

LCM MANUAL (part2)

Measuring Language Abstraction

# *The Linguistic Category Model (LCM)*

Manual (part 2 - More specific coding instructions)

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## 1. Classification dependent upon the context

Some verbs can be coded differently depending upon the context. For example, ‘to hear’ and ‘to see’ can be coded either as SV or as IAV dependent on the context. When ‘to hear’ and ‘to see’ should be interpreted literally as ‘to perceive something with the sense of hearing or sight’, then ‘to hear’ and ‘to see’ should be coded as mental SVs. However, when ‘to hear’ and ‘to see’ refer to an action, they should be coded as IAVs. The examples beneath clarify this difference.

*For example:* ‘I heard them talking to each other’ versus ‘I have heard that you passed the exam’

In the first sentence ‘to hear’ refers to an auditory event, namely ‘perceiving people talk to each other’. Therefore, ‘to hear’ should be coded as SV.

In the second sentence, ‘heard’ doesn’t refer to perceiving something with the sense of hearing but to an action, namely someone saying something to you. This action verb can refer to a host of different actions (i.e. being informed by means of e-mail, a letter, talking, etc). Therefore, ‘to hear’ is an IAV in the second sentence.

*For example:* ‘I saw the old man crossing the street’ versus ‘We’ll see each other next week’

In the first sentence ‘saw’ refers to perceiving something with the sense of sight. In other words, the context of the sentence indicates that ‘saw’ should be interpreted literally. Therefore, ‘saw’ should be coded as SV.

In the second sentence, ‘see’ refers to an action, namely that these people will meet each other next week. ‘See’ shouldn’t be interpreted literally here. Therefore, ‘see’ should be coded as IAV in the second sentence.

## 2. Metaphors and sayings

Metaphors and sayings (e.g., ‘to stick one’s nose into other people’s affairs’, ‘to pull someone’s leg’, etc.) are figurative expressions. They describe situations or events on the basis of an analogy with an image. If metaphors and sayings were coded on the basis of the verb they contain, their symbolic character would be ignored. For example, if we coded ‘to pull someone’s leg’ on the basis of ‘to pull’ as DAV, this would imply that the saying is taken literally. To acknowledge the symbolic character of metaphors and sayings, they should be coded as ADJs. In the end, metaphorical language is an abstract account of events.

*For example:* ‘I called him everything under the sun.’

‘To call someone everything under the sun’ is a saying in which ‘everything under the sun’ is metaphorical language that qualifies ‘called’. Therefore, ‘called’ is an DAV and ‘everything under the sun’ should be coded as ADJ.

*For example:* ‘He always sticks his nose into other people’s affairs’

‘To stick one’s nose into other people’s affairs’ should not be interpreted literally. Instead, it is metaphorical language that should be coded as ADJ.

## 3. Auxiliaries and linking verbs

Independent verbs can be the only verb in a sentence because they have meaning in and by themselves. Thus, independent verbs don’t need the rest of the sentence to be meaningful. According to the LCM, independent verbs are coded as DAVs, IAVs, SAVs or SVs.

*For example:* ‘She walks her mother’s dog through the forest’

‘To walk’ has a meaning in and by itself because the rest of the sentence is not necessary to understand its meaning. Therefore ‘to walk’ is an independent verb, it is a DAV.

*For example:* ‘She helps her mother who is ill’

‘To help’ is an independent verb. The rest of the sentence is not necessary to understand what it means. As stated above, ‘to help’ is an IAV.

Aside from independent verbs, there are also linking verbs and auxiliaries. These types of verbs don’t have a meaning in and by themselves but derive their meaning from the rest of the sentence. According to the LCM, linking verbs and auxiliaries should not be coded as DAVs, IAVs, SAVs or SVs just like that, or should not be coded at all.

### 3.1. Auxiliaries

Auxiliaries are never the only verb in a complete sentence. These verbs have no meaning in and by themselves but get their meaning through another verb in the sentence. Shall, will, should, could, would, can, might, may, etc. are always auxiliaries in a sentence. Other verbs sometimes function as independent verbs and other times as auxiliaries. Auxiliaries should not be coded. The verbs that give them their meaning should be coded following the LCM coding instructions.

*For example:* ‘She can take care of her mother who is ill’

‘Can’ has no meaning in and by itself but derives its meaning from another verb, namely ‘take care of’. Thus, ‘can’ is an auxiliary and should not be coded. ‘Take care of’ is the “supplier of meaning” and should be coded following the LCM coding instructions. ‘To take care of’ refers to a host of different actions without a physically invariant feature. Therefore, ‘to take care of’ is an IAV.

*For example:* ‘She wants to walk her mother’s dog through the forest’

‘Wants’ is an auxiliary and should not be coded. ‘To walk’ is the “supplier of meaning” and should be coded. ‘To walk’ refers to actions that all have at least one physically invariant feature in common, namely legs. Therefore, ‘to walk’ should be coded as DAV.

*For example:* ‘They were laughing’ and ‘They were just standing there’

In both sentences above ‘were’ has no meaning in and by itself. It derives its meaning from the verbs ‘laughing’ and ‘standing’. Therefore, ‘were’ should not be coded in the sentences above. Because ‘laughing’ and ‘standing’ give meaning to ‘were’ they should be coded. Both verbs are DAVs.

*For example:* ‘She goes to her mother’ and ‘she goes shopping with her mother’

In the first sentence above ‘goes’ has a meaning in and by itself. Therefore, ‘goes’ should be coded. Because ‘goes’ can mean a host of different concrete actions (by bike, on foot, by bus, etc.) it is an IAV.

In the second sentence, in contrast, ‘goes’ has no meaning in and by itself but gets its meaning from ‘shopping’. Therefore, ‘goes’ should not be coded. ‘Shopping’ gives meaning to ‘goes’ and should be coded as DAV.

### 3.2. Linking verbs

Linking verbs can, just like independent verbs, be the only verb in a sentence. However, linking verbs have no meaning in and by themselves but get their meaning from the rest of the sentence. Therefore, linking verbs should not be coded by themselves but on the basis of the words that give them meaning.

To correctly code the part of a sentence containing a linking verb the following questions should be answered: Does the part of the sentence imply an action? If this is not the case, the linking verb should not be coded. The “supplier of meaning” determines how the part of the sentence should be coded. If the “supplier of meaning”

refers to an emotional consequence of an action, it should be coded as SAV (e.g. example 1). If, in contrast, the “supplier of meaning” refers to a personality trait, it should be coded as ADJ (e.g. example 6).

However, if the part of the sentence implies an action, a second question should be asked: does the “supplier of meaning” make the action more concrete? If this is the case, the linking verb and the “supplier of meaning” together are coded as IAV (e.g. examples 3-5). If the “supplier of meaning” qualifies the action but does not make it more concrete, the “supplier of meaning” is coded as ADJ, while the linking verb is coded as IAV (e.g. example 2).

*Example 1:* ‘Her mother was still impressed with her helpful behavior’

‘Was impressed’ does not refer to an action. Therefore, the linking verb ‘was’ should not be coded. ‘Impressed’ refers to an emotional consequence of an action and therefore should be coded as SAV.

*Example 2:* ‘They went to do something pleasant’

In the sentence above ‘went’ has no meaning without ‘do something pleasant’ and ‘do’ has no meaning without ‘something pleasant’. ‘Went’ is an auxiliary (see before) and should not be coded. ‘To do something pleasant’ refers to an action. ‘Pleasant’ qualifies the action but does not make it more concrete. Therefore, ‘pleasant’ is coded as ADJ and ‘do something’ is coded as IAV.

*Example 3:* ‘She took the trouble to care for her mother who was ill’

‘Took’ is a linking verb and gets its meaning from ‘the trouble’. ‘Took the trouble’ refers to an action and ‘the trouble’ makes the action more concrete, therefore ‘took the action’ should be coded as IAV.

*Example 4:* ‘They did mathematics together’

‘Did’ is a linking verb and gets its meaning from ‘mathematics’. ‘Did mathematics’ refers to an action and ‘mathematics’ makes the action more concrete. Therefore ‘did mathematics’ is coded as IAV.

*Example 5:* ‘They went on holiday’

‘Went’ is a linking verb and derives its meaning from ‘holiday’. ‘Went on holiday’ refers to an action and ‘holiday’ makes the action more concrete. Therefore ‘went on holiday’ is coded as IAV.

Some more examples:

*Example 6:* ‘I thought he deserved a rebuke’

In the sentence above ‘deserved’ is a linking verb that gets its meaning from ‘a rebuke’. Therefore, ‘deserved’ should not be coded. ‘A rebuke’ is the “supplier of meaning” and should be coded. Because ‘deserved a rebuke’ doesn’t refer to an action, it should be coded as ADJ.

*Example 7:* ‘Therefore, he deserved something special’

Again, ‘deserved’ is a linking verb that should not be coded. ‘Something special’ gives meaning to ‘deserved’ and should be coded. Because ‘deserved something special’ doesn’t refer to an action, it should be coded as ADJ.

*Example 8:* ‘He had a different religion’

‘Had’ is a linking verb and does not have any meaning by its own. It derives his meaning from ‘a different religion’. ‘Had’ is not coded. ‘A different religion’ is the “supplier of meaning” and therefore should be coded. Because ‘a different religion’ does not refer to an action it is coded as ADJ.

*Example 9:* ‘They have only themselves to thank for the bullying’

‘Have’ is an auxiliary and is not coded. ‘To thank for’ is a linking verb and derives its meaning from ‘themselves’. ‘To thank for’ is therefore not coded. ‘Themselves’ is the “supplier of meaning” and therefore should be coded. Because ‘themselves’

## 4. Quantifiers

### 4.1. What are quantifiers?

Small words like ‘always’, ‘never’, ‘many’, ‘very’, etc. are quantifiers because they refer to a quantity. These words can refer to a noun, an adjective, a verb or an adverb. There are two different types of quantifiers.

*For example:* ‘Every day she calls many friends to have a chat’

In the sentence above, ‘many’ refers to a noun, namely ‘friends’. In addition ‘many’ indicates a quantity. Therefore, ‘many’ should be coded as quantifier.

*For example:* ‘He talks a lot’

‘A lot’ refers to a verb, namely ‘talks’ and indicates a quantity. Therefore, ‘a lot’ should be coded as quantifier.

*For example:* ‘He negotiates very well’

‘Very’ refers to ‘well’ that is an adverb qualifying the verb ‘negotiates’. In addition ‘very’ indicates a quantity. Therefore, ‘very’ should be coded as quantifier.

*For example:* ‘She is always friendly towards elderly people’

‘Always’ refers to an adjective, namely ‘friendly’. In fact, ‘very’ adds a quantity to ‘friendly’ and should therefore be coded as quantifier.

#### 4.2. Why and when should quantifiers be coded?

Whenever you code a text using the LCM, you will surely bump into quantifiers. You will wonder whether you should code these words and how you should code them. When someone writes, for example, ‘he helps’ then, according to the LCM, ‘help’ is an IAV. But what if someone writes ‘he *always* helps’? Should ‘help’ also be coded as an IAV? Some authors (e.g., Maass, 1989) interpret ‘help’ in combination with ‘always’ as a generalization over persons. Thus, in the example ‘always’ indicates that ‘he’ helps everyone all the time. In other words, these authors interpret and code ‘to help’ in combination with ‘always’ as an ADJ, ‘helpful’. We prefer to code an action verb in combination with ‘always’ as an action verb because the person used a verb instead of adjective and therefore chooses for the action (help) and not the personality feature (helpful). We used and compared both types of coding. Results from our lab showed that there were no or only negligible differences between the general abstraction scores (see section 5 of part 1) between both types of coding.

We advice you to first check whether quantifiers occur frequently in the text you want to code. If quantifiers occur only sporadically, you could simply ignore them. In contrast, if quantifiers occur frequently, the better option is to code the text in both ways as described above. On the basis of both methods of coding the general abstraction scores (see section 5 of part 1) can be calculated and both results can be compared and reported.

### 5. Subordinate clauses

Sentences may contain subordinate clauses. These clauses sometimes may seem to qualify a person, object or situation like an ADJ, but are not coded as such. The interpersonal terms in the subordinate clause are coded according to the usual classification criteria of the LCM.

*For example:* ‘The man, that loves dogs, kicks the cat.’

In this sentence ‘that loves the dog’ qualifies ‘man’. But this subordinate clause is coded as one ADJ. ‘Loves’ is the term that has to be coded, and it is coded as SV since it refers to enduring mental state of the person.

*For example:* ‘The party was exuberant until the neighbors started to complain.’

The predicate ‘until the neighbors started to complain’ specifies the length of the party, but it’s a subordinate clause and cannot be coded as one item. The term that specifies the situation is ‘to complain’. ‘Started’ is an auxiliary and is not coded. ‘To complain’ refers to an action with a clear beginning and end but it’s not possible to visualize the event uniformly. ‘To complain’ is therefore coded as IAV.