

## Verb Class-specific Criteria for the Differentiation of Senses in Dictionary Entries

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*This contribution deals with the representation of verbs with multiple meanings or senses in general monolingual dictionaries. Criteria for differentiating senses in dictionary entries have traditionally been formulated with respect to the vocabulary in general. This paper argues that, while some criteria do indeed apply to the entire lexicon, many of them are relevant only to specific semantic classes. This will be demonstrated considering two selected verb classes: speech-act verbs and perception verbs. Like verbs of other classes, speech-act verbs and perception verbs may be ambiguous in different but recurrent ways. Since recurrent patterns of ambiguity are always typical of particular semantic classes, class-specific semantic criteria are formulated to decide whether a particular ambiguous speech act or perception verb should be treated as being polysemous or homonymous in dictionary entries. In addition to these class-specific semantic criteria, the semantic-syntactic criterion of identity or difference of argument structure is suggested for the lexicographical representation of verbs which may not be considered to be polysemous or homonymous on the basis of semantic criteria alone. According to the suggested argument-structure criterion, these verbs should be treated as polysemous when their senses correlate with identical argument structures and as homonymous when their senses correlate with different argument structures properties. As opposed to the semantic criteria suggested, the semantic-syntactic criterion of identity vs. difference of argument structure applies to verbs of different semantic classes. However, as will be illustrated by the discussion of the different senses of smell, it may sometimes force us to treat different but related senses as corresponding to two distinct lexical items. In order to solve this problem, the criteria suggested are supplemented by a preference rule stating that semantic criteria apply prior to the semantic-syntactic criterion of identity vs. difference of argument structure...*

### 1. Relatedness of meaning and its relevance to lexicographical practice

This contribution will be concerned with the representation of verbs with multiple meanings or senses in general monolingual dictionaries. Theoretical approaches to lexical ambiguity traditionally distinguish between two types of lexical ambiguity, homonymy and polysemy, the difference between them being based essentially on the notion of relatedness of meaning. While the former is commonly defined as covering cases where a single lexical item is associated with meanings which are not related from a synchronic point of view, the latter is taken to comprise instances of words possessing two or more senses which are manifestations of the same basic meaning (cf. Lyons 1977: 550, Lehrer 1990: 207-208, Pustejovsky 1995: 27-28, Ravin and Leacock 2000: 2, Allan 2001: 41-42, Behrens 2002: 322-327, Cruse 2004: 107).

Since relatedness of meaning is very much a matter of degree, and native speakers may differ considerably in their intuitions about which meanings may and which may not be taken to be derived from others, it is notoriously difficult to draw a sharp dividing line between homonymy and polysemy. Considerations of this kind have led some lexicographers to believe that the homonymy-polysemy distinction is altogether irrelevant to lexicographical practice (see Zöfgen 1989: 785 for a summary of the discussion). Ignoring that distinction in dictionary entries necessarily implies what Lyons has dubbed the "maximization of either homonymy or polysemy" (cf. Lyons 1977: 553-555). On the one hand, maximizing homonymy in dictionaries would result in every single sense of an ambiguous lexical item being listed as a separate entry. Such a procedure would inevitably inflate a dictionary's macrostructure, thereby lessening the clarity of its overall presentation and impeding the accessibility to its information. Maximizing polysemy, on the other hand, would amount to listing all senses of an ambiguous lexical item

within a single dictionary entry, a procedure which would balloon a dictionary's microstructure and would also hamper a user's access to information (cf. Zöfgen 1989: 785). Distinguishing between homonymy and polysemy therefore increases the clarity of presentation in dictionaries. However, once the importance of drawing that distinction is recognised, criteria are needed to differentiate between these two types of lexical ambiguity.

This contribution opposes the view that the homonymy-polysemy distinction is irrelevant to lexicographical practice. Instead, it argues that the relatedness or unrelatedness of the senses of lexical items should be reflected in dictionary entries. Dictionaries grouping together related senses and setting them apart from other, unrelated ones adequately represent the internal semantic structure of ambiguous lexical items and thereby reflect the way in which these expressions are used by competent speakers.

There is also evidence supporting the homonymy-polysemy distinction from a cognitive point of view. Recent findings from neurolinguistic research indicate that homonymous and polysemous lexical items are represented differently in the mental lexicon. The results of an experiment involving a combination of behavioural and magnetoencephalographic measures (cf. Pykkänen, Llinás and Murphy 2006) indicate that the mental representation of polysemy involves both representational identity and difference: related senses connect to the same abstract representation, but within that, they are distinctly listed. As opposed to polysemy, homonymy involves only representational difference; homonyms are represented as separate lexical items (ibid.: 9).

Criteria or tests for the differentiation of the senses of lexical items have traditionally been formulated with respect to the vocabulary in general (cf. Zwicky and Sadock 1975, Geeraerts 1993, Behrens 2002: 331-333). This paper argues that, while some criteria do indeed apply to the entire lexicon, many of them are relevant to specific semantic classes only. In what follows, this will be demonstrated for two selected verb classes: speech act verbs and perception verbs.

## 2. Criteria for the differentiation of the senses of speech act verbs

Speech act verbs are verbs used to refer to linguistic actions. They characteristically lexicalise combinations of speaker attitudes such as the speaker's propositional attitude (i.e. the attitude of the speaker towards the proposition of his/her utterance), the speaker's intention and the speaker's presuppositions (cf. Harras et al. 2004/2007). On the basis of the types of combinations of speaker attitudes they lexicalise, speech act verbs may be classified as belonging to one of the following four main classes: representatives (*claim, assert, inform, announce,...*), directives (*request, demand, beg, ask,...*), commissives (*promise, guarantee, vow, pledge,...*) and expressives (*complain, scold, praise, criticise,...*).

Speech act verbs may be systematically ambiguous (I) between uses as speech act verbs and uses as verbs expressing an attitude or mental state, (II) between uses as speech act (or linguistic action) verbs and uses as non-linguistic action verbs, and (III) between different speech act related uses. For each of these cases, different criteria may be formulated to decide whether they should be treated as instances of polysemy or of homonymy in dictionary entries. The criteria presented below were used to differentiate the senses and meanings of German speech act verbs in the *Handbuch deutscher Kommunikationsverben* (cf. Harras et al. 2004/2007).

I. Ambiguity between uses as speech act verbs and uses as verbs expressing an attitude or mental state.

This particular kind of ambiguity, which is typical of the class of speech act verbs, is known as "hybridity": a speech act verb is called "hybrid" when it may be used to refer to an attitude or mental state as well as to the linguistic expression of that attitude or state (cf. Searle 1979: 6-7). An example is the German verb *feststellen*, which, apart from having other, different uses, may be used both in the sense of "to notice" (the attitude or mental state sense) and in that of "to state" (the speech act sense) as exemplified in (1) and (2) respectively:

(1) ... "am Montag habe ich mir den neuen Reisepaß abgeholt. Und mußte feststellen, daß die Gebühren stillschweigend erhöht worden sind. ..." (Tiroler Tageszeitung, 22.07.1999).

[On Monday, I went to fetch my new passport. And had to notice that the fees have tacitly been raised.]

(2) Ein Abgeordneter des Parlaments hat dazu lakonisch festgestellt, mit der politischen Präsenz der Frauen im Postkommunismus sei es nicht zum besten bestellt. (die tageszeitung, 23.09.1991),

[Concerning this, a member of parliament has stated laconically that women are politically underrepresented in the postcommunist era.]

To the extent that, apart from some exceptional cases of ritualised conversational behaviour, being in a particular mental state or having a particular attitude is a prerequisite for being able to linguistically express that state or attitude, the senses of hybrid verbs are related: The speech act senses of these verbs imply their mental attitude senses. The first criterion for the separation of the senses of speech act verbs may hence be formulated as follows:

(a) Hybrid verbs (verbs which may be used both as verbs expressing an attitude or mental state and as speech act verbs) should be treated as being polysemous.

## II. Ambiguity between uses as speech act verbs and uses as a non-linguistic action verbs.

Some verbs which may be used as speech act (or linguistic action) verbs may additionally be used to refer to non-linguistic actions. This is true, for example, of the German verbs *aufschneiden* and *feststellen*. The former may be used to refer to the linguistic action of boasting as well as to the non-linguistic action of cutting something open; the latter is used both as a representative speech act verb ("to state") and as a non-linguistic action verb meaning "to fix something". When verbs may be used to refer to linguistic as well as non-linguistic actions, their uses tend to correlate with different argument structures. The non-linguistic action verb *aufschneiden*, for example, obligatorily realises its Patient-argument as a noun phrase in the accusative case (*etwas aufschneiden*—"to cut something open"—), while the linguistic action verb *aufschneiden* optionally realises its Theme-argument only as a prepositional phrase headed by *mit* ("with") (*mit etwas aufschneiden*—"to boast about something"—):

*aufschneiden*

1. *etwas aufschneiden*: "to cut something open" (non-verbal action) as in *eine Tüte aufschneiden* ("to cut open a bag")

[obligatory Patient-argument realised as a noun phrase in the accusative case]

2. (*mit etwas*) *aufschneiden*/(*damit*) *aufschneiden*, (*dass...*)/(*damit*) *aufschneiden* + infinitival clause: "to boast (about something)" (verbal action) as in *mit seinen Erlebnissen aufschneiden* ("to boast about one's adventures")

[optional Theme-argument realised as a prepositional phrase headed by *mit* ("with"), or as a finite or infinitival complement clause with the prepositional correlate *damit*.]

Similarly, when *feststellen* is used as a non-linguistic action verb, it obligatorily realises its Patient-argument as a noun phrase in the accusative case denoting an object to be fixed (as in *eine Schraube feststellen*—"to fix a screw"). When used as a representative speech act verb, it obligatorily realises its Theme-argument mostly as a finite complement clause or else as the pronoun *dies* ("this") or *das* ("that"):

*feststellen*

1. *etwas feststellen*: "to fix something" (non-verbal action) as in *eine Schraube feststellen* ("to fix a screw")

[obligatory Patient-argument realised as a noun phrase in the accusative case]

2. *etwas (dies/das) feststellen/feststellen*, *dass...*: a. "to notice" (attitude or mental state) as in (1); b. "to state" (verbal action) as in (2)

[obligatory Theme-Argument realised as *dies* or *das* or as a finite complement clause]

Even if the speech act related uses of some verbs may have developed from their more concrete uses as non-linguistic action verbs, the etymological relationship is hard to grasp from a synchronic point of view. Cases of ambiguity between uses as verbal vs. non-verbal action verbs should therefore be handled by the following criterion:

(b) Verbs which are ambiguous between uses as verbal action verbs and uses as non-verbal action verbs should be treated as being homonymous.

This means that verbs like *aufschneiden* and *feststellen* should be represented in dictionary entries as separate lexical items differing from each other with respect to their argument structure properties.

### III. Ambiguity between different speech act-related uses

While (I) and (II) represent relatively straightforward cases of polysemy and homonymy, the question of relatedness of meaning is more difficult to decide where verbs have different speech act related uses. Examples include *insistieren/insist* and the German verb *angeben*. *insistieren* and *insist* may both be used as representatives meaning “to maintain that something is true” and as directives meaning “to urge someone to do something”. The uses of these verbs as representatives vs. directives are associated with identical argument structure realisations:

*insist* (that.../on something)

*insistieren* (auf etwas/darauf, dass.../darauf + infinitival clause)

a. “to maintain that something is the case” (representative); b. “to urge someone to do something” (directive)

[optional Theme-argument realised as a prepositional phrase headed by *auf* (“on”) or as a finite or infinitival complement clause with the prepositional correlate *darauf*]

Like *insist* and *insistieren*, the German verb *angeben* is ambiguous between two different speech act related uses: it may be used to refer to situations in which a speaker gives information about a particular topic or state of affairs as well as to such in which a speaker boasts about something. In the former case, *angeben* is used as a representative, in the latter as an expressive speech act verb. Unlike the different uses of *insist* and *insistieren*, those of *angeben* are associated with different argument structure realisations. When *angeben* is used as a representative, it obligatorily realises its Theme-argument as a noun phrase in the accusative case denoting a particular type of information (*etwas angeben*) or as a finite complement clause (*angeben, dass...*). When being used as an expressive, it optionally realises its Theme-argument as a prepositional phrase headed by *mit* (“with”) (*mit etwas angeben*—“to boast about something”—) or as a finite or infinitival clause with the prepositional correlate *damit* (*damit angeben, dass...* “to boast that ...”/ *damit angeben* + infinitival clause):

*angeben*

1. *etwas angeben/angeben, dass...*: “to give information” (representative) as in *seine Adresse angeben* (“to give one’s address”)

[obligatory Theme-argument realised as a noun phrase in the accusative case]

2. (*mit etwas*) *angeben/(damit) angeben, (dass...)/(damit) angeben* (+ infinitival clause): “to boast” (expressive) as in *mit seinem neuen Auto angeben* (“to boast about one’s new car”)

[optional Theme-argument realised as a prepositional phrase headed by *mit* (“with”) or as a finite or infinitival complement clause with the prepositional correlate *damit*]

On the one hand, the different uses of verbs like *insist*, *insistieren* and *angeben* may be considered to be related, because they both relate to speech acts. On the other hand, the uses of these verbs differ in that they are related to different types of speech acts. This means that, in cases like these, the homonymy-polysemy question cannot be decided by the criterion of relatedness of meaning alone. The following additional criteria are required for the lexicographical representation of verbs which are systematically ambiguous between different speech act related uses:

(c) Verbs which are ambiguous between different speech act related uses should be treated as being polysemous when their uses are associated with identical argument structures and as being homonymous when their uses correlate with different argument structure properties.

The application of this criterion implies that *insist* and *insistieren* should be represented in dictionaries as single lexical items associated with two senses, while *angeben* should be listed as two separate lexical items, each of them being associated with its own particular argument structure.

While the semantic criteria (a) and (b) are relevant only to speech act verbs, the semantic-syntactic criterion of identity vs. difference of argument structure may be expected to apply to verbs of different semantic classes. We shall now explore the question of whether it may also be used to distinguish between homonymous and polysemous perception verbs.

### 3. Criteria for the differentiation of the senses of perception verbs

Perception verbs may be systematically ambiguous between uses as verbs of sensory perception and uses as verbs of cognition (cf. Miller and Johnson-Laird 1976: 585, Lehrer 1990: 224). These uses are exemplified by *He couldn't see her in the dark* and *I see what you mean* respectively. When used as verbs of sensory perception, perception verbs also have habitual as well as situation-specific senses. Systematic ambiguity between habitual and situation-specific senses is not restricted to perception verbs but extends to many other verb classes, including speech act verbs such as *stutter* and *stammer* and consumption verbs such as *smoke* and *drink*. While the habitual senses of perception verbs relate to someone's ability to perceive via the relevant sense organ, the situation-specific senses of these verbs relate to perception events which occur at a particular point in time or last for only a limited time period. The habitual sense of *see* and *hear*, for example, is exemplified by utterances such as *He'll never be able to see again* and *She doesn't hear well*. Utterances like *I have seen this film over and over again* and *I heard someone singing* illustrate the situation-specific senses of these verbs.

When used in their situation-specific sense, perception verbs may also be ambiguous between uses in constructions with an Experiencer-subject and uses in constructions with a Stimulus-subject (cf. Lehrer 1990: 223). This distinction is illustrated by *The dog had smelt a rabbit* (Experiencer-subject) vs. *Dinner smells good* (Stimulus-subject). When used with an Experiencer-subject, *smell* means "to notice a particular smell"; when used with a Stimulus-subject, it means "to have a particular smell". English verbs referring to perception via other sense organs (*tastefeel*) also show this kind of polysemy, but languages may also have different lexical items for each of the two senses (for example, *listen* vs. *sound* and German *hören* vs. *sich anhören*, *fühlen* vs. *sich anfühlen*, and *sehen* vs. *aussehen*).

Perception verbs occurring in constructions with an Experiencer-subject may additionally be ambiguous between uses as verbs of intentional perception and uses as verbs of non-intentional perception (as in *I bent down to smell the flowers* vs. *I could smell something burning*). This particular type of ambiguity is sometimes dissolved in English and in other languages by the existence of two separate lexical items to refer to intentional vs. non-intentional perception (for example, English *watch* vs. *see*, *listen* vs. *hear* and German *zusehen* vs. *sehen*, *zuhören* vs. *hören*).

On the whole, perception verbs may show the following types of systematic ambiguity: (I) ambiguity between uses as verbs of sensory perception and uses as verbs of cognition, (II) ambiguity between habitual and situation-specific senses, (III) ambiguity between uses in constructions with an Experiencer-subject and uses in constructions with a Stimulus-subject, and (IV) ambiguity between uses as verbs of intentional perception and uses as verbs of non-intentional perception. Patterns in (I), (III) and (IV) are typical of the class of perception verbs, though not every perception verb shows each of them. Fig. 1 summarises the ambiguity patterns of perception verbs.

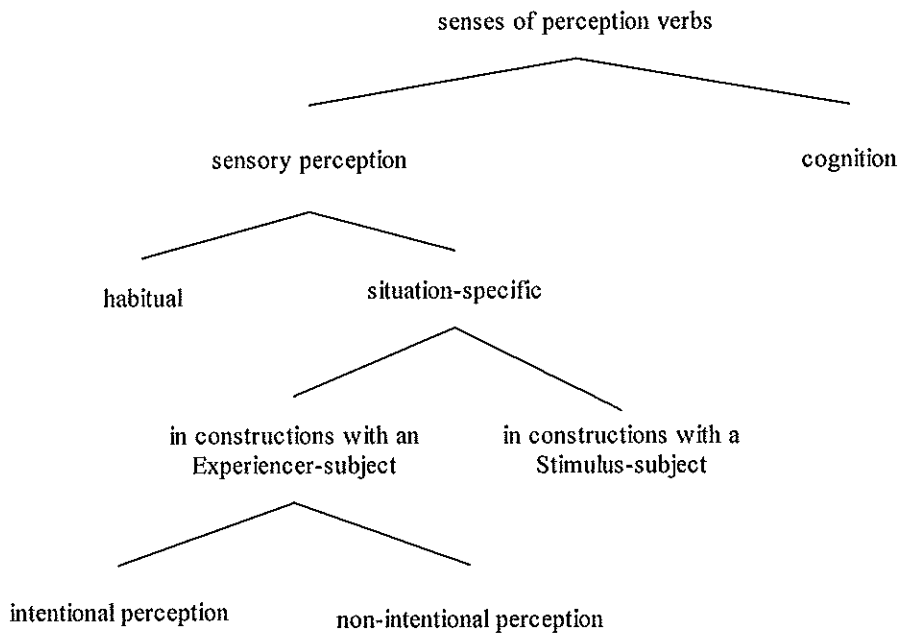


Fig. 1: Ambiguity patterns of perception verbs

The ambiguity of perception verbs between uses as verbs of sensory perception and uses as verbs of cognition may adequately be accounted for in dictionaries by a criterion requiring that the relevant uses be grouped together:

(d) Where verbs are ambiguous between uses as verbs of different semantic classes, similar uses should be grouped together.

Criterion (d) allows the different senses of verbs like *smell*, for example, as “to have a particular smell” and “to notice a particular smell” to be grouped together as senses both being related to sensory perception. Grouping these two senses together also seems to be desirable, because they are obviously semantically related: The latter presupposes the former. Cases of ambiguity arising from the use of perception verbs in constructions with an Experiencer-subject and in such with a Stimulus-subject may hence be dealt with by the following criterion:

(e) Verbs which are ambiguous between uses one of which presupposes the other should be treated as being polysemous.

However, the application of criterion (e) presents us with the problem that the two senses of verbs like *smell* are associated with different argument structure properties. When *smell* is used in the sense of “to have a particular smell”, the nominal expression occupying the position of the Stimulus-subject may denote either an animate or an inanimate entity. When *smell* is used in the sense of “to notice a particular smell”, only nominal expressions denoting an animate entity may occur in the subject position. *smell* also obligatorily realises its internal Stimulus-argument as a noun phrase in the accusative case when it is used in this sense (*somebody smells something*):

- smell
- 1. something/somebody smells: “to have a particular smell”  
[use with a Stimulus-subject]

2. something/somebody smells something: “to notice a particular smell”

[use with an Experiencer-subject; subject must be occupied by a nominal expression denoting an animate entity; obligatory Stimulus-argument realised as a noun phrase in the accusative case]

This discrepancy of relatedness of meaning on the one hand and difference in argument structure on the other turns out to be problematic if the criterion of identity vs. difference of argument structure is supposed to apply to verbs of different semantic classes. In spite of the obvious semantic relation between the two senses of *smell*, the argument structure criterion would in fact force us to treat the two uses of *smell* as corresponding to two distinct lexical items.

#### 4. Preference rules and hierarchy of criteria

I suggest that the problem of the discrepancy between semantic relatedness and difference of argument structure exemplified by the relevant senses of verbs like *smell* (“to have a particular smell” and “to notice a particular smell”) may be solved if criteria (a) - (e) are supplemented by the preference rule formulated in (f) below:

(f) Semantic criteria apply prior to the syntactic-semantic criterion of identity vs. difference of argument structure.

The preference rule in (f) implies that argument structure properties are relevant to the lexicographical representation of the senses and meanings of verbs only when the question of relatedness of meaning cannot be decided on the basis of semantic criteria alone. Fig. 2 presents an overview of the criteria relevant to the differentiation of the senses of speech act and perception verbs as well as the order in which in they apply:

Criterion I: semantic relatedness	Criterion II: argument structure	Ambiguity type
yes	identical or different	polysemy feststellen, smell
no	identical or different	homonymy feststellen, aufschneiden
not applicable	identical	polysemy insist/insistieren
	different	homonymy angeben

Fig. 2: Criteria for the distinction between homonymy and polysemy (speech act verbs and perception verbs)

#### 5. Conclusion

Semantic criteria as well as the semantic-syntactic criterion of identity vs. difference of argument structure are relevant to the differentiation of senses in dictionary entries. A relatively small number of semantic criteria suffices to cover many cases of systematic ambiguity. Since patterns of systematic ambiguity are always typical of particular semantic classes, different semantic criteria have to be formulated for each of these. Properties of argument structure become relevant only when the question of relatedness of meaning cannot be decided on the basis of semantic criteria alone.

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