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The Morphological Entry of The Spanish Affix *-iz* and Knowledge of Language[1]

I. Morphological Entry of the Spanish Affix *-iz*:

This section deals with the "morphological entry" of *-iz*. The morphological entry of *-iz* states its morphological category, the number of arguments it selects, the Asp-roles (Aspectual roles) *-iz* triggers in the output word and its B-selection (base selection). There is an annex to this section (I.4) in which we propose a phrase marker for the *-iz* process that shows what the configurational structure of the derived word is.

-Iz is a derivational affix that B-selects (base-selects) [+N] and derives [+V] words. The interesting fact is that whenever *-iz* derives a verb, this new output (verb) will be of the unmarked conjugation: the *-ar* verb (a verb of the unmarked conjugation)—and not a verb of the marked conjugation *-er* or *-ir*.

In this section we will show how the properties of the Spanish affix *-iz* follow a number of rules that can be described as similar to the "listing of word properties" (the lexical entry of a word). We will list these properties in the "morphological entry".

One of the principles of tree building—The Projection Principle—requires that the lexical properties of a word be satisfied in the syntax. The lexical entry of a word provides all the relevant information about that specific lexical item so its properties can properly be reflected in the tree (phrase marker). The morphological entry of an affix provides parallel information about morphemes (we use the term "morpheme" as opposed to "stem").

The "morphological entry" of our present study is about *-iz*. Nevertheless, this general schema is extendible to other affixes too. We propose that the morphological entry of an affix is as crucial to word formation as the lexical entry of words is for tree building.

There is a parallelism between the lexical entry of a word and the morphological entry of an affix. We explain it as it follows:

The lexical entry of a word

The Lexical entry of a word provides the following information:

1. The category of the word (N, A, V . . .)

2. The number of arguments it selects and number and type of Thematic roles (Theta-roles) it assigns to its arguments.

3. C-selection or subcategorization (if a word selects NP, PP, etc.).

4. Linking: mapping the Theta-roles onto grammatical functions (Syntax).

The morphological entry of a word

The morphological entry we propose for a derivational affix (*-iz* in this case) is parallel to the lexical entry of a word. It will provide the following information:

1. Category of a morpheme: *-iz* is an affix.

2. a. Number of arguments it selects: it selects one argument [+N] = {N, A}.

b. Number and type of "Aspectual Roles" (Asp-roles) *-iz* assigns to the bases it selects: Asp-role "causativity" or causative meaning. This corresponds to a transitive verb with two arguments:

ARGUMENT I (Agent) — ARGUMENT II (Theme)

X causes Y to acquire the property of Z (with the help of W) (W = instrument) (Z = meaning of input word).

	(AGENT)		(THEME)
e.g.:	(1) *María*	*agiliza*	*el proceso*
	(2) *Juan*	*tranquiliza*	*al bebé*

X = Agent (*María*) causes Y = Theme (*el proceso*) to acquire the property of Z (Z = *ágil*), W = Instrument (not relevant).

c. Change of subcategorization frame: *-iz* is able to vary the subcategorization frame of the output word with respect to the subcategorization frame of the input word (*-iz* triggers a word-formation process that is able to vary the subcategorization frame of the input word):

INPUT *ágil*, A, Theta 1 (*proceso ágil*)
(*proceso* = Theta 1)

OUTPUT *agilizar*, V, Theta 1, Theta 2 (*María agiliza el proceso*)
(*María* = Theta 1. *el proceso* = Theta 2)

The subcategorization frame of the output varies because the derived word [+V] (output) is [+transitive]. This means the output [+V] will take an extra argument (Agent) with respect to the input word [+N] (The input [+N] only takes one argument):

INPUT word (base) + IZ = (e.g.: *suave*, A, Theta role 1)
↓
WFR (Word Formation Rules) — **TRIGGER** The formation of the output
↓ or derived word [+V]
OUTPUT word (derived word) = (e.g.: *suavizar*, V, Th-R1, Th-R2)

The output word [+V] has changed its argument structure in relation to the input word [+N] (it has acquired an argument).

As a summary we can say *-iz* is able to vary the subcategorization frame of the output word [+V]. "Vary" in what sense?: it is able to make the output [+V] have an external Th-role (Agent). This "new" Th-role was not in the base (input word):

e.g.: INPUT : [*tranquilo*], A, Th-1
OUTPUT: [*tranquilizar*], V, Th1, Th2
AGENT THEME
Th3
INSTR (optional)

The representation shows the input word as taking only one argument. The output word still subcategorizes the same argument and it also has added an external argument (Agent).

3. a. B-selection or subcategorization:

We introduce the concept of B-selection (base-selection) for morphemes:

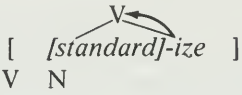
B-selection is parallel to the C-selection (categorical selection) in the lexical entry of a word. In the same way a lexical category C-selects (category-selects) NPs, PPs, etc. Morphemes will B-select (base select) a certain categorical base (*-iz* is an affix, and thus, a morpheme). B-selection accounts for the fact that morphemes have a "morphological entry".

-Iz B-selects or subcategorizes bases [+N] {N, A} and it derives [+V] bases (verbs):

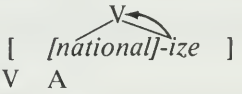
INPUT : [+N] {N, A}
OUTPUT: [+V]

-Iz is a derivational morpheme, therefore it is able to change the category of the input word (base) and in fact it changes it from [+N] to [+V].

As Lieber points out (253) *-iz* "percolates" (raises). Its features percolate to V so it forms a transitive verb:



The head assigns to the entire word its category (*-iz* assigns [+ V] category to the output by means of a mechanism referred to as percolation):



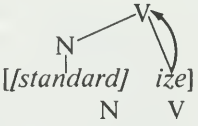
Our proposal matches the one Lieber makes. He assumes that affixes form a unique lexical class on their own, and impose a unique argument structure. Lieber assumes that not only the information regarding the syntactic category but also the information regarding the subcategorization frame percolates from the head. This is what we argued when we said that *-iz* triggers the selection of the two arguments the [+ V] is going to select. In this sense we can argue that *-iz* is the head of [+ V].

Lieber's proposal is in line with what we refer to as "morphological entry". He explains that all morphemes, stems and affixes have lexical entries which contain information about their category and subcategorization (i.e. what sort of lexical item, if any, they must attach to), their semantic representation, argument structures, diacritic specifications and so on. This predicts that the affix *-iz* attaches to adjectives or to nouns. As Lieber proposes, morphemes are inserted into unlabeled binary-branching trees subject to their subcategorization restrictions, and trees are then labeled by means of the following four Feature Percolation Conventions:

Feature Percolation Conventions:

Convention II: All features of an affix morpheme, including category features, percolate to the first branching node dominating that morpheme.

e.g.:



Our proposal is, thus, in line with Lieber's when we say that the input word is [+ N] and that *-iz* is able to produce an output word [+ V] Lieber explains these facts saying that these conventions (cf. apud) have the net effect of labeling the highest branching node in a word tree with the category and features of the outermost affix if the tree contains affixes.

b. Types of bases *-iz* selects:

-Iz can select [+N] bases. These bases can be either Nouns or Adjectives:

(1). Noun bases:

(a). Common Nouns ([+common N]):

fósil	*fosilizar*	(make something acquire
átomo	*atomizar*	the property of a *fósil*)
órgano	*organizar*	
garantía	*garantizar*	
cánon	*canonizar*	
trauma	*traumatizar*	
escándalo	*escandalizar*	
mártir	*martirizar*	
ralenti	*ralentizar*	
informática	*informatizar*	

(b). Abstract Nouns ([+abstract N]):

horror	*horrorizó*	(make something acquire
política	*politizó*	the characteristic of horror)

c. *Collective Nouns ([+ collective N]):

policía	**policizar*	(make something acquire the characteristic of *policía*)
	**polizar*	
ejército	**ejercitizar*	

(d). *Proper Nouns ([+ proper N]):

Juan	**Juanizar*	(make something acquire the characteristic of Juan).

(e). **Concrete Nouns* [+ concrete N]:

e.g.: **mesizar*
**ropizar*
**ventanizar*
**panizar*

The fact that *-iz* selects neither collective nor proper nouns points to the fact that these nouns do not have just one single prominent defining characteristic (let us call it semantic feature). This means that a common noun like *garantía* has only one semantic feature (the one it designs: "the quality of garantía"), whereas a collective noun (such as *policía* or *ejército*) or a proper noun have more than one single semantic feature.

c. Adjectival bases ([A]):

(1)	*ridiculo*	*ridiculizar*
	ameno	*amenizar*
	ágil	*agilizar*
	tranquilo	*tranquilizar*
	legal	*legalizar*
	suave	*suavizar*
	moderno	*modernizar*
	eterno	*eternizar*
	estable	*establizar*
(2)	*castellano*	*castellanizar*
	americano	*americanizar*
	romano	*romanizar*

d. As it has been pointed out before, the output or derived word *-iz* produces is a [+V]. The verb is [+transitive] (it takes two arguments):

e.g.: *Juan ridiculizó la situación*
Argument #1 Argument #2
Th-Role AGENT Th-Role THEME

e. Phonological rules:

When *-iz* is attached to a base in order to produce a derived word there are certain phonological rules that apply:

e.g.: [*estáble*]
A
Rule 0 (Syncope Rule): V_____ ϕ / v - _____ -

Underlying Phonological Representation (UPR): *estábile* → *estáble*

If we try to apply *-iz* to the possible base [*establ-*] the result is out:

(i) *establ-* **establizár*

Rule 0 does not apply here since it will only take place when the previous syllable to the one in which the syncope applies is stressed.

The ungrammaticality of (i) is a reason to assume that the UPR (Underlying Phonological Representation) of *estáble* is:

estábile

-Iz applies to the underlying base:

estábilϕ- *estabil + -iz*

And also RULE 1. has applied:

Rule 1 (Vowel Deletion): v_____ϕ / ____ *-iz*
e.g.: *estabile* *estabilϕ* *estabilizar*

Rule 2 /k/_____ϕ / ____ *-iz*

Rule 3 *[x [-consonantal] [- consonantal] y]
alpha F alpha F Rhyme

This is the filter Harris (34) gives under #(2.36).

Rule 3 excludes adjacent non-consonantal segments in a rhyme if these segments agree in height and frontness:

e.g.: [*política*]
N
Rule 1: *politicϕ* + *-iz*
Rule 2: *politi$\phi\phi$* + *-iz*
Rule 3: *polit$\phi\phi\phi$* + *-iz*
OUTPUT: [*politizar*]
V

Let us now consider the base:

[*trauma*]
N

If we follow the regular pattern and we apply Rule 1, the output is not correct:

e.g.: (ii) **traum-iz*

The ungrammaticality of (2) is a reason to assume that its UPR is not *traum-* but rather something else.

The etymon corresponding to this word is Greek and in the process of derivation from [+N] to [+V] *-iz* is attached to the root corresponding to the genitive case:

[*traumat-iz*]
(root of genitive)

In : [*suave*]———→ [*suavizar*]
A V

Rule 1 has applied.

In : [*garantía*]———→[*garantizar*]
N V

Rules 1 and 3 have applied.

f. In the previous section we have presented the phonological rules *-iz* triggers in the input word [+N]. We will now present other properties that *-iz* follows:

(1). *-iz* is not a productive affix:

(a). it cannot be attached to every [+N]
(b). it is subject to non-predictable variations, as we will see.

(2). *-iz* is a causative affix in Spanish. *-Iz* is not the only affix that expresses "causativity". There are other affixes that express the same concept too:

i.e.:	#en, em	engordar
	#a	adelgazar
	#e	elevar
-ear	#	blanquear

(3). From a diachronic perspective *-iz* varies the bases it selects (it selects different bases at different times);

e.g.:	[*judío*]	[*judaizar*]
	A	V
	[*alegoría*]	[*alegorizar*]
	N	V

These examples are no longer used.

There are examples of *-iz* that are subject to non-predictable variations:

e.g.:	*corto*	**cortizar*	*acortar*
	fino	**finizar*	*afinar*

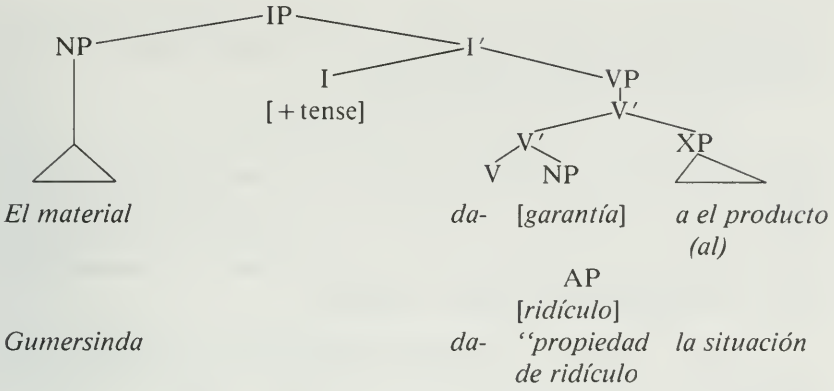
This phenomenon is known as "blocking" (Scalise 158) and it is due to the fact that *acortar* and *afinar* already exist in the lexicon, therefore these terms block the derivation of **cortizar* and **finizar*.

(4). We propose a Phrase-marker for the *-iz* process:

The morphology of *-iz* verbs is captured in the Syntax in the following way:

The base [+N] from which the verb is formed ([+N] *garantía*, *ridiculez*) is a complement to the minimal projection of the verb (X) and both X (= Verb) and NP or AP are dominated by the same node.(V'):

e.g.: *El material garantiza el producto*
Gumersinda ridiculiza la situación



II. Knowledge of Language and Knowledge of *-iz*:

This section is about knowledge of language; how the speaker knows the properties of *-iz* and how the linguist formalizes those properties.

The main purpose is to show how much a speaker of any language knows about his own language (in this case a speaker of Spanish—about *-iz*) without being aware of it.

When a speaker of Spanish thinks about the abstract "part" *-iz*, there is a mental process triggered in his "head" that will immediately provide all the information contained in the morphological entry of *-iz*.[2] This "mental process triggered in his head" is part of his/her knowledge of language. The same way a speaker of Spanish knows all the properties included in this listing, every speaker of any other language has an equivalent knowledge (about his own language).

Speakers do not know the technical terms for the features in the morphological entry of a morpheme but they know their properties and how they work. In informal terms, a speaker has never "read" this "list" (the morphological entry of a word) but he does know how to use it (this list is not readable because it is not written anywhere; it is in the speaker's mind).

The process triggered in the speaker's mind whenever he thinks about *-iz* contains the following information:

A. "I know this thing [*-iz*] is not a word because it doesn't exist as a unit by itself. It needs to be attached to something else. Where is it attached to?" Answer: at the end of a word.

B. "I know *-iz* has the following meaning; make someone or something acquire the property of X. (X = meaning of base), with the help of Z" (Z = optional).

We can ask the following question: What does a speaker of Spanish know when he hears the word *producir*? Well, his knowledge of language enables him to know that *producir* needs:

1. The X that does the production (Agent) and
2. The thing that is produced (Theme). In the same way, when he hears a word with *-iz*, all the information *-iz* has stored in the brain of the speaker becomes triggered. This information tells the speaker that words with *-iz* have an X who does the action (Agent) and a Y that receives the action (Theme). The X who does the action can probably do it with the help of Z (instrumental), where Z = optional.

C. "I know *-iz* goes with nouns or adjectives but it does not go with verbs because I have never heard a word like *comizar*, *andizar* or *dormizar*".

D. "I know *-iz* words are verbs (e.g.: *garantizar*, *agilizar*, etc.)"

E. "I know *-iz* can not be randomly attached to any word bearing these features because I could say *altizar* (*alto*) but *altizar* doesn't exist! There is another word that means the same as *altizar* and that word is *elevar*. I think *-iz* is neither a very productive nor a very predictable 'thing'!"

This very informal description illustrates the speaker's intuitions about *-iz*. All the information captured in the speaker's head is only an example of how much knowledge of language a human has without being aware of it.

What is the difference between the knowledge of language the speaker has about *-iz* and the so called "morphological entry" that a linguist has for the same thing? The answer is: there is no difference. All the linguist does when he provides the "morphological entry" of an affix like *-iz* is to describe in a formal language the properties about *-iz* that the speaker "has in his/her head." The linguist states the formal principles that characterize the relevant linguistic processes. The linguist uses formal language in order to do so. This formal language expresses the same content that a human being has about a particular word or a particular part of a word (morpheme).

The following characteristics will be accounted for in formal language simply stating the morphological entry of *-iz* (section I).

III. Differences between Inflectional Morphology and Derivational Morphology with Respect to *-iz*:

We have already noted that *-iz* is a derivational morpheme. This section deals with the most relevant properties and differences between inflectional morphology and derivational morphology. Properties 1, 2 & 3 are pointed out by Scalise (102–115).

Inflectional Morphology:

1. It does not change the grammatical category of the input word.
2. Inflection applies after derivation has applied:
   (e.g.: des + est + a + bil + iz + a + cion + es).
3. Inflectional Morphology Rules change only the grammatical meaning of the base.

Derivational Morphology:

1. It can change the grammatical category of the input word.
2. Derivation applies before Inflection.
3. (i) "Derivational Rules change the conceptual meaning of the base."
   (ii) "The meaning of a derived form is compositional[3] only if the rule is fully productive."

Rule 3(ii) of derivational morphology is questionable based on the evidence *-iz* provides: *-iz* is a derivational affix that does not follow the general derivational rule 3(ii). The possibility that 3(ii) may not be a general rule for derivational morphology is suggested by the evidence *-iz* provides.

Scalise (112) notes that ". . . The meaning of a derived form is compositional only if the rule is productive." In our view, Scalise's point is arguable because *-iz* is not a productive affix since it imposes important restrictions on the selection of [+Ns]. Let us recall (3.b) that *-iz* selects neither collective nor proper [+N]. There is another piece of evidence in support of our argument: we have found very few cases of *-iz* selecting a [+concrete N] (e.g.: *organizar*, *atomizar*, *fosilizar*) and there are many other cases in which the selection of a [+concrete N] is agrammatical (e.g.: **mesizar*, **ropizar*, **ventanizar*, **panizar*, etc.). Scalise's observation is not consistent with the facts since the meaning of the derived form with *-iz* is compositional but *-iz* is not part of a fully productive rule because if it were, the process of "*-iz* derivation" should be able to apply freely to every [+N] but it does not (as we have previously noted, the process of "*-iz* derivation" does not apply freely to every [+N]).

There are five points to address when determining the properties of derivational morphemes. So far we have answered the following questions:

1. What is the derivational-categorical change?
   1. [N or A] 2. [V]
2. What is the semantic change?

"X causes Y to acquire the property of Z (with the help of W)"

X = Agent
Y = Theme
Z = meaning of base (input word)
W = instrument

3. What is the syntactic change?:

-iz creates [+transitive verbs]. This means they can take an additional Th-role that was not present in the base (this additional Th-role is "Agent").

4. What are the Phonological changes?: *-iz* follows a number of Phonological Rules. This section was presented under I.3 d.

IV. Relation Morphology-Syntax:

In this section we analyze previous proposals—specifically the one Williams (91–103) provides—about the argument structure of the input words (bases) and the argument structure of the output words (derived words) with special regard to *-iz* verbs. We present our own proposal about how *-iz* (and Derivational Morphology in general) can vary the argument structure of the input word.

Williams explains the "change of argument structure" of the output word [+V] *-iz* has derived by using a syntactic criterion. We think it is clearer to provide an explanation based on the lexical entry of the output word [+V] rather than to explain the facts using a configuration (syntactic) criterion. We will use the lexical entry of a word (a lexical criterion) in order to explain the change in the argument structure of the derived word [+V] *-iz* has formed.

Williams argues that a derived causative verb (the verb derived by *-iz*, for our own explanation) such as [*legalizar*] takes a "new external argument" that was not present in the base word [+N] and makes it an internal argument of the output word [+V]. This output takes a new external argument that was not present in the base:

e.g.:	*situación*	[*legal*]	
	(external argument)	A	
			I(X)X = Theme
	Pepe	[*legalizó*]	*la situación*
	(New external argument)	V	(Internal Argument)
			(Previous external Arg.)

We present our arguments in order to justify why we do not agree with the way in which Williams handles the process of "change of argument structure", and we make a proposal that deals with this process in a clearer and less complicated way.

The notion "external argument" is related to the constituent structure in the Phrase-marker and is commonly used when we want to state the arguments a verb selects. "External argument" is—therefore—a syntactic term.

Williams does not draw a line (a distinction) between what is lexical (argument selection) and what is syntactic (that is, the configurational concept of external and internal arguments) in order to explain the "change of argument structure" of the [+V] with respect to the base [+N].

We would like to make clear that the concepts "internal" and "external" should not be used when speaking about the lexical entry of X because they belong to a different level.

Our proposal is the following: lexical structure (argument selection) and syntactic structure are kept apart for the purpose of our explanation. In order to explain the "change of argument structure" *-iz* does with respect to the input word, we will only use lexical structure.

Argument selection explains the process of "change of argument structure" in a clearer way and there is no need to use syntactic structure to account for this process.

In lexical entries that select only one argument (like the adjectival bases *-iz* selects) it is not important to know if this argument is internal or external (plus, the lexical entry does not provide this information, only the Projection Principle does and this applies at Deep-Structure). What we think is relevant in order to explain the change in argument structure from the [+N] base to the [+V *-iz*] output is the lexical entry of the word. We will therefore use a lexical criterion to explain this change. We provide the following lexical entries to illustrate this point:

INPUT *legal*, A, 1 argument (e.g.: *situación legal*)
OUTPUT *legalizar*, V, 2 arguments (1. AGENT or EXPERIENCER
2. THEME)
(e.g.: *Pepe legalizó la situación*)

-Iz has made the output acquire an extra argument not present in the input. Why? Because *-iz* forms [+transitive verbs] and [+trans] can be described as ="taking two arguments; an Agent or Experiencer and a Theme".

The facts are that in the output word there is an external argument not present in the input word whereas in the input word there is only one argument.

The conclusion is that the process of change of argument structure in the output word [+V] with respect to the input word can be explained in a clearer way by using a lexical criterion (i.e. the lexical entry of a word). It is not important to know whether the argument in the input word is external or internal. All we need to know is the lexical entry of a word. The crucial point is that *-iz* derives [+transitive verbs]. The concept of transitivity is crucial here because it triggers the selection of two arguments. The change from the base [+N]—that takes only one argument—to the

output or derived word—that takes two arguments—is what we refer to as "change in the argument structure."

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NOTES

1. This article was made possible thanks to a Fulbright/M.E.C. Scholarship.
2. It is obvious that no speaker will deliberately "think" about how *-iz* derives a verb nor will he hear *-iz* unattached. When we say that the speaker "thinks" about *-iz*, we do not use "think" literally. "Think" means to make obvious or to extract all the information (knowledge of language) the entry *-iz* has stored in the brain of the speaker.
3. Inflectional Morphology is compositional, i.e., the meaning of the new word is predictable by adding up the meanings of the bases:

e.g.: *joven* [-sing] *jóvenes* [+sing]
hablo [-sing] *hablamos* [+sing]

Derivational morphology can be non-compositional:

e.g.: [*resolver*] [*resolución*]—"result of the action of the verb
V N —"propósito, determinación, ley"

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