV DET
'I am jealous of Brook.'
- (22) Ma-liiya kun 'o ge s-cu-heegam-k.
husband IMP FOC ST-INDEF:OBJ-jealous-NT
'Mary's husband is (typically) jealous.'

ta- 'be a typical object' (i.e., INDEFINITE SUBJECT)

makes the subject optional; the resulting predicate denotes a typical object of the verb

- (23) Shannon a-t heñ-e'es heg heñ tash-ga.
A-PFV 1s:IO-steal DET 1s:POSS clock-GA
'Shannon stole my watch from me.'
- (24) Heñ-kalit 'o s-ta-'ees-im-a heg pi 'ap 'o'odham.
1s:POSS-car IMP ST-INDEF:SUB-steal-ADV-T DET NEG good person
'My car is the kind typically stolen by a bad person.'

4. Where the s- is dispreferred

- The *s-* is dispreferred on most stems which look non-stative: most activities, achievements, and accomplishments

- (25) Hegai 'o'odham 'o med:.
that man IMP run
'That man is running.'
- (26) *Hegai 'o'odham 'o s-med:.

↘ A few predicates which license the *s-* do appear active, however, like *s'e-cuhugi* 'faint' (*lit.* 'go dark'), *s'oohod* 'reject, separate oneself from'

- The *s-* is also dispreferred on some stems which appear otherwise stative

- (27) Hegai voog 'o 'aj-ij.
that path IMP narrow-VB
'That path is narrow.'
- (28) *Hegai voog 'o s-'ajij.

- There does not seem to be any systematic characteristic shared by the predicates which appear stative but which do not allow the *s*-:

(29) **Adjectives:**

'*ajij* 'narrow', '*al* (*ha'as*) 'little, few', '*cevaj* 'long', '*coadk* 'tall', '*ge'ej* 'big', '*hekia* 'pure, whole', '*komad:k* 'spread-eagled', '*komalk* 'flat', '*sho'ig* 'poor', '*shopolk* 'short', '*uug* 'high'

Verbs:

daha 'be sitting', *keek* 'be standing', *kaa* 'hear', *ñeid* 'see', *tatcua* 'want'

- ↳ For example, although the adjectives in (29) tend to describe shapes and spatial relations, some shapes and spatial relations do allow the *s*-. e.g. *s-juuk* 'deep' and *s-tadañ* 'wide'.

- The *s*- is dispreferred on many stems which would otherwise require it, when those stems occur within the scope of negation. Thus, the *s*- is sensitive to polarity, as Saxton (1982) observed.

(30) *S*-hem-hoohid 'a-ñ.
ST-2s:OBJ-like A-1s:SUB
'I like you'

(31) *? Hem-hoohid 'a-ñ.

(32) *Pi* 'a-ñ hem-hoohid.
NEG A-1s:SUB 2s:OBJ-like
'I don't like you.'

(33) * *Pi* 'añ *s*-hem-hoohid.

(34) *Pi* hed:ai 'o hoohid hegai.
NEG someone IMP like that
'No one likes that one.'

(35) * *Pi* hed:ai 'o *s*-hoohid hegai.

- ↳ What association does positive polarity have with stativity?!

- The *s*- is dispreferred on many stems which would otherwise require it, when those stems occur as inchoatives or causatives.

(36) *Vashai* 'a-t ge 'oola-d:ag-t.
grass A-PFV FOC gold-like-INCH
'The grass became golden.'

(37) *Tash* 'a-t 'oola-da-c heg vashai.
sun A-PFV gold-VB-CAUS:PFV DET grass
'The sun made the grass golden.'

5. Pima stativity cross-linguistically

- A claim that the *s*- is associated with stativity should be supported by some evidence or criteria which independently indicate which stems are stative.
- Dowty (1979) makes the four lexical aspects proposed by Vendler (1967) more precise, and includes these characteristic properties of English stative predicates:

(38) Stative predicates...

- may not occur as complements of *force* or *persuade*.
- may not occur as true imperatives.
- may not occur with the adverbs *deliberately* or *carefully*.
- may not occur in the progressive.
- may not occur in the pseudocleft construction.
- may occur in the simple present without a habitual or frequentive interpretation.
- may occur with durational adverbials like *for an hour*, and in such cases, it is entailed that the predicate was true at all times during that interval.
- may not occur with time adverbials like *in an hour*.

- ↳ Items *g* and *h* distinguish both states and activities from accomplishments and achievements, but not from each other.

- ↳ Items *d*, *e*, and *f* are not relevant for Pima, since it appears to lack a direct parallel to the English progressive and pseudocleft construction, and neither states nor activities are forced to have a habitual or frequentive interpretation in the (present) imperfective.

- ↳ Items *a*, *b*, and *c* distinguish non-volitional or non-controllable predicates; predicates in Pima which license the *s*- may be entirely voluntary and controlled (e.g. *s-nakosig* 'noisy' and *s'e-baabgiim* 'careful(ly)' can both be predicated of volitional agents).

- If none of these tests are applicable in Pima, we may instead try to pick out stative predicates using a definition of stativity. Dowty attempts to provide a definition of a stative predicate:

(39) "for each stative predicate there is a region of logical space [*i.e.* a many-dimensional space whose dimensions correspond to all possible measurables] such that at each index [indicating a possible world at some interval of time], an individual is in the extension of that predicate at the index if and only if the individual is assigned to a point within that region of space." (Dowty 1979:127)

- ✎ He admits, however, that since his definition accounts only for measurable properties, it may not easily be extended to all states (e.g. adjectives like *beautiful*, or verbal states like *know*).
- Another proposal to identify stative predicates might attempt to distinguish states by their lack of internal structure. In Dowty's refinement of Vendler's categories, he claims that states entail no change, rather than "definite or indefinite change" entailed by non-states. (Dowty 1979:184) The following definition attempts to make the concept of lack of change precise:
 - (40) A predicate is stative just in case the following implication holds: if the predicate is true for some interval of time, it will be true in exactly the same way for any arbitrarily small portion of that interval.
- ✎ For a stative predicate like *be green*, if it is true of a given interval, it is true in the same way for any subinterval of that interval. An activity predicate like *be running* would fail this test, since for a short enough interval of time, the activity could be decomposed into pushing off with one foot and landing on the other.
- ✎ Unfortunately, under this definition a predicate like *be sleeping* (despite the fact that it patterns like a non-stative predicate in the tests in (38)) would be just as stative as *be asleep*, and so would other activities like *be smiling* and *be a rascal* (which are activities, according to Dowty).
- ✎ The fact that predicates like *be sleeping* and *be asleep* in English can describe identical situations yet differ in stativity indicates that meaning may not be sufficient to determine this characteristic; some degree of arbitrariness may be present in a stative/non-stative distinction in any language (as discussed by Mithun 1991, for example).
- Although no clear test for stativity is forthcoming, it can be shown that distinctions besides stativity do not correlate well with the grammaticality of the *s-*:
- The stage-level/individual-level distinction (or at least a transitory/non-transitory distinction) cannot fully define the set of stems which license the *s-*, either, since the list in (7) includes both temporary and permanent properties (some, like *s-heegam* 'jealous', can be both transitory and non-transitory).
- Non-volitionality or non-controllability—options which determine agreement selection in languages like Creek, Crow, and Lakota (Martin 1991, Mithun 1991)—also cannot fully define the set of stems which license the *s-*, since the list in (7) includes both volitional and non-volitional predicates, and controllable and non-controllable predicates (*s-nakosig* 'noisy' is controllable and volitional, while *s-'eepid* 'cold' is often neither of these).
- Moreover, both non-volitional and non-controllable predicates also occur

without the *s-* (for example, *geesh* 'fall' does not license the *s-*).

- The distinctions relevant to the acceptability of the Pima *s-* resemble the distinctions relevant to agreement selection in Guaraní (as discussed in Mithun 1991) in that stative lexical aspect, given the limitations of the tests and definitions above, is required for the *s-* to be licensed on a stem.
- Although the association with stativity is strong, some of the arbitrariness of Saxton's (1982) analysis of the *s-* as a stem class marker should not be discarded completely. Certain predicates which do not have stative meanings appear to be idiomatically specified to license the *s-* morpheme—verbs which are apparently active like *s'oohod* 'reject, separate oneself from'—and some predicates which have stative meanings—like *'aj* 'narrow'—idiomatically disallow the *s-*.
- 6. **A non-Lexicalist analysis of the *s-***
 - The analysis to be presented here will be formulated within the framework of Distributed Morphology (hereafter *DM*, outlined in Halle and Marantz (1993, 1994) and Marantz (1995, 1997)), a non-Lexicalist framework which assumes among other things: (1) that there is no traditional "lexicon" in which to store lexicalized forms; (2) that phonological material is inserted late in the derivation; and (3) that there is a single structure-building component responsible for the structure both within words and within phrases.
 - In this framework, phonological strings which express features or feature bundles must correspond to terminal nodes (though the operations FISSION and FUSION can increase or decrease the total number of terminal nodes).
 - All exceptional behavior of elements of the language must be due to the idiomatic phonological realization of certain morphemes in the context of other morphemes, the particular action of morphological rules, and to features which are inserted along with phonological features at the end of the syntactic derivation—such features may therefore be only indirectly relevant to syntax.
 - Observations which are relevant to a structural analysis of the *s-* are:
 - a. The *s-* occurs on adjectives (attributive/pronominal and predicative) and verbs.
 - b. The *s-* generally coincides with the intuitive stativity of a predicate, though a few stative predicates lack it, while a few non-stative predicates license it.
 - c. The *s-* occurs to the left of the object agreement markers, and is not included in a stem's left-edge material for the purposes of reduplication.
 - d. Unlike many other preverbal particles, the *s-* is unable to occur in first position by itself.
 - e. The grammaticality of the *s-* is sensitive to the presence of other morphemes within the word (inchoative or causative morphemes) and within the phrase (negative scope).

- f. For most stems, the presence or absence of the *s-* affects the grammaticality of a sentence but not the meaning; for some, however, the presence or absence of the *s-* results in a different semantic interpretation.
- Problems which must be addressed by any analysis:
 - If the *s-* is simply a stem class marker, why should it be sensitive to inchoativity, causativity, and negative scope?
 - If the *s-* is a marker of stems, why is it separated from the stem by the object agreement markers, and why does it not participate in reduplication with the remainder of the stem?
 - Is there some structure which is shared by both verbs and attributive adjectives, such that the *s-* may occupy the same structural location when it occurs on both? Or, does the *s-* occur in different structural positions?

OBSERVATION A: *The s- occurs on both adjectives and verbs.*

- It might be proposed that the *s-* occupies the structural position of an intensifier (which is something that may occur on both adjectives and verbs). Although the Pima intensifier *si-* is the likeliest historical source for the *s-* morpheme, the two cannot occupy the same structural position in the synchronic grammar, since they may both occur simultaneously:

(41) Heñ-miitol-ga 'o si s-ape.
 1s:POS-cat-GA IMP very ST-good
 ‘My cat is very nice.’
- Other structure which might be shared by both adjectives and verbs would include the time argument of Kennedy and Levin (2002), which they argue is present based on the semantics of gradable adjectives. Although all verbs certainly include reference to times, it is not clear what might be unique to the way stative verbs (and not activities) refer to times.

OBSERVATION B: *The s- occurs on stative predicates, with a few exceptions.*

- The grammaticality of the *s-* cannot be accurately predicted solely by the lexical aspect of a stem, so presumably each stem must be marked (with a feature, for example).
- It is unclear whether this feature is associated only with the exceptional cases, or if all such morphemes are marked.
- Although specifying this class by a feature would allow the class to be entirely arbitrary (despite what is observed), it will be assumed that the association of this feature with stativity occurred as it was lexicalized to each vocabulary item.

OBSERVATION C: *The s- occurs to the left of object agreement and reduplication.*

- This indicates that, although the *s-* is licensed by the stem (either by the root or by another affix), it must be structurally distinct from the stem—further from the stem than object agreement, and whatever constituent is relevant for reduplication. The analysis of the *s-* is therefore constrained at least by the analysis of object agreement in Pima.
 - ↪ Proposals for object agreement have variously involved a specifier-head relationship within a dedicated AGRO phrase (*e.g.*, Harley and Noyer 1997), and more recently, a non-local relationship between a light verbal head and a target (*e.g.*, Chomsky 1998).
 - ↪ If the presence of the *s-* is triggered by a feature of the stem, this feature must be able to percolate beyond the projection which mediates object agreement, for the *s-* to be located to the left of the agreement morpheme. This feature percolation may be similar in principle to the percolation of noun class features within a DP.
 - ↪ This percolation must occur after the (phonological and other) idiomatic features of the relevant stem morpheme are inserted (*i.e.*, after syntactic derivation is complete), but before insertion is complete for the phrase as a whole, since it is this feature which triggers the insertion of the *s-* itself.
 - ↪ Since object agreement in Pima and Papago may differ structurally (since the object agreement morphemes in Papago may occur in first position, while those of Pima may not), the location of the *s-* may also differ.

OBSERVATION D: *The s- is unable to occur in first position by itself.*

- Arguing that phrasal status is the criterial property for occurrence in first position, Smith (2001) has proposed, for example, that negation in Pima is a phrasal constituent occupying the specifier position of a clausal functional head, rather than being such a head itself.
- It should be noted that, in addition to negation, other preverbal particles may occur in first position, including the intensifier particle *si* and the focus particle *ge*, and that no independent evidence exists for the phrasal status of these particles.
- By this reasoning, an indirect argument may be made for the status of the *s-*: if the *s-* were a phrasal constituent, it might be expected to occur in first position apart from the stem which licenses it.
- The fact that this is option is not available means either that the *s-* is not a phrasal constituent, or that there is another factor preventing the *s-* from raising to first position.

OBSERVATION E: *The grammaticality of the s- is sensitive to other morphemes.*

- Since the *s-* is not normally grammatical on inchoative and causative forms of stems which normally license it, Avelino (2001) proposed that the *s-* may

compete for the same structural location that these other morphemes do, based on an analysis by Hale (2000) for inchoatives and causatives in Papago.

- This proposal is difficult to extend to occurrences of the *s-* on attributive adjectives, however. Rather than competition for the same structural location, their incompatibility may represent feature IMPOVERISHMENT—deletion of a feature in a certain context (within the morphological scope of an inchoative or causative, in this case).
- The sensitivity of the *s-* to negative scope implies that the feature is evaluated within syntactic structure; it cannot therefore be the result of a post-syntactic phonological rule.

OBSERVATION F: *For some stems, the s- marks a difference in meaning.*

- Some such stems are more frequent with the *s-*, and some without.

(42) Coadk 'a-ñ.
tall A-1s:SUB
'I am tall.'

(43) S-coadk 'a-ñ.
ST-tall A-1s:SUB
'I am big-boned.', * 'I am tall.'

(44) M-o va doa heg Melissa.
COMP-IMP SHD alive DET
'Melissa is still alive, as you know.'

(45) M-o va s-doa heg Melissa.
COMP-IMP SHD ST-alive DET
'Melissa is well, as you know.', * 'Melissa is still alive, as you know.'

- This also implies that the *s-* is not simply added by a post-syntactic phonological rule.
- The difference in meaning between forms without the *s-* and forms with the *s-* does not seem to be systematic, however. The shift in meaning with the addition of the *s-* may be idiomatic in each case.

7. Conclusion

- The *s-* in Pima seems to be licensed based on the stative lexical aspect of verbal and adjectival stems.
- Despite this correlation, the grammaticality of the *s-* may be arbitrary in some cases, since a small number of non-stative stems do seem to license the *s-*.
- It is still unclear why the *s-* should be a positive polarity item.

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