

Semantic Annotation of CESS-ECE: Mapping syntactic functions into Thematic Roles

Following the proposal of the PropBank project (Palmer et al., 2005), an argument structure is associated with each sense of each verb. The roleset is the numbering of the set of arguments selected by the verb: Arg0, Arg1, Arg2, Arg3, Arg4, which expresses the degree of proximity of an argument in relation with the verb. Thus, for example, Arg0 corresponds to an argument which is prototypically a semantic Agent, whereas Arg1 corresponds to the prototypical Theme or Patient (Dowty, 1991). In our proposal each argument includes the thematic role in the roleset itself. The annotation system is carried out both at the argument and semantic role level.

We have in fact two different levels of semantic description: the argument position (Arg1, Arg2, Arg3, Arg4, ArgM) and the specific thematic role. The reason is because one specific thematic role may appear in different argument positions depending on the given verb. For instance, the thematic role ‘*extension*’ corresponds to Arg1 in (1a) and to Arg2 in (1b).

- (1a) We have covered (*three kilometres*)_{Arg1-EXT}
 (1b) Prices increased (*a 5,6%*)_{Arg2-EXT}

The methodology allows for the possibility of not specifying the thematic role when a solution is not conclusive.

The role tagset appears in Table 1 and the correspondence between syntactic functions and semantic arguments is also shown. The numbered arguments occupy argument positions, while arguments M correspond to adjuncts.

<i>Argument-Thematic role</i>	<i>Description</i>	<i>Syntactic Function</i>	<i>Example</i>
Arg0-AGT	agent	subject (SUJ) / agent compl. (CAG)	Juan _{SUJ-Arg0-AGT} corre Juan _{SUJ-Arg0-AGT} lee una novela Clara es amada por todos _{CAG-Arg0-AGT}
Arg0-CAU	cause	subject (SUJ) / agent compl. (CAG)	Juan _{SUJ-Arg0-CAU} rompió la ventana El trabajo _{SUJ-Arg0-CAU} agota a María
Arg0-EXP	experiencer	subject (SUJ)	Juan _{SUJ-Arg0-EXP} sueña Juan _{SUJ-Arg0-EXP} sufre amigdalitis Juan _{SUJ-Arg0-EXP} siente desdén
Arg1-TEM	theme	subject (SUJ) / direct object (CD)	Los niños _{SUJ-Arg1-TEM} llegaron tarde Hay 4 personas _{CD-Arg1-TEM} Llueve barro _{CD-Arg1-TEM}
Arg1-PAT	patient	subject (SUJ) / direct object (CD)	Clara _{SUJ-Arg1-PAT} es amada por todos Juan lee una novela _{CD-Arg1-PAT}
Arg1-EXT	extension	direct object (CD)	Juan caminó 3 km _{CD-Arg1-EXT}
Arg1-ATR	attribute	predicative (CPRED)	Hablaba tranquilo _{CPRED-Arg1-ATR}

Arg1- LOC	locative	direct object (CD)	El acusado abandonó la sala _{CD-Arg1-LOC}
Arg2-BEN	benefactive	indirect object (CI)	Juan da un pastel al niño _{CD-Arg2-BEN}
Arg2-ATR	attribute	attribute (ATR)/ predicative (CPRED)	Juan es listo _{ATR- Arg2-ATR} El gobierno mantuvo los precios estables _{CPRED- Arg2-ATR}
Arg2-EXT	extension	direct object (CD)/ adverbial complement (CC)/ prepositional complement (CREG)	El gobierno subió el pan un 10% _{CC- Arg2- EXT} El pan cuesta 75 céntimos _{CD- Arg2-EXT}
Arg2- INS	instrument	prepositional complement (CREG)	Juan abre la puerta con la llave _{CC- Arg2-INS}
Arg2- EFI	final state	prepositional complement (CREG) /adverbial complement (CC)	Juan entró en coma _{CREG- Arg2-EFI}
Arg2-LOC	locative	subject (SUJ)/ prepositional complement (CREG) /adverbial complement (CC)/ indirect object (CI)	Puso el pastel en la mesa _{CC- Arg2-LOC} Laura entró en la habitación _{CREG- Arg2- LOC} La novela _{SUJ- Arg2-LOC} aborda esa temática
Arg3-BEN	benefactive	indirect object (CI)	El pan me _{CI- Arg3-BEN} cuesta 60 céntimos
Arg3-INS	instrument	adverbial complement (CC)	Juan dió una mano de pintura con la brocha _{CC- Arg3-INS}
Arg3-ORI	source	adverbial complement (CC) / prepositional complement (CREG)	Juan arrastró la silla tres metros desde mi despacho _{CC- Arg3-ORI}
Arg3-EIN	initial estate	adverbial complement (CC) / prepositional complement (CREG)	Las ventas aumentaron un 10% de un million de euros _{CC- Arg3-EIN} a 1,1 millones de euros
Arg4-DES	purpose	adverbial complement (CC) / prepositional complement (CREG)	Juan arrastró la silla de un sitio a otro _{CC- Arg4-DES}
Arg4-EFI	final state	adverbial complement (CC) / prepositional complement (CREG)	Las ventas aumentaron un 10% de un million de euros a 1,1 millones de euros _{CC- Arg4-EFI}
ArgM-LOC	place	adverbial complement (CC)	Juan vive en Barcelona _{CC- ArgM-LOC}
ArgM-TMP	time	adverbial complement (CC)	Llueve cada día _{CC- ArgM-TMP}
ArgM-CAU	cause	adverbial complement (CC)	Toma antibiótico porque está resfriado _{CC- ArgM-CAU}
ArgM-MNR	manner	adverbial complement (CC)	Juan duerme profundamente _{CC- ArgM-MNR}
ArgM-EXT	extension	adverbial complement (CC)	Corrió compró un coche por 2.000 euros _{CC- ArgM-EXT} Camina muchísimo _{CC- ArgM-EXT}
ArgM-FIN	goal	adverbial complement (CC)	Juan amortix za capital para reducir cuota _{CC- ArgM-FIN}
ArgM-ADV	general		Las leía de nuevo _{CC- ArgM-ADV}
ArgL	this argument indicates that the	direct object (CD)/ attribute(ATR) /adverbial complement (CC) / / prepositional complement (CREG)	Lo atacaron cuando bajó la guardia _{CD- ArgL} Dio las gracias _{CD- ArgL} a su amigo Dio a luz _{CC- ArgL} a las 7 p.m.

	constituent is part of the verb		
ArgX	The argument of aspectual verbs	direct object (CD)	Suele cantar _{CD-ArgX} en la ducha

Table 1: Arguments, Thematic roles and Syntactic Functions