



LUND UNIVERSITY

Perception verbs revisited

Usoniene, Aurelia

1999

[Link to publication](#)

Citation for published version (APA):

Usoniene, A. (1999). *Perception verbs revisited*. (Working Papers, Lund University, Dept. of Linguistics; Vol. 47). <http://www.ling.lu.se/disseminations/pdf/47/Usoniene.pdf>

Total number of authors:

1

General rights

Unless other specific re-use rights are stated the following general rights apply:

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Read more about Creative commons licenses: <https://creativecommons.org/licenses/>

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00

Perception verbs revisited¹

Aurelia Usoniene

This paper will present some very general descriptions of language-specific conceptualization of visual perception in English and Lithuanian, and will focus on some basic structure-dependent types of meaning of the *see* and *seem* type perception verbs in English and Lithuanian. For this purpose, the hierarchical structure of the clause and the typology of perception verb complements proposed by Simon C. Dik and Kees Hengeveld 1991, and the concept of entities discussed in the works of John Lyons 1977, 1991 will be followed in the analysis undertaken. A distinction will be drawn between experiential and non-experiential types of perception, with only the latter one being considered to convey information which is loaded with some modal qualifications. I will keep to the definition of the concept of modality developed in the works by Palmer 1986, Chafe & Nichols 1986, Frawley 1992, Nuyts 1992, Bybee et al. 1994, Botne 1997.

Introduction

A basic prototypical perception situation seems to be concerned with at least one of the two basic participants, that of the Perceiver (Experiencer), or that of the Perceived (Stimulus) involved in a certain perceptual relation that might get a variety of different interpretations by the users of language. There seem to be at least two main alternative ways of describing the given situation, namely making either the Perceiver or the Perceived the focus of attention, hence, the perceiver-oriented vs. perceived-oriented description leading to either Experiencer-Subject (Exp-S)/Experiencer-Object (Exp-O) or Stimulus-Subject (St-S)/Stimulus-Object (St-O) sentences which in its turn offer both syntactic and lexical means for coding the given semantic difference:

¹The work on the updating and revision of some basic issues regarding the semantics of perception verbs was done during my study leave as a guest researcher at the Department of Linguistics, Lund University, and it was funded by the Swedish Institute. I am very grateful to Prof. Åke Viberg for his suggestions and comments on some of the points dealt with in this paper. I owe a lot to Claire Gronemeyer and Jan-Olof Svantesson for their kind assistance and support in many of my undertakings, as well as for the pleasure of many stimulating discussions on both linguistic and non-linguistic topics. I wish to thank Caroline Willners for her help with the *BNC* data. All my warmest thanks go to the staff members of the Department of Linguistics for their hospitality, attention and perfect working conditions that I enjoyed during my stay at Lund University.

- | | |
|---|---|
| (1) Aš gerai <i>matau</i>
I (can) <i>see</i> well
E-Subject | Šuo <i>atrodo</i> liūdnas
The dog <i>looks/seems</i> sad
S-Subject |
| PERCEIVER <-----> PERCEIVED | |
| E-Object
It <i>seems/appears</i> to me ...
Man <i>atrodo</i> , kad ...
Man gerai <i>matosi/matyti</i>
I:Dat well see3Prs.Rfl/seeInf | S-Object
I (can) <i>see</i> the sea
Matau jūra
see1Prs seaAcc |

There are two points to be mentioned here. First, a distinction made between Exp-verbs and St-verbs (Schlesinger 1992, Croft 1993), when applied to the English and Lithuanian verbs of visual perception, can lead to the following opposition:

- | | |
|---|--|
| (2) <i>Exp(erienter) verbs</i>
E: see
Lith: <i>matyti</i> | <i>St(imulus) verbs</i>
look, seem, appear
<i>atrodyti</i> |
|---|--|

Second, lexical means of expression seem to dominate in some languages, while others prefer syntactic and morphological way of coding the given information. Compare the following pairs of English and Lithuanian sentences:

- | | |
|--|---|
| (3) a. Aš gerai <i>matau</i>
b. Man gerai <i>matyti/matosi</i>
I:Dat well seeInf/see3PrsRfl
lit. 'For me it is seen well'
c. <i>Matyti/matosi</i> jūra
seeInf/3PrsRfl seaNom | I (can) <i>see</i> well
I (can) <i>see</i> well
The sea <i>is visible</i> |
|--|---|

By means of case marking semantics and morphological opposition of personal and impersonal marking of the verb *matyti* 'see', Lithuanian introduces a kind of dynamic variation regarding the active/passive involvement of the experiencer in the perceptual situation described, while English seems to ignore such an alternation of the role of the experiencer. The Lithuanian examples in (3) are good illustrations of Croft's claim that "the degree of 'subjecthood' of the experiencer is matched by the degree of control over the mental relation" (1993). The coding of the experiencer in the Nominative joined by the personal active form of *matyti* 'see' exhibits the semantic features of 'primary responsibility' (Lakoff 1977), volition and control over the situation. On the other hand, the experiencer in the dative accompanied by the impersonal forms of the verb is regarded as absolutely passive and non-volitional because it shows "the human referent's involuntary predisposition to

- (5) The case *looks* promising.
The long-term prospects for this industry *are beginning to look* brighter. (*LDEL*C:143)

where the impression described is actually the same as that of *seem*-structures in the example below:

- (6) My career *seemed so promising* in England. (Goddard 1992)

The basic semantic feature distinguishing between the *see* and *seem* type verbs would be that of direct² and mediated perception which can be roughly illustrated by the following example:

- (7) I saw a/the house. It looked/seemed shabby.
The house (I saw) looked/seemed shabby.

The so-called ‘indirectness’ or ‘being mediated’ is very much common-sense-knowledge-based because we cannot ignore the fact that the impression (or qualitative characteristic of the stimulus) described by seeming verbs comes from the processing of sense data acquired during a direct act of perception.

The feature ‘unspecified’ in the structure of the meaning of the Lithuanian *atrodyti* ‘look/seem’ means that there is no indication of how the given perception has come to the awareness of the perceiver, i.e. whether it is tactile, visual, auditory, etc. There is no specification as to the kind of senses that have been used, which is regarded as an extension of the meaning of *atrodyti*, allowing it to cover nearly the whole spectrum of sense modalities as shown in the examples below:

- | | | |
|-----|-------------------------------------|-----------------------------------|
| (8) | Čingis <i>atrodo</i> kaip pudelis. | ‘Chingis looks like a poodle’ |
| | Jis <i>atrodo</i> labai užkimęs. | ‘He sounds/seems very hoarse’ |
| | Kailis <i>atrodo</i> labai švelnus. | ‘The fur feels/seems very soft’ |
| | Sriuba <i>atrodo</i> per sūri. | ‘The soup tastes/seems too salty’ |

As we can see, *atrodyti* can be used to describe impression that presupposes or indicates direct visual/auditory/tactile acts of perception. Some

²See type verbs are usually referred to as verbs of immediate or direct perception. However, I find the term ‘immediate’ applicable only to the cases described by the Lithuanian perfective forms *pamatyti* ‘PRF-see’ that correspond to the English *catch sight of* verbs denoting immediate and momentaneous result. These forms are opposed to the imperfective forms like *matyti* ‘see’ denoting perception that can take some period of time, and as a rule, correspond to the *can/could see* predicative phrases, for instance:

Aš vis dar *mačiau* krantą, nors ašaros temdė akis.
‘I *could still see* the shore though my eyes were misting over with tears.’

languages have specific verbs of mediated perception to indicate the source of evidence (cf. English *look*, *smell*), while others extend the meaning of the few verbs they have. Åke Viberg 1984 illustrates this feature by referring to an unpublished paper of Andy Rogers who gives examples from Russian. Consider the following example that native speakers find natural and acceptable:

(9) Q do si x por sl ywu /tot zapax. 'I can still *hear* this smell.'

The same holds true for the English verbs of seeming and is not an exception for the *look* type verbs, in that they do not presuppose or indicate any specific act of perception. The source of evidence obtained that has led to the given impression might have reached the author via different paths or sources: from vision, deduction or even hearsay.

Further extension of the meaning of verbs of perception would be directly structure-dependent. This might lead to the so-called 'experiential vs. non-experiential' types of perception, to use Woodbury's (1986) terms that he used for describing the meaning of the verb *see* in sentences like *I see (that) Jack was drinking* where it was regarded as having an evidentiality reading. But, before proceeding to a more detailed analysis of all the possibilities in this area, Scheme 1 should be introduced, where an attempt has been made to give a very general picture of the workings of syntax-semantics interface on the example of the analysis of perception verbs.

Some very general features have been listed and arranged in a kind of hierarchical structure showing the four possible levels of language-specific reconsideration of the perceptual situation, where particular types of specification should be taken into account that might explain and vividly demonstrate the nature of relationship holding between syntax and semantics. Having described the first two levels in the previous sections, I will proceed to the third level which is directly concerned with the structure-dependent types of meaning of the verbs under investigation. It is the choice of the type of complementation that affects the experiential vs. non-experiential reading of the given verbs, which can actually be regarded as further extension of meaning. For this purpose, I will be following the hierarchical structure of the clause and the typology of perception verb complements proposed by Dik & Hengeveld 1991 and the concept of entities developed by Lyons 1977, 1991.

to have much in common with its English counterpart, for there are the following types to be distinguished using Dik & Hengeveld's classification:

- (10) IPI: Mačiau vaikus sode.
 'I saw children in the garden'
- IPSoA: Matau vaikus žaidžiančius/žaidžiant sode.
 see1Prs childrenAcc playPartMPIAcc/Ger gardenLoc
 'I can see children playing in the garden'
- MP: Matau, kad tu melagis.
 'I see that you are a liar'

As in many other languages, the most interesting and problematic cases from the point of view of structure and meaning, are definitely the IPSoA and MP cases represented by various kinds of nominalizations, non-finite and finite types of clauses that occur in the complement position. For instance, the English Acc cum Inf structure would correspond to the Lithuanian *kaip* ('how') clause denoting a second order entity (11a), though the same clause following *matyti* 'see' can denote a third order entity (11b), as can be seen when comparing the examples below:

- (11) a. I saw him fall down. Mačiau, *kaip* jis parkrito.
 see3Prs how he Prf.fall3Prs
- b. Mačiau, kaip jam sunku.
 'I saw how difficult it is for him'

It is the third type of *see* used in MP structures and taking *that*-clauses with a specific time sequence to be observed, that is regarded by quite a few scholars as conveying some modal qualifications, namely evidential (see the collection of papers edited by Chafe & Nichols 1986). Actually, one cannot deny the fact that sentences like *I see that you are a liar* contain a direct indication to the speaker's source of evidence, i.e. the senses – the path the inference has been based on. There has only been a move from vision to cognition, which according to Dik & Hengeveld 1991 is a secondary MP. However, there is no element of doubt present in the statement of the given type. Thus, MP structures with the verb *see* can be regarded as evidential indicating the source of knowledge, while the information conveyed by those with verbs of seeming, as I will try to show later, is of a different nature.

A more detailed analysis of the Lithuanian data on how complementation can affect the meaning of the verb *atrodyti* 'look/seem', i.e. what modal meaning is expressed and by what structures, is presented in Usoniene 1998. The basic results of the study can be roughly summarised as follows:

(12) MPI/MPSoA: $S \rightarrow NP\ V\ AP/AdvP/NP$

Namas atrodo geras /gerai/apeistas /tikras griuvena.
 houseSgMNom look3Prs goodSgMNom/Adv/abandonPartPass/wreckNeuNom
 ‘The house looks/seems well/abandoned/a real wreck’

Jos noras viską daryti savaip atrodo labai keistas.
 her wishMNom everythingAcc doINF selfAdv seem3Prs very strangeSgMNom
 ‘Her wish to do everything her own way seems very strange’

MP: $S \rightarrow (NP)\ V\ CP_{fin}/CP_{non-fin}$

Atrodo, (kad) ji sveiksta /greit pasveiksianti.
 seem3Prs that she recover3Prt/soon Prf.recoverFutPartFNom
 ‘It seems that she is getting better/will soon get better’
 ‘She seems to be getting better’

The general picture of the basic types of complementation of the verb *atrodyti* is similar to that of *matyti*, where MP structures take finite or non-finite clauses with the optional complementizer *kad* ‘that’ which correspond to the English *It seems that S* or *X seems to be p* structures.

What is worth taking a closer look at is the opposition of two complement types following the verbs of seeming in English, namely those structures that take zero copula and those that take the full form *to be*³, which can be illustrated by the following alternatives used in the pair of sentences below:

- (13) a. The lights are on. They *seem to be*/**seem at home*.
 b. She *seems to be*/*seems at home* only with her books.

In (13a), the denotational situation is construed the way that it can allow only one interpretation, namely the speakers’ uncertainty regarding the fact of their being at home, and the use of *to be* becomes strictly non-optional. However, (13b) allows both interpretations: mediated perception (experiential reading) and the speaker’s attitude towards what s/he is asserting (non-experiential reading).

An attempt will be made to propose some explanation as to why the use of the copula *to be* is not always optional with adjectives as is claimed by some scholars (Hoffman 1976). In this paper, it is assumed to be meaningful and its choice is determined by the above mentioned feature of experiential vs. non-experiential type of perception which is very much structure-dependent. Thus, the function of *to be* can be said to be a kind of proposition marker which in

³Bolinger in his paper devoted to the restudy of the verb *remind* (1971) seems to be the first to mention that a theory is needed with regards to the status of the infinitive *to be* in relation to *appear* and *seem*.

its turn leads to the extension of the meaning of *seeming* verbs, and as a result of this extension, a kind of hypothetical judgement with some modal qualification enters the scene. The explanation for this kind of behaviour lies in the very nature of the two phenomena opposed. The speaker's hypothetical judgement expressing his/her doubts regarding the proposition asserted is a form of thought which can be expressed by stating it. However, one can not experience it by the senses. Thus, when the linguistic units (no matter whether they are adjectives, participles or nouns) following seeming verbs in the given structures do not denote properties proper that describe appearances and outward looks of the objects perceived, they cannot be 'zero-complemented' to the verbs of seeming. For instance:

- (14) *seem
 Some children *look *thin by heredity.*
 seem to be
 He seems to be/*seems/*looks *right on this point.*

It is obvious that the person is merely judging in a very tentative way the truth value of the proposition asserted, i.e. the fact of children being thin by heredity, but not giving account of his/her impression obtained on some children's appearance because 'thinness by heredity' or 'being right on some point' does not belong to the domain of properties describing somebody's outward looks. On the contrary, when describing situations where there is no room left for doubt regarding the truth value of the proposition asserted, the use of structures with *to be* is blocked, e.g.:

- (15) *seems to be
 If her dress *appears to be dirty, she'll be told off.
 looks

In the given example, the presence of a particular feature unconditionally predetermines or evokes a definite sequence of events or states of affairs. Thus, the situation does not permit the speaker's evaluation to get over the scope of the proposition.

Moreover, to give more evidence that structures with the obligatory or non-deletable *to be* denote judgement, a test with phasal verbs can be offered. Our general impression regarding somebody/something's looks seems to allow some dynamism, and can be divided into different phases of its existence, for we can say:

- (16) After a while it *starts to seem* eerie. (Goddard 1992:226)

He *stopped looking* sulky and became his normal self. (BNC)

because zero-complemented predicative phrases refer back to the grammatical subject of the sentence, and report on some change in the appearance that has been detected or is under observation by the speaker. On the contrary, the use of phasal verbs in the *X seems to be p* structures is unacceptable⁴:

(17) The place **began to seem to be* more and more familiar.

In cases with non-deletable *to be*, the information conveyed is not some evaluatively charged qualitative characteristic of the stimulus. Instead it is the speaker's judgement of the situation in terms of the truth value which is a form of thought that has reached the terminal point of its development and thus is complete for the time being, hence indivisible. Thus, the semantic feature of being mediated can be said to have developed further extension to the sphere of subjective judgement regarding the truth value of the proposition.

When dealing with some verbs of cognitive perception (*find, believe, etc.*), Borkin 1973 has also arrived at a very similar conclusion. She claims that in cases of the choice of the structures with the deleted *to be*, "the sentence becomes more of a report of an experience than the stating of a fact based on experience". There are several points to be made. First, the use of *to be* is considered meaningful, and second, the difference in meaning is described in terms of the features that can be regarded as directly related to the directness vs. being mediated proposed in the given analysis. With regard to the structures containing verbs of seeming in English and Lithuanian, the given opposition of $\emptyset p$ vs. *to be p* can be summarised as direct specified/mediated unspecified perception vs. mental perception accompanied by certain modal qualification.

Therefore, I cannot agree completely with Mithun 1986 and I have suggested a somewhat different interpretation of sentences like *Sam seems tired* that she claims to be evidential. I have tried to show that such sentences convey information on evaluatively charged report on stimulus perception without suggesting any interference of the speaker's subjective evaluation of the truth value of what s/he is asserting. Moreover, the verbs of seeming followed by zero-complementation is part of the predication, which actually disagrees with one of Anderson's (1986) criteria for evidentials. While Mithun's observation that "specification of source can hedge probability" in

⁴It is important to point out that no structures with phasal verbs *begin* or *start* followed by *appear/seem to be p* have been found in the BNC either.

that Sam might not actually be tired reminds of a well-known polemic between Austin 1962 and Ayer on the veridical and delusive nature of our perceptions, material things and sense data. The notion of veracity in the given type of sentences cannot be of relevance here, because no matter what the reality is, the information conveyed does not contain any elements of doubt/uncertainty on the part of the speaker even though it might contradict the real state of things. Actually, the sentence might be organized the way that it would focus on the cause determining the given quality of impression obtained, which under given circumstances cannot be different, e.g.:

(18) Poor light made the room look/seem/appear gloomy.

Again, the speaker's speculations on the truth value of the proposition asserted are absolutely unacceptable in such cases:

(19) Poor light made the room *seem/*appear to be gloomy.

Thus, I consider the given cases of *X seems/appears p* as reports of acts of mediated perception which might be very pretty much evaluative, i.e. evaluatively charged both personally (subjective qualification) or interpersonally (shared knowledge). Consider the examples below:

(20) *To me*, however, he seemed an elemental force for hope.
(Goddard 1992)

It began to seem *to him* a charm to bring good luck ... (BNC)

Peace and truth began to seem more important than making war and making money. (BNC)

According to the latest sales figures, things look very black for us.
(LDELIC:113)

While the element of inference (I follow Salkie 1996 here) seems to belong more to the previous mental act or deduction, it is not determined by the meaning of the verb *seem*, but by the presupposition of the utterance. The final decision regarding the semantic element of personal or shared knowledge reading of the whole phrase seems to be dependent upon the micro/macro context, i.e. evidence might be expressed overtly in the text by some linguistic means in the same sentence, or it might be covert in that it can be inferred from our general knowledge of the world.

Similarly, those structures with the verbs of seeming that are followed by the *to be p* do not indicate the path or source of acquiring knowledge either because the perception described by the Lithuanian *atrodyti* or the English

seem/appear is unspecified in terms of sense modalities. There is no indication as to the way or source of acquiring the evidence on the basis of which judgement has been passed (the core meaning of evidentials). The speaker's uncertainty regarding the truth of the proposition can be of either subjective or 'intersubjective' nature to use Nuyts's terminology. Moreover, I find Nuyts's observation that "an additional evidential meaning" of the modal adverbs expressing probability "is purely due to contextual information, either derived from the context, or based on our general knowledge of the world" (Nuyts 1993:948), also applicable to the meaning of the verbs of seeming. Thus, the speaker's speculations regarding the reliability of the propositional content can be subjective or intersubjective based on personal/common sense knowledge of the world. The information they convey is that of doubt/uncertainty on the part of the speaker.

Thus, when choosing *see that* or *matyti, kad* structures, the speaker reports on his/her inference while giving preference to the MP structures with the verbs *atrodyti* and *seem/appear* the person can get or remain as if more distanced from his/her direct involvement into the process of inference.

Furthermore, if we go on contrasting MP constructions with the verbs *see* vs. *seem* in terms of Frawley's (1992) Deictic Categorization and Scaling of Epistemic Modality, we shall see that the inference of *see* falls under the dimension of 'Self' which is either the speaker or the perceiver. In the case of *seeming* verbs, the dimension is within the scope of the 'strength of knowledge' to quote the author and falls under 'Self' or under 'Other' or under both. Thus, I argue that the specification of the propositional content carried out by these verbs is of a different nature and belongs to different dimensions or value scales. In MP or *I see [S]* structures we have 'direct self-inference' while in MP structures with *seem* there seems to be 'indirect intersubjective inference'.

Concluding remarks

First, extension of the meaning of the verbs observed might be based on some purely lexical features of perception verbs, when we get neutralization of the opposition ‘specified vs. unspecified’ perception in terms of sense modalities, which is characteristic both of Experiencer-verbs and Stimulus-verbs of perception.

Second, there are cases of structure-dependent or syntax-imposed extension of meaning which leads to a very general kind of perception called mental or ‘non-experiential’. This can have some modal qualification indicating either the path or source of evidence (evidential specification) or the speaker’s greater/lesser degree of certainty regarding the truthfulness of the proposition asserted. The former seems to be more characteristic of perception verbs denoting direct specified acts of experience, while the latter is characteristic of the verbs of mediated perception.

The general tendency of the extension of meaning in the domain of perception can be summarised as:

- (21)
- | | | | | |
|------------|---|-------------|---|-------------------------|
| | | | | → evidential |
| specified | → | unspecified | → | mental |
| perception | | | → | modal |
| | | | | → epistemic probability |

References

Primary Sources:

BNC – British National Corpus

LDELIC – Longman dictionary of English language and culture. Harlow: Longman. 1992.

Goddard, R. 1992. *Take no farewell*. London: Corgi Books.

Secondary Sources:

Aijmer, K. 1980. *Evidence and the declarative sentence*. Stockholm: Almqvist & Wiksell International.

Ambrasas, V. (ed.). 1997. *Lithuanian grammar*. Vilnius: Baltos lankos.

Anderson, L. B. 1986. ‘Evidentials, paths of change, and mental maps: typologically regular asymmetries’. In W. Chafe & J. Nichols (eds.), *Evidentiality: the linguistic coding of epistemology*, 273-312. Norwood: Ablex.

Austin, J. L. 1962. *Sense and sensibilia*. Oxford: Clarendon.

Bolinger, D. 1971. ‘Semantic overloading: a restudy of the verb REMIND’. *Language* 47, 522-47.

- Borkin, A. 1973. 'To be and not to be'. *Chicago Linguistic Society* 9, 44-56.
- Botne, R. 1997. 'Evidentiality and epistemic modality in Lega'. *Studies in Language* 21, 509-32.
- Bybee, J., R. Perkins & W. Paglucia. 1994. *The evolution of grammar*. Chicago: The University of Chicago Press.
- Chafe, W. & J. Nichols (eds.). 1986. *Evidentiality: the linguistic coding of epistemology*. Norwood: Ablex.
- Croft, W. 1993. 'Case marking and the semantics of mental verbs'. In J. Pustejovsky (ed.), *Semantics and the lexicon*, 55-72. Dordrecht: Kluwer.
- Dik, S. C. & K. Hengeveld. 1991. 'The hierarchical structure of the clause and the typology of perception-verb complements'. *Linguistics* 29, 231-59.
- Frawley, W. 1992. *Linguistic semantics*. Hillsdale: Lawrence Erlbaum Associates.
- Hoffman, T. R. 1976. 'Past tense replacement and the modal system'. In J. D. McCawley (ed.), *Syntax and semantics*, vol. 7, 85-100. New York: Academic Press.
- Lakoff, G. 1977. 'Linguistic gestalts'. *Chicago Linguistic Society* 13, 236-87.
- Lyons, J. 1977. *Semantics*. Cambridge: Cambridge University Press.
- Lyons, J. 1991. 'Semantic ascent: A neglected aspect of syntactic typology'. In D. Arnold et al. (eds.), *Essays in grammatical theory and universal grammar*, 153-86. Oxford: Clarendon.
- Mithun, M. 1986. 'Evidential diachrony in Northern Iroquoian'. In W. Chafe & J. Nichols (eds.), *Evidentiality: the linguistic coding of epistemology*, 89-112. Norwood: Ablex.
- Nuyts, J. 1992. 'Subjective vs. objective modality: What is the difference?' In M. Fortescue, P. Harder & L. Kristoffersen (eds.), *Layered structure and reference in a functional perspective*, 73-97. Amsterdam: John Benjamins.
- Nuyts, J. 1993. 'Epistemic modal adverbs and adjectives and the layered representation of conceptual and linguistic structure'. *Linguistics* 31, 933-69.
- Palmer, F. R. 1986. *Mood and modality*. Cambridge: Cambridge University Press.
- Salkie, R. 1996. Modality in English and French: a corpus-based approach. In K. Jaszczolt & K. Turner (eds.), *Contrastive semantics and pragmatics: meanings and representations*, Vol. 1, 381-92. Oxford: Pergamon.
- Schlesinger, I. M. 1992. 'The experiencer as an agent'. *Journal of Memory and Language* 31, 315-32.

- Usoniene, A. 1998. 'How modal is the Lithuanian verb ATRODYTI ('look/seem')?'. In *Germanic and Baltic linguistic studies and translation*, 116-26. Vilnius: Homo liber.
- Viberg, Å. 1984. 'The verbs of perception: a typological study'. In B. Butterworth (ed.), *Explanations for language universals*, 123-62. Berlin: Mouton.
- Wierzbicka, A. 1980. *Lingua mentalis*. Sydney: Academic Press.
- Wierzbicka, A. 1995. 'Adjectives vs. verbs: the iconicity of part-of-speech membership'. In M. E. Landsberg (ed.), *Syntactic iconicity and linguistic freezes. The human dimension*, 223-45. Berlin: Mouton.
- Woodbury, A. C. 1986. 'Interactions of tense and evidentiality: a study of Sherpa and English'. In W. Chafe & J. Nichols (eds.), *Evidentiality: the linguistic coding of epistemology*, 188-202. Norwood: Ablex.