# ANNOTATION GUIDE FOR SEMANTIC CHANGE TYPES

## 1. Terminology and Definitions

| Meaning, sense | Term that encompasses all 3 aspects of a word's semantics that we take into account: extension, connotation and semantic frame. |
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| **Extension** | "the entity or class of entities to which a word is correctly **applied**. For example, the extension (or extensional meaning) of the term *flower* would be the set of all flowers. 'Extension' is the referent or denotation of a word, as opposed to its **intension**, which includes only the defining properties of terms." (Crystal, 2011, p. 181) |
| **Intension\*** | "the set of defining properties which determines the **applicability** of a term. For example, 'legs', 'flat surface', etc., define the intension of table, and an intensional definition would be based on such notions, e.g. 'A table is something with legs, a flat surface, etc.' It is opposed to **extension**." (Crystal, 2011, p. 248). Intension defines the **ontological category** denoted by the word, within a structured conceptual system (e.g. hierarchical relations, events, objects, properties). |
| **Application** | "the overall relationship which exists between language and non-linguistic entities, situations, etc. The 'application' of a linguistic unit is its use in a specific context; a unit is said to be applicable to that context. For example, a lexical item may be applied to a range of situations (none of which would constitute part of its normal denotation or reference), e.g. heap being applied to a car, a house, a sculpture." (Crystal, 2011, p. 30) |
| **Connotation\*\*** | "A term used in semantics as part of a classification of types of meaning; opposed to denotation. Its main application is with reference to the emotional associations (personal or communal) which are suggested by, or are part of the meaning of, |

| | a linguistic unit, especially a lexical item." (Crystal, 2011, p. 102). Includes "The **emotive** and **stylistic** value of words" (Geeraerts, 2020). |
|---|---|
| **Emotive Meaning** | "The emotive meaning of an expression refers to its emotional effect on the listener" (Crystal, 2011, p. 167); in particular, for semantic change, "Carrying a positive or negative overtone" (Geeraerts, 2020, p. 11). |
| **Stylistic Meaning** | The stylistic meaning of an expression refers to whether the expression is used in formal or informal contexts (Geeraerts, 2020, p. 11). |
| **Semantic Frame** | "A semantic frame […] is a coherent structure of related concepts where the relations have to do with the way the concepts co-occur in real world situations." (Geeraerts 2006, p. 16). For instance, deprivation of liberty is a semantic frame that encompasses the following concepts: *act of seizing*, *captivity*, *prisoner*, *prison* (Koch, 1999). And, to understand any one of the concepts in a semantic frame, you have to understand the whole structure it fits (Fillmore, 1982). |
| **Hyponymy** | "Hyponymy is the relationship which obtains between specific and general lexical items, such that the former is 'included' in the latter (i.e. 'is a hyponym of' the latter). For example, cat is a hyponym of animal, flute of instrument, chair of furniture, and so on. In each case, there is a superordinate term (sometimes called a hypernym or hyperonym), with reference to which the subordinate term can be defined, as is the usual practice in dictionary definitions ('a cat is a type of animal . . .')." (Crystal, 2011, p. 233). |
| **Contiguity** | Contiguity refers to associations in the spatial, temporal or causal domain (Geeraerts, 2020). |

**Table 1:** Definitions of the terms used in this Annotation Guide. Boldfaced terms used in the definitions have themselves entries in the table.

**\*** Geeraerts, 2020 uses the term *Denotational Meaning* instead of Intension; however, his definition of Denotational Meaning overlaps with the definition of Intension in the literature. He defines denotational meaning as "Descriptive meaning of the words. The meaning, that is, through which words can act as categories to describe the world" (Geeraerts, 2020, p. 7). We also note that, in this guide, we use this term as it is used in Linguistic Semantics and not as it is used in Formal Semantics. In Formal Semantics, intension is "the sense of an expression, especially when modelled as a function from indices to extensions, as in possible-worlds semantics" (Crystal, 2011, p. 248).

**\*\*** Geeraerts, 2020 uses the term *Non-denotational Meaning* instead of Connotation; however, his definition overlaps with the definition of Connotation in the literature.

In this study we are annotating semantic change types in three categories: change in extension, connotation and semantic frame.

## 2. Change in Extension

Change in Extension encompasses changes in which extensions of the old and the new meanings are connected to each other through hyponymy.[1] It contains two semantic change types: broadening and narrowing.

Broadening: The old meaning is a hyponym of the new meaning (Geeraerts, 2020 calls it "sub-case" to refer to the same phenomenon). At least one property is removed from the intension of the old meaning.
- *Moon:* Earth's satellite → Any planet's satellite (Geeraerts, 2020, p. 8)
- *Arriver (fr.):* To reach the river's shore → To reach a destination (Geeraerts, 2020, p. 8)
- *Stift (de):* Pen → Any kind of writing tool (Koch, 2016, p. 21)

Narrowing: The new meaning is a hyponym of the old meaning (Geeraerts, 2020). At least one property is added to the intension of the old meaning.
- *Deor (old en.):* Animal → Deer (a specific kind of animal) (Traugott, 2017, p. 3)
- *Starve:* To die → To die of hunger (Geeraerts, 2020, p. 8)
- *Queen:* Wife/woman → King's wife (Geeraerts, 2020, p. 8)
- *Voyage:* Journey → Journey by sea (Traugott, 2000, p. 386)

## 3. Change in Connotation

Change in Connotation encompasses changes in the emotive or stylistic meaning of words (Geeraerts, 2020). Changes in the emotive meaning contains two semantic change types: amelioration and pejoration.

Amelioration: A shift toward a (more) positive emotive meaning (Geeraerts, 2020).

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[1] In intensional terms, one or more properties are added or removed from the intension of the words; however, this definition is not as useful because it needs to be constrained such that the changes do not alter the fundamental ontological category of the referent.

- *Nescius (lat.):* Ignorant → *Nice (en.)* Pleasant, appealing (Traugott, 2000, p. 385)
- *Queer:* Degrading term for LGBT people → Co-opted by the members of the group as a positive term (Traugott, 2017, p. 3)
- *Moed (nl.):* State of mind, character → Courage, braveness (Geeraerts, 2020, p. 12)

<u>Pejoration:</u> A shift toward a (more) negative emotive meaning (Geeraerts, 2020).
- *Seely (early middle en.):* Blessed innocent → *Silly* Ignorant, foolish (Traugott, 2000, p. 385)
- *Stincan (old en.):* To smell → *Stink* To smell obnoxious (Traugott, 2000, p. 385)
- *Conceit:* Idea, opinion → Overestimation of one's qualities (Traugott, 2017, p. 3)

## 4. Change in Semantic Frame

Change in the Semantic Frame includes the changes where the new meaning, the target, is mapped onto the old meaning, the source (Barcelona, 2019), through a semantic relation between the old and the new meanings (Traugott, 2017). Depending on the semantic frames new and old meanings belong to, changes in this category could be categorized as the two following change types: metaphor and metonymy.

<u>Metaphor:</u> The old meaning and the new meaning are related by similarity (Geeraerts, 2020) and/or analogy (Shutova, 2017; Traugott, 2017; Gentner et al. 2001). The old and the new meaning belong to different semantic frames (Barcelona, 2019). Often, an abstract concept is expressed through a concrete concept (Traugott, 2000, 2017).
- *Desktop:* An actual desk's top → Computer desktop (Geeraerts, 2020, p. 8)
- *Mouse:* Animal → Computer mouse (Geeraerts, 2020, p. 9)
- *Before:* In front → Earlier (Traugott, 2000, p. 386)
- *Tissue:* Woven cloth → Aggregation of cells in animals or plants (Traugott, 2017, p. 3)

<u>Metonymy:</u> The old meaning and the new meaning are related by contiguity, defined as associations in the spatial, temporal or causal domain (Geeraerts, 2020, Traugott, 2017; see Table 1). The old and the new meanings belong to the same semantic frame (Barcelona, 2019). There can be different types of contiguity relationship resulting in metonymy and most of these metonymies also have their reverse (Barcelona, 2019). These contiguity types are the followings (Geeraerts, 2020):
- Container for contents
- A spatial location for what is located there
- A period of time for what happens in that period, for the people that live then, or for what it produces
- A material for the product made from it
- The origin for what originates from it
- An activity or event for its consequences
- An attribute for the entity that possesses the attribute
- Part for whole
- *Board*: Table → People sitting around a table, governing body
- *Ite, missa est:* The association of the formula ending the Catholic service → Mass

## 5. Annotation Procedure

There are two files that need to be annotated for this study: RandomShifts and RandomShiftsLang. Both files have 100 different shifts from the DatSemShift database and the difference between them is that the RandomShifts file does not include any information related to the languages involved in the shifts whereas RandomShiftsLang still contains this information.

The Structure of RandomShifts File

| ID | Meaning_1 | Direction | Meaning_2 | Extension | Connotation | Emotive Value | Frame | Confidence |
|----|-----------|-----------|-----------|-----------|-------------|---------------|-------|------------|

The columns of the data in the RandomShifts file are presented above. The **ID** column contains the ID number of the shift in the DatSemShift database. The **Meaning_1** column contains descriptions of the initial meanings of the lexemes included in the shift, their old meanings. The **Direction** column contains the direction of the change, which meaning turned into which meaning. The **Meaning_2** column contains descriptions of the obtained meaning of the lexemes at the end of the shift, their new meanings. The remaining columns **Extension**, **Connotation**, **Emotive Value**, **Frame** and **Confidence** will be filled out by the annotators according to the criteria described below.

The Structure of RandomShiftsLang File

| ID | Language_1 | Lexemes_1 | Meanings_1 | Direction | Languages_2 | Lexemes_2 | Meanings_2 | Extension | Connotation | Emotive Value | Frame | Confidence |
|----|-----------|-----------|------------|-----------|-------------|-----------|------------|-----------|-------------|---------------|-------|------------|

The columns of the data in the RandomShiftsLang file are presented above. The **ID** column contains the ID number of the shift in the DatSemShift database. The **Language_1** column contains names of the languages that contain the lexemes included in the shift. Languages in this column are separated by comma. The **Lexemes_1** column contains the lexemes that had the initial meaning of the shift. To clarify which lexeme belongs to which language, lexemes are written in the following format: "Language:[Lexeme]". The **Meanings_1** column contains descriptions of the initial meanings of the lexemes included in the shift, their old meanings. To clarify which meaning belongs to which lexeme, meanings are written in the following format: "Lexeme:[Meaning]". The **Direction** column contains the direction of the change, which meanings turned into which meanings. The **Languages_2** column contains names of the languages that contain the lexemes that obtained the shifted meaning. To clarify which language had the initial meaning of their shifted lexeme, languages are written in the following format: "Language 1:[Language 2]". The **Lexemes_2** column contains the lexemes that had obtained the shifted meaning. To clarify which lexeme obtained the new meaning from which lexeme, the lexemes are written in the following format: "Lexeme 1:[Lexeme 2]". The **Meanings_2** column contains descriptions of the obtained meanings of the lexemes at the end of the shift, their new meanings. To clarify exactly which lexeme obtained which meaning, the meanings are written in the following format: "Lexeme 2:[ Meaning 2]". The remaining columns **Extension**, **Connotation**, **Emotive Value**, **Frame** and **Confidence** will be filled out by the annotators according to the criteria described below.

One shift could belong to more than one change category. Change categories (Change in Extension, Change in Connotation and Change in Semantic Frame) do not mutually exclude each other. If a shift does not fit a category, then the column of that category should be left blank. No value should be entered. The confidence column should not be left blank.

<u>Extension Column</u>

This column should be filled out when the particular shift fits to the Change in Extension, explained above. If the old meaning is the hyponymy of the new meaning, then the shift type is **Broadening**. The word "Broadening" should be written into the Extension column. If the new meaning is the hyponymy of the old meaning, then the shift type is **Narrowing**. The word "Narrowing" should be written into the Extension column.

If there is an uncertainty in terms of whether to classify a shift as a Change in Extension or not, or whether to classify it as Broadening or Narrowing, intension of the meanings could be consulted. If there is an addition or extraction of features from the intension of the meanings, that shift could be considered as Change in Extension. In case of an uncertainty in whether a shift is Broadening or Narrowing, if a new feature is getting introduced throughout the shift, then that shift should be considered Narrowing and if a feature is getting removed, then that shift should be considered Broadening.

For instance, in the aforementioned example:
- *Arriver (fr.):* To reach the river's shore → To reach a destination (Geeraerts, 2020, p. 8)

This is an example of Broadening because the first meaning has the following intensions: "to reach, river, shore". However, the second meaning has less intensions only with the "to reach". It has lost the intensions related to *river* or *shore*. Since features are removed from the intension, this shift is considered as Broadening.

<u>Connotation Column</u>

This column should be filled out when the particular shift fits to the Change in Connotation, explained above. If the old and new meanings belong to different contexts in terms of formality, (e.g., the old meaning is formal, but the new meaning is not) then the shift type is **Stylistic**. The word "Stylistic" should be written into the Connotation column. If the old and new meanings have different emotions attached to them (e.g., old meaning has a positive connotation whereas the new meaning does not), then the shift type is **Emotive**. The word "Emotive" should be written into the Connotation column.

<u>Emotive Value Column</u>

This column should be filled out only when the Connotation Column is filled in with the word "Emotive". The subtypes of the Emotive Meaning should be written in this column. If the new meaning is associated with more positive feelings than the old meaning, the shift type is **Amelioration**. The word "Amelioration" should be written into the Emotive Value column. If the new meaning is associated with more negative feelings than the old meaning, the shift type is **Pejoration**. The word "Pejoration" should be written into the Emotive Value column.

If a meaning changed from negative association to neutral, that should still be considered as Amelioration since the old meaning is associated with more negative feelings. Also, if a meaning changed from positive to neutral, that should still be considered as Pejoration. Therefore, in case of uncertainty in deciding on the shift type, the meanings should be evaluated relative to each other, regardless of their general perception of positiveness or negativeness.

<u>Semantic Frame Column</u>

This column should be filled out when the particular shift fits to the Change in Semantic Frame, explained above. If the old and the new meanings belong to the different semantic frames, the shift type is **Metaphor**. The word "Metaphor" should be written into the Semantic Frame column. If the old and new meanings belong to the same semantic frame, the shift type is **Metonymy**. The word "Metonymy" should be written into the Semantic Frame column. In case of uncertainty in deciding between Metaphor and Metonymy, the example below could be consulted.

For instance,
<center>

*Belly:* bag, purse → body part (Traugott, 2017, p. 10)
*Bar:* public house → counter in public house (Traugott, 2017, p. 10)
</center>

In the first example, the meanings (bag and body part) belong to entirely different semantic frames. They do not normally occur together in real life. Therefore, this shift is considered as a Metaphor. The motivation for the shift is the functional similarity between meanings (keeping stuff inside). In the second example, however, meanings belong to the same semantic frame: the public house. Two meanings do not have any kind of similarity relation between them, but they do co-occur in real life. Therefore, the second shift should be considered as Metonymy.

<u>Confidence Column</u>

This column should be filled out with the confidence ratings of the annotators. The confidence score for a shift could have the following values: 1, 2 and 3, which refer to "I am not confident in my decision.", "I am moderately confident in my decision." and "I am very confident in my decision.", respectively. This column should not be left blank.

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