Compounding in the Slot Structure Model

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1. Introduction

- The semantics of compounding has been one of the most **elusive** undertakings in morphological research. As Jackendoff (2010) points out, scholars have **despaired** at finding the range of possible **relations** (or semantic **functions**) between the constituents of a compound.
- The current paper presents a fully developed model of compound formation, set within the framework of the **Slot Structure Model (SSM)** (Benavides 2003, 2009, 2010, 2022), a constraint-based model of morphology that is based on **percolation** of both syntactic and semantic features and on **slot structure**, which organizes the information in the lexical entries of words and affixes.
- The SSM is partly based on the **dual-route model** (Pinker 2006, Pinker 1999, Pinker & Ullman 2002).
- The **goal** of the paper is to demonstrate how the **meaning** of a compound is **built** from that of its constituents, and the **relations** between them, using the SSM framework.

- It is shown that analyzing compound formation using SSM brings with it several advantages, including:
- A more **comprehensive** explanation of how the semantics of compounding works
- A principled, more **systematic** way to determine the **headedness** of a compound, regardless of the language
- The ability to explain the **generativity** of compounds on the basis of the actual and potential information contained in the **lexical entries** of the constituents
- And the **simplification** of the **interpretation** of compounds, not only because of the notation, but also due to the structure **inside** the lexical entries involved in the determination of compound meaning.
- Importantly, SSM achieves all this employing the **same machinery** that is already used for derivation, with some **enhancements**, including the **enrichment** of lexical entries, to produce a **flexible**, **generative** mechanism.

- Jackendoff's (2010) analysis of compounds based on **Conceptual Semantics** is taken as a basis for **comparison**.
- The current paper provides an account for a wide range of compound types, including NN, NA, AN, VN, and AA. The analysis is based on English, Spanish and German compounds, but it should be applicable to compounds in other languages.
- The current paper thus achieves a **wider coverage** of the data than other current approaches that deal with the semantics of compounding, including Jackendoff (2009, 2010, 2016) and Toquero-Pérez (2020), and Schlücker (2016).
- Example compounds to support the analysis have been obtained from the Corpus del Español (CDE, Davies 2002-), the iWeb corpus (Davies 2018-), Jackendoff (2010), Toquero-Pérez (2020), Lang (2013), Moyna (2011), and Schlücker (2016).
- Examples are shown in § 5.

2. Basic Semantic Functions and Schemas

- Jackendoff (2009, 2010, 2016) presents a list of the most prominent basic functions for English compounds. Toquero-Pérez (2020) made modifications to that list, e.g., by adding the functions PROPER FUNCTION (PF) and ARGUMENT. The combination of the two lists is shown in Table 1.
- According to Jackendoff (2010), these seem rather plausible as functions that are readily available pragmatically. These functions are used in the analysis of compounds in § 5.
- (Note: X is the meaning of N_1 , Y is the meaning of N_2 .)

Table 1: List of basic functions (adapted from Jackendoff 2016: 27–30 and Toquero-Pérez (2020: 9).

Function	Paraphrase	Example
CLASSIFY (X ₁ ,Y ₂)	'N ₁ classifies N ₂ '	beta cell Leyden jar
$PF(X_1, Y_2)$	'N ₂ whose PF is to function as/act N ₁ '	attack helicopter stew beef
ARGUMENT $Y_2(X_1)$ (Rev.)	'(a/the) N ₂ of/by N ₁ '	helicopter attack collar size
SIMILAR (X ₁ ,Y ₂)	'an N2 similar to N1'	kidney bean pie chart
KIND (X ₁ ,Y ₂) (Rev.)	'N ₁ is a kind of N ₂ '	pine tree ferryboat
BE (X ₁ , AT/IN/ON/ Y ₂) (LOCATION) (Rev.)	'N ₁ located at/in/on N ₂ '	lake house inkpad November rain
COMP (X ₁ ,Y ₂) (Rev.)	'N ₂ is composed of N ₁ '	meatball sheet metal
MADE (X ₁ , FROM Y ₂) (Rev.)	'N ₂ made from N ₁ '	coconut oil rubber tree
PART OF (X ₁ ,Y ₂) (Rev.)	'N ₂ is part of N ₁ '	doorknob wheelchair cinnamon roll
CAUSE (X ₁ ,Y ₂)	'N ₂ caused by N ₁ '	diaper rash sunburn
MAKE (X ₁ ,Y ₂) (Rev.)	'N ₁ makes N ₂ '	spider poison silkworm
SERVES-AS (Y ₂ , X ₁)	'N ₂ that serves as N ₁ '	guard dog extension cord
HAVE (X ₁ ,Y ₂) (Rev.)	'N ₂ that has N ₁ '	glamour girl gangster money
PROTECT (X ₁ ,Y ₂ FROM Z)	'N ₂ protects N ₁ from something'	lifeboat flea collar
$BE(Y_2,X_1)$	'N ₂ is (also) an N ₁ '	boy king singer-songwriter
BOTH (X_1, Y_2)	'both N ₁ and N ₂ '	boy king politician-tycoon

- Note that several of these **basic functions**, if not all, can form part of the **core meaning** of **simplex nouns** (and other words), and may sometimes coincide with proper functions.
- For instance, bread is composed of flour (COMP); the basic function PROTECT is the proper function of *shield*; a sedan is a type of car (CLASSIFY); an oak is a KIND of tree; a finger is a PART of a hand; and pheromones are MADE BY some animals.
- This fact is **important** for the analysis of compounding in § 5, because the functions are shown as **embedded** in the **slot structure** of lexical entries, not as part of a schema.

- Schemas
- (1) N-N compound schemata (or constructions) (Jackendoff 2010) a. Argument schema: $[N_1 N_2] = [Y_2 (..., X_1, ...)]$ 'a N_2 by/of/... N_1 ' b. Modifier schema: $[N_1 N_2] = [Y_2^{\alpha}; [\mathbf{F} (..., X_1, ..., \alpha, ...)]]$ 'an N_2 such that F is true of N_1 and N_2 '
- The basic functions and the action modalities can fill in F in (1b) to build compound meanings, as in (2).
- (2) a. window₁ seat₂ = SEAT₂; [Y₂LOC AT WINDOW₁] b. felafel₁ ball₂ = BALL₂; [Y₂COMP FELAFEL₁]

3. The Slot Structure Model (SSM)

- The SSM is an approach to morphology based in part on **Lexical Conceptual Structure** (**LCS**) (Jackendoff 1990, 2002, Rappaport & Levin 1988, 1992) that explains the process of [base+affix] **unification** in regular word formation in Spanish (e.g. *demoli+cion* [*demolición* 'demolition']) and other languages, and is crucially based on the notion of **lexical entries** instantiated in a slot structure.
- Crucial to the SSM is that percolation, subcat/select, and slot structure, acting in concert **determine the structure** and content of the **lexical entries** of **derivatives** and allow for **predictions** to be made about the **behavior** of groups of features in the formation of a word.
- Percolation in particular, as shown by Pinker (1999) and Pinker & Ullman (2002), is key to account for **compositionality** in word formation. Huang & Pinker (2010) call percolation *information-inheritance* and stress the need for this mechanism in morphology, both in inflection and word formation.

- The **dual-route model** posits that while **regular** forms (e.g. *work+er*, Sp. *completa+mente* 'completely') are computed by combinatorial rules, **irregular**, semiproductive, or unpredictable forms (e.g. *strength*, *salut+at+ion* vs. **salut+ion*, Sp. *resoluble* vs. **resolvible* (reg.) 'solvable') have to be **memorized** and are stored in a sort of analogical (**associative**, relational) **network** that is a part of the lexicon and implements **lexical redundancy rules**.
- Thus, when speakers hear or produce a complex word, they first attempt to form a derivative via the **regular** route (using SSM principles, see below), but if an **irregular** form already exists for that concept, the regular route is blocked and the **irregular** form **stored** in the lexicon takes over.
- The **search** for the stored form and the operation of the rule work in **parallel**, until one of them "wins."

3.1. Slot Structure

- Arranging features in a lexical entry in the form of a **slot structure** rather than just listing the features, allows for **predictions** to be made about the **behavior** of groups of features during and after derivation.
- The information contained in lexical items is organized into groups of features that act as information **blocks** that **percolate** as **units** to the branching node.
- The idea of a slot structure containing idiosyncratic information is compatible with the notion of an **LCS**. The **LCS** is the place in the lexical entry of an item where the syntactically relevant **semantic content** of the item is encoded (cf. Rappaport & Levin 1988, Jackendoff 1983, 1990, Speas 1990).
- (6) LCS of *put*

PUT: [EVENT CAUSE ([THING], [EVENT GO ([THING], [AT [PLACE]])])] [adapted from Jackendoff 1990]

3.2. Percolation

- The **Modified Feature Percolation Conventions** proposed involve a **re-definition** of the **features** that are allowed to percolate by **Head and Backup Percolation**, in answer to Lieber's (1992:77) question of "what features percolate, [and] where features are allowed to percolate from."
- Modified Feature Percolation Conventions
 - a. Head Percolation: The affix (the head) percolates its non-subcat/selectional information (i.e. its CATEGORIAL, CORE and ARGUMENT slots and blocks) to the branching node.
 - b. Secondary Percolation: All the information blocks of the base (i.e. the CATEGORIAL, CORE, ARGUMENT, and PARTICIPANT blocks) percolate to the branching node and attempt to occupy slots. Once a slot has been occupied, a percolating information block may occupy that slot as long as it has compatible features (i.e. either morphosyntactic or semantic). If a percolating block does not find an empty or compatible slot, it may not occupy any slots in the output, and is discarded.

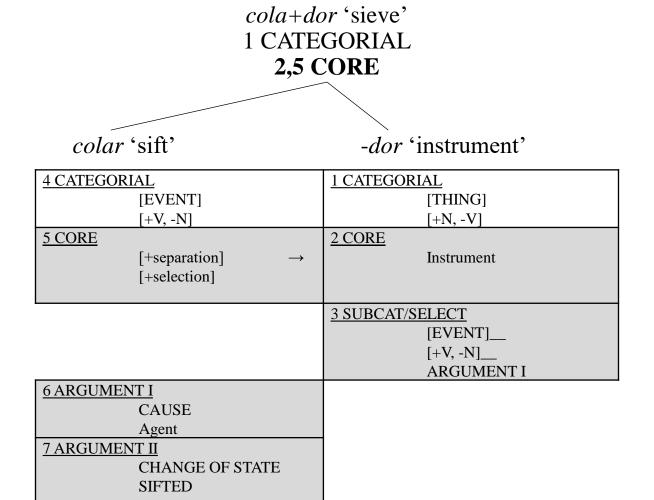
- Crucially, a **head** is characterized by the fact that it imposes its categorial features on the output, and affects argument structure by **adding** arguments or contributing to their **suppression**.
- It follows that the **non-head** in a derivative can neither impose its categorial features on the output **nor bring about changes in argument structure.**
- In addition, the notion of head and the mechanism of Head Percolation give rise to the **prediction** that the features of the **non-head** (the base) **cannot override** the features of the head (the affix) in the output.
- Another key **prediction** of SSM is that knowing the slot configuration of the head allows one to **predict** which information blocks of the non-head will **form part** of the output, and which will be **discarded**.

3.3. Derivational Trees

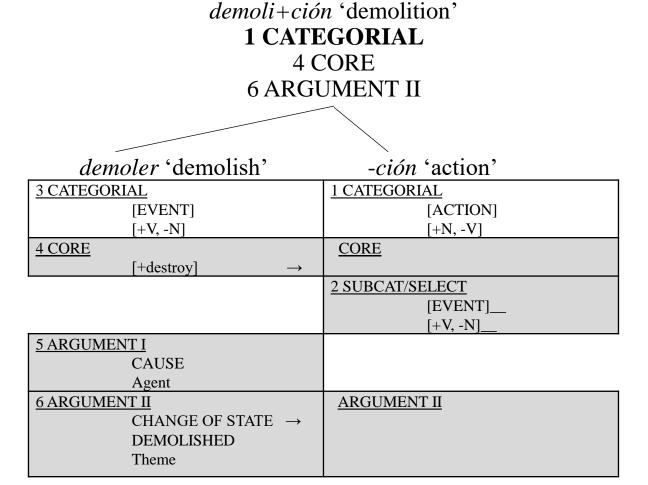
3.3.1. Suppression of Arguments

colar 'sift': [x CAUSE [y BECOME SIFTED]]

• Tree 1 V > N -dor

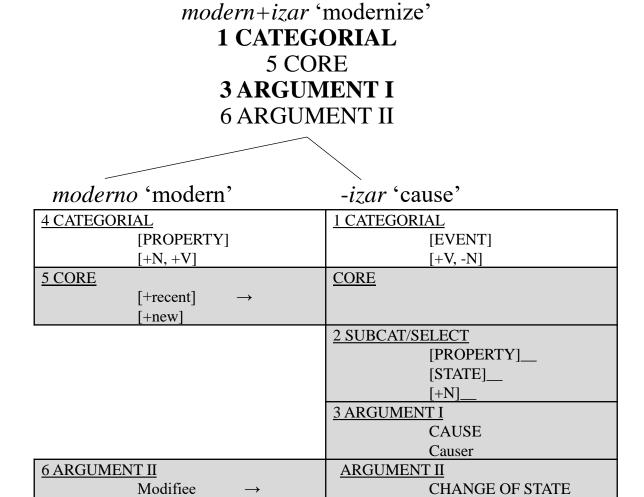


• Tree 2 V > N -ción



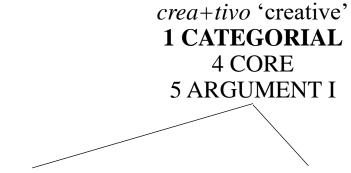
3.3.2. Addition Accompanied by Transference of Arguments

• Tree 3 A > V -izar



3.3.3. Transference of Arguments

• Tree 4 V > A -tivo

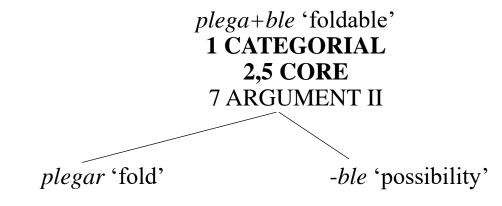


crear 'create'

-tivo 'having the capacity to/having the property of'

3 CATEGORIAL [EVENT] [+V, -N]	1 CATEGORIAL [PROPERTY] [+N, +V]
$\frac{4 \text{ CORE}}{[+\text{produce}]} \rightarrow \\ [+\text{innovate}]$	CORE
	2 SUBCAT/SELECT [EVENT] [+V, -N] ARGUMENT I
$\begin{array}{c} \underline{\text{5 ARGUMENT I}} \\ \text{CAUSE} & \rightarrow \\ \text{Agent} \end{array}$	ARGUMENT I
6 ARGUMENT II CHANGE OF STATE	

• Tree 5 V > A -ble



4 CATEGORIAL	1 CATEGORIAL
[EVENT]	[PROPERTY]
[+V, -N]	[+N, +V]
5 CORE	2 CORE
$[+bend] \rightarrow$	Possibility
[+make compact]	
	3 SUBCAT/SELECT
	[EVENT]
	[+V, -N]
	ARGUMENT I
	ARGUMENT II
6 ARGUMENT I	660 660 660
CAUSE	
Agent	
7 ARGUMENT II	ARGUMENT II
CHANGE OF STATE \rightarrow	
FOLDED	
Theme	

3.4. Summary of operations on argument structure

- Suppression of one or more arguments (Trees 1, 2, 4, 5)
- Addition of an argument (by the suffix) (Tree 3)
- ARGUMENT II \rightarrow ARGUMENT II (Tree 2, 3, 5)
- ARGUMENT I \rightarrow ARGUMENT I (Tree 4)
- It is important to point out that even though there is **unification** of features as part of the process of percolation, **percolation goes beyond unification**, and allows for some features to **override and suppress** other features, as seen in the derivational trees above.
- While **unification grammars** (Shieber 1986, Hellwig 2004) and **slot grammars** (McCord 1980) have slots for arguments and complements, unlike SSM, they do not have slots for the rest of the information in a lexical entry.
- One of the **key innovations** of SSM is that **all** the information in a lexical entry is **stored in slots**, and these slots percolate and determine the meaning of complex words. In turn, a crucial element of this innovation is that each **argument and its associated subevent** are stored together in a **single slot**, not separated into their own structures (Argument Structure, Event Structure), and these slots percolate during unification.

3.6. Other Affixes, Other Languages

• (7) Nungu i-na-phík-**íts**-a kadzidzi maungu.

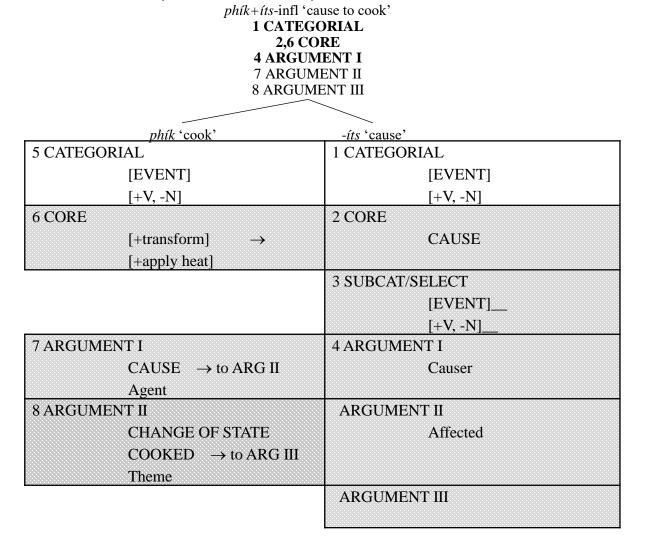
9porcupine 9s-ps-cook-CAUS-fv 1aowl-OBJ 6pumpkins-OBJ

'The porcupine made the owl cook the pumpkins' [Chichewa; Alsina 1992]

- There is a **single representation** for the causative affix, which contributes a **Causer** and has two other (empty) argument slots, one for ARGUMENT II, which will be specified as storing the **"most affected"** argument (of the base), and one for ARGUMENT III.
- **Pragmatic** factors will determine whether the ARGUMENT I or ARGUMENT II of the base, whichever is **most affected**, will occupy the ARGUMENT II slot (the "most affected" slot) in the output (*the owl*).
- The other argument of the base, the one that did not occupy the ARGUMENT II slot of the output (*the pumpkins*), will fill the ARGUMENT III slot; the syntax will determine whether that argument will be marked as an oblique, an indirect object or a second object.

Causative suffixes

• Tree 6 V > V Chichewa causative -**its** (cf. Alsina 1992)



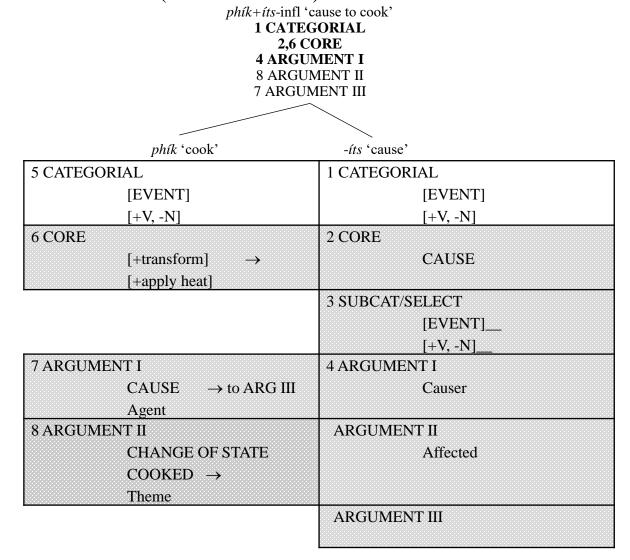
• (8) Nungu i-na-phík-**íts**-a maungu kwá kádzidzi.

9porcupine 9s-ps-cook-CAUS-fv 6pumpkins-OBJ to 1aowl-OBL

'The porcupine had the pumpkins cooked by the owl' [Chichewa; Alsina 1992]

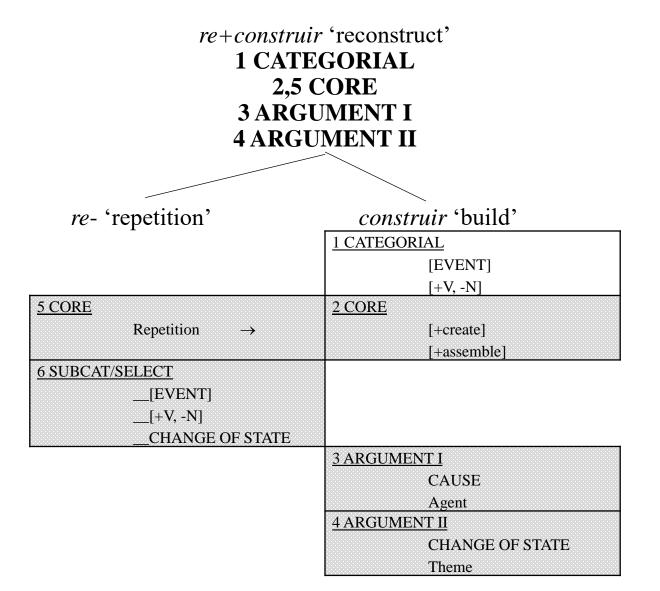
• In this case, in contrast, the **most affected** argument is *the pumpkins* (ARGUMENT II of the base), which goes to the ARGUMENT II slot of the output, while the ARGUMENT I of the base (*the owl*) occupies the ARGUMENT III slot and is marked as an oblique by the syntax.

• Tree 7 V > V Chichewa causative -its (cf. Alsina 1992)

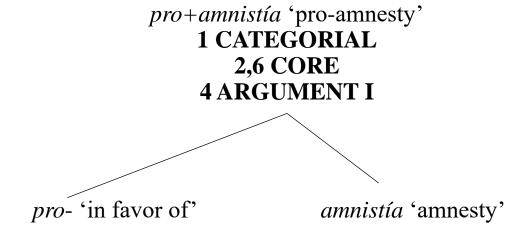


Derivational prefixes

• Tree 8 V > V re



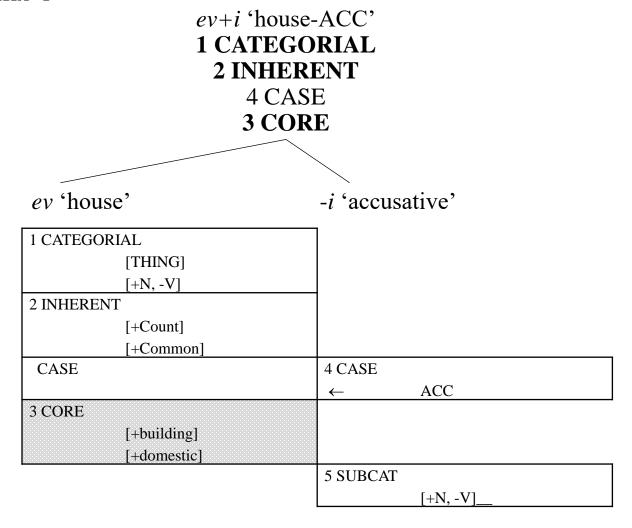
• Tree 9 N > A pro-



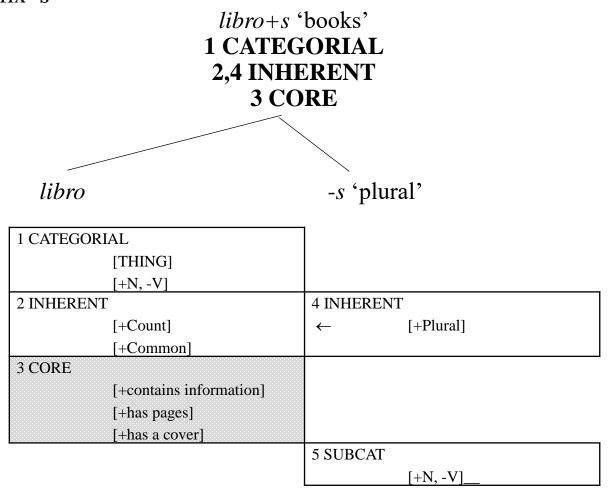
1 CATEGORIAL	5 CATEGORIAL
[PROPERTY]	[STATE]
[+N, +V]	[+N, -V]
2 CORE	6 CORE
Support	← [+pardon]
3 SUBCAT/SELECT	
[STATE]	
[+N, -V]	
4 ARGUMENT I	
[+human]	

Inflectional affixes

• Tree 10 Turkish case suffix -i



• Tree 11 Inflectional suffix -s



4. The Generative Lexicon (GL)

4.1. Lexical Entries in GL

- According to Pustejovsky (1995) and Pustejovsky & Ježek (2016), the **qualia** is the mechanism used in GL to represent **the core meaning** of words.
- Qualia Structure consists of the following four basic roles or dimensions of meaning inside lexical items:
- Formal: encoding taxonomic information about the lexical item (the "is-a" relation)
- Constitutive: encoding information on the parts and constitution of an object ("part-of" or "made-of" relation)
- **Telic**: encoding information on **purpose** and **function** (the "used-for" or "functions-as" relation); according to Jackendoff (2010), the telic quale specifies the **proper function** of an object. In some cases, this role could be equivalent to the basic function SERVES-AS (see Table 1).
- Agentive: encoding information about the origin of the object (the "created-by" relation).
- (9) Lexical entry for *car*
- [car
 [QUALIA = F = vehicle]
 C = engine, door, wheels ...]

- (10) Lexical entry for *letter*
- [letter
- [QUALIA = T = read] A = write]
- (11) Lexical entry for *house*
- [house
- [QUALIA = F = building]

 C = door, rooms, ...]

 T = live in]

 A = build]

4.2. Compounds in GL

- (12) Lexical entry for *plastic*
- [plastic
- [QUALIA = F = material] C = plastic]
- (13) Lexical entry for *bag*
- [bag
- [QUALIA = F = container: bag] T = hold]
- (14) Lexical entry for *plastic bag*
- [plastic bag
- [QUALIA = F = **bag**] C = **plastic**]

5. Compounding in SSM

- As with derivation, **compounding** in SSM occurs via the **unification** of the **constituents** of the compound, with slot structure and percolation playing a key role.
- **Pragmatic** information, **world knowledge** and encyclopedic knowledge are also important factors in determining compound meaning (Jackendoff 2009, 2010), and this is reflected in the SSM analysis.
- For example, what **slots** will be relevant for the selection of a given **proper function** may depend on **pragmatics and context**.
- In Jackendoff's (2016) account (see also Schlücker 2016), the **schemas** for the basic functions use material from the **internal semantic structure** of the two nouns, but the schemas are separate, **detached** from the lexical entries of the constituents.
- **Schemas** in the Conceptual Semantics approach are a **reflection** or an **abstraction** of what is going on inside lexical entries during compound formation.

- **In contrast**, in SSM the semantics involved in the functions expressed by the schemas are **incorporated** into slot structure, due to the content of the lexical entries of the constituents, as well as the action of **unification** and percolation.
- In SSM the basic functions are **integrated** into the lexical entries of the constituents, and features in slot structure compose with each other.
- In addition, the analysis of compounding in SSM shows that lexical entries as represented in SSM are **flexible**. There is a **template** for lexical entries, but it is **not fixed**; different slots may be used depending on the type of word formation or compounding.
- This flexibility or **elasticity** of slot structure facilitates the **generativity** that characterizes compound formation.
- The flexibility is **not ad hoc**; it is based on the actual and potential slots **already available** in the entries of **simplex** lexical items (e.g. "tree COMP wood").

- Another **advantage** of the representation of compounding in SSM is that the **interpretation** of the semantics of certain compounds is **less complex** than in a Conceptual Semantics analysis.
- For example, in *piano bench* 'bench on which one sits while playing the piano,' sitting comes from the proper function of *bench*, and playing comes from the proper function of *piano*.
- These two functions are connected by the basic function of temporal location, 'while,' as seen in the schemas in (15-16). Thus, there are three independent components involved in linking N_1 and N_2 , two of which come from the proper functions of pianos and benches, and one from a basic function.
- (15) $[N_1 N_2] = [Y2\alpha; [F\beta (..., \alpha, ...); [H (\beta, [G(...X1...))])]]$ (Jackendoff 2010)
- (16) piano₁ bench₂ = [BENCH2α; [PF (SITβ (PERSONγ, ON α);
 [BEtempδ (β, AT [*PLAY*ε (γ, [PIANOζ; [PF (PLAYε (PERSON, ζ)]]1))]]]
 'a bench on which one sits, such sitting being while one plays a piano (which is what one does with a piano)'

[Jackendoff 2010]

5.1. Diagrams of Compound Formation in SSM

- The diagrams below show how the SSM enables a determination of **headedness** in a **systematic** way based on the **information in the slot structure** of the **constituents**, along with percolation.
- Given that the **head** is the constituent whose entire slot structure percolates, it follows that the **head** is the constituent that **receives** information from the other constituent, to form the compound as a whole.
- Thus, headedness in SSM is established by determining what constituent has contributed the most slots and features to a compound, which in turn enables an objective determination of what compounds are left- or right-headed in any language.
- In a sense, the head is the **repository** of the information for the entire compound, which is a **new** way of viewing **headship**.

5.1.1. NN Compounds

• Diagram 1

plastic	bag
CATEGORIAL	CATEGORIAL
[THING]	[THING]
N	N
	CORE
	ARTIFACT
	BAG
	<u>PF</u>
	HOLD CONTENT
CORE	COMP
MATERIAL	\rightarrow PLASTIC
$\begin{array}{ccc} \text{PLASTIC} & \rightarrow & & & & & \\ \end{array}$	

Lexical entry for plastic bag

1 <u>CATEGORIAL</u>
[THING]
N
CORE
ARTIFACT
BAG
<u>PF</u>
HOLD CONTENT
COMP
PLASTIC

ice	bag
CATEGORIAL	CATEGORIAL
[THING]	[THING]
N	N
	CORE
	ARTIFACT
	BAG
	<u>PF</u>
	HOLD CONTENT
CORE	CONTENT
MATERIAL	\rightarrow ICE
ICE →	

Similar: tren bala 'bullet train'

hombre 'man'	arana 'spider'
CATEGORIAL	CATEGORIAL
[THING]	[THING]
N	N
CORE	
MAN	
SIMILAR	CORE
SPIDER ←	SPIDER
	←

attack	helicopter
CATEGORIAL	CATEGORIAL
[ACTION]	[THING]
N	N
ARGUMENT I	CORE
	ARTIFACT
	HELICOPTER
CORE	<u>PF</u>
$ATTACK \rightarrow$	\rightarrow ATTACK

ARGUMENT II

Similar: ataque pirata 'pirate attack'

helicopter	attack
CATEGORIAL [THING] N	CATEGORIAL [ACTION] N
<u>CORE</u> ARTIFACT HELICOPTER →	ARGUMENT I → HELICOPTER
	CORE ATTACK ARGUMENT II

truck	driver
CATEGORIAL	CATEGORIAL
[THING]	[THING]
N	N
	CORE
	DRIVE-PERSON
CORE	ARGUMENT II
ARTIFACT	→ TRUCK
TRUCK →	

piano₁ bench₂ = [BENCH2α; [PF (SITβ (PERSONγ, ON α); [BEtempδ (β, AT [*PLAY*ε (γ, [PIANΟζ; [PF (PLAYε (PERSON, ζ)]]1))]]]

piano	bench
CATEGORIAL	CATEGORIAL
[THING]	[THING]
N	N
CORE	CORE
ARTIFACT \rightarrow	ARTIFACT
PIANO	BENCH
	<u>PF</u>
	PERSON SIT ON
<u>PF</u>	ACTIVITY
PLAY →	\rightarrow PLAY
ARGUMENT	<u>ARGUMENT</u>
	→ PIANO

5.1.2. AN and NA Compounds

tall	glass
CATEGORIAL	CATEGORIAL
[PROPERTY]	[THING]
A	N
	CORE
	ARTIFACT
	GLASS
	<u>PF</u>
	HOLD CONTENT
CORE	<u>PROPERTY</u>
TALL →	→ TALL
MODIFIEE	ARGUMENT
	LIQUID

kalt 'cold'	Start
CATEGORIAL	CATEGORIAL
[PROPERTY]	[ACTION]
A	N
	CORE
	START
CORE	MANNER
COLD \rightarrow	\rightarrow COLD
MODIFIEE	ARGUMENT
	MACHINE

schnell 'fast'	Restaurant
CATEGORIAL [PROPERTY] A	CATEGORIAL [THING] N
	CORE PLACE RESTAURANT PF SERVE FOOD
CORE FAST → MODIFIEE	MANNER → FAST

cine 'movies'	mudo 'silent'
CATEGORIAL	CATEGORIAL
[INFORMATION]	[PROPERTY]
N	A
CORE CINEMA/MOVIES	
PROPERTY	CORE
SILENT ←	SILENT
	←
	<u>MODIFIEE</u>

pelo 'hair'

rojo 'red' (pelirrojo)

CATEGORIAL	CATEGORIAL
[THING]	[PROPERTY]
N	A
	CORE
	RED
CORE	PART
PART BODY	\rightarrow HAIR
HAIR \rightarrow	
	ARGUMENT

5.1.3. VN Compounds

jump	rope

CATEGORIAL	CATEGORIAL
[ACTION]	[THING]
V	N
ARGUMENT I	CORE
	ARTIFACT
	ROPE
CORE	<u>PURPOSE</u>
JUMP →	\rightarrow JUMP

5.1.4. AA Compounds

dark	blue
1 <u>CATEGORIAL</u>	1 <u>CATEGORIAL</u>
[PROPERTY]	[PROPERTY]
A	A
	CORE
	COLOR
	BLUE
CORE	TONE
DARK →	→ DARK
MODIFIEE	MODIFIEE

5.1.5. Multiword Formations (Expressions)

5.1.5.1. Multiple-word Compounds

plastic bag	inventory
CATEGORIAL	CATEGORIAL
[THING]	[COLLECTIVE]
N	N
CORE	CORE
ARTIFACT →	GOODS/ITEMS
BAG	
<u>PF</u>	<u>PF</u>
HOLD CONTENT \rightarrow	USE-SALE
COMP	ARGUMENT
PLASTIC →	\rightarrow CORE, PF, COMP (of plastic bag)

5.1.5.2. Prepositional Link Compounds

• Diagram 16

Also multiword expressions: contaminación por lluvia ácida 'acid rain pollution'

casa 'house' de 'of' campo 'countryside'

CATEGORIAL	1 <u>CATEGORIAL</u>
[THI]	[PLACE]
NG]	N
N	
CORE	
BUILDING	
HOUSE	
LOCATION	CORE
COUNTRYSIDE ←	COUNTRYSIDE
	←

5.1.5.3. Dual-headed Compounds

boy	king
CATEGORIAL [THING]	CATEGORIAL [THING]
N	N
	CORE KING
CORE BOY →	ALSO → BOY

Exocentric compounds

- Due to **pragmatics**, **context**, and a **metonymic** interpretation, a *lowlife* refers to a kind of person (who leads a low life), not to a kind of life.
- Notice the clear role played by **pragmatics** in the Spanish exocentric compound *lavaplatos* [wash + dishes], which can either mean 'dishwashing machine' or refer to a person who washes dishes (a dishwasher), depending on the **context**.
- In Jackendoff's (2009) analysis, exocentric compounds result from the general schema in (17), based on **metonymy**, where N_1 and N_2 are both arguments of a modifying function F. (18) shows an example of how the schema is filled out. Since these are exocentric compounds, the **head** has to be **lexically stipulated**.
- (17) Exocentric compound schema: $[N_1 N_2] = [Z; [F(..., X_1, ..., Y_2, ...)]]$ • 'something such that F is true of N_1 and N_2 '
- (18) $bird_1brain_2 = PERSON\alpha$; [SIMILAR (BRAIN₂ β (α), F β (BIRD₁)] 'person whose brain is similar to that of a bird'

6. Conclusion

- This paper has shown that an analysis of compounding that employs the SSM framework brings about several important **advantages**.
- First, it has the ability to explain the **generativity** of compounds on the basis of the actual and potential information **contained** in the lexical entries of the constituents
- It demonstrates a more **systematic** way to **determine** the **headedness** of a compound, regardless of the language
- It enables the **simplification of the interpretation** of compounds, not only of the notation, but also of the structure inside lexical entries involved in determining compound meaning.
- This is done because the information related to the semantic functions is shown in the **context** of the rest of the semantic information of the lexical entries of the compound constituents.

- Importantly, all this is accomplished with the **same machinery** that is already used for **derivation**.
- The **key innovation** of the model is the **enrichment** of lexical entries through the incorporation of slots for qualia and other features, to produce a **flexible**, **generative mechanism** that accounts for the semantics of a **wide range** of compounds.
- The generativity comes from the information **inside** the lexical entries of the constituents, which interact with pragmatics, and that compose with each other **inside** the entries, **not detached** from them.
- Given that the SSM accounts for the morphology of several languages genetically unrelated to Spanish, which suggests that its constructs may be **universal** (§ 5), an important aspect to consider is the possible **universality** of the SSM approach as applied to **compounding**, given that it applies to such a wide range of compound types.

- Future studies could explore the extent to which the SSM formalism applies to additional types of compounds, as well as compounds in languages unrelated to Spanish, English and German.
- **Japanese**, for example, has endocentric NN and AN compounds that seem to be amenable to the SSM analysis (e.g. *hude-bako* 'pencil box' and *naga-banasi* 'long talk') (Kageyama & Saito 2016).

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