IDS Korpuslinguistik und interdisziplinäre Perspektiven auf Sprache

Band 9

Maximilian Murmann

Inchoative Emotion Verbs in Finnish

Argument Structures and Collexemes

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Abstract

The present thesis investigates the syntagmatic relations of certain Finnish emotion verbs that are formed by the derivational suffix *-ua/-yä* (e.g. *suuttua* 'get angry', *pelästyä* 'get frightened'). Prototypically, the suffix expresses reflexivity, but in the case of the "inchoative" emotion verbs, it indicates a change of state on behalf of the experiencer, from a non-emotional state to an emotional state.

The starting point of the investigation is a discussion of different psychological theories of emotion. The discussion shows that constructivist theories particularly emphasize the role of language and offer several links to the cognitive, usage-based model of language that constitutes the theoretical framework guiding the thesis. With regard to the usage-based model, special focus will be put on the status of argument structures and the categorization of words. Furthermore, the work draws on theoretical and methodological insights from corpus linguistics, which is concerned with the description of linguistic data on the basis of large text collections. The methodology chapter will present some of the most central corpus linguistic concepts, as well as several forms of co-occurrence analysis adapted in order to investigate the syntagmatic relations of the verbs in question.

The empirical part of the study makes use of the Suomi24 corpus, which is based on the eponymous Finnish discussion forum. Prior to the analyses, the corpus was queried for the twenty most frequent inchoative emotion verbs. The results of the first analysis, where the focus has been put on argument realization (e.g. *suuttua jostakin* 'get angry about something' vs. *pelästyä jotakin* 'get frightened by something'), suggests that the distribution of the different argument realization patterns only partially reflects semantic similarities among the verbs. In the second analysis, the main interest was the causes or stimuli provoking particular emotional states (e.g. *suuttua kritiikistä* 'get angry about criticism' vs. *pelästyä ääntä* 'get frightened by noise'). The collexeme analysis used in this context leads to the conclusion that emotion verbs with similar semantics also co-occur with similar stimulus nouns. These semantic preferences can be related to different aspects of the stimuli, such as their ontology (e.g. *rakastua* 'fall in love' + human beings), particular topics (e.g. *huolestua* 'get worried' + health), or other semantic characteristics related to them (e.g. *yllättyä* 'get surprised' + expectations). Thus, the quantitative methods used in the present work lead to results that cannot be obtained by exclusively relying on a qualitative analysis.

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Contents

1. Introduction

Languages offer many devices to talk about emotions, verbs being among the most common ones. The present study will focus on a set of Finnish emotion verbs that are used to express a change from a non-emotive state to an emotive state. For this reason, they are referred to as inchoative emotion verbs in the reference grammar of Finnish (*Iso suomen kielioppi*), from which the following examples are taken:

(1) *Lisä-ksi* *Virtanen* *tek-i* *se-n* *kokemattoma-n*
addition-TRL Virtanen make-PST.3SG that-ACC inexperienced-GEN

edustaja-n *virhee-n,* *että* *hikeenty-i* *välihuudo-i-sta*
representative-GEN mistake-ACC CONJ get.angry-PST.3SG interruption-PL-ELA

'In addition, Virtanen made the mistake common to inexperienced members of parliament: getting angry about interruptions' (ISK §466)

(2) *Nuku-i-n* *yö-n* *levottoma-sti* *ja* *aamu-lla*
sleep-PST-1SG night-ACC restless-ADV and morning-ADE

tuskastu-i-n *nopea-sti* *taukoamattoma-an* *juoruilu-un*
grow.weary-PST-1SG quick-ADV ceaseless-ILL gossip-ILL

naapure-i-sta
neighbor-PL-ELA

'I spent the night restlessly and in the morning I quickly grew impatient with the ceaseless gossip about the neighbors' (ibid.)

(3) *hän* *ties-i* *että* *ennemmin* *tai* *myöhemmin* *isä*
3SG know-PST.3SG CONJ sooner or later father

suuttu-isi *häne-lle* *ja* *tarttu-isi* *kiinni,* *ja*
get.angry-COND.3SG 3SG-ALL and grab-COND.3SG onto and

silloin *hän* *läht-isi*
than 3SG leave-COND.3SG

'S/he knew that sooner or later (his/her) father would get angry at him/her and grab onto (him/her), and than s/he would leave' (ibid.)

The inchoative emotion verbs are characterized by a derivational suffix that is based on the vowel *u/y*, depending on the vocalism of the stem (i.e. vowel harmony). What they also have in common is that the experiencer is expressed as the unmarked subject of the clause. The stimulus is marked with one of the dynamic local cases of the Finnish language, typically elative (1), illative (2) and allative (3), which are used in similar contexts like spatial prepositions in

English, as can be seen in the translations of example (1-3). Thus, (1) would literally translate as "getting angry *out of* the interruptions", (2) as "I quickly grew impatient *into* the ceaseless gossip about the neighbors" and (3) as "(his/her) father would get angry *onto* him/her". Finally, some inchoative emotion verbs appear together with the partitive case (4), which was originally used to express motion from a certain place, but is nowadays used to perform more abstract functions, such as object marking.

(4) *Minä* *saata-n* *pelästy-ä,* *säikähtä-ä* *kova-a*
1SG may-1SG get.scared-INF get.frightened-INF loud-PTV

ään-tä *tai* *odottamaton-ta* *näky-ä*
sound-PTV or unexpected-PTV sight-PTV

'I may get scared, get frightened by a loud sound or by an unexpected sight' (ibid.)

So far, inchoative emotion verbs have not received much attention in Finnish Studies. There appear to be two main reasons for this: first, inchoative emotion verbs such as *pelästyä* 'get frightened' tend not to be as frequent as their causative or stative counterparts, i.e. *pelottaa* 'frighten' and *pelätä* '(to) fear', respectively. By way of example, consider the absolute number of occurrences of the following lemmas within the Suomi24 corpus:[1]

inchoative	**tokens**	**causative**	**tokens**	**stative**	**tokens**
pelästyä 'get frightened'	21 794	*pelottaa* 'frighten'	116 955	*pelätä* '(to) fear'	119 000
yllättyä 'be surprised'	46 705	*yllättää* '(to) surprise'	123 304		
rakastua 'fall in love'	153 119			*rakastaa* '(to) love'	593 071

Table 1: Distribution of selected emotion verbs in the Suomi24 corpus

Second, the argument structures that they appear in deviate from canonical argument structures. With a study dedicated to the argument structures of inchoative emotion verbs, I want to fill the gap and particularly focus on the syntactic contexts in which they appear. Some years ago, it may have been difficult to find enough data for this endeavor, but the rise of digital text corpora provides a solid empirical base for investigating seemingly marginal phenomena that are part and parcel of every language. In the present treatise, I also aim to go a step further and examine the words that appear within these argument structures, focusing on the stimulus role. I argue that a systematic, corpus-based analysis of stimulus nouns helps for understanding the seman-

[1] The results are based on version 2015H1 of the Suomi24 corpus.

tics of individual emotion verbs and how they are related to other emotion verbs. This approach is founded on the reasoning of usage-based theories of language, but I will try to show that the results are also relevant for emotion research beyond the linguistic domain.

The structure of the dissertation is as follows: In Chapter 2, I will start with an overview of the main threads of emotion research, in order to show how recent developments within psychology ascribe a wholly new role to linguistic studies of emotion concepts. After presenting several linguistic approaches that have been fruitfully applied to investigations of emotion terms, I will discuss the state of research within Finnish linguistics and make the case for a usage-based approach that considers insights from both cognitive linguistics and corpus linguistics.

Chapter 3 addresses theoretical prerequisites that will be useful in the analysis of actual language data. First, I will discuss the status of argument structures within different theories of language, with the main emphasis on valency theory and construction grammar. Drawing on prior research, I will argue that the two approaches can be merged into a single, usage-based theory of argument structures. Second, I will present previous work on nominal categorization that shall be used as a starting point for the semantic analysis of stimulus nouns.

Chapter 4 introduces the data and methodological tools used in the present treatise. The thesis makes use of the Suomi24 corpus, which is based on the eponymic social networking website and available for query in the online corpus interface Korp. I will shortly discuss the structure of the corpus and explain which verbs will be part of the study. After that, I will discuss several aspects that are necessary for the analysis of their corresponding argument realization patterns. The rest of the chapter is reserved for a method called *covarying collexeme analysis*, which will help to determine the association between individual emotion verbs and stimulus nouns that co-occur with them.

The analysis of argument realization patterns will be carried out in Chapter 5. I will proceed from nominal arguments to clausal arguments and show that the information value of argument realization patterns is limited when it comes to the semantics of inchoative emotion verbs. As the distinction between *arguments* and *adjuncts* is not clear-cut from a usage-based perspective, the analysis also includes constructions that are traditionally subsumed under the term *adjunct*, but nevertheless have a verb-specific distribution.

Finally, Chapter 6 will provide an exhaustive analysis of stimulus nouns that co-occur with the inchoative emotion verbs selected for this study. The presentation of the results goes beyond a mere description of verb-noun pairs and the aim is to find groups of nouns that are preferred by individual verbs and near-synonymous items. We will see that this approach provides interesting insights that can also be quantified to some extent. The thesis is closed with a discussion of the results and an outlook for further ways to investigate emotion terms with the help of corpus methods, in particular those used in the present study.

2. Emotion and language

Until recently, emotions had a bad reputation within the realm of science. Following the rationalist tradition coined by Plato and Aristotle, as well as Descartes and Spinoza, modern scholars emphasized the role of cognition in human reasoning, whereas emotion was merely seen as a nuisance factor. But, neurobiological evidence suggests emotions are a fundamental part of information processing and problem solving, making the classical dichotomy between emotion and rationality obsolete (see Schulkin/Thompson/Rosen 2003; Turner/Stets 2005: 21-22). Eventually, this observation caused (cognitive) scientists to re-think their view of emotions and it is fair to speak of an emotional turn in the humanities. In the last 25 years, emotions have been studied from a wide variety of perspectives, including anthropology (e.g. Milton/Svašek (eds.) 2005), sociology (e.g. Stets 2012) and history (e.g. Plamper 2015). Although all these disciplines reveal important aspects about the concept of emotions, I will restrict the following discussion to research within psychology and linguistics. Recent insights from psychology will help to clarify what defines the term *emotion*, but also what a linguistic perspective can offer to the study of emotions.

2.1 What are emotions?

Albeit the concept of EMOTION has been widely studied since the 1960s, there is no satisfying definition for it. As Fehr/Russel (1984) famously remarked, "[e]veryone knows what an emotion is, until asked to give a definition" (p. 464). Kleinginna/Kleinginna (1981) provide a feature-based taxonomy of the almost 100 definitions that emerge from the literature published until then. Instead of untangling the common features of all these and newer definitions, I will give a short overview of the main theories in psychological emotion research (for an exhaustive discussion of the different theories and definitions, see Sander 2013), in order to determine relevant criteria for the present study.[2]

First of all, it is useful to distinguish between *emotion* and *feeling*. Whereas the two notions were, and are still equated from pre- and non-scientific perspectives, contemporary emotion researchers see feeling (i.e. psychophysical sensations) just as one component of emotion. Furthermore, emotions are characterized by the quality of *intensionality* (Kenny 1963) or *object directedness*

[2] Of course, reality is more complex than this brief overview on the discipline of emotion research, simply because individual researchers provided insights to more than one approach.

(Nissenbaum 1985), i.e. they are directed towards something in the world. This is particularly relevant for the present study, which is focused on the linguistic realization of these *antecedents* or *stimuli*. Prior to modern psychology, it was widely agreed that emotions were mental events that simply triggered physical changes in the body. This one-sided view changed dramatically due to the proliferation of theories in psychology and related disciplines, such as neuroscience.

2.1.1 Basic emotion theory

According to most textbooks, modern psychology brought fourth two major traditions of emotion research (Gendron/Feldman Barrett 2009: 316), i.e. basic emotion theory and appraisal theory.[3] The roots of the former can be traced back to Darwin (1872), who argued that human emotions are products of evolution and to some extent universal. He assumed that emotional states are encoded in certain expressions that serve as a source of information for others, e.g. eyes and mouth wide open in the case of fear. While Darwin's thoughts were rather unpopular among contemporaries, his ideas were famously reintroduced by Tomkins (1962, 1963), Izard (1971), as well as Ekman (1972), who stressed the role of facial expressions. On the basis of specific configurations of facial muscle movements, Ekman identified six basic emotions, i.e. anger, fear, disgust, joy, sadness, and surprise.

According to Ekman, these six emotions are basic in the sense that their facial expressions are universally recognizable, albeit there is some room for cultural variation. Other criteria proposed to determine the basicness of emotions include a discrete physiological reaction (e.g. heart rate and skin conductance), automatic evaluation of the environment and presence in other primates. Less basic categories are then taken to be subcategories of basic emotions or combinations of them. According to Plutchik (1980), love, for instance, is merely a combination of the two basic emotions joy and trust. Although the idea of universal emotions is widely accepted, there is no consensus on the number of basic emotions among researchers. As mentioned above, Ekman (1972) distinguishes between six basic emotions, whereas Plutchik (1980) distinguishes between eight (i.e. joy, trust, fear, surprise, sadness, disgust, anger, and anticipation), just to name two well-known proponents of basic emotion theory. Furthermore, basic emotion theorists assume that each (basic) emotion is manifested in a distinct neural activity in the brain. In reference to this neurobiological component, basic emotion theories are also called *affect pro-*

[3] Not to be confused with the linguistic appraisal framework (cf. Martin/White 2005), which is based on the systemic functional linguistics theory of Halliday (1985) and his colleagues.

gram theories: "The affect program of an emotion is situated in the central part of the somatic component and is put forward as the cause of several other components (motivational, peripheral somatic, motor) in the emotion" (Moors 2012: 259). Thus, activity in the brain forces the body to react in a certain way, when being confronted with a particular situation, e.g. running away from a dangerous animal, to take a very general and simple example. But, recent research that employs neuroimaging techniques suggests that the human brain does not have distinct regions for certain emotions, e.g. fear is not exclusively situated in the amygdala, as has been claimed for a long time (Brosch 2013: 369).

Whereas basic emotion theories/affect program theories rely on the assumption that there is a biological substrate underlying every emotion, Fehr/Russell (1984) suggest that the concept of emotion is captured best by prototype theory (Rosch 1978; see also 2.2.2). They argue that emotions defy any clear definition, because their categorization is based on repeated experience of emotions and not on individual pre-defined criteria. The concept of emotion and individual representants thereof consitute fuzzy categories that lack clearly defined boundaries. Yet, some emotions (e.g. fear) are better representatives of the emotion prototype than others (e.g. boredom) and thus more basic in the sense of basic-level concepts (see 3.2):

> Basic-level concepts accomplish two important functions of categorization: They convey more, and more specific, information about category members than superordinate categories do, and at the same time, they are superior to sub-ordinate-level concepts in identifying major distinctions between categories (Shaver et al. 2001: 27).

In this sense, the word *fear* is similiar to a word like *chair*. To stick with the example, a word like *dread* refers to a subordinate term, just like the word *kitchen chair*. On the superordinate level, *fear* consitutes an *emotion*, just like *chair* refers to a piece of *furniture*. The idea of basic-level emotions that was originally formulated by Fehr/Russell (1984), is not only in line with cognitive linguistics (see 2.2.2), but also relevant for the categorization of the emotion verbs studied here. For this reason, I will come back to the issue in Chapter 4.

2.1.2 Appraisal theory

Also appraisal theory, the second major paradigm within emotion research does not wholly reject the idea of basic emotions. Most appraisal theorists treat emotions as natural kinds, i.e. distinct categories with specific properties. But, unlike basic emotion theory, where emotions are treated as modular phenomena, appraisal theory treats emotions as multidimensional phenome-

na. Its main assumption is that emotions are not mere reflexes triggered by stimuli, they rather emerge from a meaningful interpretation of the stimulus at hand (Gendron/Feldman Barrett 2009: 317). This approach, originally forwarded by Arnold (1960), was innovative in several ways: first, it acknowledged the context-dependent nature of emotions, which can be illustrated by the following example taken from Ellsworth (2013: 126): "A nondescript person in a waiting room or a theater lobby will be merely part of the crowd to most people, but the sight of him will overwhelm his long-lost lover, who presumed him dead." This is to say that people evaluate or *appraise* one and the same situation differently, depending not only on their personal, but also on their cultural background. Second, a meaningful interpretation of the stimulus presupposes (at least a minimal) contribution of human cognition, i.e. more than automated physiological and neurological activities. The notion of APPRAISAL itself can be defined as a process that produces values for one or more variables. But, it is important to note that these variables are not binary by nature, i.e. good or bad; novel or familiar. They rather constitute continua. Consider, for instance, the appraisal profiles postulated for the different emotions in Table 2:

Appraisal criteria	**joy/ happiness**	**anger/rage**	**fear/panic**	**sadness**
Novelty	high	high	high	low
Intrinsic pleasantness	high	open	low	open
Goal significance				
Outcome probability/ certainty	high	very high	high	very high
Conductiveness/ consistency	conductive	obstructive	obstructive	obstructive
Urgency	low	high	very high	low
Coping potential				
Agency/ responsibility	self/other	other	other/nature	open
Control	high	high	open	very low
Power	high	high	very low	very low
Adjustment	high	high	low	medium
Compatibility with standards/ value relevance/ legitimacy	high	low	open	open

Table 2: Appraisal profiles for different emotions (adapted from Ellsworth/Scherer 2003: 583)

Based on early research, appraisal theories are centered on a common set of criteria relevant for the evaluation of an event on behalf of the person undergoing an emotional state (experiencer). This set comprises the *novelty* or familiarity of objects/events; their "valence" or *intrinsic pleasantness*; their *goal significance* (relevance for a person to achieve her/his goals); their *coping potential* (a person's possibility to overcome the emotion or the situation that caused it), as well as their *compatibility with standards* (i.e. social norms/personal values). Appraisal theorists assume that the nature of each emotion is determined by a specific combination of judgments based on these criteria. Essentially, appraisal theory's main contribution to the study of emotions is that it seeks to determine what matters in a person's perception of a stimulus. This is particularly relevant for the present treatise, which is focused on the relation between emotion verbs and stimulus nouns in the Finnish language.

2.1.3 Psychological constructionism

A third strand of emotion research that has gained growing attention in the recent years is called the *psychological constructionist model* and sometimes mistakenly conflated with appraisal theory, because like the latter it also takes emotions to be the result of a meaningful interpretation. But, in contrast to appraisal theorists who assume that the object of interpretation is the external, situational circumstance of an emotional experience, constructionists assume that the meaning analysis is directed at internal bodily circumstances or affective states: "an emotion emerges when a person's internal state is understood in some way as related to or caused by the situation" (Gendron/Feldman Barrett 2009: 318). In fact, this view can be traced back to William James, who is often thought of as a basic emotion theorist and famously wrote "that the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur IS the emotion" (James 1884: 189-190). This view has come to be known as the *feedback theory*.

Contemporary constructionists assume that the building blocks[4] of the meaning interpretation, the so-called *primitives*, are not specific to emotion, but also relevant for other mental systems such as cognition and perception. In other words, constructionists reject a clear division between emotion and cognition (and perception), which is also supported by evidence from the neurosciences (Feldman Barrett 2011: 367). This idea resonates with cognitive linguistics, which seeks to explain linguistic phenomena through general cognitive mechanisms:

[4] Researchers proposed different ideas how these compounds combine, e.g. in the form of temporal stages or at the same time.

> [Cognitive Linguistics] contrasts with formalist approaches by viewing language as an integral facet of cognition (not as a separate "module" or "mental faculty"). Insofar as possible, linguistic structure is analyzed in terms of more basic systems and abilities (e.g. perception, attention, categorization) from which it cannot be dissociated (Langacker 2010: 32).

Furthermore, one may assume that the interpretation of sensations, also referred to as *situated conceptualization*, is not switched on in the face of particular situations but is always active. Feldman Barrett and other proponents of the conceptual act model assume that emotion emerges from a complex interaction between four primitives: *executive functions, core affect*, *exteroceptive sensations*, and *conceptual knowledge*.

First of all, the process of situated conceptualization presupposes the activity of a set of cognitive processes that are necessary to process information and control behavior, i.e. executive functions. Second, constructionists assume that affective sensations from inside the body provide a constant background for mental systems such as emotion and cognition, i.e. core affect. At the same time humans constantly process sensations from outside the body, i.e. exteroceptive sensations, such as vision, hearing, and touch. Both exteroceptive and bodily sensations are vague and potentially ambiguous. Thus, conceptual knowledge is necessary to make sense of this constant flow of information and turn it into specific emotions, such as fear and anger. But, what constitutes conceptual knowledge about an emotion like sadness? Lindquist (2013: 362) argues that memory plays a central role in childhood acquisition of emotion: "e.g. when mom and dad tell Joey not to be 'sad' because of a broken toy, Joey learns that negative feelings following a loss are associated with the category 'sadness' in his culture" (ibid.). This aspect of conceptual knowledge is called *episodic knowledge*. But, what is particularly relevant for the present study is the role of *semantic knowledge* (see Lindquist/MacCormack/Shablack 2015: 2-3) in the emergence of conceptual knowledge.[5] Put bluntly, there is no concept of sadness without words like *sad* and *sadness*.

Unlike beings and things, emotions do not have clear boundaries and *gestalt* properties. Thus, only language makes it possible to conceptualize emotions (and other abstract notions; see 3.2) as discrete categories. Therefore, it is also not surprising that most people have a common-sense idea of what an emotion is, whereas researchers struggle to find a satisfying scientific definition of the notion. This observation can actually be related to the idea that language gives rise to certain folk models of emotion (Lakoff/Kövecses 1987), which will be discussed in 2.2.2 below.

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[5] Vigliocco et al. (2009: 234) distinguish between experiential and linguistic information.

Most importantly, the perspective of psychological constructivism puts linguistic analysis in a wholly new position within the realm of emotion research. From the perspective of basic emotion theory and appraisal theory, emotions exist independently from language. Emotions are taken as prototypical natural phenomena and languages merely happen to have words for these phenomena. Although the study of these words and other ways to express emotions may be interesting in their own right it is essentially irrelevant for the field of psychology. This picture looks different from a constructionist perspective (for an exhaustive discussion, see Lindquist/MacCormack/Shablack 2015), where language is taken to be an important aspect of conceptual knowledge.[6] As mentioned earlier, the psychological constructionist model shares some core ideas with cognitive linguistics: both theories ascribe a central role to conceptualization and they assume that the brain is not divided into discrete areas fulfilling particular functions. On the contrary, they assume that mental phenomena, such as language and emotion can be explained by domain-general processes such as categorization. Finally, emotion and language are both claimed to be embodied. According to constructivist psychology, the body is essential for the conceptualization of emotions (core affect). This means that "our construal of reality is likely to be mediated in large measure by the nature of our bodies" (Evans/Green 2006: 2). In the case of language this is for instance supported by metaphorical expressions[7] that take body terms as a source domain (see 2.2.2). Thus, both cognitive linguistics and constructivist psychology question the traditional dichotomy between body and mind and find support in neurological studies. For a discussion of the neuroscientific plausibility of some of the main tenets proposed by cognitive linguistics in general and Construction Grammar in particular, consider Pulvermüller/Cappelle/Shtyrov (2013).

In Chapter 3 and Chapter 4, I will discuss how actual language data allows linguists to contribute to the understanding of emotions. The present treatise will focus on one aspect of conceptual knowledge, namely syntagmatic relations between emotion verbs and argument realization patterns as well as

[6] Klann-Delius (2015: 150) criticizes constructivist psychology for putting too much emphasis on conceptual aspects and ignoring social aspects.

[7] Within their neural theory of language (NTL), Feldman/Narayanan (2004) even go a step further and claim that the very meaning of individual words or expressions is embodied: "Consider the word 'grasp'. Everyone will agree that the meaning of the word grasp involves the motor action of grasping in some way. The NTL approach to language suggests that the complex synergy that supports grasping is the core semantics of the word" (Feldman/Narayanan 2004: 385). This idea resonates with the notion of *image schemas* coined by Johnson (1987), who takes embodied experience to be at the very core of conceptual representations.

stimulus nouns. Cognitive linguistics, in particular usage-based approaches, appears to be a good theoretical starting point for the analysis of these phenomena. The analysis owes much to the different strands of (non-linguistic) emotion research presented so far: Basic emotion theory gives an impression of how emotions can be categorized, but it does not provide a satisfying list of criteria for this purpose. As a reaction, Fehr/Russel (1984) propose to classify emotions in terms of prototypes, which is very much in line with cognitive linguistics. I will revisit this idea in Chapter 4 for the categorization of the verbs analyzed in this study. With its focus on situations anteceding emotions, appraisal theory also has its appeal: insights from this framework will serve as a reference for the analysis in Chapter 6. Finally, constructivist psychology appears to be particular suitable to integrate linguistic aspects within the interdisciplinary field of emotion research. In the following section, I will give an overview of the linguistic perspective(s) on emotion and determine how the present treatise can build on existing research, with a particular focus on the Finnish language.

2.2 The linguistic perspective

Although the connection between language and emotion (concepts) lies at hand, the topic of "emotion talk" has been neglected by linguists for a long time. Only recently a rising number of publications, research clusters (e.g. *Languages of Emotion*), and projects (e.g. *GRID*)[8] appear to mark a shift in this situation. First of all, it is useful to distinguish studies that investigate language *about* emotion from those that investigate language *as* emotion (Grondelaers/Geeraerts 1998: 357). Whereas the former deal with individual words (e.g. *fear* and *anger*) and fixed expressions (*to have cold feet* for fear) denoting emotion, the latter deal with the emotive value of expressions that are not prototypically used for denoting emotions. This includes phenomena like intonation, intensity markers, use of pronouns, and discourse structure, all of which have primarily been studied within the realm of pragmatics and text linguistics (see Bednarek 2008a: 9-11). As the present treatise is concerned with the linguistic behavior of emotion verbs in Finnish, we will leave these studies aside and focus on three approaches that stand out in the investigation of individual emotion words and their conceptual nature.

[8] GRID is based on the assumption that emotions are processes that consist of several components, which are synchronized as a response to particular events (see Fontaine et al. (eds.) 2013). Some theoretical and methodological aspects (e.g. the role of conceptualization and use of actual language data) of the project also resonate with the ideas of the present study.

2.2.1 Natural semantic metalanguage

The theory of natural semantic metalanguage (NSM, e.g. Wierzbicka 1972, 1996; Goddard/Wierzbicka (eds.) 2002) is built on the assumption that there is a universal set of 63 semantic primes, including substantive-like elements such as SOMEONE and SOMETHING/THING, predicate-like elements like DO, FEEL, HAPPEN, MOVE, and THINK, descriptive and evaluational elements like BIG, SMALL, GOOD, and BAD, as well as spatiotemporal elements like HERE and NOW, just to name a few (see Goddard 2006: 191-192). This set of primes is claimed to account for the meaning of all words in all languages. They are considered the core of human thought and therefore "do not require any explanations, for they are innate and intuitively clear to us" (Wierzbicka 1998: 114). Although NSM is primarily concerned with lexical semantics, the semantic primes are assumed to be combined in the same way across all languages. Thus, proponents of NSM presuppose some kind of universal grammar that includes simple combinatorial properties that are reflected in utterances like 'this something' (i.e. determiner + determined), as well as valency and complement frames (Goddard 2015: 293-294), such as 'something HAPPENS' (i.e. minimal frame) or 'something HAPPENS to someone/something' (i.e. undergoer frame). Within NSM, word meanings are typically spelled out in the form of so-called *reductive paraphrases* that are compiled from the semantic primes mentioned above. Consider, for instance, the explication of the English verb *kill*:

> *Someone X killed someone Y*:
> someone X did something to someone else Y
> because of this, something happened to Y at the same time
> because of this, something happened to Y's body
> because of this, after this Y was not living anymore

In contrast to more generic analyses often used in linguistic research, e.g. cause to die, the explication above gives a more articulated account of the verb's event structure, which includes an action, the action's immediate effects and a change of state. The NSM model has been applied to various aspects of lexical semantics, emotion terms being one of its central topics. Consider, for example the explication of the English word surprise (adapted from Wierzbicka 1992: 549):

> *Surprise*
> someone X feels something
> sometimes a person thinks something like this
> "something happened now

I didn't think before now: this will happen
if I thought about this I would have said: this will not happen"
because of this, this person feels something
someone X feels like this

In contrast to verbs referring to concrete, perceivable actions like *kill*, explications of emotion verbs involve a feeling ('someone X feels something'), which is in turn linked with a prototypical cognitive scenario (in this case a thought, cf. paraphrase in quotation marks: "something happened now…") that serves as a reference for the emotion in question. Goddard (2015) provides a more recent and nuanced analysis of *surprise*, cf. Table 3 below. The explication comprises four components: LEXICOSYNTACTIC FRAME, TRIGGER SITUATION, THOUGHT, and FEELING. Also note that the emotion term in question is not equated with a feeling like in the explication above. This analysis is more in line with accounts from psychology that see emotion as a complex, multimodal phenomenon:

[A] Someone was **surprised** (at that time).	
this someone X thought something about something at that time at the same time this someone felt something because of it	LEXICOSYNTACTIC FRAME
a short time before it was like this: – something happened – because of this, this someone knew something about something	TRIGGER SITUATION
after this, this someone thought about it like this: "I didn't know before that it will be like this I know it now"	THOUGHT
when this someone thought like this, this someone felt something like people feel at many times when they think like this	FEELING

Table 3: Explication of *surprised* (adapted from Goddard 2015: 297)

The explication suggests that surprise is evoked by unexpected situations. In his paper, Goddard (2015) also seeks to determine the semantic differences between different surprise words in English, namely *surprised*, *amazed*, *astonished*, and *shocked*. While they are claimed to share a common lexicosyntactic frame and trigger situation, they differ in thought and feeling, cf. Table 4:

[B] Someone was **astonished** (at that time)	
this someone X thought something about something at that time at the same time this someone felt something because of it	LEXICOSYNTACTIC FRAME
a short time before it was like this: – something happened – because of this, this someone knew something about something	TRIGGER SITUATION
after this, this someone thought about it like this: "it can't be like this, at the same time, I know now that it is like this"	THOUGHT
when this someone thought like this, this someone felt something good like people feel at many times when they think like this	FEELING

Table 4: Explication of *astonished* (adapted from Goddard 2015: 298)

Goddard (2015: 297-298) considers being *astonished* to be largely synonymous with being *surprised* but assumes that the former includes some kind of disbelief on behalf of the experiencer, which is why the explication of *astonished* reads as in Table 4 above (changes being underlined). While this may apply to English, it does not apply to Finnish *hämmästyä* 'be astonished', as I will explain in Chapter 6.

The NSM approach provides interesting insights for comparing different emotion terms in one language and even more for comparing emotion terms in different languages. One major merit of NSM is that it has sparked research on emotion terms in major Indo-European languages like German, Russian, and Greek, but also in other languages like Japanese, Mbula, and Finnish (Tuovila 2005), just to name a few (for a comprehensive list, see Soriano 2013a: 72). For this and other reasons, methodological tools from the NSM paradigm are also part of the toolbox of the GRID project mentioned earlier.

Regardless of its comprehensiveness and applicability, the approach also faces critique for several aspects. In general, it has been criticized for being too vague (when it comes to synonymy, see Aitchison 2012: 95) and too inflexible (when it comes to abstract concepts, see Riemer 2006). With regard to emotion words, it has been noted that a constructed metalanguage is an unjustified oversimplification (Weigand 2004: 5-6). This may also be one of the reasons why NSM, which presupposes clear-cut semantic boundaries, has not re-

ceived unanimous assent among researchers working in the framework of cognitive linguistics (see Goddard 2006: 189-190). In contrast to proponents of NSM, cognitive linguists presuppose fuzzy boundaries and reject componential analyses to some extent.[9] While NSM appears to be a useful tool for describing emotion words (especially from a cross-linguistic perspective), it is probably not the best approach for analyzing actual language data with all its complexity and inconsistency. In any case, results from the NSM framework are certainly a good benchmark for any analysis of emotion verbs.

2.2.2 Cognitive linguistics

In contrast to NSM, which advocates a decompositional view of linguistic meaning, cognitive linguists take the stance of an encyclopedic view. Rather than positing a unified theory, cognitive linguists call for a holistic approach to language and agree on certain aspects, for example they see that language emerges from general cognitive mechanisms rather than constituting a separate mental faculty (for general overviews, see Croft/Cruse 2004; Ungerer/Schmid 2006; Geeraerts/Cuyckens 2007). Within this field of diverse approaches referred to as cognitive linguistics, research on emotion is typically associated with conceptual metaphor and metonymy theory (CMT). Unlike any other theory within cognitive linguistics CMT has been applied to countless topics (primarily within studies of lexical semantics, but also of grammar) since it was developed by Lakoff/Johnson (1980), who famously argue that we use terms from rather basic source domains, such as FIRE, to talk about phenomena that are difficult to grasp due to their complexity or lack of gestalt, such as ANGER (target domain). Expressions of this kind often get conventionalized and are thus no longer "visible" as metaphors.

(5) *That **kindled** my ire* (Lakoff 1987: 381)
(6) *He was **consumed** by his anger* (ibid.)
(7) *He is doing a **slow burn*** (ibid.)
(8) *He was **breathing fire*** (ibid.: 388)

According to Lakoff (1987: 388-389), the mapping from source (FIRE) to target domain (ANGER) covers the cause of anger, its intensity and/or duration, the potential danger, as well as the actual damage done. In their works on the conceptualization of ANGER (and other emotion concepts), Kövecses (1986) and Lakoff (1987) argue that the systematic metaphorical reference to FIRE, or more general to HEAT, is not random, but grounded (*embodied*) in the physiological

[9] But, as Geeraerts (1989: 588) notes, "there can be no semantic description without some sort of decompositional analysis".

aspects of human experience, e.g. of an increasing body temperature and redness in the face under the influence of anger. Therefore, we also find a lot of metonymical expressions linking physiological effects to corresponding emotions. In the case of ANGER, we find the following expressions:[10]

(9) *You make my blood **boil*** (ibid.: 383)
(10) *Don't get **hot** under the collar* (ibid.: 381)

According to CMT, metaphor and metonymy do not only reveal the linguistic conceptualization of emotions, they also give rise to folk models of emotion (Lakoff 1987: 381-382). This may be seen as a connection to the notion of *semantic knowledge* in constructionist psychology, and also a growing body of experimental studies suggests that conceptual metaphors play an important role in the cognitive representation of emotion. For instance, Wilkowski et al. (2009) proved that visual depictions of heat facilitate the use of anger-related knowledge in tasks that involved lexical stimuli. In turn, participants of the same study tended to judge certain environments as hotter, when they were exposed to anger-related expressions. Gibbs (2003, 2013 inter alia) provides further behavioral evidence for the link between metaphorical use of language and sensory or motory processes.

Although CMT has the potential to reveal conceptual differences between emotion terms in a semasiological way, as Stefanowitsch (2004) showed in his study of English *happiness* and *joy*, the majority of studies on emotion conducted within the CMT framework is about secondary expressions of emotions. While examples (5) and (6) include emotion terms proper, i.e. *ire* and *anger*, respectively, (7) and (8) include expressions that do not primarily refer to an emotion. In an onomasiological fashion, CMT has been applied to emotion concepts in different languages, for instance, anger, e.g. Lakoff/Kövecses (1987) for English and other languages, Matsuki (1995) for Japanese, Mikołajczuk (1998) for Polish, and Soriano (2013b) for Spanish and English. Furthermore, there is growing interest in corpus research linked with CMT, as will be discussed in 2.2.3.

Two other strands of cognitive linguistics that have been applied to emotion terms are frame and prototype semantics (see Soriano 2013a). Originally developed by Fillmore (1982), frame semantics turned into one of the most foundational theories within cognitive linguistics. In a way, frame semantics can be said to be the precursor of construction grammar. The notion *frame* refers

[10] Fauconnier/Turner (1999) argue that a theory of conceptual blending is actually necessary to integrate both metaphorical and metonymical aspects into these expressions, but a thorough discussion of that matter would go beyond the scope of the present treatise.

to a schematic representation of certain situations that are evoked by individual words. A frame typically includes a system of frame-specific semantic roles,[11] called frame elements. To quote one of the most famous examples, the verbs *sell* and *buy* both evoke the so-called *commercial transaction frame*. This frame includes the elements buyer, seller, goods, and money. Employing the stage metaphor, the two verbs differ as to what aspects of the scene are highlighted. Whereas the verb *sell* focuses on seller and goods, *buy* focuses on buyer and goods. In both cases, money is only background information, yet it can be explicitly expressed as in (11) and (12):

(11) *Abby bought a car from Robin for $5,000* (FrameNet)
(12) *Robin sold a car to Abby for $5,000* (ibid.)

A list of lexical units from English and their corresponding frames has been gathered in FrameNet.[12] With regard to emotion verbs, the FrameNet database distinguishes between several (lexical) frames that are subsumed under the rather general, i.e. non-lexical and non-perspectivized *emotions frame*, which is defined as follows:

> An Experiencer has a particular emotional State, which may be described in terms of a specific Stimulus that provokes it, or a Topic which categorizes the kind of Stimulus. Rather than expressing the Experiencer directly, it may (metonymically) have in its place a particular Event (with participants who are Experiencers of the emotion) or an Expressor (a body-part of gesture which would give an indication of the Experiencer's state to an external observer).

Apart from the core frame elements mentioned in the definition, i.e. event, experiencer, expressor, state, stimulus, and topic, the emotion frame also includes non-core elements such as circumstances and manner. By way of example, we will restrict the illustration of the database to the *stimulate_emotion frame*, as instantiated by the verb *scare.*

(13) *Nightmare on Elm Street scared me silly* (FrameNet)

The *Stimulate_emotion* frame only consists of two core elements, i.e. experiencer (*me*) and stimulus (*Nightmare on Elm street*). These two core elements are central to all lexical frames subsumed under the *emotions frame*. Depending on perspectivization, an emotive frame can either be experiencer-focused or stimulus-focused, which is particularly relevant for the lexicogrammatical realization of emotions. This aspect has been studied with regard to surprise in

[11] The notion of *semantic roles* will be discussed in more detail in 2.3.1 and 3.1.

[12] https://framenet.icsi.berkeley.edu

Spanish and English (Subirats/Petruck 2003). Yet, frame semantics has not been as prominent in the field of emotion research as CMT. This observation also applies to prototype theory, which is usually associated with the work of Eleanor Rosch (1978). As mentioned above, "prototypists" put forward the idea of *fuzzy categories*, i.e. "categories for which there are no clear 'classical' definitions based on necessary and sufficient criteria" (Shaver/Murdaya/Fraley 2001: 202). In their seminal publication, Lakoff/Kövecses (1987) use prototype theory and CMT to define the concept of ANGER. Building on the research of Fehr/Russel (1984), as well as Shaver and colleagues (e.g. Shaver et al. 2001), there have been investigations into the Basque (Alonso-Arbiol et al. 2006) and Indonesian emotion lexicons (Shaver/Murdaya/Fraley 2001). But, a wide-spread application of prototype theory to emotion terms is still due. In contrast to that, corpus linguistics is currently gaining weight within the field of emotion research.

2.2.3 Corpus linguistics

Corpus linguistics is characterized by a strict empirical stance that demands the analysis of actual language data that has been retrieved from large and principled collections of natural texts or *corpora*. Usually, corpus linguistic analysis includes both qualitative and quantitative techniques (Biber/Conrad/Reppen 1998: 4). But, the degree of quantification of results, as well as the degree of automatic analysis and data retrieval varies within different approaches. Among advocates of corpus linguistics, there is also some controversy over the question whether corpus linguistics constitutes a methodology or a theoretical framework (similar to cognitive linguistics). This controversy is also reflected in the distinction between corpus-based and corpus-driven studies that will be examined in Chapter 4 alongside other methodological issues. Within purely corpus-driven approaches to lexical semantics it is often argued that meaning is not carried by individual words, but by their context: "it is not the words which tell you the meaning of the phrase, but the phrase which tells you the meaning of the individual words in it" (Stubbs 2001: 18). This can be exemplified by the word *surgery*, which can either refer to a medical procedure (14), a branch of medicine (15), a room or house (16), as well as to a point in time (17). This ambiguity disappears in context:[13]

(14) *He had to undergo surgery* (Stubbs 2001: 13)
(15) *Progress in surgery has made heart transplants possible* (ibid.)
(16) *He had to be rushed to the surgery* (ibid.)
(17) *She was taking evening surgery* (ibid.)

[13] As Stubbs (2001: 18) notes, German provides individual lexemes for all four meanings, i.e. *Operation*, *Chirurgie*, *Sprechzimmer* or *Praxis*, and *Sprechstunde*, respectively.

In (14), ambiguity is, for instance, dissolved by the verb *undergo*. According to Stubbs (ibid.), "the semantics of the word *surgery* can be boiled down to the rather general meaning: 'something to do with medicine'". In cognitive linguistic terms, one may hypothesize that different contexts highlight different aspects of the metonymic conceptual complex. Whereas some indicate a place (16), others indicate a point in time (17).

Thus, corpus-driven studies put special emphasis on context, when it comes to lexical semantics. Purely corpus-driven approaches to emotion (e.g. Zhang 2014) are rare compared to studies that combine corpus methods with other theoretical accounts (e.g. Bednarek 2008a). Especially cognitive semantics has seen a rise in the use of corpus-based methodology over the past years (see Glynn 2010 for an overview). Whereas cognitive semantics in general and CMT in particular mostly rely on lexicographical sources, elicitation, and intuition, Stefanowitsch (2006) calls for a method named *metaphorical pattern analysis*, which allows for quantifying insights on CMT. Metaphorical pattern analysis starts with the extraction of a random sample of words that co-occur with a lexical item (e.g. *anger*) from a certain target domain (ANGER). The sample will then be searched for all metaphorical expressions. Not only does the method allow for quantifying metaphorical expressions (and thus also mappings), it actually supports most insights from prior research (e.g. Kövecses 1998) and reveals additional metaphors, e.g. ANGER IS A PLANT as instantiated by expressions such as *anger is rooted in X*, *anger stems from X* and *anger grows* (Stefanowitsch 2006: 76). Within cognitive semantics, corpus-based methods such as metaphorical pattern analysis, constructional profiles, and collocational analysis are particularly relevant for the issue of lexical polysemy and synonymy. This also applies to the study of emotion terms (e.g. Stefanowitsch 2004, 2006; Glynn 2010; Janda/Solovyev 2009) and it is obvious that corpus-based methods open up many more perspectives for both onomasiological and semasiological research on the lexical semantics of emotion terms. In 2.3.2, I will argue for a usage-based approach that does not merely combine cognitive semantics with a corpus-based methodology, but also brings together theoretical insights from Corpus Linguistics and methodological innovations from Cognitive Linguistics. Before discussing the potential contributions of this approach, I will give a short overview of prior research on emotion terms in Finnish.

2.3 Emotions in Finnish

The Finnish language belongs to the Finnic branch of the Finno-Ugric languages and is spoken by over 5 million people. It's an agglutinative language with a high number of cases (15, see ISK §1227). Similar to Indo-European languages, emotions can be expressed via nouns (e.g. *suuttumus* 'anger'), verbs (e.g. *suuttua* 'get angry'), adjectives (e.g. *suuttunut* 'angry') and other constructions (e.g. *suutuksissa* 'in anger'). As in the case of anger, the expressions are often derived from a common stem (e.g. *suuttu-*). As a research discipline, Finnish Studies has a long tradition not only in Finland but also abroad. Yet, Finnish emotion terms have primarily been studied by researchers in Finland, and so far, there is no major publication available in English.

2.3.1 Prior research

Several dissertations published at the beginning of the new millennium tackle the issue of Finnish emotion terms in one way or another. The most recent one (Tuovila 2005) takes a cognitive linguistic stance and employs NSM in order to categorize the most typical emotion terms (e.g. nouns like *ilo* 'joy' and *suuttumus* 'anger'). Furthermore, the study aims at determining the most frequent and salient emotion words in the Finnish language. In an exhaustive survey of questionnaires, Tuovila (2005) found out that the Finnish emotion terms with the highest frequency refer to hatred, joy, love, and sorrow. As mentioned in 2.2.1, results from the NSM framework provide a good benchmark for the analysis of emotion verbs. Therefore, I will contrast the results of the present study with that of Tuovila (ibid.). As the selection of emotions differs in the two studies (cf. 4.1.2), this will only be possible in some cases.

Siiroinen (2001), who deals with lexicogrammatical phenomena such as argument realization, also places her study within the framework of cognitive linguistics. Drawing on Croft (1991: 212-225), she categorizes all 198 emotion verbs that can be found in the Finnish lexicon into four semantic-syntactic categories, i.e. inchoative (e.g. *hätääntyä* 'become distressed'), active (e.g. *raivota* 'rage'), stative (e.g. *pelätä* 'fear') and causative (e.g. *kiukuttaa* 'annoy'). Both inchoative (18) and active verbs (19) are intransitive, with the experiencer in subject position (unmarked). The stimulus can optionally be expressed by a local-case marked noun phrase. With stative verbs (20), the stimulus is in object position and marked with the partitive case. With causative verbs (21), the configuration between experiencer and stimulus is turned around:

(18) *Kansa* ***hätäänty-i*** *uutise-sta*
people become.distressed-PST.3SG news-ELA
'The people became distressed about the news' (Siiroinen 2001: 35)

(19) *Parkkisako-sta* *hermostu-nut* *nainen* ***raivos-i***
parking.fine-ELA get.agitated-PTCP woman rage-PST.3SG
lappuliiso-j-en *pomo-lle*
meter.maid-PL-GEN boss-ALL
'The woman nervous about the parking fine raged at the meter maids boss' (ibid.: 43)

(20) *Lapsi* ***pelkäs-i*** *pimeä-ä*
child fear-PST.3SG dark-PTV
'The child was afraid of the dark' (ibid.: 44)

(21) *Asia* ***kiukutta-a*** *minu-a* *kova-sti*
thing annoy-3SG 1SG-PTV hard-ADV
'The thing annoyed me a lot' (ibid.: 47)

Causative verbs are further subcategorized into normal causatives and "emotive causatives" (Finnish *tunnekausatiivit*). Note that one and the same verb can appear in both construction types. The difference between those two can be illustrated with the following examples:

(22a) *Poika* *hermostutt-i* *opettaja-n-sa* *tempu-lla-an*
boy make.nervous-PST.3SG teacher-GEN-3SG.POSS stunt-ADE-3SG.POSS
'The boy made his teacher nervous with his stunt' (ibid.: 50)

(22b) *Minu-a* *hermostutta-a*
1SG-PTV make.nervous-3SG
'(It) makes me nervous' (ibid.)

(22c) *Hermostutta-a*
make.nervous-3SG
'(It) makes (me) nervous' (ibid.)

In the case of emotive causatives not only word order changes: in certain pragmatic contexts, it is not unusual to leave the stimulus (22b) or even both stimulus and experiencer unexpressed (22c). Siiroinen provides a detailed analysis of two distinct verbs of fear (*pelätä* 'fear' and *pelottaa* 'frighten') and a group of verbs of astonishment (*hämmästyä* 'be astonished',[14] *ällistyä* 'id.', *kummastua* 'id.', and *äimistyä* 'id.'). Although the study provides interesting insights into the syntactic behavior of various emotion verbs, one may criticize the decision

[14] The verb is quite difficult to translate into English. Apart from 'be astonished', possible translations include 'be caught off guard', 'be taken aback', 'be baffled', and even 'be surprised'.

to treat the four different inchoative verbs as one group. In Chapter 5, we will see that argument realization cannot only differ between near-synonymous verbs; it may even be distinctive.

Pörn (2004) also studies the lexicogrammatical behavior of emotion verbs. In contrast to Siiroinen (2001), however, she focuses on the (temporal) semantics of emotive causative verbs and their clause complements. The study shows that not only clauses with the general complementizer *että* 'that' can function as complements of emotive causative verbs, but also clauses with the conjunction *kun* 'when, as', which are normally classified as adjuncts. A similar observation can be made with regard to inchoative emotion verbs (see 5.2).

(23a) *Minu-a* *pelotta-a,* *että* *esiinny-n* *näyttämö-llä*
1SG-PTV frighten-3SG that appear-1SG stage-ADE
'It frightens me that I'm performing on stage' (Pörn 2004: 16)

(23b) *Minu-a* *pelotta-a,* *kun* *esiinny-n* *näyttämö-llä*
1SG-PTV frighten-3SG as appear-1SG stage-ADE
'It frightens me when I perform on stage' (ibid.)

In another study, Pörn (2008) further examines semantic differences between psychophysical causative emotion verbs like *heikottaa* 'make sb. feel weak' and physical causative emotion verbs like *janottaa* 'make sb. thirsty'. Apart from pure lexical expressions of emotions, also other ways to express emotion gained attention in Finnish linguistics. Although not exclusively focused on emotive expressions, Onikki-Rantajääskö (2001) provides an exhaustive study of local case constructions that refer to psychophysical and other kinds of states.[15] These constructions are typically composed of different derivative suffixes, e.g. *-ks-*, the plural marker *-i-*, a local case suffix (e.g. inessive *-ssa-/-ssä-*) and sometimes a possessive suffix (e.g. third person *-an/-än*). Many of them are derived from inchoative emotion verbs that are in the focus of the present treatise, e.g. *hermostuksissaan* (< *hermostua* 'get agitated'), *hämmästyksissä*(*än*) (< *hämmästyä* 'be astonished'), and *suutuksissa*(*an*) (< *suuttua* 'get angry'). Other expressions of this kind are metonymic in nature, i.e. they denote a certain posture, which in turn gets an abstract or psychophysical reading (cf. also Onikki-Rantajääskö 2006). For instance, the expression *jaloillaan* 'on her/his feet' cannot only refer to an upright posture. It can also indicate the ability to manage something:

(24) *Hän* *on* *jalo-i-lla-an*
3SG be.3SG foot-PL-ADE-3SG.POSS
'S/he is on her/his feet' (Onikki-Rantajääskö 2006: 68)

[15] They are referred to as *locatives-of-state* by Onikki-Rantajääskö (2006).

A cognitive linguistic analysis reveals that the use of the local cases in these and similar constructions cannot be accounted for by their spatial origins alone. This observation weakens the so-called *localist hypothesis*, which essentially claims that abstract domains are structured in terms of spatial relations (Onikki-Rantajääskö 2001: 291). As the stimulus arguments of inchoative emotion verbs are usually marked with one of the Finnish local cases (see 5.1), this idea is also relevant for the study of argument structures.

Finally, Realo et al. (2013) use a questionnaire developed within the GRID project to compare the meaning of Finnish *suuttuminen* 'anger' to Estonian *viha* 'id.'. The questionnaire comprises 144 features that are distributed over five emotion components, namely appraisals, physiological/bodily experience, expression, action tendencies, and subjective feelings. A survey of 120 Finnish and 179 Estonian respondents suggests that *suuttuminen* 'anger' refers to a milder emotion than Estonian *viha* 'id.'. In fact, the Finnish cognate *viha* 'hate' may be closer to the meaning of its Estonian cognate than *suuttuminen* 'anger', although it is typically seen as denoting another emotion.

Albeit proponents of the GRID project and other researchers (see 2.2.3) advocate the use of corpus-based methods for the study of emotion terms, there has been no application to the Finnish language so far. The present study aims at filling this gap by investigating argument structures and stimulus nouns that co-occur with inchoative emotion verbs. The investigation will be limited to inchoative emotion verbs, because they have not gained much attention so far, although they are much more diverse than, for instance, stative emotion verbs. In the subsequent section I will present the main tenets of a usage-based approach to emotion terms, which combines theoretical and methodological insight from both cognitive linguistics and corpus linguistics.

2.3.2 A usage-based approach

The present study is essentially an investigation of syntagmatic relations. The interest in combinatorial mechanisms is founded on the assumption that "[t]he particular ways in which [words] go together are a rich and important source of information both about language and about the world we live in" (Evert 2005: 15). This view is widely adopted by different approaches to language that can be subsumed under the term *usage-based*, originally coined by Langacker (1988: 6). The term is usually associated with researchers from functional and cognitive linguistics[16] (e.g. Givón 1979, Hopper 1987, Bybee 1985), but this does not mean that usage-based models did not exist prior to them. For instance, Traugott/Trousdale (2013: 46) note that Hermann Paul's

[16] Essentially, cognitive linguistics as a whole can be seen as a usage-based model of language.

view of language history was usage-based (cf. also Auer 2015). All usage-based models rest on the assumption that language use or experience is the key to understand the mental representations of the language system, thus challenging the traditional distinctions between *langue* and *parole* (Saussure), *competence* and *performance* (Chomsky). In contrast to generative theories, proponents of usage-based models argue that language is grounded in domain-general processes of human cognition and not in a distinct language faculty. Furthermore, usage-based models reject the strict opposition between lexicon and grammar, which makes them a perfect match for construction grammar.

Most usage-based research on language structure is in fact conducted within the framework of construction grammar, but it has to be noted that not all variants of construction grammar are usage-based theories. For example, Berkeley Construction Grammar (Fillmore/Kay 1995), which merged into Sign-Based Construction Grammar (Sag/Boas/Kay 2012) together with Head-driven Phrase Structure Grammar, keeps the generative distinction between competence and performance. The link between usage-based theory and construction grammar will be particularly relevant for discussing the theoretical status of argument structures (see 3.1). It is difficult to find general surveys of the issue, but a concise overview of the main tenets of usage-based linguistics is provided in Diessel's (2011) review of Bybee (2010).

Although usage-based approaches beg for actual language data, the deployment of empirical methods has not been straightforward from the beginning. The bulk of research conducted within usage-based cognitive linguistics simply deploys corpora for retrieving examples, as noted by Stefanowitsch (2011b: 272). It is only in the past years that quantitative corpus-linguistic methods such as collostructional analysis (see 4.3.1) have found wider application. Meanwhile, theoretical development within corpus-linguistics has resulted in converging views on language.

The corpus linguist Michael Hoey (2005), for instance, has developed his own usage-based theory of *lexical priming*, which is fundamentally inspired by his long-standing research on collocations. As the concept of COLLOCATION will play an important role in the study, a terminological clarification is necessary. The term goes back to J.R. Firth and has been further elaborated by Firth's successors.[17] In the framework of their distributional approach, the term *collocation* simply refers to recurrent co-occurrences of words. But, its generic defi-

[17] Prior to Firth, Porzig (1934) and Coseriu (1967) already emphasized the role of syntagmatic relations in semantics. The latter used the term of "lexical solidarity" to refer to the phenomenon nowadays referred to as *collocation*.

nition also implies some degree of intensionality and/or lexicalization (Evert 2005: 17). By the term *collocation*, I understand the simple Firthian concept of co-occurences of words.

Hoey (2005) argues that priming is the driving force behind language use, language structure and language change. In his theory, a speaker's knowledge of a language can be boiled down to a mental concordance; that is to say, every word is primed for co-occurrence with other words (COLLOCATION) and morphosyntactic structures (COLLIGATION). The actual scope and psychological reality of this view certainly demands further research, though.[18] What makes the corpus linguistic model particularly interesting for the study of emotion (verbs) is the notion of SEMANTIC ASSOCIATION or SEMANTIC PREFERENCE,[19] which originally goes back to Sinclair (1996). He also coined the term *extended units of meaning* to point to the fact that meaning does not lie in individual words, but in "four types of cooccurrence relations in extended lexico-semantic units" (Stubbs 2001: 64). These cooccurrence relations are covered by the notions of COLLOCATION, COLLIGATION, SEMANTIC PREFERENCE, and SEMANTIC PROSODY. As mentioned above, the term *collocation* refers to the attraction between two (or more) words. For instance, the English noun *water* often co-occurs with the adjective *blue*. In the case of *colligation* the attraction lies between a word and a grammatical category. For instance, the English verb *believe* can be said to colligate with the preposition *in*, as in the sentence *He believes in God*. Of course, this is a vast oversimplification. In a strict sense, both collocation and colligation rest on the assumption that the attraction in question can be quantified with various statistical measures that will be discussed in 4.3. In the study of Finnish, analyses focusing on collocation and colligation have been fruitfully applied to second-language acquisition and translated Finnish by Jantunen (2001, 2004 inter alia).

The third notion mentioned above, *semantic preference*, can be defined as "the relation, not between individual words, but between a lemma or word-form and a set of semantically related words" (Stubbs 2001: 65). For instance, the item *large* tends to co-occur with words indicating quantity and size. On the other hand, *sheer* is "primed" for magnitude, weight, and volume, among others. In Finnish, we can, for instance, observe that the near-synonymous adjectives *iso* 'big' and *suuri* 'id.' also display different preferences, when it comes

[18] The strong emphasis on syntagmatic attraction is not exclusive to Hoey's theory and can also be found in Pattern Grammar, another theory born in corpus linguistics. According to Hunston and Francis (2000), "the *patterns* of a word can be defined as all the words and structures which are regularly associated with the word and which contribute to its meaning" (p. 37).

[19] Both terms are interchangeable, but we will employ the latter because of its wider distribution in research.

to their collocates (see Klemettinen 2010): it is, for instance, more natural to talk about *suuri rakkaus* 'big love' than about *iso rakkaus* 'id.'. When it comes to human beings, the adjective *suuri* might be ambiguous and rather emphasize a person's mental capacities, reputation etc. than actual size (25). On the other hand, *iso mies* "big man" clearly refers to a grown-up person. Thus, the adjective *iso* is primed for concrete nouns, whereas *suuri* is primed for abstract ones.

(25)	*Napoleon*	*ol-i*	*pieni*	*suuri*	*mies*
	Napoleon	be-PST.3SG	small	big	man

'Napoleon was a small great man' (62314578)

Following Hoey (2005), it is assumed that semantic preference is a) shared among speakers of a speech community and b) probably also context-, genre-, and domain-dependent (Partington 2004: 152; Bednarek 2008b: 122). The idea of shared semantic preferences is particularly relevant for the conceptual knowledge of emotions (see 2.1.3). Of course, one has to assume that speakers show variations and differences with regard to this knowledge. The "mental concordance" cannot be expected to be equally shared by speakers across a language community. But, this is also not necessary: proponents of cultural linguistics (e.g. Sharifian 2017: 3-5) argue for an integrated and dynamic understanding of cognition and culture (i.e. CULTURAL COGNITION), which moves beyond the level of the individual mind. Thus, the concept of cultural cognition opens up the possibility to make psychologically relevant generalizations on the basis of language data.

In the case of emotion verbs, semantic preferences allow for identifying the main causes or targets of certain emotions on the basis of a large data set. But, the categorization of collocates lies in the hands of the researchers and needs careful investigating of lexical features and context. Possible ways to determine semantic groups of stimulus nouns will be discussed in 3.2 below. Semantic preference is often conflated with the concept of SEMANTIC PROSODY, which indicates the "complex attitudinal and/or functional meaning of lexical items" (Bednarek 2008b: 131). As an example, Stubbs (1995) shows that the expression *cause* has a negative or unfavorable prosody, which can be traced back to the fact that it predominantly co-occurs with nouns referring to unfavorable events:

> CAUSE is near the stage where the word itself, out of context, has negative connotations. (AFFECT is already at this point.) The selection restrictions on CAUSE are not (yet?) categorial: it is not (yet?) ungrammatical to collocate CAUSE with

> explicitly positive words. But it is easy to see how an increase in frequency of use can tip the balance and change the system (Stubbs 1995: 16).

A similar observation applies to the Finnish verb *aiheuttaa* 'cause', as a look at the list of the verb's ten most frequent collocates[20] from the Suomi24 corpus suggests, cf. Table 5 below. Apart from rather general nouns referring to unfavorable events (i.e. *ongelma* 'problem', *vahinko* 'accident', *vaara* 'danger', and *haitta* 'danger'), it is striking that we particularly find medical terms (e.g. *syöpä* 'cancer' and *oire* 'symptom') on the list:

Lemma	translation	tokens	Lemma	translation	tokens
ongelma	'problem'	10213	*vaara*	'danger'	1997
vahinko	'accident'	4687	*kärsimys*	'suffering'	1820
syöpä	'cancer'	2569	*haitta*	'damage'	1738
oire	'symptom'	2441	*kipu*	'pain'	1579
riippuvuus	'addiction'	2114	*häiriö*	'disorder'	1553

Table 5: Top collocates of the verb *aiheuttaa* 'cause'

Whereas semantic preference accounts for the propositional relations of a word, semantic prosody thus accounts for its connotations and communicative function, which is the reason, why some researchers prefer the term "discourse prosody" (Stubbs 2001: 65-66). There is also disagreement over the question, whether semantic prosody is obligatory (Sinclair 1996, 2004) or optional (Stubbs 2001). Some researchers interpret semantic prosody as a special case of semantic preference, but it has to be noted that the former is "at a further stage of abstraction than preference. In fact, semantic preference generally remains relatively closely tied to the phenomenon of collocation" (Partington 2004: 150). As in the case of the verb *cause*, the semantic preferences of a word let us draw conclusions about its prosody. Stubbs (2016: 114) provides a concise summary of Sinclair's model, which does not only indicate the different levels of abstraction, but also the analogies to the international structure of speech acts as defined by Searle (1969: 23-24):

[20] Query: `[lemma = "aiheuttaa"] [msd = ".*CASE_Par.*" & pos = "N"]`

		Sinclair's model	Speech acts
FORM	Strings of words/grammar	Collocation/colligation	Utterance act
CONTENT	Reference and predication	Semantic preference	Propositional act
FUNCTION	Purpose, speaker intention	Semantic prosody	Illocutionary act

Table 6: Sinclair's units of meaning vs. Searle's speech acts (adapted from Stubbs 2016: 114)

For studying emotion verbs, the issue of semantic prosody stands in the background, but it has proven to be very helpful for identifying metaphorical and metonymical expressions of emotion (e.g. Oster 2010). In some cases, we will nevertheless see that speakers also use emotion verbs in peculiar ways (see 6.2.3 and 6.3.3). The notion of semantic preference is more important for the present treatise, because it can help to better understand the meaning of individual emotion verbs, the relations, as well as the differences between them. In fact, it is argued that studying stimulus nouns of emotion verbs is not only a natural step from studying argument structures, but also allows a finer granularity for investigating lexical semantics. This hypothesis will be tested against the distribution of argument realization patterns that are typically associated with inchoative emotion verbs in Finnish.

2.4 Summary

In order to determine the vantage point of the present study, this chapter started with an overview of the different conceptions of emotions within psychology. As it turns out, the three major traditions in emotion research, i.e. basic emotion theory, appraisal theory, and constructivist psychology all offer some important aspects that can and should be considered in a study on the language of emotions. Basic emotion theory offers (relatively) clear-cut criteria that help to classify emotions. The categorization of the emotion verbs will be further discussed in 4.1.2. In contrast, appraisal theory is focused on situations eliciting certain emotions. Insights from this framework can thus provide a background for the analysis of verbs and their semantic preferences with regard to particular stimulus nouns in Chapter 6. And finally, constructivists put language and linguistics in a whole new position. According to the conceptual act theory, language is essential in shaping concepts of emotions. A brief overview of the most important linguistic perspectives suggested that natural semantic metalanguage can provide some background information on emotion terms, but as a methodological framework it does not appear to be suited for analyzing corpus data. Conceptual metaphor theory may also shed

light on emotion terms, albeit most research in this domain is focused on expressions that are not prototypically used to denote emotions. Similarly, the potential of corpus linguistics has not been fully exploited yet when it comes to emotion terms. With regard to the Finnish language, emotion terms and their lexico-grammatical behavior have primarily been studied from a cognitive linguistic perspective. The present study is going to extend this line of research by combining insights from cognitive linguistics with insights from corpus linguistics. One does not have to take a radical Sinclairian position to see that context plays an important role in the cognitive representation of individual lexemes. A study of stimulus nouns can shed some light on the conceptual knowledge of emotions, as postulated within constructionist psychology.

3. Theoretical prerequisites

As the present study is dealing with the question, what colligations and collocations tell about the semantics of emotion verbs, it is necessary to clarify some theoretical aspects prior to the analyses in Chapter 5 and Chapter 6. First of all, I will discuss the status of argument structures within a usage-based approach and show how it is possible to integrate bits of insights from two seemingly incompatible approaches, i.e. valency theory and construction grammar. This way it is possible to determine the scope of the analysis of argument realization patterns in Chapter 5. Second, I will focus on the issue of noun categorization, which is relevant to determine semantic preferences (see 2.3.2) in the analysis of stimulus nouns that will follow in Chapter 6. As there is no exhaustive usage-based account on that matter, I will also present more traditional theories.

3.1 The status of argument structures

Grammatical relations between verbs and other linguistic units (such as nouns or clauses) specifying information about them have been treated under various labels. The most common terms are *government* or *rection*, which are used in traditional grammars, *subcategorization* in generative frameworks and *complementation* in descriptive grammars. In the present treatise, I will primarily use the term *valence* and the more neutral term *argument structure*. The phenomenon in question plays a prominent role in different theories, for instance, head-driven phrase structure grammar (e.g. Sag/Wasow/Bender 2003), role and reference grammar (e.g. Van Valin 2005), and theta theory (e.g. Everaert/Marelj/Siloni (eds.) 2012), but an exhaustive discussion of these would go beyond the scope of the present study. Basically, one can distinguish between lexical (or lexicalist) and phrasal (or constructional) approaches to argument structures. Whereas proponents of the former take argument structures to be a conventional property of the corresponding lexemes, proponents of the latter see argument structures as meaningful linguistic units in their own right. In this chapter, I will focus on two prominent variants of each, i.e. valency theory and construction grammar, because a growing body of research (e.g. Perek 2015) suggests that a combination of these two approaches may be most adequate for describing argument structures. Within corpus linguistics, argument structures do not play a prominent role, although there are some works describing argument structures with the help of corpus data (e.g. Herbst/Schüller 2008).

3.1.1 Valency

The concept of VALENCY is typically associated with Tesnière[21] (1959), who borrowed the term from chemistry in order to evoke the capacity of a verb to take a specific number of dependent units, i.e. arguments. Yet, the idea of structural dependencies between words is much older and can be traced back to Indian grammarian Panini (see Rickheit/Sichelschmidt 2007: 164) and more recently to psychologist Karl Bühler and his seminal publication *Sprachtheorie* (1934), where he states that "words of certain word classes open up one or several slots which have to be filled by words of other word classes" (Bühler 1934: 173, translation from Herbst 2014: 168). The quote points to the main characteristic of all lexical approaches, namely that argument structures are taken to be specified in the lexical entry of the corresponding lexeme. But, it also points to the fact that the capacity to take dependent units is not restricted to verbs. Whereas the discussion of valency was long restricted to lexicography, language teaching, and in particular to German linguistics (Helbig/Schenkel 1969; Engel/Schumacher 1976), we can currently observe an increasing interest[22] in Tesnières theory, presumably because of its usefulness in investigations of the lexis-grammar continuum put forward by various strands of cognitive linguistics. In Finnish linguistics, valency theory and dependency grammar is traditionally associated with Tarvainen (1977, 1985) and his successors (e.g. Korhonen 1977, 1978; Piitulainen 1983; Hyvärinen 1995; Järventausta 1991), who conducted contrastive research on Finnish and German. The third generation of Finnish valency theorists is strongly influenced by Kolehmainen (2006 inter alia) and her research on the valence of phrasal verbs (see Hyvärinen 2006). In Tesnières approach, known today as dependency grammar, the verb always takes the central position of an utterance. For this reason, the verb *hit* also takes the highest position in Tesnières structural schema ("stemma") of the sentence *Alfred hit Bernard*. The example is also a fine illustration of Tesnières drama metaphor, in which he compares the verbal node to a theatrical performance that "obligatorily involves a process and most often actors and circumstances" (Tesnière 1959: 102, translation by Timothy Osborne and Sylvain Kahane). The verb *hit* requires the specification of the hitter (Alfred), as well as the hittee (Bernard), but it would also be possible to specify the thing hit with (e.g. a stick). Langacker (1994) notes that the analysis of Tesnière very much resembles those in cognitive grammar. The main

[21] It is worth noting that Tesnières thoughts were primarily adopted in European linguistics and therefore it is not surprising that the first English translation of his posthumously published work *Élements de syntaxe structurale* only appeared in 2015, almost half a century after the original (1959).

[22] In fact, this tendency was already predicted some years earlier by Sinclair (2004: 18).

differences are terminological: "*Hit* is the profile determinant in *Alfred hit Bernard*, since the process it designates is also profiled by the expression as a whole. The verb is thus the head at this level of organization" (Langacker 1994: 75). In line with this observation, Welke (2009: 81) also stresses that valency theory is essentially a usage-based model, with its focus on individual words and combinatorial properties of these words.

In short, valency is seen as the property of a word to open up valency slots, which can or must be realized by "actants", according to the terminology of Tesnière (1959). However, in this study I will use the more common term *argument*. From a quantitative point of view, the term *valency* simply refers to the number of arguments a verb can take. For instance, the Finnish emotion verb *pelätä* 'fear' takes two obligatory arguments, i.e. subject and object:

(26) *Minä* *myös* *pelkää-n* *yö-tä*
1SG also fear-1SG night-PTV
'I am also afraid of the night' (79697352)

(27) *Minä* *pelkää-n,* *että* *hän* *ei* *tunne* *samoin*
1SG fear-1SG that 3SG NEG.3SG feel same.ADV
'I'm afraid that s/he doesn't feel the same way' (unspecified)[23]

Thus, arguments differ with respect to obligatoriness and optionality. From a qualitative point of view, it is useful to distinguish between *syntactic* and *semantic valence*. Syntactic valence indicates the formal realization of an argument, e.g. unmarked noun phrase (subject) and partitive-marked noun phrase (object) as in (26) or unmarked noun phrase (subject) and complement clause (object) as in (27). Semantic valence, on the other hand, indicates the function or semantic role of an argument (e.g. experiencer and stimulus). The question of how the two relate to each other is of broad interested within lexical approaches. A widespread assumption is that "[s]yntactic argument structures of verbs are predictable from their semantic structures" (Pinker 1989: 62). This issue will be discussed in more detail below.

Like other theories of structural dependencies, valency theory also distinguishes *arguments* from *adjuncts*. Following Herbst/Schüller (2008: 108), an argument has to meet at least one of the following two criteria: a) it has to be determined by the valency carrier in its morphological form or position in the clause; or b) it has to be expressed whenever the valency carrier is used. With regard to inchoative emotion verbs, the subject is the only obligatory argument. Thus, we can rule out criterion (b) for the facultative second argument,

[23] https://keskustelu.suomi24.fi/t/1004892/veitsentera

which is typically encoded with a local case. Formally, (28a) and (28c) appear to be similar, but in the case of the verb *yllättyä* 'be surprised', the second argument, which indicates the stimulus of the verbal event, cannot be marked in another case than the elative (*-sta/-stä*), thus qualifying it as an argument based on criterion (a). The distinction between obligatory arguments and optional adjuncts has caused a major controversy, not only in valency theory. As Koenig/Mauner/Bienvenue (2003: 69) note, many behavioral criteria proposed to distinguish between the two notions are not reliable and/or of relative low frequency. The idea of a fuzzy boundary between the two notions works well within the framework of cognitive linguistics. The issue will be discussed in more detail in 4.2.1.

(28a) ***Tul-i-n*** ***hotelli-sta*** *pari* *päivä-ä* *sitten*
come-PST-1SG hotel-ELA some day-PTV ago
'I came from (out of) the hotel a couple of days ago' (34637941)

(28b) ***tul-i-n*** ***hotelli-in*** *illa-lla* *ja* *halus-i-n* *huonee-n*
come-PST-1SG hotel-ILL evening-ADE and want-PST-1SG room-ACC
yhde-lle *yhde-ksi* *yö-ksi*
one-ALL one-TRL night-TRL
'I came to the hotel in the evening and wanted a room for one person for one night' (unspecified)[24]

(28c) *Varas-i-mme* *itse* *äkkilähtö-nä* *ja* ***ylläty-i-n***
book-PST-1PL self sudden.departure-ESS and be.surprised-PST-1SG
hotelli-sta
hotel-ELA
'We booked spontaneously, and I was surprised by the hotel' (31502432)

A major criticism of valency theory is that it does not account for multiple argument realization, in particular with regard to the productivity of argument structures. This can be illustrated by Goldberg's (1995) famous example of the caused-motion construction (29), paraphrased as 'Sally caused the napkin to fall off the table by sneezing'. In a valency approach, it would be necessary to posit a new lexical entry for the verb, as in (29) below (taken from Stefanowitsch 2011a: 376):

(29) *Sally sneezed the napkin off the table*
sneeze 'to cause to move by sneezing' [N_A N_P ADV]

[24] The tag *unspecified* indicates that the example sentence cannot be traced back by a corpus id. In these cases, a link to the original message is given instead: http://keskustelu.suomi24.fi/t/6037014/hotelli-luossajohkassa. The corpus used in the present study will be introduced in section 4.1.1.

But, there are several problems with this approach: assuming that multiple argument realization is not an exception, assigning lexical entries for all observable cases would lead to a lexicon of enormous size and consequently to vast polysemy. Such an approach lacks explanatory power and also neglects the degree of conventionalization. Besides, "the semantic difference between the stipulated lexical entries only pertains to grammatically relevant aspects of meaning, but not necessarily to the referential potential of the verb, as in usual cases of polysemy" (Perek 2015: 21).

3.1.2 Argument structure constructions

Within constructional approaches it is not necessary to posit new lexical entries with somewhat implausible meanings in order to grasp unconventional combinations of verbs and argument structures. As Goldberg (1995) has shown in her theory of argument structures, construction grammar can account for both conventional and unconventional combinations by treating argument structures (on a par with lexemes) as linguistic signs that include both meaning and form.

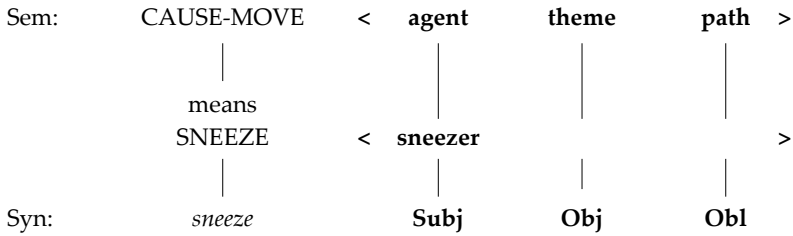

Figure 1: The caused-motion construction (adapted from Goldberg 1995: 52)

In Goldberg's analysis of the utterance (cf. Figure 1), the verb *sneeze* retains its original meaning, because the force emitted by the event of sneezing can be assumed to cause the napkin (theme) to be moved from its original position (path). Due to semantic coherence, the "sneezer" role profiled by the verb can be fused with the role of the agent of the cause-motion construction. The remaining argument roles, i.e. theme and path, are contributed by the construction itself.

In her seminal work (Goldberg 1995: 4), which can be seen as the first major application of constructional analysis,[25] the author defines constructions as non-derivational, non-compositional form-meaning pairs. The requirement of

[25] In Finnish linguistics, construction grammar has been applied to various phenomena, including verbal constructions of the Finnish Bible (Leino et al. (eds.) 2001), the Finnish permissive

non-derivability can be traced back to Fillmore/Kay (1995), who originally designed Construction Grammar in order to tackle phenomena that were not within the scope of generative frameworks, idiomatic expressions in particular. Recently, Goldberg (2006, 2013) adopted a more usage-based definition, which does not exclude compositional cases and makes (implicit) reference to frequency: "Constructions are defined to be conventional, learned form-function pairings at varying levels of complexity and abstraction" (Goldberg 2013: 17). Note that such a broad definition is necessary for a theory that seeks to capture language in its entirety. With regard to complexity and abstraction, argument structure constructions, such as the ditransitive construction can be found at the more abstract end of the scale, cf. Table 7:

Construction	**Examples**
Word	*Iran*, *another*, *banana*
Word (partially filled)	*pre*-N, V-*ing*
Idiom (filled)	*Going great guns*, *give the Devil his due*
Idiom (partially filled)	*Jog* <someone's> *memory*, <someone's> *for the asking*
Idiom (minimally filled) *The* X*er the* Y*er*	*The more you think about it, the less you understand*
Ditransitive construction: Subj V Obj_1 Obj_2 (unfilled)	*He gave her a fish taco*; *He baked her a muffin*
Passive: Subj aux VPpp (PPby) (unfilled)	*The armadillo was hit by a car*

Table 7: Varying levels of complexity and abstraction (adapted from Goldberg 2013: 17)

Although construction grammar (in particular Goldberg's Cognitive Construction Grammar) proved to be useful in explaining a wide range of linguistic phenomena such as unconventional use of argument structure, it does not account for limits of productivity. This can be illustrated with the ditransitive construction: if the possibility to combine a verb with a certain argument structure solely rests on the principle of semantic coherence, one may assume that the verb *donate*, for instance, occurs in the ditransitive construction. As Stefanowitsch (2011a: 381) notes, the verb specifies the appropriate number and type of semantic roles associated with the ditransitive construction, i.e. donor, recipient, and thing donated, but it does not appear in it, cf. (30a) and (30b):

construction (Leino 2003) and the dynamism of Finnish grammar (Kotilainen 2007), just to name some of the most important studies.

(30a) **I will donate them fifty dollars by PayPal* (Stefanowitsch 2011a: 381)

(30b) *I will donate fifty dollars to them by PayPal* (ibid.)

Neither phrasal nor lexical approaches appear to provide parsimonious solutions to the matter: in a construction grammar framework it would be necessary to add a constraint to the ditransitive construction, preventing Latinate verbs from occurring in it. A valency-based approach would simply ignore the fact. Recently, several authors (e.g. Stefanowitsch 2011a; Boas 2014; Perek 2015) have noted that a combination of both theories may solve the problem.

3.1.3 Lexically-bound and phrasal argument structure constructions

Following Goldberg's statement that "the network of constructions captures our grammatical knowledge of language in toto" (2006: 18) it appears natural to integrate thoughts from valency theory into the framework of construction grammar and not the other way round. In addition to *phrasal argument structure constructions* such as the ditransitive construction, Stefanowitsch (2011a) introduces the notion of *lexically-bound argument structure constructions* (ibid.),[26] which particularly fits a usage-based approach (also see Boas 2014):

> In the Usage-based Model, linguistic knowledge is represented in the form of an inductive hierarchy, in which concrete, fully specified linguistic expressions form the substrate over which speakers generalize to derive schemata of various degrees of abstraction. The fully specified linguistic expressions are not discarded after speakers generalize over them, and crucially, the hierarchy may contain expressions that do not enter into any generalization (Stefanowitsch 2011a: 383).

This also resonates with Sinclair's corpus-linguistic view "that a language user has available to him or her a large number of semi-preconstructed phrases that constitute single choices, even though they might appear to be analysable into segments" (Sinclair 1991: 110). One may object that this view is somewhat redundant, but rule-based approaches do not appear to be suited to capture multiple argument realization either. As mentioned in 3.1.1, it is widely assumed that argument structures and their formal realization can be predicted on the grounds of verbal semantics (e.g. Rappaport/Levin 1988, Pinker 1989). But, Faulhaber (2011) illustrates that verbs with a similar meaning, such as *argue*, *recall*, *remember*, and *recollect* do not necessarily appear with the same argument realization patterns:

[26] Boas (2008: 127) employs the term *mini-constructions*.

(31) *Back at the car park we had a well earned cuppa and reminisced/ *recalled/ *remembered/ *recollected over another hot day back in 1933* (Faulhaber 2011: 167)

Furthermore, differences in argument realization cannot (always) be traced back to more subtle semantic distinctions. According to Faulhaber (2011: 165), it has been argued that the preposition *on* is reserved for deliberate, formal communication (e.g. speaking, lecturing, writing, etc.), when used to mark a topic. But, this would prevent it from co-occurring with the verb *quarrel* in (32a) below. The example also shows that the formal realization of participants is bound to (complex) patterns, not to individual arguments. For this reason, it is not possible to overtly express the topic in (32b) without the second argument, which is indicated by the preposition *with*:

(32a) *I beg you, do not quarrel with me on this* (Faulhaber 2011: 165)

(32b) **I beg you, do not quarrel on this*

This is not to say that there are no regularities at all. In her extensive study of the argument structures and argument realization patterns of 87 verbs that are distributed over 22 semantic groups, Faulhaber (2011) finds that semantically similar verbs tend to display common syntactic behavior (also cf. Levin 1993 for English and Pajunen 2001 for Finnish). But, judging from the considerable deviation it is necessary to rethink the status of generalizations or as Diessel (2011) so poignantly put it in his review of Bybee (2010): "not every descriptive generalization unraveled by some clever linguist is psychologically real in the sense that it represents the language users' underlying linguistic knowledge" (Diessel 2011: 834). From a usage-based perspective, the criterion of parsimony can thus be rejected in favor of storage at various levels. This inevitably leads to the question how knowledge of argument structures is stored in the minds of speakers. Lexically-bound and phrasal argument structure constructions can only be taken to be part of the answer, as the opposite ends of a spectrum ranging from item-specific phenomena to generalized knowledge (see Herbst 2011: 363).

In line with this observation, Perek (2015) introduces the concept of verb-class-specific constructions, i.e. elaborations of a construction instantiated by verbs from a specific semantic class. Instead of analyzing the so-called *conative construction* as a whole, he performs collexeme analyses of four verb-class-specific constructions (i.e. ingestion, cutting, pulling, hitting). Both projectionist and constructional approaches failed to capture the semantic characteristics of the conative construction, by limiting their analysis to only one semantic characteristic of the construction, e.g. attempted action (Levin 1993: 41-42) and intended result (Goldberg 1995). The results of the collexeme analyses indicate that the construction highlights different semantic aspects

for verbs of ingestion (e.g. lack of completion) and verbs of hitting (e.g. minimal effect), cf. (33) and (34) respectively.

(33) *He sips suspiciously at his Guinness, and doesn't seem to like it* (Perek 2015: 125)

(34) *I hit violently at the door, I tried to force it with the nail, and managed to hurt my hand* (Perek 2015: 135)

This finding emphasizes the importance of low-level generalizations, vis-a-vis high-level generalizations and item-specific phenomena. In Chapter 5, I will transfer this usage-based view to the argument realization patterns of inchoative emotion verbs.

Next, I will give an overview of different approaches to noun classification, which will be relevant for analyzing stimulus nouns of inchoative emotion verbs. As there is no explicit usage-based approach to noun classification so far, I will briefly discuss different views on noun classification and how they may be used to detect semantic preferences of the verbs under investigation.

3.2 Noun categorization

Similar to argument structures, word classes are a central matter to theories of language, but they often diverge rather drastically in how they are defined. Whereas generative theories refer to distributional, i.e. morphological and syntactic criteria for lexical categorization (Chomsky 2002 [1957]), cognitive theories emphasize semantics (Langacker 1987), as well as pragmatics (Croft 1991, 2001). From a usage-based perspective, it seems that neither generativists nor cognitivists have found a satisfying solution to lexical categorization. Empirical evidence suggests that not only distributional and semantic-pragmatic aspects should be taken into account but also phonological ones (Hollmann 2012). Within corpus linguistics, some writers (Hunston/Francis 2000) even question the notion of word-classes,[27] conceding that it is nevertheless a convenient and indispensable one:

> [W]ord-classes are necessary in order to make sense of the huge range of behaviour that words have. The basic problem […] is to create the right number of classes: too few mean that some words fit badly into a class, as in the case of some nouns, and too many would lead to the situation where the map tends to be as large as the area of land it represents (Hunston/Francis 2000: 195).

[27] Hunston/Francis (2000: 179) argue that word classes are best defined as "pattern sets", i.e. on the basis of the patterns that are associated with them.

A discussion of the matter would go beyond the scope of the present study, which simply takes nouns as a tool to investigate the meaning of emotion verbs. For this purpose, it is sufficient to shed light on semantic and pragmatic aspects characterizing the word class noun and crucial to find a suitable way of categorizing nouns.

According to Langacker (1987), nouns are profiling THINGS, whereby *thing* does not refer to any specific entity, but to a semantic schema that "represents a region in some domain" (Langacker 1987: 189). The term region is in turn defined as a "set of interconnected entities" (ibid.).[28] The noun schema is derived from the prototype PHYSICAL OBJECT, which serves "as a reference point for the categorization of less typical elements" (Mihatsch 2009: 77). From a more pragmatic perspective (Croft 2001), nouns perform the function of reference: "The act of REFERENCE identifies a referent and establishes a cognitive file for that referent, thereby allowing for future referring expressions coreferential with the first referring expression" (Croft 2001: 66). As one of the three major propositional act functions proposed by Searle (1969), reference can thus be seen as a relation between linguistic expressions and things in the world (cf. Table 6 in 2.3.2).

The link between nouns and things is not straightforward, though. First of all, it has to be mentioned that reference does not exist independent of utterances (Schmid 1999: 214). In other words, nouns in the lexicon do not have reference, only denotation. Following Jackendoff (2011: 690), one may distinguish between the notions of *realist reference* and *mentalist reference*. The latter emphasizes the role of cognition in the relation between language and the world 'out there'. With regard to words, this means that a noun, such as *cat*, refers to a mental representation (of an entity). This mental representation is shaped by human perception and conceptualization. For this reason, linguistic items will henceforth be indicated by italicized letters, whereas concepts will be indicated by small caps.

The noun *cat* is a typical noun in the sense that it refers to a conceptually stable and autonomous entity, i.e. CAT, which can be perceived as a unified whole or "gestalt". It is needless to say that such basic level terms that also include concrete nouns like *table* and *chair* (see Rosch et al. 1976: 388), make up only a small fraction of the lexicon. If we want to maintain the notion of "gestalt" here, which stands out as an important characteristic of nouns, it makes sense to discard the narrow perceptual definition of the term in favor of a broader cognitive definition:

[28] Later, Langacker (2008: 105) discarded the spatial metaphor, by defining a *thing* as any product of grouping and reification.

> For cases in which conceptualization is not based on perception, consider mortgages and dollars. We speak of them as though they exist in the world, but, unlike cats, these are entities that exist only by virtue of social convention, i.e. shared conceptualization. Nevertheless, *for us* they are just as real as cats (Jackendoff 2011: 690).

One may even go a step further and say that the concept MONEY, to remain with Jackendoff's example, would not exist without words like *money*, *dollar*, or *mortgage* (see Schmid 1999: 213-215 and the discussion of emotion concepts in Chapter 2). In the analysis of stimulus nouns (Chapter 6), we will often encounter such abstract nouns and for this reason we need a sophisticated typology of referents that also includes concepts that are not perceptible by the senses.

First of all, Lyons (1977) rejects the traditional and somewhat naïve dichotomy between concrete and abstract nouns in favor of a three-way classification of entities. Conceptually stable and autonomous entities like CAT and TABLE are classified as *first-order entities*. Not only are they "relatively constant as to their perceptual properties", but they are also "located, at any point in time, in what is, psychologically at least, a three-dimensional space". Furthermore, they are "publicly observable" (Lyons 1977: 443). First-order entities are typically expressed by nouns.

In contrast to first-order entities, second-order entities, e.g. events, processes, and states-of-affairs, can primarily be located in time. Although the concept EVENT is usually associated with verbs in the realm of linguistics, most languages of course allow for nominal expressions like Finnish *tulo* 'arrival':

(35a) *Hän* *tul-i* *yllättä-vä-sti*
3SG come-PST.3SG surprise-PTCP-ADV
'S/he came surprisingly'

(35b) *Häne-n* ***tulo-nsa*** *ol-i* *yllätys*
3SG-GEN arrival-3SG.POSS be-PST.3SG surprise
'Her/his arrival was a surprise'

The category of third-order entities includes a wide range of phenomena that can neither be located in time nor space, e.g. BELIEF, IDEA, and FACT. These concepts are typically expressed by finite clauses, but as in the case of second-order entities, most languages also provide nouns to label them:

(36a) *Einstein* *keks-i,* *että* *kaikki* *on* *suhteellis-ta*
Einstein find.out-PST.3SG that everything be.3SG relative-PTV
'Einstein figured out that everything is relative'

(36b) *Einstein* *keks-i* ***suhteellisuusteoria-n***
Einstein invent-PST.3SG relativity.theory-ACC
'Einstein came up with the theory of relativity'

In addition to the three layers proposed by Lyons, proponents of Functional Grammar, most notably Hengeveld (1992) and Dik (1997), argue for a fourth layer, which covers different kinds of speech-acts, such as STATEMENT or QUESTION. Typically, speech-acts are realized as full utterances:

(37a) *Hän* *kysy-i:* *Mitä* *kuulu-u?*
3SG ask-PST.3SG what go-3SG
'S/he asked: How are you?'

(37b) *Hän* *esitt-i* ***kysymykse-n***
3SG pose-PST.3SG question-ACC
'S/he posed a question'

In light of the disparate nature of the concepts that nouns (can) refer to, one may reformulate the function of nouns as providing "language users with linguistic labels for certain portions of their experience" (Schmid 1999: 214). But, this is not the whole story, which becomes clear if we take a closer look at the subclasses of each order, which will be illustrated with Finnish examples.

3.2.1 Entities

Nouns that first and foremost label beings or things, i.e. first-order entities, are usually called proper nouns. This subclass includes names for human beings (e.g. *Sauli Niinistö*) and buildings (e.g. *Presidentinlinna*, the Presidential Palace in Helsinki), just to name a few. Unlike the examples given in brackets, not all proper nouns refer to unique entities. For instance, there are countless cats and dogs called *Molly*. But, in contrast to common nouns like Finnish *kissa* 'cat' and *koira* 'dog', we can still observe a direct reference to the labeled entity.

The noun *cat* is in turn a prime instance of categorization. As Schmid (1999: 218) notes, "the cognitive categories corresponding to basic-level nouns are based on particularly salient real-world similarities". But, as mentioned above, basic-level nouns like *kissa* 'cat' are not very frequent in the dictionary. The bulk of (common) nouns perform more complex functions, such as highlighting certain aspects of an entity. Within the realm of first-order entities this observation applies to functional nouns (*poliisi* 'police officer', *lääkäri* 'physician'), relational nouns (*äiti* 'mother', *tytär* 'daughter'), and attitudinal nouns (*kultanen* 'darling', *roska* 'rubbish').

Moving beyond the realm of first-order entities, nouns perform even more complex functions than naming, categorizing, and perspectivizing. Similar to first-order entities it is possible to perceive second-order entities, i.e. different kinds of situations, although they do not have clear physical or temporal boundaries that lend themselves easily to gestalt formation. In this sense, second-order nouns like *tulo* 'arrival' perform the function of partitioning and reifying certain experiences, which leads us to the question: what kinds of second-order entities can be distinguished? Lyons (1977) proposes a fourfold distinction between states, actions, processes, and events.[29] He notes that there is no satisfactory term covering all four concepts and draws a further distinction between static and dynamic situations. According to Lyons (1977: 483), a static situation or simply state (e.g. *sairaus* 'illness', *piiritys* 'siege') "is conceived of as existing, rather than happening, and as being homogenous, continuous and unchanging throughout its duration". In contrast to that, actions, processes and events are dynamic, i.e. they involve some kind of change. In the case of actions (e.g. *kävely* 'walk', *murto* 'burglary'), this change of state is intentionally caused by an (animate) agent.

With regard to the temporal contours of actions, Lyons further distinguishes between acts (punctual) and activities (durative).[30] The difference between processes (e.g. *kehitys* 'development', *ilmastonmuutos* 'climate change') and events (e.g. *räjähdys* 'explosion', *syöksy* 'fall') is that the former are typically durative, the latter punctual. The criteria given by Lyons (1977) are admittedly rather vague, but his classification of situation types appears to be a good starting point for the analysis of second-order nouns, because it is based on ontological features, i.e. staticity, durativity, and agentivity, which can easily be determined,[31] cf. Table 8 below.

[29] Schmid (2000: 65) uses the term *event* as a cover term for second-order entities, but I will keep it as a distinct subcategory for situations that are dynamic, punctual, and non-agentive by nature.

[30] Lyons uses the terms *momentary* and *enduring*.

[31] Another oft-quoted classification of situation types is that of Vendler (1967). Although Vendler's classification appears to be as clear as Lyons', some of his analyses are somewhat counterintuitive. For instance, Vendler takes states to be non-durative. Besides, Vendler's classification does not readily incorporate non-durative and nontransitional situations like knocking on the door. Drawing on the criterion of agentivity, Lyons' classification would easily incorporate this situation as an action.

	static	durative	agentive
state	+	+	–
action	–	+/–	+
process	–	+	–
event	–	–	–

Table 8: Classification of second-order nouns (based on Lyons 1977)

So far, I have only given examples of common second-order nouns, but of course there are also proper nouns referring to historical or social events, e.g. *Winter War* or *Midsummer*. By convention, second-order nouns like *joulu* 'Christmas' are not treated as proper nouns (Finnish *erisnimet*) in Finnish linguistics and thus written in small letters, just like common nouns (Finnish *yleisnimet*). They are nevertheless treated as proper nouns in the present study, because they refer to specific events, similar to their English counterparts, cf. *jouluaatto* 'Christmas Eve', *uudenvuodenpäivä* 'New Year's Day' and *vappu* 'Walpurgis Night' as opposed to the common noun *pyhäpäivä* 'holiday'.

The same applies to comparable nouns from the category of third-order entities (e.g. *konstruktiokielioppi* 'Construction Grammar', *kristinusko* 'Christianity'), which is broadly defined as "such abstract entities as propositions, which are outside space and time" (Lyons 1977: 443). These entities are evaluated in terms of their truth, rather than in terms of their existence (first-order) or their reality (second-order). We will adopt the trifold subcategorization of third-order entities, i.e. FACTS, IDEAS, and UTTERANCES, proposed by Schmid (2000: 66), as a starting point for our discussion. Many philosophers define facts as truth-makers (as opposed to propositions, which are truth-bearers), but this view is highly controversial and so is the equation of facts (cf. Armstrong 1993: 429) with states of affairs:

> [Facts] are not to be confused with abstract states of affairs which either obtain or do not obtain depending on how the world is. The latter are themselves in need of something in the world that explains why they obtain (Valicella 2000: 237).

A thorough discussion of that matter would go beyond the scope of the present treatise and it appears to be sufficient to say that facts are abstract relations that "are not invested with any epistemic or truth-conditional claims" (Schmid 2000: 66). A brief investigation of more specific instances may shed

some light on the question of what these relations look like: some factual nouns are clearly related to second-order entities (*tulos* 'result' and *syy* 'cause'), whereas others are primarily related to first-order entities (*ero* 'difference' and *samanlaisuus* 'similarity') or to other third-order entities (*aspekti* 'aspect'). In a naïve way, one may thus say that facts are out there in the world and as such independent of human thought.[32] In contrast to that, ideas are mental constructs, or in other words, the product of human thought. Ideas can have different degrees of complexity. Whereas the noun *uskomus* 'belief' refers to a fairly specific idea, the noun *uskonto* 'religion' evokes a system of multiple ideas. Recent findings on the interdependence between cognition and emotion suggest that nouns referring to emotions, such as *suuttumus* 'anger' and *suru* 'sadness', can also be subsumed under the category of third-order nouns. On the other hand, one may intuitively assume that a noun like *suru* 'sadness' refers to a state, rather than to a mental concept.

As third-order entities are typically evaluated in terms of truth, it seems reasonable to exclude speech-acts from this category, because they do not focus on propositional content. Thus, speech acts will be seen as fourth-order entities, which are evaluated in terms of felicity (see Mackenzie 2004: 974). This extra-category is also motivated by the fact that unlike propositions, speech acts can usually be located in space and time (similar to first-order entities). It would be possible to define further subcategories of fourth-order entities, e.g. assertive (*lausunto* 'statement') and rogative (*kysymys* 'question'), but for this general overview it is not necessary. Finally, it is hard to think of any proper nouns within the realm of fourth-order entities, but certain speech acts may qualify as proper nouns due to their unique character, e.g. *Tasavallan presidentin uudenvuodenpuhe* 'New Year Speech by the President of the Republic' or *Yhdysvaltain itsenäisyysjulistus* 'United States Declaration of Independence'.

Of course, the classification presented here does not apply neatly in each and every case and polysemous words may have senses referring to entities of a different order. Whereas some issues are a matter of debate, such as the ontological status of sounds and emotions (see Chapter 6), we also encounter borderline cases like *voitto* 'victory', which itself can be seen as an event (second-order) or as the result of an event (third-order). The same applies to a noun like *jalkapallo* 'football': are we dealing with an inflated round object (first-order), the activity of kicking an inflated round object (second-order) or

[32] Searle (1995: 2) distinguishes between *brute facts* (e.g. 'the sun is ninety-three million miles from the earth') and institutional facts (e.g. 'this piece of paper is a five dollar bill'). Whereas he takes the former to be independent of language or any other human institution, he sees the latter as social constructs, i.e. the result of social conventions.

with a game that entails certain rules and regulations (third-order)? For a description of semantic preferences, such answers do not require a definitive answer, but for a comprehensive understanding of semantics these are topics that need further investigation. Table 9 provides an overview of all four orders:

Order	Noun type		Examples
1st	Proper		*Sauli Niinistö, Presidentinlinna* 'the Presidential Palace in Helsinki'
	Common		
		Basic-level	*kissa* 'cat', *nainen* 'woman'
		Functional	*poliisimies* 'police officer', *tutkija* 'researcher'
		Relational	*äiti* 'mother', *sisko* 'sister'
		Attitudinal	*kultanen* 'darling', *romu* 'rubbish'
2nd	Proper		*talvisota* 'Winter War', *juhannus* 'Midsummer'
	Common		
		State	*sairaus* 'illness', *piiritys* 'siege'
		Process	*ilmastonmuutos* 'climate change', *kehitys* 'development'
		Action	*kävely* 'walk', *murto* 'burglary'
		Event	*räjähdys* 'explosion', *syöksy* 'fall'
3rd	Proper		*konstruktiokielioppi* 'Construction Grammar', *kristinusko* 'Christianity'
	Common		
		Factual	*tulos* 'result', *ero* 'difference'
		Mental	*ajatus* 'thought', *teoria* 'theory'
		Propositional	*uutinen* 'news', *viesti* 'message'
4th	Proper		*Tasavallan presidentin uudenvuodenpuhe* 'New Year Speech by the President of the Republic'
	Common		*lausunto* 'statement', *kysymys* 'question'

Table 9: Overview of the four orders of entities

In any case, the classification of entities does not prevent multiple categorizations for one and the same noun. The most striking example is perhaps the general noun *asia* 'thing', which can refer both to concrete and abstract notions. Whereas the internet user quoted in (38) employs the noun *asia* 'thing' to refer to physical items that can be bought (i.e. first-order entities), in this case groceries, the user quoted in (39) refers to a political matter (i.e. a third-order entity):

(38) *Venetsia-ssa* *toki* *moni* *asia* *on* *kallii-mpi*
Venice-INE indeed some thing be.3SG expensive-COMP
'In Venice, some things are indeed more expensive' (36629752)

(39) *Kukaan* *ei* *pidä* *asia-a* *tärkeä-nä,* *vain* *sinä*
nobody NEG.3SG hold thing-PTV important-ESS only 2SG
'Nobody considers the thing to be important, only you (do)' (51623056)

The unspecificity of a noun like *asia* 'thing' also permits it to be used as a conceptual shell (see Schmid 2000). In cases like (40), *asia* is followed by an *että*-clause (*että* 'that'), which fills its semantic gap.

(40) *Oleellinen* *asia* *on* *se,* *että* *ihmise-t* *voi-vat*
essential thing be.3SG PN that people-PL feel-3PL
pääasia-ssa *hyvin*
main.thing-INE well
'It is essential that people are doing well, for the most part' (77612334)

From a cognitive-functional point of view, constructions like this are employed, because of the fact that (abstract) nouns have the potential for reifying and hypostatizing chunks of experience. In Chapter 6 we will encounter some of these constructions and discuss them in more detail.

3.2.2 Qualities

The process of hypostatization or *hypostasis* also accounts for nouns referring to qualities and related concepts, which are typically expressed by adjectives in Finnish. For this purpose, Finnish employs a nominalization technique that looks similar to English nouns with the ending *-ness*, namely suffixation with *-us*/*-ys* or *-uus*/*-yys*, for instance, *pitkä* 'long' > *pituus* 'length':

(41a) *Hän* *on* *170* *cm* *pitkä*
3SG be.3SG 170 cm tall
'S/he is 170 cm tall'

(41b) *Häne-n* *pituute-nsa* *on* *170* *cm*
3SG-GEN height-3SG.POSS be.3SG 170 cm
'Her/his height is 170 cm'

It is possible to identify four orders of qualities, corresponding to the four orders of entities presented in 3.2.1 (cf. Mackenzie 2004: 976-977). As in (41), first-order entities are typically qualified in terms of attributes like size (e.g. *pituus* 'length') and temperature (e.g. *kylmyys* 'coldness'), but also quantity (e.g. *määrä* 'amount'). Second-order qualities include different circumstantial aspects of situations, for instance, location (e.g. *paikka* 'place'), duration (e.g. *kesto* 'duration'), as well as manner (e.g. *tapa* 'manner'). As third-order entities are typically evaluated in terms of truth, we find epistemic notions like *totuus* 'truth' and *uskottavuus* 'credibility' within the category of third-order qualities. Finally, fourth-order qualities include stylistic notions like *käsittämättömyys* 'incomprehensibility' and *yksiselitteisyys* 'unambiguousness'. All four orders of hypostatized qualities are summarized in Table 10:

Order	Hypostatized quality	Example nouns
1st	Attributive	*pituus* 'length', *kylmyys* 'coldness', *määrä* 'amount'
2nd	Circumstantial	*paikka* 'place', *kesto* 'duration', *tapa* 'manner'
3rd	Epistemic	*totuus* 'truth', *uskottavuus* 'credibility'
4th	Stylistic	*käsittämättömyys* 'incomprehensibility', *yksiselitteisyys* 'unambiguity'

Table 10: Overview of the four orders of qualities

Of course, this categorization also allows for overlaps. Note, for instance, that the term *käsittämättömyys* 'incomprehensibility' may also be used with regard to propositional content, not only with regard to speech-acts. Another issue is that of nouns referring to location in space and time: If we take *talo* 'house' as an example, one would intuitively think of a concrete object. On the other hand, it may also be conceptualized as a spatial entity, e.g. as a container. For spatial entities lacking clear boundaries and gestalt properties, like *ympäristö* 'environment', it is even more complicated to think of an entity-like conceptualization.

As mentioned earlier, the categorization will serve as a theoretical starting point for the analysis in Chapter 6 and is by no means exhaustive. It shall simply help to determine the semantic preferences of individual verbs. For instance, does the verb *rakastua* 'fall in love' only appear together with first-order nouns or do we find combinations of the verb with nouns referring to situations, propositions, or speech-acts? In many cases, we will see that semantic preferences are based on more subtle aspects that apply across the four orders of entities/qualities outlined in this section.

3.3 Summary

In this chapter, I tried to clarify several theoretical aspects that are relevant for the analysis of argument structures and stimulus nouns. First of all, I discussed the status of argument structures in a usage-based approach and illustrated how it can combine insights from valency theory and construction grammar by allowing for lexically-bound as well as phrasal constructions. In Chapter 5, I will show that this distinction also pertains to inchoative emotion verbs. Secondly, I presented a semantic classification of nouns that owes to the work of Lyons (1977) and Schmid (1999, 2000). The semantic classification is based on a fourfold distinction between different kinds of entities. As Chapter 6 provides a detailed analysis of (stimulus) nouns, I also presented several subcategories for each order of nouns. In the next chapter, I will present the data and the methodological tools used to analyze the colligations and collocations of the inchoative emotion verbs.

4. (Quantitative) Corpus Linguistics

The past decades have seen an enormous rise of corpora within linguistics, i.e. large collections of spoken and written texts. Corpus studies are generally based on empirical evidence, but the actual role of a corpus depends largely on the approach taken by the researcher. Combining the classifications by Tognini-Bonelli (2001) and Tummers/Heylen/Geeraerts (2005: 234-238), Jantunen (2009: 102) distinguishes between three different approaches: corpus-illustrated, corpus-based, and corpus-driven. In the case of corpus-illustrated research, language material is merely used to provide examples that support or falsify a certain hypothesis. In a strict sense, this approach does not belong to corpus linguistics proper. Introspection and intuition remain the most important means of investigation here. The two major research approaches within corpus linguistics proper, i.e. corpus-based and corpus-driven research, try to strike a balance between qualitative and quantitative data. The distinction between both approaches is not clear-cut and the terms are sometimes used to refer to the same thing. Following Jantunen (2009: 103-105), corpus-based research is primarily qualitative and used to analyze pre-defined features, whereas corpus-driven research is quantitative in nature and "makes minimal a priori assumptions regarding the linguistic features that should be employed for the corpus analysis" (Biber 2015: 162). The main traits of the three approaches are presented in Table 11:

	corpus-illustrated	**corpus-based**	**corpus-driven**
role of the corpus	pool for examples, use of the corpus unsystematic	corpus research is conducted on hypotheses of prior research or observations or a phenomenon of interest	the corpus directs research from the beginning in a systematic way and works as a foundation for creating hypotheses and theories.
intuition/ introspection	research strongly based on intuition and introspection	directs research and is important in the selection of the corpus	directs the interpretation of the results from the corpus
qualitative/ quantitative	qualitative	basically qualitative, quantitative observations used to support qualitative observations	basically quantitative, qualitative observation used to explain quantitative observations
grammar/ lexicon	grammar as an important object of investigation	grammar and lexicon as separate objects of investigation, focus on grammar	combines the investigation of lexicon and grammar, lexico-grammatical entities

Table 11: Traits of different approaches to corpus research (adapted from Jantunen 2009: 106)

The present study uses a corpus-based approach: it acknowledges the existence of word classes/basic syntactic structures and focuses on a pre-defined object of investigation. Yet, a strict division between grammar and lexicon is rejected. Quantitative methods will be at the heart of the study, because they offer the prospect of generalizability and are particularly valuable for non-native speakers conducting research on a language.

As statistical methods of various complexity have been used to study the Finnish language (e.g. Arppe 2008; Jantunen 2004; Ivaska 2015), there has also been some discussion on the role of introspection and intuition among Finnish linguists (Itkonen 2005; Huumo 2007; Ojutkangas 2008; Jantunen 2009). Although the two terms are often used synonymously, it is helpful to draw a distinction between them. Introspection refers to the examination of one's own internal psychological states and processes. Thus, introspection is, by definition, subjective. Intuition, on the other hand, "is a cultural manifestation of a mental faculty" (Willems 2012: 672). It is focused on rules or norms, i.e. units of shared social practices (Itkonen 2003: 15). It is fair to say that generative grammarians have over-relied on the use of introspection, by employing extremely complex and unnatural fabricated examples as the basis of linguistic argumentation (Huumo 2007). One may, however, conclude that qualitative analyses in general and intuition in particular are indispensable in linguistics, because they help to understand language data and quantitative results. Therefore, I will try to combine qualitative and quantitative aspects in a complementary and synergistic way (cf. Langacker 2016: 473).

4.1 Empirical basis

It is almost trivial to state that no corpus can fully cover a language or any of its varieties. In order to ensure the greatest generalizability possible, a SAMPLE has to be large enough to allow inferences about the statistical POPULATION. This is especially true for analyses of rather marginal (linguistic) phenomena. Therefore, empirical evidence in this study is extracted from a large corpus based on the internet discussion group Suomi24, which will be introduced in 4.1.1. At the end of the chapter, I will present a quantitative method that is of great use in studying lexical semantics and has neither been adapted for work with emotion verbs nor by Finnish linguistics.

4.1.1 Suomi24 corpus

For years, the Language Bank of Finland (Finnish *Kielipankki*) has provided a wide variety of text and speech corpora for linguistic research, such as the Finnish Text Collection, which covers Finnish newspapers from the years

1987-2000. In 2014, the Language Bank of Finland published its largest corpus to date, the Suomi24 corpus, which contains written messages from the popular eponymic social networking website.[33] But, the Suomi24 corpus is only partially representative for Finnish internet language. According to Koskenniemi et al. (2012: 15), the platforms Facebook and Youtube as well as the newspaper sites Iltalehti and Iltasanomat were searched more often than chatgroups like irc and Suomi24. Albeit the Suomi24 corpus is specific in nature, it covers a wide range of speakers and utterances. Unlike Facebook, the structure of Suomi24 is topic-driven,[34] meaning that users share thoughts about a common interest or a particular subject-matter, such as hobbies, sexual orientation, and health, just to name some of the most important ones (see Lagus et al. 2016: 5). The forum is organized hierarchically, from the main level (e.g. *Suhteet* 'relationships') to various sub-levels (e.g. *Tunteet* 'emotions') to individual discussions.

With regard to the main level, *Yhteiskunta* 'society' is the biggest section. By way of example, the single most popular discussion was written in October 2015 and comprises 164 comments and 68 066 words. Overall, it was viewed 3 090 times. The fine-grained information contained in the Suomi24 corpus can be used for a wide range of purposes, not only within linguistics. A detailed account of the distribution of entries to the chatgroup is given by Lagus et al. (2016: 24). The messages within each discussion are chronologically organized, beginning with the first and ending with the last entry. Compared to real time chat rooms, interactions within asynchronous chatgroups "are much more like those familiar in email and in traditional written genres such as the letter or essay" (Crystal 2004: 130). Nevertheless, we frequently encounter peculiarities of *netspeak* in the Suomi24 corpus, such as use of emoticons, misspellings, omission of punctuation, and unique word forms. Generally, the language of asynchronous chatgroups, or *keskustelufoorumit* 'discussion forums' in Finnish, appears to be relatively close to standard Finnish, at least much closer than real time chats (Hynönen 2008: 187-188). For this reason, I will not discuss the peculiarities of Finnish netspeak in more detail. Research on Finnish netspeak is scattered across different theses, and so far there is only one monograph (Helasvuo/Johansson/Tanskanen (eds.) 2014), which tries to clarify terminological issues and map the different varieties. One major advantage of using a chatgroup as a corpus is that the language contained is produced in a natural communicative setting by speakers/users from different backgrounds. Users of discussion forums are typically anonymous, but of course each user leaves footprints, not only by using a screen name.

[33] http://www.suomi24.fi

[34] It is interesting to note that the majority of users visit Suomi24 via Google.

The Suomi24 corpus was tokenized and annotated at the University of Helsinki (Department of Modern Languages, FIN-CLARIN consortium). Morpho-syntactic analysis was provided by the Turku Dependency Parser. The corpus can be downloaded with a special permission in the formats VRT and JSON or it can be used with the online corpus interface Korp. Note that the KWIC concordance includes information about both text attributes (e.g. title, section, and subsection) and word attributes (e.g. part-of-speech and dependency relations). Finally, there are also links to the original threads/messages. The Suomi24 corpus is divided into several parts for use in the online corpus interface and updated on a regular basis. The present study makes use of version 2015H1, which contains about 2.4 billion tokens[35] and covers the time between 2001 and June 2015. Korp can be used for a simple query, but it also allows for complex CQP queries. As already mentioned above, it is also possible to download[36] the Suomi24 corpus. For the present study, I used Korp to retrieve data, which was then processed in a simple spreadsheet.

4.1.2 The verbs

The verbs under investigation belong to a series of intransitive verbs that share one of the following derivational suffixes: *-u-/-y-*, *-tu-/-ty-*, *-utu-/-yty-*, *-(V)Vntu-/-(V)Vnty-*. These derivational suffixes are usually attached to a transitive verbal root, in order to form an intransitive verb (compare 44a and 44b). Traditionally, these verbs are called "reflexive verbs" (see ISK §333-336), but at closer inspection, they fulfill functions that go beyond expressing reflexivity as in (42):

(42) *Ensin* ***pese-yty-isi-n***, *kampa-isi-n* *ja* ***puke-utu-isi-n***
first wash-REFL-COND-1SG comb-COND-1SG and dress-REFL-COND-1SG

puhta-i-siin, *sitten* *heittä-isi-n* *myrky-t* *kurkku-u-ni* *ja*
clean-PL-ILL than throw-COND-1SG poison-PL throat-ILL-1SG.POSS and

kääri-yty-isi-n *peittee-seen*
wrap-REFL-COND-1SG cover-ILL

'First, I'd wash myself, comb (my hair) and dress myself into clean (clothes), then I'd throw the poison into my mouth, swallow and wrap myself into a blanket' (ISK §334)

[35] Note that the corpus size indicated on META-SHARE (2 385 073 226 tokens) deviates from the size indicated in the Korp corpus interface (2 359 472 124) after choosing the first eight parts of the Suomi24 corpus, which is equivalent to the version 2015H1. In the remainder, the latter will be quoted as default.

[36] http://urn.fi/urn:nbn:fi:lb-2015040801

In Finnish, reflexive verbs can also indicate automativity[37] (Sakuma 2013: 21; cf. example (43) and a passive-like meaning (44b):

(43) *Vesi* *tunkeutu-u* *venee-seen*
water penetrate-3SG boat-ILL
'Water floods into the boat' (Koivisto 1995: 42)

(44a) *Ovi* *avat-tiin*
door open-PASS.PST
'The door was opened' (ISK §336)

(44b) *Ovi* ***avautu-i***
door open-PST.1SG
'The door opened' (ibid.)

In fact, the "reflexive verbs" primarily appear to express anti-causativity: "What is described in sentences containing a reflexive verb is not an action by some agent but a resultant state of that action" (Sakuma 2013: 31, also cf. Koivisto 1995: 38). Thus, the semantics of these verbs can be boiled down to the expression of a change of state (see ISK §333), as in (45) below. Following Siiroinen (2001), I will therefore employ the term *inchoative emotion verbs*. The feature [+inchoative] can usually be translated with *get* or *become*, as in the case of *kyllästyä* '**get** fed up', cf. example (45). But, this does not always work in English, as the translations in Table 12 suggest (e.g. *hämmästyä* 'be astonished').

(45) *Muutama-n* *kuukaude-n* *kest-i-n* *si-tä* *mutta*
some-ACC month-ACC tolerate-PST-1SG PN-PTV but
sitten *kyllästy-i-n*
than get.fed.up-PST-1SG
'For some months I tolerated it, but then I got fed up' (69945404)

As a starting point for the analysis, I retrieved the frequencies of all inchoative emotion verbs given by Siiroinen (2001). The work provides a list of 196 Finnish emotion verbs, of which 84 belong to the category under investigation. As it would not be feasible to conduct an exhaustive analysis of all lexemes, I will limit the main analyses to the 20 most common ones. A search including all forms of a lemma present in the corpus is simply indicated by *lemma* in the search syntax. The choice of a lemma-based corpus analysis (as opposed to an inflectional-form-based analysis) is supported by the observation that linguistic distinctions of this kind may result in quantitative differences, but they do not necessarily entail "qualitative interpretive differences of interest" (Gries 2011: 254). Of course, this has implications for the granularity of the analysis

[37] The term refers to an event that occurs/occured spontaneously.

and I assume that a comprehensive approach is more revealing than a fine-grained approach.[38] The final selection of the emotion verbs that will be investigated in Chapter 5 and Chapter 6 is summarized in Table 12:

Lemma	Translation	Tokens	Lemma	Translation	Tokens
kiinnostua	get interested	371 516	*hermostua*	get agitated	41 671
ihastua	get infatuated	185 048	*hämmästyä*	be astonished	39 003
rakastua	fall in love	153 119	*ahdistua*	get anxious	32 039
kyllästyä	get fed up	96 775	*järkyttyä*	be shocked	23 557
pettyä	get disappointed	81 056	*säikähtää*	get scared	23 659
suuttua	get angry	79 522	*pelästyä*	get frightened	21 794
masentua	get depressed	76 393	*mieltyä*	become fond	18 153
innostua	get excited	65 545	*raivostua*	get furious	14 570
huolestua	get worried	62 712	*ärsyyntyä*	get irritated	14 534
yllättyä	be surprised	46 705	*ilahtua*	be delighted	13 677

Table 12: The 20 most frequent inchoative emotion verbs in the Suomi24 corpus

Judging from absolute numbers, the verbs *loukkaantua*, broadly translated as 'get hurt' (71 878), *katkeroitua* 'become embittered' (24 582), and *kauhistua* 'become horrified' (14 826) should be part of the list, but they are excluded for two reasons: first, the verb *loukkaantua* has a concrete meaning 'get wounded, get injured' which is more common than the more abstract emotional meaning 'become offended'. Second, the verbs *katkeroitua* and *kauhistua* are predominantly attested as past participles in the corpus, i.e. *katkeroitunut* 'embittered' and *kauhistunut* 'horrified'. In the case of the two verbs, these forms are primarily used as modifiers in noun phrases, e.g. *katkeroitunut mies* 'embittered man' or *kauhistunut ilme* 'horrified expression' and much more seldom as part of a predicate, e.g. *minä olen katkeroitunut* 'I am embittered'.

[38] On the other hand, there might be merit in the further investigation of whether there are differences in argument realization and stimulus collocation with regard to the opposition of 1st person and non-1st person.

As mentioned in Chapter 2, Fehr/Russel (1984) analyzed emotions in terms of prototypes. This approach has been refined by Shaver et al. (2001), whose taxonomy of emotions will serve as a basis for the categorization of the inchoative emotion verbs analyzed in the present study. The taxonomy is based on an extensive list of English emotion words and related vocabulary. Native speakers were first of all asked to determine which words clearly refer to emotions and which clearly do not. Secondly, they were asked to judge the similarity of individual terms. The results were then submitted to a cluster analysis. The cluster analysis yielded five clusters of "basic" emotion concepts that were found to be more prototypical than others, i.e. LOVE, JOY, SURPRISE, ANGER, SADNESS, and FEAR. Less basic emotions were incorporated as subordinated (i.e. secondary and tertiary) emotions in the cluster analysis. For instance, WORRY (tertiary emotion) is a subcategory of NERVOUSNESS (secondary emotion), which in turn is a subcategory of FEAR (primary emotion). The inchoative emotion verbs are thus categorized in the following way:

Emotion	Verbs
SURPRISE	*yllättyä* 'be surprised', *hämmästyä* 'be astonished'
JOY	*ilahtua* 'be delighted', *innostua* 'get excited', *kiinnostua* 'get interested'
LOVE	*ihastua* 'get infatuated', *rakastua* 'fall in love', *mieltyä* 'become fond'
SADNESS	*pettyä* 'get disappointed', *masentua* 'get depressed'
FEAR	*huolestua* 'get worried', *ahdistua* 'get anxious', *pelästyä* 'get frightened', *säikähtää* 'get scared', *järkyttyä* 'be shocked'
ANGER	*kyllästyä* 'get fed up', *suuttua* 'get angry', *ärsyyntyä* 'get irritated', *raivostua* 'get furious', *hermostua* 'get agitated'

Table 13: Classification of the 20 most frequent inchoative emotion verbs in the Suomi24 corpus

As the taxonomy is based on English emotion words,[39] some aspects may seem awkward to native speakers of the Finnish language, such as the fact that *kyllästyä* 'get fed up' is part of the category ANGER. This categorization is explained by the fact that several aspects that are relevant in the semantics of the verb *kyllästyä* 'get fed up', e.g. annoyance, frustration, and disgust, were found to be part of the anger cluster in the study of Shaver et al. 2001. Employing a slightly modified methodology, Toivonen et al. (2002) found similar clusters for Finnish, but many of the words analyzed here (e.g. *kyllästyä* 'get fed up') are unfortunately excluded due to the smaller scopus of their study. Regardless of this, I argue that the categorization by Shaver et al. (2001) can be

[39] Interestingly, the same basic clusters were also found for Basque (Alonso-Arbiol et al. 2006) and Indonesian (Shaver/Murdaya/Fraley 2001).

used as a guideline for the analysis in Chapter 6, making it possible to determine whether this particular grouping of emotion verbs is also reflected in their similar semantic preferences when it comes to stimulus nouns. In the case of argument realization, I will structure the analysis according to formal criteria, but the semantic categorization by Shaver et al. (2001) will nevertheless function as a benchmark. Furthermore, I will contrast the results of the present study with the NSM account of Tuovila (2005), see 2.2.1 and 2.3.1. As the two studies differ in their selection of emotion terms, this will only be possible in the case of *hämmästy*ä 'be astonished' (6.1.2), *ilahtua* 'be delighted' (6.2.1), *innostua* 'get excited' (6.2.2), *ihastua* 'get infatuated' (6.3.1), *rakastua* 'fall in love' (6.3.2), *masentua* 'get depressed' (6.4.2), *huolestua* 'get worried' (6.5.1), *ahdistua* 'get anxious' (6.5.2), *pelästyä* 'get frightened' (6.5.3), *suuttua* 'get angry' (6.6.3), and *raivostua* 'get furious' (6.6.5).

4.2 Colligation

It is unnecessary to say that verbs can appear in various grammatical contexts. Nonetheless, the present treatise will exclusively focus on the argument structures that co-occur with the inchoative emotion verbs investigated here. With regard to the Finnish language, emotion verb complementation has been studied in detail by Siiroinen (2001) and Pörn (2008) and to some extent also by Pajunen (2001), who provides the most comprehensive classification of Finnish verbs available to date. Furthermore, Nissilä (2011) deals with the question how native speakers of Estonian learn Finnish verb complementation patterns within the context of L2 acquistion. Although the study is not exclusively dealing with emotion verbs, it also covers some of the verbs investigated here, e.g. *ihastua* 'get infatuated', *rakastua* 'fall in love', and *suuttua* 'get angry'. The argument structures of emotion verbs, or more general psych-verbs (i.e. verbs of emotion, cognition, and perception), have gained considerable attention, because they exhibit different construction types (within and across languages) that are distinct from canonical coding strategies. Major works were published with regard to formal aspects (e.g. Belletti/Rizzi 1988; Dowty 1991), argument alternation (e.g. Klein/Kutscher 2005; Kutscher 2009, 2012), and cross-linguistic variation (e.g. Kutscher 2009; Verhoeven 2010, 2014). Similar to emotion terms, the issue has recently also gained attention within corpus linguistics (Cosma/Engelberg 2014; Engelberg 2018; Pijpops/Speelman 2015).

4.2.1 Extended grammatical relations

As mentioned in 2.3.1, emotion/psych verbs differ considerably with respect to the syntactic realization of the two semantic roles experiencer (the referent that experiences a situation/mental state) and stimulus (the entity the experiencer is scentient of).

(46) *Minä* *rakastu-i-n* *sii-hen* *kirja-an*
1SG fall.in.love-PST-1SG that-ILL book-ILL
'I fell in love with that book' (2231947)

Inchoative emotion verbs in Finnish can only have the experiencer in subject position; e.g. *Minä* 'I' in (46). The syntactic status of the semantic role stimulus (e.g. *kirja* 'book' in the example above) is more complicated, because referents are usually marked with one of the local cases. In Finnish linguistics, the terminology for arguments marked with the elative or other local cases such as the illative is still not used uniformly. Common terms include *valenssiadverbiaali* 'valency adverbial' (ISK §961), *rektio-obliikvi* 'governed oblique' (Vilkuna 1996, Pajunen 1999), as well as German *Lokalkasusobjekt*[40] 'local-case object' (Tarvainen 1985, Hyvärinen 1995), which can be found in contrastive research.

Government of non-grammatical cases has traditionally been subsumed under the category of adverbials. In opposition to that, Sands (2011: 49) coined the term *extended grammatical relations*, stressing that "there is actually a scale from argument to adjunct and any instance of a local case marked noun falls somewhere on this scale" (ibid.). Table 14 summarizes five essential criteria to distinguish between arguments and adjuncts.

Criteria	**Argument**	**Adjunct**
1. Case marking	fixed	variable
2. Substitution by adverb or PP	not grammatical	grammatical
3. Meaning is	idiosyncratic	predictable
4. Semantically	obligatory	optional
5. Governs adjectival complement	yes	no

Table 14: Arguments versus adjuncts (adapted from Sands 2011: 53)

[40] This term is inspired by the concept *Präpositionalobjekt* 'prepositional object' in German Studies.

First of all, Table 14 reveals that case marking can either be fixed or variable. For many inchoative emotion verbs, there is only one form of case marking. By way of example, the verbs *rakastua* 'fall in love', *ihastua* 'get infatuated', *pettyä* 'get disappointed', and *kyllästyä* 'get fed up' exclusively co-occur with illative marking (cf. 5.1.3). On the other hand, the verb *suuttua* 'get angry' appears together with elative, illative, and allative marking on stimulus[41] nouns. Whereas allative (external case / goal) marking is clearly associated with human referents (47), the difference between elative (internal case / source) and illative (internal case / goal) marking is not obvious at first sight (cf. 6.5.6). Although illative marking exhibits some tendency towards animate referents, it can also be used with inanimate referents (48). But, in 5.1.3 and 6.6.3 we will see that illative marking appears to be motivated by more subtle criteria. Thus, it seems that case-marking is not fully variable for *suuttua* 'get angry', which also explains why the verb never appears with the ablative case[42] (external case / source; cf. (49) below):

(47) *joku* *ystävä-ni* *jopa* *kerran* *suuttu-i* *minu-lle*
some friend-1SG.POSS even once get.angry-PST.3SG 1SG-ALL

mielipite-i-stä-ni
opinion-PL-ELA-1SG.POSS

'some friend of mine once even got angry with me over my opinions' (56032731)

(48) *Mutta* *mu-i-ssa* *tilante-i-ssa* *hän* *suuttu-u*
but other-PL-INE situation-PL-INE 3SG get.angry-3SG

mielipite-i-sii-ni, *mikäli* *ei-vät* *kulje* *käsikädessä* (sic)
opinion-PL-ILL-1SG.POSS if NEG-3PL go hand.in.hand

om-i-en-sa *kanssa*
own-PL-GEN-3SG.POSS with

'But, in other situations, s/he gets angry about my opinions when they aren't hand in hand with her/his own' (50200054)

(49) **Hän* *suuttu-i* *minu-lta/* *mielipite-i-ltä-ni*
3SG get.angry-PST.3SG 1SG-ABL opinion-PL-ABL-1SG.POSS

'S/he got angry from me/ my opinions'

Moving on to the second criterion, we can observe that elative-marked noun phrases (50) can be substituted by postpositional phrases. Utterances like (51) are grammatical, but rare in comparison to case-marked stimulus nouns. With

[41] The term stimulus is somewhat problematic in combination with allative-marked nouns, as will be discussed in 5.1.4.

[42] In fact, this pertains to all verbs studied here.

regard to inchoative emotion verbs, the most common postposition used in this context is *takia* 'because of'. On the other hand, it is a matter of debate whether the elative (50) and the postposition *takia* (51) are truly synonymous. From the viewpoint of construction grammar one has to assume that we are dealing with two different phenomena. Thus, the criterion of substitution is not clear with regard to stimulus realization:

(50) *Homma* *ei* *kuiten-kaan* *alka-nut* *toimi-a* *vaan*
thing NEG.3SG however-CLT begin-PTCP work-INF but

masennu-i-n *om-i-sta* *epäonnistumis-i-sta*
get.depressed-PST-1SG own-PL-ELA failure-PL-ELA

'The thing nevertheless didn't start to work; instead I got depressed about my own failures' (16689065)

(51) *Ol-i-n* *pitkä-än* *masentu-nut* *tuo-n* *epäonnistumise-n* *takia*
be-PST-1SG long-ILL get.depressed-PTCP that-GEN failure-GEN because

'I was depressed for a long time because of that failure' (67742561)

The question whether the meaning of (local) case marking is idiosyncratic or predictable needs some elaboration: from a synchronic point of view, the basic (locative) meaning of the governed cases is not immediately visible. As I will show in Chapter 5, inchoative emotion verbs most commonly appear with elative marking or illative marking on stimulus nouns. Allative marking is rare and only attested in conjunction with *suuttua* 'get angry' and two other verbs of anger. The ablative case is completely excluded from stimulus marking. These observations suggest that the opposition between internal (here: elative/illative) and external cases (ablative/allative) is limited in terms of stimulus marking. But, like with other abstract uses of the Finnish local cases (see Huumo 2006, 2010), one can assume that their directionality plays a role in the linguistic conceptualization of emotions. This matter will be further discussed in 5.1.2 and 5.1.3. But, as the semantic motivation of the local cases is not obvious in conjunction with inchoative emotion verbs, it is fair to say that the meaning of case marking is idiosyncratic in the case of stimulus realization.

Regarding the fourth criterion, the overt expression of stimuli is semantically not obligatory. It varies from being rare to being very common, as will be shown in Chapter 5. Finally, there is not a single instance in the sample corpus, where an argument governed by an inchoative emotion verb has an adjectival complement later in the clause, which is typical for full-fledged arguments, cf. (52):

(52) *Ville* *pitä-ä* *Marja-sta* *jopa* *humalaise-na*
Ville like-3SG Marja-ELA even drunk-ESS
'Ville likes Marja even when Ville/Marja is drunk' (Sands 2011: 52)

The special status of local-case government/ extended grammatical relations is also supported by morphological coding properties and syntactic behavior, e.g. when it comes to negation: Accusative marking (53a) is usually substituted by the partitive case in negated sentences (53b). In contrast, the extended grammatical relation (53c) retains the local case (53d):

(53a) *He* *ovat* *osta-neet* ***uude-n*** ***auto-n***
3PL be.3PL buy-PTCP new-ACC auto-ACC
'They have bought **a new car**' (ISK §1615, boldface M.M.)

(53b) *He* *ei-vät* *ole* *osta-neet* ***uut-ta*** ***auto-a***
3PL NEG-3PL be buy-PTCP new-PTV car-PTV
'They haven't bought **a new car**' (ibid., boldface M.M.)

(53c) *He* *ovat* *kyllästy-neet* ***vanha-an*** ***auto-on***
3PL be.3PL get.fed.up-PTCP old-ILL car-ILL
'They are fed up **with the old car**'

(53d) *He* *ei-vät* *ole* *kyllästy-neet* ***vanha-an*** ***auto-on***
3PL NEG-3PL be get.fed.up-PTCP old-ILL car-ILL
'They aren't fed up **with the old car**'

Judging from the five criteria mentioned in Table 13 above, it is hard to determine the exact status of extended grammatical relations, in particular when it comes to the realization of the stimuli of the inchoative emotion verbs, cf. Table 15, which summarizes the discussion:

Criteria	**Argument**	**Adjunct**	**Realization of stimuli**
1. Case marking	fixed	variable	fixed
2. Substitution by adverb or PP	not grammatical	grammatical	not clear
3. Meaning is	idiosyncratic	predictable	idiosyncratic
4. Semantically	obligatory	optional	optional
5. Governs adjectival complement	yes	no	no

Table 15: Realization of stimuli – arguments or adjuncts? (adapted from Sands 2011: 53)

In conclusion, two criteria speak in favor of an argument-like reading (i.e. fixed case marking and idiosyncratic meaning), whereas two other criteria speak in favor of an adjunct-like reading (i.e. semantic optionality and the absence of governed adjectival complements). The question of substitions cannot be answered conclusively. Thus, it is fair to say that we are dealing with a border phenomenon, but I will get back to the distinction between arguments in adjuncts in Chapter 5.

4.2.2 Argument realization patterns

Assuming particular argument structures co-occur with verbs that share similar semantics, the main focus of the investigation in Chapter 5 will be put on the association between argument structures and verbal semantics.[43] In a first step, a random sample of 100 sentences for each verb will be analyzed regarding argument realization patterns. Following Engelberg (2018), I will adopt a broad definition of arguments that also considers adjunct-like entities with a verb-specific distribution. This is also sound within a usage-based approach, because constituency is seen here as a "gradient phenomenon emergent from concrete utterances of language use, just like any other aspect of grammar" (Diessel 2015: 317).

Although we do not encounter any variation with regard to the syntactic position of experiencer and stimulus, inchoative verbs do alternate with regard to animate (54a) and inanimate stimuli (54b), nominal (54c) and clausal realizations (54d) of arguments, simple stimuli (54e) and expressions that mention both cause and goal of an emotion (54f), as well as explicit (54a-f) and implicit (54g) argument realization.

(54a) *Minä-kin* *men-i-n* *ja* *rakastu-i-n* *työkaveri-in*
1SG-CLT go-PST-1SG and fall.in.love-PST-1SG work.friend-ILL
'I went and fell in love with a co-worker, too' (11253207)

(54b) *Mutta* *me* *rakastu-ttiin* *ranna-lla* *ole-va-an*
but 1PL fall.in.love-PASS.PST beach-ADE be-PTCP-ILL
ravintola-an
restaurant-ILL
'But, we fell in love with a restaurant (that was) at the beach' (75008136)

[43] Of course, there are also multifactorial, corpus-linguistic approaches to investigate verbal semantics, e.g. *behavioral profiles* (Gries/Divjak 2009, Gries 2010). Some of these approaches consider factors such as tense-aspect-mood and information structure, which will not be considered in the present study.

(54c) *Itse* *en* *ole* *yllätty-nyt* *ollenkaan*
self NEG.1SG be be.surprised-PTCP at.all

vasemmisto-n *hiipu-mise-sta*
left-GEN weaken-NMLZ-ELA

'I myself am not surprised at all about the weakening of the political left' (79633688)

(54d) *positiivise-sti* *ylläty-i-n* *että* *kaikki* *on* *toimi-nut*
positive-ADV be.surprised-PST-1SG that everything be.3SG work-PTCP

'I was positively surprised that everything has worked' (47888432)

(54e) *Todistaja-t* *suuttu-vat-kin* *tiedo-sta*
witness-PL get.angry-3PL-CLT fact-ELA

'The witnesses even get angry about facts' (74664138)

(54f) *Hän* *suuttu-u* *minu-lle* *aivan* *turh-i-sta* *pikkuasio-i-sta*
3SG get.angry-3SG 1SG-ALL totally pointless-PL-ELA small.thing-PL-ELA

'S/he gets angry at me over totally pointless minor things' (unspecified)[44]

(54g) *Hän* *ol-i* *yllätty-nyt*
3SG be-3SG be.surprised-PTCP

'S/he was surprised' (78000748)

The analyzed sample excludes non-predicative usage of the investigated verbs and the construction [*saada* $N_{experiencer}$/$PN_{experiencer}$-ACC V-*maan*/-*mään*]. Non-predicative usages cover nominal derivations with the suffix *-minen* (55), the adjectival use of the perfect participle *nut*/*-nyt* (56), and the adverbial form *-neena*/*-neenä* (57). Apart from that, there are no restrictions regarding polarity, tense-aspect-mood, and person.

(55) *Minu-sta* *suuttu-minen* *on* *inhimilli-stä*
1SG-ELA get.angry-NMLZ be.3SG human-PTV

'In my opinion, getting angry is human' (55695354)

(56) *Puhu-t* *kuin* *suuttu-nut* *lapsi*
talk-2SG like get.angry-PTCP child

'You talk like an angry child' (41325311)

(57) *Et* *ole* *näh-nyt* *mu-a* *suuttu-nee-na...*
NEG.2SG be see-PTCP 1SG-PTV get.angry-PTCP-ESS

'You haven't seen me being angry' (76523004)

(58) *Pyydä-n* *antee-ksi,* *jos* *jokin* *aiemm-i-sta* *vieste-i-stä*
beg-1SG pardon-TRL if some earlier-PL-ELA message-PL-ELA

[44] https://keskustelu.suomi24.fi/t/13317378/liikaa-ajatuksia

sa-i *jotku-t* *suuttu-ma-an*
make-PST.3SG somebody-PL get.angry-INF-ILL
'I'm sorry if some of my earlier messages made somebody angry' (51610487)

The results of the analysis will be described in both qualitative and quantitative terms. Furthermore, the main constructions will be the basis for the covarying collexeme analysis in Chapter 6, which is a more complex corpus-linguistic method that makes use of co-occurrence data and is built on inferential statistics. Before explaining the details of this method, I will shortly revisit the notion of collocation.

4.3 Collocation

The co-occurrence of an emotion verb (*node*) and a stimulus noun (*collocate*) typically entails a structural (i.e. syntactic) relationship between the two. In contrast to *positional co-occurrences*, which are simply determined by the simultaneous presence of two (or more) words within a pre-defined word span or linguistic unit (e.g. clause, sentence, or paragraph), the retrieval of *relational co-occurrences* is sensitive to theory-based categorization and cannot be fully automated.

In the case of the inchoative emotion verbs, I combined an automated search in the Korp corpus interface with manual error correction. With the Korp corpus interface, it is, for instance, possible to search the Suomi24 corpus for all cooccurences of the verb *hämmästyä* 'be astonished' and an adjacent noun marked in the elative case, which is typically governed by the verb to indicate the stimulus role. For feasibility reasons, the present study only considers adjacent bigrams of the type [emotion verb] [stimulus noun]. This means that the corpus query excludes adverbs following the verbs (e.g. *hämmästyä* + *kovasti* 'very much' + *uutinen* 'news'), as well as modifiers appearing before the stimulus noun, such as adjectives (e.g. *hämmästyä* + *nerokas* 'ingenious' + *ajatus* 'thought') and demonstrative pronouns (e.g. *hämmästyä* + *tämä* 'this' + *viesti* 'message'). This limitation rests solely on technical reasons, as it is much easier to process bigrams of the above mentioned type then more complex combinations. Furthermore, it seems that the limitation does not alter the general picture in a fundamental way.[45]

[45] A corpus query for expressions including a modifier, i.e. `[lemma = "hämmästyä"] [msd = ".*CASE_Ela.*"] [msd = ".*CASE_Ela.*" & pos = "N"]`, reveals considerable overlap with the nominal collocates summarized in Table 16. Out of the 20 most frequent nominal collocates for the trigram (*hämmästyä* modifier N-ELA), 13 are equivalent to those of the bigram (*hämmästyä* N-ELA), e.g. *tulos* 'result', *vastaus* 'answer', *kommentti* 'comment'. Furthermore, the remaining 7 nominal collocates of the trigram are also attested for the bigram and vice versa.

By way of example, the query `[lemma = "hämmästyä"] [pos = "N" & msd = ".*CASE _ Ela.*"]` yields 558 results, of which 181 do not belong to the target construction. Most of these mistakes are due to agreement on participle forms of the verbs (e.g. *hämmästyneestä ilmeestäni* in 59), case-marked nouns that are governed by another predicate (e.g. *kysyttäessä* in 60) or simply incorrect annotation. In (61) the word *tollasesta* has been tagged as a noun, although it is an adjective derived from the distal demonstrative pronoun *tuo* 'that'. Such errors often pertain to colloquialisms and misspellings that are misinterpreted by the automatic tagging software. Although the sentence in (61) essentially belongs to the target construction (with the noun *juttu* 'thing; story' as the stimulus), it is excluded from the data for the sake of consistency.

(59) *Ehkä-pä* *se* *johtu-i* *hämmästy-nee-stä*
perhaps-CLT PN stem.from-PST.3SG be.astonished-PTCP-ELA

ilmee-stä-ni
expression-ELA-1SG.POSS

'Perhaps this was due to my look of astonishment' (79514610)

(60) *Hän* *hämmästy-i* *työnteo-sta* *kysy-ttäessä,* *ja*
3SG be.astonished-PST.3SG doing.work-ELA ask-CVB and

kerto-i *että* *ei* *aio* *työskenne-llä*
tell-PST.3SG that NEG.3SG plan work-INF

'S/he was caught off guard when asked about working and s/he said s/he doesn't plan to work' (81040031)

(61) *mä* *en* *ymmärrä* *et* *mi-tä* *väärä-ä* *siin* *on*
1SG NEG.1SG understand that what-PTV wrong-PTV there be.3SG

jos *hämmästy-n* *tollase-sta* *jutu-sta*
if be.astonished-1SG such-ELA thing-ELA

'I don't understand what's wrong if I'm astonished by such a thing' (20897462)

Due to the possibility to quote messages in the Suomi24 chatgroup, there are also many repetitions in the results. If a message is, for instance, quoted three times by other users on the platform, it appears four times in the corpus. In order to avoid any unbalance due to the repetitions, they are discarded in the statistics, meaning that each utterance will only be considered once in the analysis. After removing noise from the data, we get a raw list of nouns that co-occur most frequently with the verb *hämmästyä* 'be astonished' (cf. Table 16). The list covers a wide range of different nouns that refer to events (e.g. *tilanne* 'situation' and *soitto* 'call') and utterances (e.g. *kommentti* 'comment' and *kysymys* 'question'), just to name a few. At the top of the list we find the noun *asia* 'thing', which can refer to concrete and abstract entities alike and is

also used as a shell (see 3.2.1). The fact that the noun appears in such a prominent position hints at the main problem of raw frequency counts as used in traditional co-occurrence/collocation research. A general noun like *asia* 'thing' is so widely distributed throughout the corpus that it is much more likely to co-occur with an emotion verb, e.g. *hämmästyä* 'be astonished', than other, more specific lexemes.

Lemma	translation	tokens	Lemma	translation	tokens
asia	'thing'	35	*soitto*	'call'	5
tulos	'result'	32	*uutinen*	'news'	5
vastaus	'answer'	17	*ajatus*	'thought'	4
tilanne	'situation'	14	*juttu*	'thing; story'	4
näkemä-	'thing seen'	13	*kyky*	'ability'	4
tieto	'information'	11	*tapa*	'manner'	4
kommentti	'comment'	10	*tapaus*	'incident'	4
reaktio	'reaction'	7	*asenne*	'attitude'	3
viesti	'message'	7	*havainto*	'observation'	3
kysymys	'question'	6	*syytös*	'allegation'	3

Table 16: Top collocates of the verb *hämmästyä* 'be astonished'

Thus, absolute numbers do not tell much about the characteristics of the node word without considering the overall distribution of words co-occurring in a construction. For this reason, we will employ a logical extension of traditional collocation analysis that was developed within the construction grammar framework.

4.3.1 Collostructional analysis

Collostructional analysis is a cover term for different methodological tools, i.e. *collexeme analysis* (Stefanowitsch/Gries 2003), *distinctive collexeme analysis* (Gries/Stefanowitsch 2004), and *covarying collexeme analysis* (Stefanowitsch/Gries 2005), which were developed to determine the interaction of lexemes and grammatical structures. As the name suggests (*collostruction* < *collocation*

+ *construction*), the method was developed in a constructivist context and is particularly apt for usage-based approaches.

So far, it has been applied to various aspects of language, such as (second) language acquisition (e.g. Ivaska 2015), diachronic change (e.g. Hilpert 2008), and to some extent also to synchronic variation (e.g. Uiboaed et al. 2013). But, the vast majority of work deals with argument structures, most notably the ditransitive construction, the dative alternation, and causative constructions. Although collostructional analysis is still far from being part and parcel of linguistic research, individual researchers did a large amount of research on languages like English, Dutch, and Russian. Widespread application to minor languages such as Finnish is still wanting.

In a simple collexeme analysis, the associate strength of a lexeme to a construction is calculated by comparing it to its overall number of occurences in the corpus. Calculations are based on a two-by-two table of co-occurrence frequencies:

	construction C	other constructions	row totals
word W_x	a	b	a+b
other words	c	d	c+d
column totals	a+c	b+d	N=a+b+c+d

Table 17: Contingency table for simple collexeme analyses

Although the method has mainly been applied to core areas of grammar, the constructional view of language does not preclude the investigation of more specific and less schematic constructions. This is also supported by the importance of low-level generalization in the emergence of constructions from usage (see Perek 2015). Therefore, we can simply fill the schematic table with the raw numbers of the construction [*hämmästyä* N-ELA] and the collexeme *vastaus* 'answer':

	hämmästyä N-ELA	other constructions	row totals
vastaus	**17**	9968871	**968888**
other words	360	2358502876	2358503236
column totals	**377**	2359471747	**2359472124**

Table 18: Simple collexeme analysis of the construction [*hämmästyä* N-ELA]

The analysis is performed with the help of the program Coll.analysis 3.5 (Gries 2014) by entering a text file with the raw data. Only the frequencies in bold type are obtained from the corpus itself. The other frequencies are obtained via (automatic) subtraction. Note that the collexeme analysis only takes into account the 30 most common nouns appearing in the stimulus slot of the construction (in absolute terms), which corresponds to 61% (229/377) of all instances of the construction [*hämmästyä* N-ELA] retrieved from the corpus. Considering that the collexeme analysis requires the overall distribution of each noun that appears in the stimulus slot of the construction needs, this restriction is necessary for reasons of feasibility: the corpus query reveals that the 377 instances of the construction are distributed over 164 distinct stimulus nouns.

As a default, the association between the construction and the noun is measured by the Fisher-Yates exact test or more precisely, by its negative base-10 logarithm of the p-value (henceforth abbreviated as $-\log_{10}$ FYE). Basically, the value indicates whether a word is attracted to a construction or not. The collexeme analysis of the example mentioned above reveals that the noun *vastaus* 'answer' is attracted to the construction [*hämmästyä* N-ELA]. The collostruction strength is 28.72 ($-\log_{10}$ FYE), but the discussion of the statistical aspects will be postponed to 4.3.2. In most research using collostructional analysis, results are simply given in the form of a list ordered according to association strength of co-occurrences.

The construction [*hämmästyä* N-ELA] can also be used to illustrate the first major extension of the collexeme analysis, i.e. distinctive collexeme analysis. As will be discussed in Chapter 5, the verb *hämmästyä* 'be astonished' also appears with partitive marking on stimulus nouns. A distinctive collexeme analysis can help to identify differences between the two functionally equivalent constructions [*hämmästyä* N-ELA] and [*hämmästyä* N-PTV]. For the calculation of distinctiveness, it is not necessary to consider the overall distribution of each noun appearing in the stimulus slots of either construction. The distinctiveness or collostructional strength of the combination [*hämmästyä* N-PTV] and *vastaus* 'answer' is only 0.71 ($-\log_{10}$ FYE) and not significant compared to the combination [*hämmästyä* N-ELA] and *vastaus* 'answer'.

	hämmästyä N-ELA	*hämmästyä* N-PTV	row totals
vastaus	17	6	23
other words	360	213	573
column totals	377	219	596

Table 19: Distinctive collexeme analysis of [*hämmästyä* N-ELA] and [*hämmästyä* N-PTV]

Finally, there is one extension of collstructional analysis that allows investigating associations of pairs of words within the same construction. From a theoretical point of view, this implies that one is investigating a more schematic construction from the constructional network. In the case of the verb *hämmästyä* 'be astonished' and the noun *vastaus* 'answer', one wouldn't study the construction [*hämmästyä* N-ELA], but the construction [$V_{emotion}$ $N_{stimulus}$-ELA], with *hämmästyä* 'be astonished' and *vastaus* 'answer' filling the verbal and nominal slots, respectively. Starting from formally identical constructions, i.e. identical argument marking would be most obvious, but maybe not the most fruitful application. A constructional approach makes it possible to move one step further. Since the constructions [$V_{emotion}$ $N_{stimulus}$-ELA], [$V_{emotion}$ $N_{stimulus}$-ILL] and [$V_{emotion}$ $N_{stimulus}$-PTV] are functionally related (see 4.2), all of them can be taken as instances of the same construction [$V_{emotion}$ $N_{stimulus}$], which serves as the basis for the covarying collexeme analysis in Chapter 6.

For investigating the association between individual pairs of inchoative emotion verbs and stimulus nouns, a structure-sensitive collocate analysis like the covarying collexeme analysis offers several advantages over simple collexeme analysis: first of all, it does not require overall corpus frequencies. This is particularly relevant considering the size of the Suomi24 corpus and the aforementioned amount of repetitions, which cannot be removed for each and every collexeme. Thus, the results of a covarying collexeme analysis are more precise. Furthermore, the results are comparable, because each stimulus noun has to be cross-checked for possible co-occurrence with other emotion verbs; in the case of the noun *vastaus* 'answer' the absolute number of co-occurrence with other emotion verbs is 282 (cell b).

	hämmästyä	other emotion verbs	row Totals
vastaus	17	282	299
other stimulus nouns	249	54819	55068
column totals	266	55101	55367

Table 20: Covarying collexeme analysis of *hämmästyä* 'be astonished' and *vastaus* 'answer'

Due to feasibility, the covarying collexeme analysis only takes into account the 30 most common nouns appearing in the stimulus slot of the construction (in absolute terms). In contrast to the simple collexeme analysis, this restriction is also reflected in the column total of the verb *hämmästyä* 'be astonished' (266). In the covarying collexeme analysis, the collostructional strength between *hämmästyä* and *vastaus* 'answer' is 12.83 ($-\log_{10}$ FYE) and thus considerably lower than in the simple collexeme analysis. In Chapter 6, we will see

that the noun *vastaus* 'answer' co-occurs with 15 out of 20 inchoative emotion verbs and that a structure-sensitive analysis can help to identify semantic classes of collexemes.

4.3.2 Association measures

As mentioned in 4.3.1, the p-value of the Fisher-Yates exact test (or variants thereof) is the default measure of association used in collostructional analysis. Yet, contingency tables are technically compatible with many other statistical tests, some of them (e.g. log-likelihood, mutual information, chi-square, and log10 of odds ratio) also being provided by the R-script Coll.analysis 3.5 (Gries 2014). In confirmatory hypothesis testing, p-values (i.e. probabilities of observing a result) are typically used to support or falsify a null hypothesis formulated in advance of the study. A p-value smaller than 0.05 is designated as statistically significant; p-values smaller than 0.001 are designated as statistically highly significant (in other words: the chance of being wrong is less than one in a thousand). Basically, p-values can also be used in exploratory studies to indicate statistically noteworthy findings, but "only if appropriately adjusted for multiple testing or selection" (Altman/Krzywinski 2017: 4). The use of p-values in collostructional analysis has been criticized for different reasons; some of them being more theoretical in nature (e.g. Bybee 2010: 97-98, Schmid/Küchenhoff 2013). These issues will not be discussed in detail, because several studies indicate the Fisher-Yates exact test is basically in line with cognitive underpinnings of language, most notably *cue-validity*[46] and *entrenchment* (Gries 2015: 530), but "there is still a strong need for empirical evaluations of competing measures of collocativity" (Wiechmann 2008: 283). Further objections, such as the lack of randomness of the data are not specific to collostructional analysis.

The problems in using the default measure for the present approach are more technical: in a strict sense, the p-value does not measure the strength of a relation, but "the evidence of a set of data with regard to a certain hypothesis" (Schmid/Küchenhoff 2013: 539), which makes it difficult to interpret the results of the calculation. This objection may be refuted on the fact that most researchers obtain plausible results using the Fisher-Yates exact test. Yet, they are not as transparent as effect sizes, which are typically used to measure the association among categorical variables. Furthermore, the p-value of the Fisher-Yates exact test is highly dependent of sample size, an issue typically mentioned with regard to comparing corpora of different sizes: the bigger the data

[46] Which suggests that human cognition in general and language in particular are based on probabilistic processing.

set (corpus), the smaller the p-value, even if the raw proportions of co-occurrences are the same.

At the most basic level, association measures are computed for co-occurrences of two items (e.g. two words in the covarying collexeme analysis). In collostructional analysis, association measures are computed for all co-occurring elements in the same construction and then ranked according to their strength, making the issue also relevant for research that only uses one corpus. The dependence of sample size becomes evident, if we compare the collexemes of a rare emotion verb (e.g. *hämmästyä* 'be astonished', abs. 266) with those of a more common one (*yllättyä* 'be surprised', abs. 841), cf. Table 21 and Table 22.

N	**translation**	**freq(N)**	**freq(V+N)**	**-$\log_{10}$ FYE**
tulos	'result'	325	32	**31.28**
vastaus	'answer'	299	17	**12.83**
näkemä-	'thing seen'	139	13	**12.69**
reaktio	'reaction'	50	7	**8.34**
tieto	'information'	209	11	**8.15**
kommentti	'comment'	179	10	**7.71**
soitto	'call'	48	5	**5.45**
kyky	'ability'	23	4	**5.37**
viesti	'message'	183	7	**4.49**
taito	'skill'	15	3	**4.32**
havainto	'observation'	18	3	**4.07**

Table 21: Top collexemes of the verb *hämmästyä* 'be astonished' measured in -$\log_{10}$ FYE

The assumption that larger numbers are more informative is quite reasonable, but note once again that a significance test does not tell anything about the magnitude of an association and is apparently not very helpful for determining subtle differences between semantically related items when frequent collexemes are highlighted, whereas specific ones play a minor role.

N	translation	freq(N)	freq(V+N)	-$\log_{10}$ FYE
tulos	'result'	325	118	**128.30**
vastaus	'answer'	299	109	**118.60**
lopputulos	'final result'	118	28	**24.65**
voitto	'victory'	30	17	**22.98**
reaktio	'reaction'	50	20	**22.98**
hinta	'price'	96	24	**21.81**
kommentti	'comment'	179	29	**20.53**
päätös	'decision'	52	13	**12.11**
laatu	'quality'	57	13	**11.56**
tieto	'information'	209	21	**10.89**

Table 22: Top collexemes of the verb *yllättyä* 'be surprised' measured in -$\log_{10}$ FYE

First of all, the nouns *tulos* 'result' and *vastaus* 'answer' are on top of both lists. In absolute terms, they are not only among the most common collexemes of both verbs[47] but also with regard to overall distribution. Second, the p-values for the top collexemes of the verb *hämmästyä* 'be astonished' are on average lower compared to the top collexemes of the verb *yllättyä* 'be surprised'. This picture looks different, when using (log) odds ratio, an alternative measure that will be introduced in the subsequent section.

4.3.3 Log odds ratio

Schmid and Küchenhoff (2013: 552-555) propose to use odds ratio as an alternative measure for association strength, as it is much more transparent and less dependent on sample size:

> The notion of odds refers to a simple transformation or function of the probability. It relates the probability which is based on what has been observed to the probability of what could also have happened, given the full set of possibilities. Odds thus relate probabilities to converse probabilities (Schmid/Küchenhoff 2013: 554).

[47] In the case of *hämmästyä* 'be astonished', only the noun *asia* 'thing' is more common.

Let's assume, for example, in 100 births, the probability of a delivery being a boy is 51% and being a girl is 49%. The odds of a delivery being a boy is 51/49 = 1.04. Thus, the odds of an event can simply be calculated as the number of events divided by the number of non-events. Odds ratio (OR) in turn compares the odds of two events. It is the most commonly used coefficient of association strength (Evert 2005: 55) and widespread in epidemiological studies as a measure for the association between exposure (e.g. to a toxic chemical) and an outcome (e.g. getting a certain disease), i.e. two categorical variables. The value represents the odds that an outcome (i.e. dependent or explained variable) will occur given a particular exposure (i.e. independent or explanatory variable), compared to the odds of the outcome occurring in the absence of that exposure. In other words, the odds of getting a disease given exposure is a/b, and of getting the disease given non-exposure is c/d. The odds ratio is the quotient of the two odds. A value higher than 1 indicates that the exposure is associated with higher odds of outcome, whereas a value smaller than 1 indicates that the exposure is associated with lower odds of outcome. The lowest value possible is zero. A value of exactly 1 indicates that exposure does not affect the odds of outcome.

	outcome	¬outcome
exposure	a	b
¬exposure	c	d

Table 23: Schematic input for calculating odds ratio

Imagine a situation, where 176 students have lunch at the canteen. A group of 80 students orders the dish of the day; the remaining 96 students order something else. Out of the 80 students who ordered the dish of the day, 3 students get a sore throat. The odds of getting a sore throat given exposure to the dish of the day are thus 3/77. Out of the 96 students that ordered something else, only 2 students get a sore throat: The odds of getting a sore-throat without exposure to the dish of the day is thus 2/94.

	sore throat	¬sore throat	row totals
dish of the day	3	77	80
¬dish of the day	2	94	96
column totals	5	171	176

Table 24: Case study for calculating odds ratio

The ratio of the two odds suggests that the odds of getting a sore throat are 1.8 times higher given exposure to the dish of the day, compared to no exposure. A statement like this is typical for cohort studies. The formula for calculating the odds ratio is as follows:

$$\text{OR} = \frac{\text{odds that exposed person develops disease}}{\text{odds that unexposed person develops diease}} = \frac{a/b}{c/d} = \frac{3/77}{2/94} = \frac{0.0930}{0.0213} = 1.8$$

The formula can also be rewritten for use in case-control studies, albeit the difference is very subtle and rather of theoretical nature. In case-control studies one starts from the outcomes and tries to find out what the exposure was ("is an exposure associated with an outcome?"). In contrast to that, cohort studies start from the exposure. Note that the odds ratio remains the same, regardless of the formula used.

$$\text{OR} = \frac{\text{odds that a case was exposed}}{\text{odds that a control was exposed}} = \frac{a/c}{b/d} = \frac{3/2}{77/94} = \frac{1.5000}{0.8191} = 1.8$$

As words are categorical variables, just like outcome and exposure, the odds ratio can also be applied to calculate the association strength of covarying collexemes. In the present study, we will stick to the first formula. The calculation is illustrated by the numbers given for the inchoative emotion verb *hämmästyä* 'be astonished' (i.e. dependent or explained variable) and the stimulus noun *vastaus* 'answer' (i.e. independent or explanatory variable), cf. Table 20 in 4.3.1.

$$\text{OR} = \frac{a/b}{c/d} = \frac{17/282}{249/54819} = \frac{0.0602}{0.0045} = 1.8$$

As mentioned above, a value greater than 1 indicates that the exposure is associated with higher odds of outcome or, in other words, that two covarying collexemes are attracted to each other. A more intuitive way to determine the attraction of two items is possible by using the natural logarithm of the odds ratio (log OR). A positive value indicates +attraction, whereas a negative value indicates -attraction. The log odds ratio is particularly useful, when the sampling distribution is skewed, which is often the case for small to moderate sample sizes. In the case of *hämmästyä* 'be astonished' and *vastaus* 'answer' (OR = 13.4), we get a log odds ratio of 2.6, cf. Table 25:

Odds Ratio (OR)	Log Odds Ratio (log OR)
1	0
2	0.7
0.5	-0.7
13.4	2.6

Table 25: Comparison of odds ratio and log odds ratio

But, one further adjustment is needed: The odds ratio assumes an infinite value whenever any of the frequencies from the contingency table is zero, which can happen, when 1) a stimulus noun only co-occurs with one verb (Table 26) or 2) when a stimulus noun does not co-occur with a verb (Table 27). This problem can be avoided by adding 0.5 to each cell of the contingency table. In fact, the *discounted* version of the log odds ratio is also provided in Coll.analysis 3.5 by Gries (2014) and "was shown to be 'well-behaved' in various studies" (Evert 2005: 86):

	masentua	other emotion verbs	row Totals
takaisku	5	0	5
other stimulus nouns	396	54966	55362
column totals	401	54966	55367

$$\log\ \mathrm{OR} = \log \frac{(a+0.5)/(b+0.5)}{(c+0.5)/(d+0.5)} = \log \frac{5.5/0.5}{396.5/54966.5} = 7.3$$

Table 26: Covarying collexeme analysis of *masentua* 'get depressed' and *takaisku* 'setback'

	hämmästyä	other emotion verbs	row Totals
teksti	0	76	76
other stimulus nouns	266	55025	55291
column totals	266	55101	55367

$$\log\ \mathrm{OR} = \log \frac{(a+0.5)/(b+0.5)}{(c+0.5)/(d+0.5)} = \log \frac{0.5/76.5}{266.5/55025.5} = 0.3$$

Table 27: Covarying collexeme analysis of *hämmästyä* 'be astonished' and *teksti* 'text'

Now that we have found a suitable and transparent way to measure the association between covarying collexemes, we are left with the central question of this chapter: how reliable are the results? This becomes particularly evident if we look at a combination of two (relatively) rare lexemes, such as *hämmästyä* 'be astonished' and *teksti* 'text'. Due to their low absolute frequency, adding 0.5 to each cell yields a positive value, which indicates an attraction, although the two words do not co-occur in the data. A common way to determine the precision of odds ratio is to calculate a confidence interval, i.e. a range of values with an upper and lower bound that includes the desired true parameter. First of all, one needs to predefine a confidence level, usually 95%. In this case, the confidence interval covers the true value in 95 of 100 studies. The confidence coefficient is then 1.96 and necessary to calculate the standard deviation. Second, one needs to calculate the standard error, in order to determine the upper and lower bound limit, respectively. Note that the discounted values must be kept in the calculation:

$$95\%\ \mathrm{CI} = \log\ \mathrm{OR} \pm 1.96 \sqrt{\frac{1}{(a+0.5)} + \frac{1}{(b+0.5)} + \frac{1}{(c+0.5)} + \frac{1}{(d+0.5)}}$$

$$\text{Upper limit} = \log\ \mathrm{OR} + 1.96 \sqrt{\frac{1}{(0.5)} + \frac{1}{(76.5)} + \frac{1}{(266.5)} + \frac{1}{(55025.5)}} = 3.1$$

$$\text{Lower limit} = \log\ \mathrm{OR} - 1.96 \sqrt{\frac{1}{(0.5)} + \frac{1}{(76.5)} + \frac{1}{(266.5)} + \frac{1}{(55025.5)}} = -2.5$$

If we illustrate some of the confidence intervals calculated on the ground of the data, we can see enormous differences (see Figure 2):

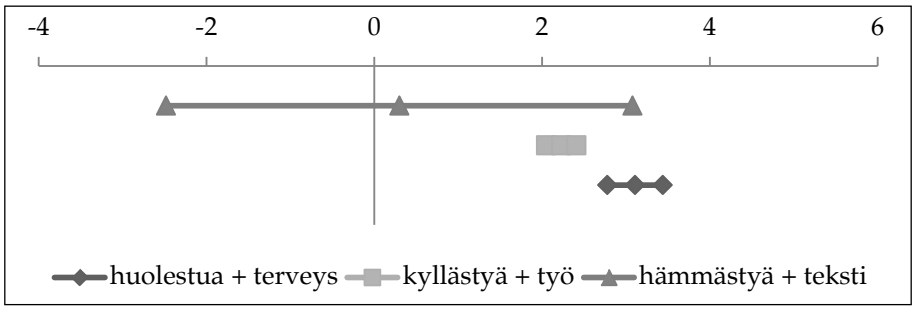

Figure 2: Log odds ratios and confidence intervals of three covarying collexemes

A large sample size leads to a narrow confidence interval and thus to more confidence, like in the case of *huolestua* 'get worried' (overall frequency: 1 320) and *terveys* 'health' (overall frequency: 160 tokens, number of co-occurrences: 55) or *kyllästyä* 'get fed up' (overall frequency: 3 247) and *työ* 'work' (overall frequency: 531, number of co-occurrences: 188). In contrast to that, wide confidence intervals are related to small samples, as in the case of *hämmästyä* 'be astonished' and *teksti* 'text'. Note that the confidence interval does not clearly indicate whether there is an attraction between the two lexemes or not.

Furthermore, the confidence interval does not reveal whether the co-occurrence of certain emotion verbs and stimulus nouns is significant. At this point, the Fisher-Yates exact test comes back into play. As mentioned earlier, p-values can also be used in exploratory studies to indicate statistically noteworthy findings. The Fisher-Yates exact test may not be the best for measuring association, but it certainly can help to determine whether a result is significant or not. For this purpose, covarying collexemes with a p-value higher than 0.001, which is equivalent to a negative base-10 logarithm smaller than 3, will be discarded. In Table 28, you can find a list of the top ten collexemes of the verb *hämmästyä* 'be astonished', i.e. a list of the ten nouns with the strongest association with the verb.

N	Translation	freq(N)	freq(V+N)	log OR	$-\log_{10}$ FYE
ajatusmaailma	way of thinking	9	2	**4.24**	3.09
halu	desire	5	1	**4.24**	1.62
taito	skill	15	3	**4.07**	4.32
kyky	ability	23	4	**3.88**	5.37
havainto	observation	18	3	**3.85**	4.07
hintataso	price level	19	3	**3.79**	4.00
syytös	allegation	20	3	**3.73**	3.93
mitättömyys	triviality	2	0	**3.72**	0.00
reaktio	reaction	50	7	**3.60**	8.34
kohtaaminen	encounter	10	1	**3.49**	1.33

Table 28: Top collexemes of the verb *hämmästyä* 'be astonished' (log OR)

Due to the use of the discounted log OR, the noun *mitättömyys* 'triviality' is part of the list, although it does not co-occur with the verb *hämmästyä* 'be astonished' in the corpus. The p-value of the word pair indicates that the association is not significant. The same applies to the nouns *halu* 'desire' and *kohtaaminen* 'encounter', which only appear once in connection with the verb *hämmästyä*. In the final list, which will be the basis of the discussion in 6.1.2, the three word pairs will therefore not be considered. The results of the covarying collexeme analysis could technically be fed into a hierarchical agglomerative cluster analysis in order to determine semantic (dis)similarities between the inchoative emotion verbs (cf. Gries/Stefanowitsch 2010). This will not be done due to the fact that there are a relatively high number of statistically not significant results for the least frequent verbs (e.g. *hämmästyä* 'be astonished'). This would lead to a distorted picture within the cluster analysis. Instead, focus will be put on the qualitative evaluation of the results.

4.4 Summary

In this chapter, I discussed the methodological aspects that are relevant for the analyses in Chapter 5 and Chapter 6. After discussing the three main ways of using corpora in linguistic studies, I provided the rationale for using a corpus-based approach, which equally respects qualitative and quantitative findings. Second, I gave a short overview over the Suomi24 corpus, which is based on the eponymic social networking website and will be used as the empirical basis of the present work. The investigation is restricted to inchoative emotion verbs, i.e. a series of emotion verbs that indicate a change of state. For reasons of feasibility I will only analyze the 20 inchoative emotion verbs that are most frequent in the corpus. In 4.2, I lay out the plan for the analysis of argument realization patterns that will follow in Chapter 5. The analysis will be centered on the formal realization of stimuli and other ways of expressing causes of particular emotions. As a prerequisite for the study of stimulus nouns in Chapter 6, I have illustrated a quantitative corpus method called covarying collexeme analysis, which is a sophisticated extension of more traditional techniques used in collocation analysis. In 4.3.3, I finally argued for replacing the default measure of association used in covarying collexeme analyses (p-value of Fisher Yates exact) with an alternative measure (log odds ratio). Drawing on the methodological resources presented in this chapter, the following two chapters will thus provide insight into syntagmatic relations of inchoative emotion verbs in Finnish.

5. Argument Realization Patterns

The aim of this chapter is to give an overview of the various argument realization patterns that appear together with the 20 most frequent inchoative emotion verbs. A random sample of 100 sentences was analyzed for each verb, excluding non-predicative usage of the investigated verbs and the construction [*saada* $N_{experiencer}$/$PN_{experiencer}$-ACC V-*maan*/-*mään*], see 4.2. As mentioned earlier, the present study also sheds light on non-argument roles with a verb-specific distribution, such as causal and temporal adjuncts, which will be discussed in the section on clausal arguments (5.2).

	ahdistua 'get anxious'	*ärsyyntyä* 'get irritated'	*hämmästyä* 'be astonished'	*hermostua* 'get agitated'	*huolestua* 'get worried'	*ihastua* 'get infatuated'	*ilahtua* 'be delighted'	*innostua* 'get excited'	*järkyttyä* 'be shocked'	*kiinnostua* 'get interested'
ø	58	31	38	45	30	27	16	29	39	18
N	21	48	19	35	54	73	38	45	29	69
CL	17	20	42	19	16		46	26	29	4
REST	4	1	1	1					3	9
	kyllästyä 'get fed up'	*masentua* 'get depressed'	*mieltyä* 'become fond'	*pelästyä* 'get frightened'	*pettyä* 'get disappointed'	*raivostua* 'get furious'	*rakastua* 'fall in love'	*säikähtää* 'get scared'	*suuttua* 'get angry'	*yllättyä* 'be surprised'
ø	19	76	6	47	55	49	45	29	45	36
N	71	14	89	24	29	30	54	42	31	18
CL	4	8		24	15	20		23	22	45
REST	6	2	5	5	1	1	1	6	2	1

Table 29: Argument realization patterns across the 20 verbs

The main emphasis will be put on nominal (N) and clausal arguments (CL), but it should be mentioned that in 726 (or 36.3%) of the 2000 sample sentences, there is no explicit reference to stimuli or other causes of the corresponding emotion (ø), cf. Table 29 above, which summarizes the distribution of argument realization patterns across the 20 most frequent inchoative emotion verbs. In many cases, the cause for an emotional reaction can be retrieved from the context, as in (62):

(62) *joskus* *äiti* *kommento-i* *et* *"jätä* *mu-i-lle-kin"*
sometimes mother comment-PST.3SG that leave.IMP other-PL-ALL-CLT

kun *ha-i-n* *jotain* *kääretorttu-a* *kaapi-sta* *lisä-ä.*
when get-PST-1SG some.PTV jellyroll-PTV cabinet-ELA more-PTV

Suutu-i-n *aivan* *älyttömä-sti*
get.angry-PST-1SG totally idiotic-ADV

'sometimes my mother made comments like "leave some for others, too," when I got more jellyroll from the cabinet. I got extremely angry' (60533291)

In contrast, in the case of the verbs *masentua* 'get depressed', the lack of an explicit stimulus appears to be the default realization (76/100 sentences). One may argue that stimuli are not the most salient aspect when it comes to the conceptualization of depression. It is rather the state that is foregrounded by speakers. Therefore, it seems that stimuli of the verb are only explicitly mentioned, when they need to be emphasized. This is supported by utterances such as (63), where the adjective *pieni* 'small' is highlighted by the clitic *kin* 'also; even':

(63) *saata-n* *piene-stä-kin* *asia-sta* *masentu-a*
may-1SG small-ELA-CLT thing-ELA get.depressed-INF

'I may even get depressed about a small thing'

To some extent, this also applies to instantiations of the verbs *ahdistua* 'get anxious' and *pettyä* 'get disappointed'. In contrast, explicit mention of stimuli is very common for verbs such as *ihastua* 'get infatuated' and *kiinnostua* 'get interested', and almost obligatory for the verb *mieltyä* 'become fond' (89/100). This is not surprising, considering that we are dealing with emotions that are intrinsically directed towards a particular target.

Some of the argument realization patterns that are part of the sample are related to the consequences of the emotion under question, not the causes, such as [*niin* Adj *että*] 'so Adj that' in (64) below:

(64) *Ol-i-n* *niin* *hermostu-nut* *ett-en* *pysty-nyt*
be-PST.1SG so get.nervous-PTCP that-NEG.1SG be.able-PTCP

koulu-ssa *tunne-i-lla* *keskitty-mä-än* *ollenkaan*
school-INE class-PL-ADE focus-INF-ILL at.all

'I was so nervous that I couldn't focus at all during class at school' (unspecified)[48]

[48] http://keskustelu.suomi24.fi/t/1057990/kilpirauhasen-liikatoiminta

According to Seppänen and Herlin (2009), this construction does not only express the result of a state, but also functions as an intensifier. Such patterns are covered by the category REST in Table 29 and will not be treated separately.

5.1 Nominal arguments

Nominal arguments of emotion verbs cover the two roles experiencer and stimulus. In the case of the inchoative emotion verbs, the (human) experiencer referent typically appears in (unmarked) subject position. On the other hand, there are various possibilities to mark stimulus nouns, elative (ELA) being the most common one, as shown in Table 30 below.

	ahdistua 'get anxious'	*ärsyyntyä* 'get irritated'	*hämmästyä* 'be astonished'	*hermostua* 'get agitated'	*huolestua* 'get worried'	*ihastua* 'get infatuated'	*iloitua* 'be delighted'	*innostua* 'get excited'	*järkyttyä* 'be shocked'	*kiinnostua* 'get interested'
N	**21**	**48**	**19**	**35**	**54**	**73**	**38**	**45**	**29**	**69**
PTV			7							
ELA	18	42	12	22	53		38	42	29	69
ILL		4		7		72		3		
ALL				2						
PP	3	1		4	1					
N+N		1				1				

	kyllästyä 'get fed up'	*masentua* 'get depressed'	*mieltyä* 'become fond'	*pelästyä* 'get frightened'	*pettyä* 'get disappointed'	*raivostua* 'get furious'	*rakastua* 'fall in love'	*säikähtää* 'get scared'	*suuttua* 'get angry'	*yllättyä* 'be surprised'
N	**71**	**14**	**89**	**24**	**29**	**30**	**54**	**42**	**31**	**18**
PTV				19				36		
ELA		11		5		25		5	18	18
ILL	71		89		29	1	53		1	
ALL						2			11	
PP		3				2	1	1		
N+N									1	

Table 30: Realization of nominal arguments across the 20 inchoative emotion verbs

Although elative and illative (ILL) marking are more common, we will begin the discussion with partitive marking (PTV), because its combination with inchoative emotion verbs leads to interesting theoretical implications. Finally, some of the inchoative emotion verbs also appear together with allative marking (ALL) or postpositional phrases (PP). It is worth noting that postpositions are not frequently used to indicate the cause of an emotion. In fact, they only seem to appear in utterances, when special emphasis is needed. This is also supported by the comparatively high number of postpositions co-occurring with the verbs *ahdistua* 'get anxious' and *masentua* 'get depressed'. As mentioned in the preliminaries of this chapter, utterances including these verbs often lack an explicit stimulus. Thus, stimuli of the verb are only explicitly mentioned, when they need to be emphasized. The few cases where two case-marked stimulus nouns appear together in one clause are considered in the last row (N+N) of Table 30 and will be discussed in the detailed analyses of the different forms of case marking.

5.1.1 Partitive marking

The two near-synonymous verbs *säikähtää*[49] 'get scared' and *pelästyä* 'get frightened' are the only verbs analyzed here that predominantly appear with partitive marking on stimulus nouns. The majority of inchoative emotion verbs appear together with one of the two local cases elative and illative. Maybe the link to the verb *pelätä* 'fear, be afraid of' supports the use of the partitive object:

(65a) *Kyllä* *meidä-n* *koira* *on* *ihan* *pennu-sta* *lähtien*
of.course 1PL-GEN dog be.3SG right puppy-ELA since
peläν-nyt *kov-i-a* *ääν-i-ä*
fear-PTCP loud-PL-PTV sound-PL-PTV
'Of course, our dog has feared loud sounds right since it was a puppy' (75922671)

(65b) *Koira* *pelästy-y* *ääν-tä,* *mutta* *älä* *välitä* *siitä*
dog get.frightened-3SG sound-PTV but NEG.IMP worry PN.ELA
'A dog gets frightened by sound, but don't worry about that' (70597004)

The partitive case is typically associated with object marking. Thus, one can ask whether partitive marking on stimulus nouns of the verbs *säikähtää* 'get scared' and *pelästyä* 'get frightened' can be said to be an instance of object

[49] As mentioned earlier, *säikähtää* 'get scared' is the only verb analyzed here, which does not include the "reflexive" suffix *-UA*. But like the other verbs, *säikähtää* 'get scared' also indicates a change of state, which is the main characteristic of the suffix *-UA* and justifies its categorization as an inchoative emotion verb.

marking or something else. Siiroinen (2001: 40) suggests that the answer must be sought in the history of Finnish: originally, the partitive was a separative local case equivalent to the modern elative, which indicates motion from within a closed space (cf. Larjavaara 1991). One can assume that verbs of fear already appeared together with partitive marking before the case turned from a local case into an object marker. Nowadays, partitive-marked arguments of the verbs *säikähtää* 'get scared' and *pelästyä* 'get frightened' may be interpreted as objects.

Regarding object marking, there is widespread consensus among Finnish scholars that the partitive case is determined by negation, (unbounded) aspect, and (unbounded) quantity of the object (Huumo 2013: 96). None of these factors is given in (66), though. The sentence is affirmative, the verb denotes a telic event (change of state) and the object is countable, as indicated by the demonstrative pronoun. Yet, the stimulus is marked with the partitive case.

(66) *Mä* *pelästy-i-n* *to-ta* *kuva-a!*
1SG get.frightened-PST-1SG that-PTV picture-PTV
'I got frightened by that picture' (14070346)

Drawing on epistemic modality and the general principle of incompleteness, Tamm (2014: 140-141) explains that psych-verbs appear together with partitive-marked objects because of the incompleteness of the evidence for the events denoted by the verbs: "In an event of surprising or frightening as well, it is not easy to have evidence when an event reaches its inherent endpoint and how effectively the endpoint is reached" (Tamm 2014: 140). This becomes clear by looking at the object case alternation of two mental epistemic verbs with translative secondary predicates, cf (67a) and (67b). Whereas believing indicates incomplete evidence, knowing indicates total evidence. The difference is also reflected in case marking of the object *Jyriä* (partitive) vs. *Jyrin* (accusative-genitive).

(67a) *Mari* *luule-e* *Jyri-ä* *viisa-ksi*
Mari believe-3SG Jyri-PTV smart-TRL
'Mary believes that Jyri is smart' (Tamm 2014: 141)

(67b) *Mari* *tietä-ä* *Jyri-n* *viisa-ksi*
Mari know-3SG Jyri-ACC smart-TRL
'Mary knows Jyri is smart' (ibid.)

One advantage of a usage-based approach is that the status of partitive-marked stimulus nouns is secondary. While abstract categories are certainly relevant for linguistic categorization, psycholinguistic studies suggest that actual lan-

guage knowledge is rather built on low-level generalizations and concrete tokens. This applies in particular with regard to argument structures (see 3.1.3). For the present study, it is therefore sufficient to acknowledge the two constructions [*pelästyä* N-PTV] and [*säikähtää* N-PTV]. Drawing on the notion of low-level generalizations, we can even postulate a superordinate construction [V_{fear}-*UA* N-PTV], as other near-synonymous verbs of fear like *kauhistua* 'become horrified' and *hätääntyä* 'become distressed' also predominantly appear with partitive marking.

In 36 cases the verb *säikähtää* 'get scared' appears together with partitive marking. For the verb *pelästyä* 'get frightened' the number of partitive-marked stimuli is significantly smaller, with only 19 tokens. The majority of partitive-marked stimuli covers inanimate referents (68), but a small fraction also includes animate referents (69), i.e. 4/19 for *pelästyä* 'get frightened' and 6/36 for *säikähtää* 'get scared'.

(68) *Lapse-t-kin* *alka-vat* *itke-mä-än* *kun* *pelästy-vät*
child-PL-CLT begin-3PL cry-INF-ILL when get.frightened-3PL

kova-a *melu-a*
loud-PTV noise-PTV

'Even children begin to cry, when they get frightened by loud noise' (79024524)

(69) *Jos* *koira* *on* *nuori* *ja* *kokematon,* *se* *saatta-a*
if dog be.3SG young and unexperienced PN may-3SG

oikeasti *pelästy-ä* *kissa-a*
actually get.frightened-INF cat-PTV

'If a dog is young and unexperienced, it might actually get frightened by a cat' (67501845)

Apart from the verbs *pelästyä* 'get frightened' and *säikähtää* 'get scared', also *hämmästyä* 'be astonished' appears together with partitive marking (70), which alternates with elative marking. With 7 tokens, the distribution of the construction [*hämmästyä* N-PTV] is not far from that of [*hämmästyä* N-ELA], which appears 12 times in the corpus.

(70) *Hämmästy-i-n* *tuo-ta* *kirjoitus-ta*
be.astonished-PST-1SG that-PTV writing-PTV

'That writing caught me off guard' (75591315)

All inchoative verbs of fear exhibit the same alternation between partitive and elative marking, but in general the former is more common. It is difficult to find a semantic difference between partitive and elative marking on stimulus nouns (see 5.1.2), but it is worth noting that perceivable stimuli of the three

verbs mentioned here (*pelästyä* 'get frightened', *säikähtää* 'get scared', and *hämmästyä* 'be astonished') only appear with partitive marking in the sample sentences. Thus, we find no combinations like *pelästyä* + *melusta* and *pelästyä* + *kissasta* (cf. 68 and 69). This aspect will receive particular attention in the covarying collexeme analysis in Chapter 6.

Regarding the construction [*hämmästyä* N-PTV], I hypothesize that its origin can be found in the oldest texts written in Finnish: If we compare an early translation (71a) of the Bible with a more recent one (71b), we can see that the verb *hämmästyä* 'be astonished' was used in contexts where we later find verbs of fear, such as *pel*(*j*)*ästyä* 'get frightened' or *säikähtää* 'get scared'/ *säikähtyä* 'id.'.

(71a) *Älä* *hämmästy* *hei-tä*
NEG.IMP get.scared 3PL-PTV
'Thou shalt not be affrighted at them' (Deuteronomy 7:21, 1642)

(71b) *Älä* *hei-tä* *säikähdy*
NEG.IMP 3PL-PTV get.scared
'id.' (Deuteronomy 7:21, 1938)

The semantics of fear is still retained in the Carelian vernacular *hämmästyö* (Ludic *hämästüdä*, cf. SSA: 207) and several Finnish dialects. This observation also speaks in favor of a usage-based approach to argument structure that puts more emphasis on the role of diachronic aspects than on synchronic generalization: "since new constructions develop out of existing constructions, the properties of existing constructions are carried over into new ones over time" (Bybee 2010: 102).

5.1.2 Elative marking

For 13 out of the 20 inchoative emotion verbs analyzed here, elative marking is the most important means of marking stimulus nouns. Elative marking is common among verbs of surprise (*yllättyä* 'be surprised', *hämmästyä* 'be astonished'), joy (*ilahtua* 'be delighted', *innostua* 'get excited', *kiinnostua* 'get interested'), sadness (*masentua* 'get depressed') fear (*huolestua* 'get worried', *ahdistua* 'get anxious', *järkyttyä* 'be shocked'), and anger (*suuttua* 'get angry', *ärsyyntyä* 'get irritated', *raivostua* 'get furious', *hermostua* 'get agitated'). Only verbs of love can be fully excluded from the list.

The syntactic status of elative marking on stimulus nouns is a matter of debate, just like the status of partitive-marked stimuli. On the basis of various criteria, such as the alternation between partitive and elative marking on stim-

ulus nouns of verbs of fear,[50] Sakuma (2012) concludes that elative arguments can be seen as quasi-objects, albeit their objecthood is very low. Judging from the uncertain status of the partitive arguments considered here, this conclusion is problematic. From a typological perspective, elative-marked stimuli of inchoative emotion verbs (72) are conceptualized as sources (cf. Verhoeven 2007: 62):

(72) *Ylläty-i-n* *vastaukse-sta*
be.surprised-PST-1SG answer-ELA
'I was surprised by ("from") the answer' (53535644)

As mentioned in 5.1.1, the elative case prototypically indicates motion from within a closed space, but it also indicates more abstract concepts (see Siro 1956; Alhoniemi 1975). The directional nature of elative marking on stimuli of inchoative emotion verbs has been discussed from a cognitive linguistic perspective by Leino (1991). In his comprehensive cognitive analysis of the elative, Leino (1993) identifies 7 different types of relations that are expressed by the case. Judging from his analysis, the use of the elative in stimulus marking is an instance of a "causal-representative" (*kausaalis-representatiivinen suhde*, see Leino 1993: 228-235) relation. Whereas the expression of other abstract relations (such as the temporal relation) is metaphorically derived from the spatial use of the elative, the connection between the causal-representative use and the prototypical use of the case is more complex and rather indirect. As its naming suggests, the causal-representative relation combines traits of the causal relation and the representative relation.[51] The former indicates a relation between a cause (*syy*) and a consequence (*seuraus*), the latter a relation between a topic (*aihe*) and a representation of the topic (*representaatio*), cf. (73) and (74), respectively. In example (75), an instance of the causal-representative use of the elative, the 'existence of the country and the people' (*maan ja kansan olemassaolo* 'the existence of the country and the nation') is both cause and topic of the emotional state expressed by the noun *huoli* 'worry':

(73) *Hän* *on* *sairaa-na* *matka-n* *aiheutta-ma-sta* *jännitykse-stä*
3SG be.3SG sick-ESS journey-GEN cause-INF-ELA tension-ELA
'S/he is sick from the tension that was caused by the journey' (Leino 1993: 227)

[50] As mentioned in 5.1.1, inchoative verbs of fear (e.g. *säikähtää* 'get scared' and *pelästyä* 'get frightened') primarily appear with partitive marking on stimulus nouns. It is interesting to note that partitive marking can be found on both concrete and abstract stimulus nouns of these verbs, whereas elative marking is reserved for abstract nouns.

[51] According to Leino (1993: 234-235), those two are also not directly derived from the spatial use of the elative.

(74) *Tutkijakunna-n* *poliittise-sta* *rakentee-sta* *ei* *ole* *tieto-j-a*
research.community-GEN political-ELA structure-ELA NEG.3SG be info-PL-PTV
'There is no information about the political structure of the research community' (ibid.: 228)

(75) *Hei-llä* *on* *huoli* *maa-n* *ja* *kansa-n* *olemassaolo-sta*
3PL-ADE be.3SG worry counry-GEN and nation-GEN existence-ELA
'They are worried about the existence of the country and the nation' (ibid.: 229)

Considering that the inchoative emotion verbs indicate a change of state it is not surprising that this dynamicity is also reflected in stimulus marking. This does not only apply to the expression of emotive events in Finnish, but also to other mental events, such as perception: "In a cognitive relationship, Finnish uses its directional locative expressions to refer to the spatial position of a stimulus that enters or exits the cognitive dominion of the experiencer, even if the stimulus does not move spatially at all" (Huumo 2006: 42). But, as in (72) it is interesting to note that the stimuli themselves are conceptualized as spaces. One may conclude that the situation is conceptualized in a way that there is an abstract motion of a fictive energy stream emitted by the stimulus, which enters the cognitive dominion of the reference point, i.e. the experiencer (see Huumo 2010: 60-61). But, the ultimate question is whether speakers actually perceive a stimulus such as *vastaus* 'answer' as a bounded region. In their study on the semantics of English prepositions, Tyler/Evans (2003: 216-217) argue that abstract meanings of spatial grams (e.g. *out of* and cause) are grounded in embodied experience, situated language use and most importantly experiential correlations. Yet, they also stress that the abstract meaning of cause is conventionally associated with a particular gram (*out of*) and therefore does not require further analysis by the speaker. In this sense, their theory of principled polysemy is in line with the usage-based model advocated in this thesis.

The highest frequency of elative marking is given for the verbs *kiinnostua* 'get interested', *huolestua* 'get worried', and *ärsyyntyä* 'get irritated'. What they have in common is that elative marking is not restricted to inanimate stimulus referents. This is particularly obvious for the verb *kiinnostua* 'get interested', where 24 out of 69 elative-marked stimulus nouns are animate:

(76) *Ol-i-n* *aina* *kiinnostu-nut* *uskonno-sta*
be-PST-1SG always get.interested-PTCP religion-ELA
'I had always been interested in religion' (74457777)

(77) *En* *ole* *kiinnostu-nut* *häne-stä* *millään* *tava-lla*
NEG.1SG be get.interested-PTCP 3SG-ELA any way-ADE
'I'm not interested in him/her in any way' (unspecified)[52]

[52] http://keskustelu.suomi24.fi/t/12780159/kyylaava-mokkeripoika!

In the case of *kiinnostua* 'get interested' one may argue that the verb is used metonymically to express attraction, but if we also consider *huolestua* 'get worried' and *ärsyyntyä* 'get irritated' it is noteworthy that animate referents are systematically coded as sources, too. Inanimate referents are nevertheless far more common among elative marked stimuli (359/398). As in (76), the majority of inanimate referents are realized by full noun phrases, whereas one third is realized by pronouns, cf. example (78) below:

(78) *Et* *varmaan* *siitä* *ilahtu-isi*
NEG.2SG certainly PN.ELA get.delighted-COND.3SG
'You certainly wouldn't be happy about that' (78330727)

Sometimes elative arguments are also combined with other arguments (54f repeated as 79 for convenience) and comments, i.e. clauses indicated by conjunctions like *sillä* 'because' in (80), or postpositional phrases that do not refer to stimuli in a strict sense (see 4.3), but rather elaborate a cause.

(79) *Hän* *suuttu-u* *minu-lle* *aivan* *turh-i-sta* *pikkuasio-i-sta*
3SG get.angry-3SG 1SG-ALL totally pointless-PL-ELA small.thing-PL-ELA
'S/he gets angry at me over of totally pointless minor things' (unspecified)[53]

(80) *Venäläise-t* *tuskin* *ilahtu-vat* *asia-sta,* *sillä* *Nato*
Russian-PL barely get.delighted-3PL thing-ELA because NATO
kumoa-a *se-n* *väittee-t* *seikkaperäisesti*
disprove-3SG PN-GEN claim-PL.ACC objectively
'The Russians will barely be happy about the thing, because NATO will disprove the claims objectively' (78605619)

Apart from the aforementioned alternation between elative and partitive, elative marking can also alternate with illative marking. These cases will be discussed in the following section. A special case is the verb *ihastua* 'get infatuated', which typically appears with illative marking, like other verbs of love. According to the standard dictionary of Finnish, *ihastua* (KTS: s.v. ihastua) also appears with elative marking, meaning 'become pleased'. But, there are no examples for this construction in the corpus sample, leading to the conclusion that elative marking is rather marginal for the verb *ihastua*.

5.1.3 Illative marking

Prototypically, the illative case indicates motion into a closed space, but it is also used to mark arguments of various abstract verbs (see ISK §1256). Thus, whereas elative marking indicates the directionality stimulus > experiencer,

[53] http://keskustelu.suomi24.fi/t/13317378/liikaa-ajatuksia

illative marking indicates the opposite directionality, i.e. experiencer > stimulus. Illative arguments are, among others, associated with verbs of love (*rakastua* 'fall in love', *ihastua* 'get infatuated', *mieltyä* 'become fond') and the two verbs *pettyä* 'get disappointed' and *kyllästyä* 'get fed up'. According to Siiroinen (2001: 42), the goal-like realization of arguments indicates that the corresponding emotion verbs can metaphorically be understood as "directed" or "affecting". Regarding love, it is quite straightforward to assume that the emotion is conceptualized in a way that a fictive energy moves from the experiencer towards the stimulus, but further elaboration is needed when it comes to the verbs *pettyä* and *kyllästyä*. Thererfore, these two verbs will be treated separately.

Compared to the verbs appearing with elative arguments, the amount of overtly expressed stimuli is higher for verbs appearing with illative arguments, with almost 61% on average as opposed to only 30% in the case of elative arguments. The highest figure is given for *mieltyä* 'become fond' (81), with 89 illative-marked nouns, suggesting that the illative argument is still not obligatory, but very common. In this respect, illative arguments also fall into the transitional zone between arguments and adjuncts.

(81) *Ihmise-t* *ovat* *mielty-nee-t* *hyvä-än,* *turvallise-en* *ja*
people-PL be.3PL become.fond-PTCP-PL good-ILL safe-ILL and
vakaa-seen *pc-käyttöjärjestelmä-än*
stable-ILL operating.system-ILL
'People are fond of a good, safe and stable operating system' (unspecified)[54]

(82) *En* *ole* *rakastu-nut* *häne-en*
NEG.1SG be fall.in.love-PTCP 3SG-ILL
'I haven't fallen in love with her/him' (67216437)

From a semantic point of view, the verbs *rakastua* 'fall in love' and *ihastua* 'get infatuated' are closely related to each other. They both refer to a situation, where the experiencer starts to like or love another person. In line with that observation, animate referents are clearly dominating among the stimulus arguments of the verbs *rakastua* and *ihastua*, with relative figures of 87% (abs. 46/53) and 79% (abs. 57/72), respectively. In the case of the verb *mieltyä* 'become fond', only 26% of the stimulus referents are animate. Nevertheless, *rakastua* 'fall in love', *ihastua* 'get infatuated', and *mieltyä* 'become fond' can be said to form a discrete group of verbs of love, as the three verbs describe the same force dynamic, where the emotion is directed at another entity, regardless of animacy.

[54] http://keskustelu.suomi24.fi/t/13152729/linux-mintin-hurja-suosio-yllatti

Similar to *mieltyä* 'become fond', the verbs *kyllästyä* 'get fed up' (83) and *pettyä* 'get disappointed' prefer inanimate referents over animate ones. The two lexemes are too dissimilar to form a discrete semantic group, but both presuppose an exposure to the stimulus prior to the emotional reaction that they refer to. This is also true for several non-emotion verbs with illative marking, such as *tottua* 'get used to' and *väsyä* 'get tired'. Of course, a similar scenario is not precluded for verbs of liking (84), but it is not an inherent aspect of their semantics.

(83) *Muutama-n* *vuode-n* *jälkeen* *kyllästy-i-n* *asetelma-an*
a.few-GEN year-GEN after get.fed.up-PST-1SG situation-ILL
'After a few years, I got fed up with the situation' (78011375)

(84) *muutama-n* *kuuntelukerra-n* *jälkeen* *rakastu-i-n* *tä-hän*
a.few-GEN listening.time-GEN after fall.in.love-PST-1SG this-ILL
levy-yn
record-ILL
'After listening to it a few times, I fell in love with this record' (47157912)

Although argument realization of the verbs *pettyä* and *kyllästyä* is formally identical to that of the verbs of love, I will argue that the semantic motivation is not the same.[55] As mentioned above, *pettyä* and *kyllästyä* imply an exposure to the stimulus prior to the emotional reactions they refer to. Thus, the change of state expressed by the verbs *pettyä* and *kyllästyä* is first and foremost a changing attitude of the experiencer towards the stimulus. Perhaps this is the reason, why the experiencer is conceptualized as the moving entity and not the stimulus.[56] In any case, this matter deserves to be worked through more fully as a topic in its own right. Exposure to the stimulus prior to the emotional reaction might also be one aspect explaining the alternation between elative and illative,[57] for instance, in the case of the verb *hermostua* 'get agitated', which will be discussed in 6.6.1. Apart from *hermostua*, the alternation also occurs with the three verbs *suuttua* 'get angry', *ärsyyntyä* 'get irritated', and *raivostua* 'get furious', albeit it is not that common in the corpus sample analyzed here. An excursus to the Corpus of Old Literary Finnish (*Vanhan kirjasuomen korpus*) and the Corpus of Early Modern Finnish (*Varhaisnykysuomen korpus*) suggests that the origin of this alternation can be traced back to the

[55] This hypothesis resonates with the idea of verb-class-specific constructions (Perek 2015; see 3.1.3).

[56] As shown by Huumo (2006: 58-63), expressions of a change of state often involve fictive motion in Finnish, which is typically indicated by the use of directional locatives.

[57] The alternation is also given for the aforementioned verb *väsyä* 'get tired'. According to ISK (§1256), illative marking appears in situations of mental exhaustion or boredom (see *kyllästyä* 'get fed up'), whereas elative marking indicates physical exhaustion.

earliest texts written in the Finnish language, where *suuttua* 'get angry' primarily appears with illative marking on stimulus nouns. A comparison (85a-c) of different translations of Num. 21:5 from the years 1642, 1776, and 1938 indicates that *suuttua* 'get angry' was originally used in different context, with a meaning similar to the verb *kyllästyä* 'get fed up' (cf. SSA: 227).

(85a) *Sillä* *ei* *täsä* *ole* *leipä* *eikä* *wet-tä* *ja*
because NEG.3SG here be bread[PTV] and.not water-PTV and

mei-dän *sielu-m* ***suuttu*** *tä-hän* *huono-n* *ruoca-n*
1PL-GEN soul-1PL.POSS get.fed.up[3SG] this-ILL bad-ILL food-ILL

"for there is no bread, neither is there any water; and our soul loatheth this light bread" (Numbers 21:5, 1642)

(85b) *Sillä* *ei* *tässä* *ole* *leipä-ä* *eikä* *vet-tä,* *ja*
because NEG.3SG here be bread-PTV and.not water-PTV and

mei-dän *sielu-mme* ***suuttu-u*** *tä-hän* *huono-on* *ruoka-an*
1PL-GEN soul-1PL.POSS get.fed.up-3SG this-ILL bad-ILL food-ILL

'id.' (Numbers 21:5, 1776)

(85c) *Ei-hän* *täällä* *ole* *leipä-ä* *eikä* *vet-tä,* *ja*
NEG.3SG-CLT here be bread-PTV and.not water-PTV and

me *ole-mme* ***kyllästy-nee-t*** *tä-hän* *huono-on* *ruoka-an*
1PL be-1PL get.fed.up-PTCP-PL this-ILL bad-ILL food-ILL

'id.' (Numbers 21:5, 1938)

With the change in meaning, that took place during the period of Early Modern Finnish (19th century), illative marking apparently became more associated with animate referents (86). In Modern Finnish, this function was largely replaced by the allative, which will be discussed in 5.1.4. Nowadays, illative marking appears with both animate and inanimate argument referents.[58] A thorough diachronic analysis of this phenomenon would certainly lead to interesting results, but lies beyond the scope of the present analysis.

(86) *Siitä* *poi'a-t* *suuttu-i-vat* *vanhemp-i-i-nsa*
PN.ELA boy-PL get.angry-PST-3PL parent-PL-ILL-3PL.POSS

'Because of that, the boys got angry at their parents' (SKST1852-153)

Apart from that, illative marking also appears together with the verb *innostua* 'get excited', which is primarily associated with elative-marked stimuli. In the case of *innostua*, the illative does not mark proper stimuli, though. This is reflected by the fact that these nominal illative arguments (87a) have an infini-

[58] According to Jönsson-Korhola and White (2010: s.v. *suuttua*), illative marking only appears together with the past participle *suuttunut* and not with other forms of the verb, but this is not supported by the data.

tival equivalent in the construction [*innostua* V-*mA*-ILL], as in (87b). According to Siiroinen (2001: 40), these expressions refer to the state or action to which the emotion under question leads, and not the cause of the emotion. For this reason, the construction [*innostua* N-ILL] is statistically not considered within the category of nominal arguments, but within the category REST, alongside other constructions indicating the results/consequences of an emotional state. For the same reason, it will be excluded from the covarying collexeme analysis in Chapter 6.

(87a) […] *innostu-i-n* *kuvaa-mise-en* *uudelleen*
get.excited-PST-1SG take.picture-NMLZ-ILL again
'I got excited about taking pictures again' (58753105)

(87b) *Nyt* *innostu-i-n* *kuvaa-ma-an*
now get.excited-PST-1SG take.pictures-INF-ILL
'Now I got excited about taking pictures' (unspecified)[59]

Illative marking does not appear often with other case-marked arguments, but similar to elative it frequently allows for comments, as instantiated by the clause in (88):

(88) *Pety-i-n* *reformaatio-on,* *koska* *se* *joht-i*
get.disappointed-PST-1SG reformation-ILL because PN lead-PST.3SG
kansanvalta-an *kirko-ssa*
democracy-ILL church-INE
'I got disappointed by the reformation, because it led to democracy in the church' (74721429)

5.1.4 Allative marking

In contrast to elative and illative marking, the allative only appears with animate referents in the corpus or, more precisely, human referents (89). Kotilainen (1999) shows that the external local cases in general, i.e. allative, ablative, and adessive, have a strong tendency towards use with animate referents. In some cases, the allative-marked argument noun of an inchoative emotion verb refers to an institution (90), which is, of course, an instance of metonymy. Prototypically, the allative indicates motion towards an entity or onto an entity with a salient surface. Through grammaticalization the external local cases developed into markers of possession, meaning that the allative is used to mark the semantic role recipient. This is also said to be reflected in the use of the case with verbs of anger like *suuttua* 'get angry' and *raivostua* 'get furious' (see Siiroinen 2001: 42), as well as with the verb *hermostua* 'get agitated'. Where-

[59] http://keskustelu.suomi24.fi/t/7013155/filmikameran-peili

as allative marking is rare on arguments of the verbs *raivostua* 'get furious' and *hermostua* 'get agitated', the verb *suuttua* 'get angry' appears no less than 11 times with an allative-marked argument.

(89) *Toinen* *sisaruks-i-sta-ni* *suuttu-i* *minu-lle*
other sibling-PL-ELA-1SG.POSS get.angry-PST.3SG 1SG-ALL

kuukaus-i-a *sitten*
month-PL-PTV ago

'The other of my siblings got angry at me months ago' (unspecified)[60]

(90) *Matkustaja* *raivostu-i* *lentoyhtiö-lle*
traveller get.mad-PST.3SG flight.company-ALL

'The traveller got mad at the flight company' (72300555)

As mentioned above, Siiroinen (2001: 42) suggests that we are not dealing with proper stimuli here, but rather with recipients, implying that each time a verb of anger appears together with an allative-marked noun, the construction evokes some kind of verbal reaction that is directed or "transferred" to the referent in question. A similar observation has been made with regard to Russian verbs of anger, which "are close to some speech-act verbs in terms of both the encoding of their arguments and the semantic properties of the situations they denote" (Ovsjannikova 2013: 31). Allative marking can usually be combined with elative marking but also with adverbial clauses, which will be further discussed in the following sections.

[60] http://keskustelu.suomi24.fi/t/12245301/kumpi-minulle-valehtelee-ja-miksi

5.2 Clausal arguments

Just like nominal arguments, clausal arguments lie within a scale between arguments proper and adjuncts. Apart from a few exceptions, clausal arguments are much rarer and also more heterogeneously distributed over the verbs than their nominal counterparts.

	ahdistua 'get anxious'	*ärsyyntyä* 'get irritated'	*hämmästyä* 'be astonished'	*hermostua* 'get agitated'	*huolestua* 'get worried'	*ihastua* 'get infatuated'	*ilahtua* 'be delighted'	*innostua* 'get excited'	*järkyttyä* 'be shocked'	*kiinnostua* 'get interested'
CL	**17**	**20**	**42**	**19**	**16**		**46**	**26**	**29**	**4**
that	3	5	4	1	5		4		5	1
q		1	9	1	1				3	1
temp	7	5	16	9	1		20	4	9	1
caus	1	3			2		1		4	
cond	2	5	7	7	5		12	2	3	1
conc	2			1					1	
NF	2	1	6		2		9	20	4	

	kyllästyä 'get fed up'	*masentua* 'get depressed'	*mieltyä* 'become fond'	*pelästyä* 'get frightened'	*pettyä* 'get disappointed'	*raivostua* 'get furious'	*rakastua* 'fall in love'	*säikähtää* 'get scared'	*suuttua* 'get angry'	*yllättyä* 'be surprised'
CL	**4**	**8**		**24**	**15**	**20**		**23**	**22**	**45**
that		1		3	2	3		7	1	16
q		2		1	1			3		10
temp	3	2		12	8	6		9	12	9
caus	1	2		2	3	1			2	
cond				4	1	6		2	6	7
conc		1								1
NF				2		4		2	1	2

Table 31: Realization of clausal arguments across the 20 inchoative emotion verbs

Table 31 covers finite complement clauses (that) introduced by the complementizer *että* 'that', interrogative clauses (q), temporal clauses (temp) introduced by conjunctions such as *kun* 'when, as', causal clauses (caus) introduced by conjunctions such as *koska* 'because', conditional clauses (cond) introduced by conjunctions such as *jos* 'if', and concessive clauses (conc) introduced by conjunctions such as *vaikka* 'although'. In some cases, the total number of co-occurrences lies below 10, which means that the relative distribution of different clause types over one word, e.g. *kiinnostua* 'get interested', should not be overemphasized. In general, clausal arguments are uncommon for verbs referring to an emotion that is directed at a particular target, e.g. *ihastua* 'get infatuated', *mieltyä* 'become fond', and *rakastua* 'fall in love'. Thus, we can also observe a correlation between case marking (illative) and a low number of clausal arguments. But, it is worth noting that clausal arguments are also rarely attested for the verb *kiinnostua* 'get interested', which appears with elative marking, but shares several characteristics with the above mentioned verbs, also with regard to preferred stimuli (see 6.2.3). In the case of *masentua* 'get depressed', the low number of clausal arguments can be explained by the verb's general disinclination to explicitly mention stimuli.

Following Kehayov (2016: 451) and Sands (2011: 110), we can distinguish between finite or canonical complement clauses and non-finite constructions, such as participial and infinitival complement clauses. Finite complement clauses can always be identified by a single subordinator, in most cases a conjunction that appears in the beginning of the dependent clause, e.g. *että* 'that' or *kun* 'when, as'. The semantics and syntactic behavior of the most important complementizers will be discussed in the following sections. As there are only very few instances where inchoative emotion verbs appear together with non-finite constructions serving as complement clauses, they will be treated as one category (NF in Table 31).

5.2.1 General complementizer

The distribution of *että*-clauses (*että* 'that') within the sample sentences displays considerable overlap with nominal argument marking: whereas verbs with partitive and elative marking on stimulus nouns also appear with *että*-clauses, verbs with illative marking usually do not. The only exceptions are *innostua* 'get excited' and *kiinnostua* 'get interested' (both elative), as well as *pettyä* 'get disappointed', cf. Table 30 (5.1) and Table 31 (5.2). Overall, *että*-clauses are most common with the verb *yllättyä* 'be surprised', which suggests an inclination of the verb towards propositional stimuli. This hypothesis will be discussed with regard to the verb's preferred collexemes in 6.1.1.

In traditional descriptions of Finnish grammar, *että*-clauses are associated with subject or object function (see Hakulinen/Karlsson 1979: 346-347, 353-354). From a semantic point of view, they are neutral and fully dependent of the semantics of the matrix verb, which also justifies the term *general complementizer* (Kehayov 2016: 453). Similar to nominal arguments of inchoative emotion verbs, the syntactic status of these complement clauses is not easy to determine. In the most recent descriptive grammar of Finnish, they are referred to as "adverbial complements" (*adverbiaalitäydennykset*, see ISK §1157), just like their nominal counterparts.[61] The *että*-clause typically appears as the last element of the main clause, from which it is conventionally separated by a comma in the written language. Punctuation is absent in a quarter of the sample sentences from the Suomi24 corpus, which is interesting, considering that in spoken Finnish *että* has been prosodically shown to cleave to the main clause, not to what is referred to as the subordinate clause (Seppänen/Laury

	ahdistua 'get anxious'	*ärsyyntyä* 'get irritated'	*hämmästyä* 'be astonished'	*hermostua* 'get agitated'	*huolestua* 'get worried'	*ihastua* 'get infatuated'	*ilahtua* 'be delighted'	*innostua* 'get excited'	*järkyttyä* 'be shocked'	*kiinnostua* 'get interested'
that	3	5	4	1	5		4		5	1
PTV										
ELA	3	4			3		2		2	
ILL		1								
Ø			4	1	2		2		3	1
	kyllästyä 'get fed up'	*masentua* 'get depressed'	*mieltyä* 'become fond'	*pelästyä* 'get frightened'	*pettyä* 'get disappointed'	*raivostua* 'get furious'	*rakastua* 'fall in love'	*säikähtää* 'get scared'	*suuttua* 'get angry'	*yllättyä* 'be surprised'
that		1		3	2	3		7	1	16
PTV				1						
ELA		1				3				5
ILL					1					
Ø				2	1			7	1	11

Table 32: That-clauses with and without a dummy pronoun

[61] As opposed to the term "adverbial adjuncts" (*adverbiaalimääritteet*, cf. ISK §961).

2007: 556; Laury/Seppänen 2008: 162). As will be discussed in more detail below, the functions of *että*-clauses go beyond mere complementation in spoken Finnish and rather indicate an epistemic or evidential phrase.[62] In 26 out of 61 cases taken from the corpus sample, there is a dummy pronoun prior to the *että*-clause, which is marked in the same cases as nominal arguments of the corresponding verbs, cf. Table 32.

It is widely accepted that the dummy pronoun is reserved for verbs governing a local case, a thought formulated originally by Siro (1956). But, the corpus sample suggests that this is not the case. According to Leino (1999), dummy pronouns also appear prior to an *että*-clause in subject or object position, thus turning the *että*-clause into a referring noun phrase. This is similar to the observation made by Sands (2011: 115) that some verbs are semantically sensitive to the absence (irrealis)/ presence (factive) of the dummy pronoun.

(91) *Hän* *ehkä* *säikäht-i* *si-tä,* *että* *ol-i-t*
3SG perhaps get.scared-PST.3SG PN-PTV that be-PST-2SG

alu-sta *asti* *liian* *vakav-issaan* (sic)
beginning-ELA since too serious-CVB.3SG

'Perhaps it startled him that you were too serious from the beginning' (33146205)

(92) *En* *ole* *kovin-kaan* *yllätty-nyt* *siitä,*
NEG.1SG be really-PTCL get.surprised-PTCP PN.ELA

että *sinä* *et* *ymmärtä-nyt* *kysymyks-i-ä-ni*
that 2SG NEG.2SG understand-PTCP question-PL-PTV-1SG.POSS

'I'm also not really surprised that you didn't understand my questions' (33146205)

(93) *Ole-n* *täysin* *petty-nyt* *sii-hen,* *että*
be-1SG completely get.disappointed-PTCP PN-ILL that

miehe-ni *ei* *halua* *seksi-ä*
man-1SG.POSS NEG.3SG want sex-PTV

'I'm totally disappointed that my husband doesn't want sex' (unspecified)[63]

Whereas dummy pronouns are generally present in combination with inchoative emotion verbs that govern the elative, they are often absent in combination with verbs governing illative or partitive, e.g. verbs of fear, refuting the claim that the verb *pelästyä* 'get frightened' "is not compatible with the *että* complement clause without the dummy pronoun" (Sands 2011: 247).

[62] For an exhaustive survey of subordination focussing in part on Finnish, see Visapää et al. (eds.) (2014).

[63] http://keskustelu.suomi24.fi/t/11647013/mieheni-ei-tyydyta-minua-lainkaan!

Utterances without the dummy pronoun can often be explained by the fact that *että*-clauses are used in spoken Finnish to report speech and thought. This is also reflected in the sample sentences from the Suomi24 corpus. As Seppänen and Laury (2007: 557) point out, we are not dealing with a complementation marker in this case, but with a particle or discourse marker. In the spoken language, the difference between these functions is also reflected by a distinctive prosody.

(94) *mä* *pelästy-i-n* *että* *mitä* *sä* *nyt* *tee-t*
1SG get.frightened-PST-1SG that what-PTV 2SG now do-2SG
'I got frightened, like what are you doing now?' (62147401)

Note that discursive *että*-clauses mostly introduce questions when combined with inchoative emotion verbs.

5.2.2 Other free complementizers

Interrogative clauses can also appear as complements of inchoative emotion verbs. In this case, the conjunction *että* is missing and the question is sometimes preceded by a case-marked dummy pronoun. These so-called *q-complementizers* are structurally identical with direct questions (Kehayov 2016: 454). Technically, question complement clauses include both oblique questions with the clitic *-ko/-kö* and content questions, but oblique questions are not attested in the sample corpus. Question complement clauses are most common for the verbs *yllättyä* 'be surprised' and *hämmästyä* 'be astonished'. Both typically appear with interrogative manner pronouns such as *kuinka* 'how' and *miten* 'id.'.

(95) *ole-n* *yllätty-nyt* *siitä,* *kuinka* *mone-lla* *on*
be-1SG be.surprised-PTCP PN.ELA how many-ADE be.3SG
suur-i-a *murhe-i-ta* *suhte-i-ssa-an*
big-PL-PTV sorrow-PL-PTV relationship-PL-INE-3PL.POSS
'I'm surprised how many have big sorrows in their relationships' (62147401)

As mentioned in the outline of this section, the distinction between complement clauses and adverbial clauses is not clear-cut; this applies in particular to *kun*-clauses. As we can see in Table 31 (5.2), they are particularly frequent in conjunction with the verb *ilahtua* 'be delighted'. According to ISK (§1157), a clear indication for complementational use is a case-marked pronoun preceding the complementizer. But this criterion is rather weak, considering its facultativity in combination with the general complementizer *että*.

(96a) *ahdistu-i-n* *siitä,* *kun* *yksi* *ihminen* *istu-i*
get.anxious-PST-1SG PN.ELA when one human sit-PST.3SG
minu-n *viere-en*
1SG-GEN side-ILL
'I got anxious when one person sat down next to me' (63578614)

(96b) **ahdistu-i-n* *yhde-n* *ihmise-n* *istu-essa* *minu-n* *viere-en*
get.anxious-PST-1SG one-GEN human-GEN sit-CVB 1SG-GEN side-ILL

(96c) ?*ahdistu-i-n* *yhde-n* *ihmise-n* *istu-ttua* *minu-n* *viere-en*
get.anxious-PST-1SG one-GEN human-GEN sit-CVB 1SG-GEN side-ILL

As with *että*-clauses, complement clauses with *kun* 'when, as' are also fixed in sentence-final position. Furthermore, they cannot be substituted by converbial constructions (Kehayov 2016: 455, Sands 2011) as in (97b) and (97c). Yet, the majority of examples given in the corpus sample are ambiguous with respect to interpretations as complement or adjunct. According to Herlin (1998), all *kun*-clauses are related to temporality in one way or another.[64] This is most clearly indicated by a temporal adverb in the main clause, such as *heti* in (97) or by sentence-initial position as in (98).

(97) *Katainen* *esimerkki-ksi* *hermostu-u* *heti,* *kun* *vähän*
Katainen example-TRL get.nervous-3SG immediately when a.little
raapais-taan *pinta-a*
scratch-PASS surface-PTV
'It immediately gets on Katainen's nerves, for instance, when you just scratch the surface' (48974959)

(98) *Kun* *lu-i-n* *tuo-ta* *kirjoitu-sta-si* *hämmästy-i-n*
when read-PST-1SG that-PTV writing-PTV-2SG.POSS be.astonished-PST-1SG
kauhia-sti!
terrible-ADV
'When I read your writing I was totally taken off guard' (57496215)

In many cases, *kun*-clauses can also have a causal reading. According to Herlin (1998: 220-222), this is, for instance, indicated by focus particles such as *varsinkin* 'especially, particularly, notably' or *etenkin* 'id'. In combination with inchoative emotion verbs, causal relations are typically expressed by the conjunctions *koska* 'because' (99) and *sillä* 'for', which also appear together with inchoative emotion verbs.[65]

[64] Nevertheless, Herlin (1998: 253-257) argues that the temporal meaning is secondary and has developed out of its comparative meaning ('as', 'as if', 'than').

[65] Note that the subordinate clause in (99) does not indicate the cause or reason (stimulus) of getting frightened, but explains why the person got frightened so easily. From the context of the utterance it is possible to deduce that fear was originally triggered by strange sounds.

(99) *pelästy-i-n* *koska* *ol-i-n* *yksin* *kotona*
get.frightened-PST-1SG because be-PST-1SG alone at.home
'I got frightened, because I was alone at home' (69266231)

Less common is the connective *siksi* 'therefore' (100), which can usually be found at the beginning of a clause:

(100) *Poika* *ei* *kuitenkaan* *ole* *edisty-nyt* *oikein*
boy NEG.3SG nevertheless be progress-PTCP really
ollenkaan *ja* *siksi* *ole-n* *erittäin* *huolestu-nut*
at.all and therefore be-1SG extremely get.worried-PTCP
'Nevertheless, my son hasn't made any progress at all, and therefore I am extremely worried' (47639892)

Among the more common argument realization patterns, we also find conditional clauses preceded by the conjunction *jos* 'if'. Similar to *kun*-clauses they can appear together with a case-marked dummy pronoun, but there is only one such case in the corpus sample (101). As in example (101) below, sentences with a *jos*-clause are often negated or in the conditional mood. Furthermore, it is worth noting that they also frequently co-occur with the verb *ilahtua* 'be delighted'. The fact that the verb is attracted to both *kun*- and *jos*-clauses suggests that events play an important role in the causality of the verb (e.g. 'I was delighted when this happened' or 'I'd be delighted, if this happens'). In 6.2.1, this idea will be discussed with regard to the collexemes of the verb.

According to the descriptive grammar of Finnish, concessive *vaikka*-clauses (*vaikka* 'although') can sometimes also be interpreted as adverbial complements (ISK §1157) if they immediately follow the verb in question. Unlike *kun*- or *jos*-clauses, they never appear together with a dummy pronoun, though.

(101) *Lapsi* *ja* *vauva* *ovat* *neutraali-mp-i-a* *sano-j-a,*
child and baby be.3PL neutral-COMP-PL-PTV word-PL-PTV
en *ilahdu* *siitä-kään* *jos* *minu-a* *sano-taan*
NEG.1SG get.delighted PN.ELA-CLT if 1SG-PTV say-PASS
aka-ksi *tai* *ämmä-ksi*
hag-TRL or biddy-TRL
'Child and baby are more neutral words; I wouldn't be delighted either if someone called me a hag or a biddy' (54448083)

(102) *Lopu-lta* *nainen* *ilmeisesti* *ahdistu-i,* *vaikka*
end-ABL woman apparently get.anxious-PST.3SG although
pakk-i-en *jälkeen* *jät-i-n-kin* *häne-t* *rauha-an*
rejection-PL-GEN after leave-PST-1SG-CLT 3SG-ACC peace-ILL
'In the end, the woman apparently got anxious, even though I left her in peace after getting rejected' (67829941)

5.2.3 Non-finite complementation markers

Finally, there is also the possibility to use non-finite constructions as complementation markers in Finnish. Although participles are often interchangeable with complement clauses, there is only one example (103) of this construction in the entire corpus sample analyzed here. This is not surprising, considering the special status of the inchoative emotion verbs and their corresponding grammatical relations.

(103) *alo-i-n* *jo* *huolestu-a* *häne-n* *eksy-nee-n*
begin-PST-1SG already get.worried-INF 3SG-GEN get.lost-PTCP-GEN
näi-hin *laajo-i-hin* *Salla-n* *mets-i-in*
these-ILL extensive-PL-ILL Salla-GEN forest-PL-ILL
'I had already begun to get worried that s/he had gotten lost in these extensive forests of Salla' (6317836)

Infinitives are also rarely used as complementation markers for inchoative emotion verbs. The major exception for this is the verb *innostua* 'get excited', which appears together with the illative-marked *MA*-infinitive (104). As mentioned earlier, this construction indicates the consequence of the change of state expressed by the verb and not the cause.

(104) *Itse* *innostu-i-n* *toise-lla* *luoka-lla* *luke-ma-an*
self get.excited-PST-1SG second-ADE grade-ADE read-INF-ILL
englanni-n *kielis-i-ä* (sic) *kirjo-j-a* *ja* *si-tä* *kautta*
English-GEN language-PL-PTV book-PL-PTV and PN-PTV through
innostu-i-n *luke-mise-sta* *yleensä*
get.excited-PST-1SG read-NMLZ-ELA in.general
'I myself became an avid reader of English-language books in second grade, and because of that became enthusiastic about reading in general' (77220327)

Another way to evoke the consequences of an emotional reaction is instantiated by the construction [*niin* adj *että*], which does not appear with the verb *innostua* 'get excited', but some other verbs, such as *hermostua* 'get agitated' in (105). As mentioned in the outline of this section, these expressions are treated separately in the statistical analysis, within the category REST. For convenience, example (64) is repeated as (105) below. In fact, consecutive relations can go both ways, but the simple connective *niin* 'so' is only used seldom in advance of inchoative emotion verbs, cf. (106). Also note the temporal conjunction *kun* 'when, as' at the beginning of the clause.

(105) *Ol-i-n* *niin* *hermostu-nut* *ett-en* *pysty-nyt*
be-PST.1SG so get.nervous-PTCP that-NEG.1SG be.able-PTCP
koulu-ssa *tunne-i-lla* *keskitty-mä-än* *ollenkaan*
school-INE class-PL-ADE focus-INF-ILL at.all
'I was so nervous that I couldn't focus at all during class at school' (unspecified)[66]

(106) *Kun* *asia* *selvis-i* *niin* *ylläty-i-n* *todella*
when thing get.clear-PST.3SG so get.surprised-PST-1SG really
'When the matter got clear, (then) I got really surprised' (74425863)

According to Kehayov (2016: 462), action nominals with the suffix *-minen* also mark complement clauses. This is most obvious for a verb like *aloittaa* 'start, begin', where the action nominal cannot be substituted by another infinitival complement.[67] But, this is not the case for any of the verbs analyzed here. Whatever the status of these action nominals, they will be treated as full-fledged (stimulus) nouns in the present study,[68] because their semantics allow for some interesting insights in the covarying collexeme analysis.

Outside of the realm of complementation, we can also find several temporal converbs functioning as adjuncts. With 28 tokens, *-essa/-essä*-converbs are the most frequent. As illustrated in (107), they express temporal simultaneity and can be used to substitute *kun*-clauses. Converbs expressing anteriority, as indicated by the suffix *-ttua/-ttyä* are less common in combination with inchoative emotion verbs in this corpus, cf. example (108).

(107) *Hämmästy-n* *nähd-essä-ni* *sinu-t* *pukeissa*
be.astonished-1SG see-CVB-1SG 2SG-ACC dressed.up
'I am astonished seeing you dressed up' (71198888)

(108) *Tuo-ssa-kin* *lainaukse-ssa-si* *Pilatus* *suorastaan*
that-INE-CLT quote-INE-2SG.POSS Pilatus downright
hämmästy-y *kuul-tua-an* *Jeesukse-n* (*muka*) *kuol-lee-n*
be.astonished-3SG hear-CVB-3SG Jesus-GEN (allegedly) die-PTCP-GEN
'In that quote of yours, Pilatus is downright taken aback when ("after") he hears that Jesus has (allegedly) died' (78631934)

This is not surprising considering that the inchoative emotion verbs refer to a (sudden) change of state. The inclination towards *-essa/-essä*-converbs suggests that the change of state occurs when the experiencer is confronted with a particular situation or stimulus, not afterwards.

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[66] http://keskustelu.suomi24.fi/t/1057990/kilpirauhasen-liikatoiminta

[67] This restraint does not apply to spoken Finnish, though.

[68] Action nominals are also viewed as full-fledged nouns by Leino (1991: 265-266) in his study of elative marking on stimulus nouns.

5.3 Discussion of the results

The analysis of different argument realization patterns revealed considerable variation between the inchoative emotion verbs investigated here. First, it seems that some verbs are inclined to the explicit mentioning of stimuli (e.g. *mieltyä* 'become fond'), whereas other verbs (e.g. *masentua* 'get depressed') tend to omit stimuli, unless they need to be emphasized. To some extent this can be explained by the semantics of the verbs: in the case of directed emotions (e.g. love and interest), the presence of a particular stimulus or target is an inherent aspect of their conceptualization. Put bluntly, there is no love without a loved one and no interest without a matter of interest. In contrast, a salient stimulus is not necessary to evoke a state of depression.

Second, the analysis revealed that particular combinations of emotion verbs and case marking are motivated by different ways to conceptualize emotive situations.[69] The choice of the case is dependent of the nature of the corresponding verb and the nature of the stimulus noun. For instance, partitive marking primarily occurs with the two verbs of fear *säikähtää* 'get scared' and *pelästyä* 'get frightened'. But, also the verb *hämmästyä* 'be astonished' allows for partitive marking. This can be partly explained by the history of the verb, which was originally used in similar contexts as the two verbs of fear mentioned above. With regard to the alternation partitive/elative that is attested for the three verbs, it seems that partitive marking is connected to concrete and perceivable stimuli, e.g. *melu* 'noise'. This would be in line with the observation that the partitive case is typically used for object marking.

Elative marking is attested for a semantically much wider range of verbs, including verbs of surprise, joy, sadness, fear, and anger. Prototypically, the case indicates motion from within a closed space, which means that elative marking encodes the directionality stimulus > experiencer. In cognitive linguistic terms, one may thus argue that constructions of the type [*ilahtua* N-ELA] evoke the abstract motion of a fictive energy stream emitted by the stimulus. Although elative marking is primarily attested for inanimate and abstract stimuli, it can also be used to encode animate stimuli (i.e. targets), particularly in conjunction with the verbs *kiinnostua* 'get interested' and *huolestua* 'get worried'.

[69] A similar observation has been made with regard to English emotion words and the use of spatial prepositions (see Osmond 1997). But in the Finnish language, the nature of the emotion term appears to be a much stronger criterion for argument realization than in English, where the cause of an emotion can often be construed in various ways, e.g. *be mad at/about/over* (see Dirven 1997: 68-69). Thus, the conceptualization of emotional causality is much more limited for Finnish emotion verbs.

In general, target-like conceptualization is associated with illative marking. Therefore, it is the only possible way of argument marking for verbs of love (i.e. *ihastua* 'get infatuated', *rakastua* 'fall in love', and *mieltyä* 'become fond'). In the case of these verbs it is not surprising that illative marking indicates the directionality experiencer > stimulus. The conceptualization of the verbs *pettyä* 'get disappointed' and *kyllästyä* 'get fed up', however, is a bit more complicated. In their case it is argued that the illative indicates an exposure to the stimulus prior to the emotional reaction. In Chapter 6, these observations will be evaluated with regard to the collexemes of different argument structure constructions.

Finally, some verbs (i.e. verbs of anger) can also appear with allative marking. This coding is reserved for animate referents and it is not quite clear, whether we are dealing with proper stimuli in their case or rather with recipients of a particular emotional expression. Regardless of this, allative marking will also be considered in the covarying collexeme analysis in Chapter 6.

The nature of the verbs also appears to play a role with regard to the realization of clausal arguments: generally, clausal arguments are more common for verbs that appear with elative marking. The highest numbers are given for the verbs *yllättyä* 'be surprised', *hämmästyä* 'be astonished', and *ilahtua* 'be delighted'. The verb *ilahtua* is particularly interesting, because it frequently co-occurs with temporal *kun*-clauses and conditional *jos*-clauses. This suggests that events play an important role in the causality of the verb. In contrast, clausal arguments are relatively rare in combination with verbs referring to directed emotions such as love. These are typically verbs appearing with illative marking (e.g. *ihastua* 'get infatuated', *mieltyä* 'become fond', and *rakastua* 'fall in love').

Albeit semantically similar verbs tend to display similar forms of case-marking (e.g. verbs of fear and partitive marking) and clausal arguments, the actual distribution of argument realization patterns is highly dependent on individual lexemes. This becomes obvious, if we look at the figures for the three verbs of anger in Table 33 below:

	∅	N	elative	illative	allative	PP	N+N	CL	that (*että*)	questions (*kuinka, miten…*)	temporal (*kun*)	causal (*koska, sillä*)	conditional (*jos*)	nf (*-essA, -ttUA*)	REST
ärsyyntyä 'get irritated'	**31**	**48**	42	4		1	1	**20**	5	1	5	3	5	1	**1**
raivostua 'get furious'	**49**	**30**	25	1	2	2		**20**	3		6	1	6	4	**1**
suuttua 'get angry'	**45**	**31**	18	1	11		1	**22**	1		12	2	6	1	**2**

Table 33: Comparison of argument realization patterns for three verbs of anger

First of all, the frequency of implicit argument realization (∅) is significantly lower in the case of *ärsyyntyä* 'get irritated' than in the case of *raivostua* 'get furious' and *suuttua* 'get angry'. Furthermore, *ärsyyntyä* 'get irritated' only appears with elative and illative marking on nominal arguments, but not with allative marking, which is particularly common with the verb *suuttua* 'get angry'. Whereas the frequency of clausal arguments (CL) is relatively stable across all three verbs, *suuttua* 'get angry' appears more often with clauses preceded by *kun* 'when, as' than *ärsyyntyä* 'get irritated' and *raivostua* 'get furious'. The fact that the distribution of argument realization patterns varies considerably for near-synonymous verbs leads to the assumption that each verb highlights different aspects of similar situations (e.g. change from a non-emotional state to a state of anger). In the following section, we will see that a collocation-based approach delivers additional insights into the semantics of the inchoative emotion verbs.

6. Covarying Collexemes

In this chapter, we will go from syntax to semantics. The (superordinate) construction [$V_{emotion}$ $N_{stimulus}$] is best suited for a covarying collexeme analysis, because it is filled with two fully fledged lexemes (see 4.3). The aim of the analysis is to determine the relation between specific emotion verbs and stimulus nouns. This approach should lead to a better understanding of the semantics of emotion verbs, i.e. idiosyncrasies, similarities, and differences across the constructional network. Of course, this approach goes beyond linguistics proper, as we are dealing with the entities or concepts beyond the lexemes in the corpus (see 3.2). In this sense, there is also an exploratory aspect to the present research. Similar work has been conducted in the field of social psychology, most notably by Wallbott/Scherer (1986), who did quantitative research on the relation between emotional antecedents and emotion-specific responses. At several points, their results will be contrasted with those of the following analysis.

The analysis considers all possible forms of nominal argument realization that were attested in the previous chapter. Some verbs (e.g. *yllättyä* 'be surprised') only appear in one construction (e.g. [*yllättyä* N-ELA]), whereas other verbs (e.g. *suuttua* 'get angry') appear in two or more constructions (e.g. [*suuttua* N-ELA], [*suuttua* N-ALL], and [*suuttua* N-ILL]). Comparing the collexemes of different argument structure constructions associated with one and the same verb will be particularly useful to determine how case marking correlates with the semantics of the stimulus nouns. In 5.1, variations in the marking of nominal arguments were attested for the verbs *ärsyyntyä* 'get irritated' (elative/illative), *hämmästyä* 'be astonished' (elative/partitive), *hermostua* 'get agitated' (elative/illative/allative), *pelästyä* 'get frightened' (elative/partitive), *raivostua* 'get mad' (elative/allative/illative), *säikähtää* 'get scared' (partitive/elative), and *suuttua* 'get angry' (elative/allative/illative). Thus, in total 29 constructions were taken into account for the analysis.

For every subordinate construction, I retrieved the 30 nouns most frequently appearing in the stimulus slot from the corpus. As the distribution of nouns (or collexemes) is different for every construction, I checked all 29 constructions with regard to the nouns retrieved for the remaining 28 constructions. As there is some overlap between the collexemes of the constructions, a total of 302 stimulus nouns were identified as collexemes of the superordinate construction [$V_{emotion}$ $N_{stimulus}$], which adds up to 29 × 302 = 8 758 possible combina-

tions. The semantics of the 302 nouns ranges from very general (e.g. *asia* 'thing', *ajatus* 'thought', *tieto* 'fact', etc.) to very specific (e.g. *tietoturva* 'data security', *ilotulitus* 'fireworks', *mielenterveys* 'mental health', etc.). To some extent, the semantic specifity of the nouns correlates with their distribution: whereas a general noun such as *asia* 'thing' co-occurs with all of the 20 inchoative emotion verbs analyzed here, a specific noun such as *tietoturva* 'data security' only co-occurs with two verbs (12 times with *huolestua* 'get worried' and 7 times with *kiinnostua* 'get interested'). Thus, out of the 8 758 possible combinations (verb + noun), only 2 636 (or 30.1%) are actually attested.

Among the 302 lexemes attested for the nominal slot of the construction [$V_{emotion}$ $N_{stimulus}$], we can find nouns representing all four orders of entities. Particularly common are nouns referring to social roles (e.g. *lapsi* 'child' and *äiti* 'mother') and nouns referring to utterances (e.g. *kirjoitus* 'writing' and *kommentti* 'comment'). Most of these utterances are part of the internet discussion group Suomi24, which was used as the main source of empirical data in this study. This is not surprising, considering that internet users share thoughts about real-life experiences and virtual experiences in the discussion group. The majority of nouns attested in the nominal slot of the construction falls into the category of common nouns, but we also find several proper nouns (e.g. *Suomi* 'Finland' and *Halonen*, which refers to the refers to the former president of Finland, Tarja Halonen) in the sample.

Because of the interdisciplinary nature of this approach, the chapter will not be ordered according to formal characteristics, e.g. elative marking vs. illative marking, but according to semantic characteristics. As mentioned in 2.1.1, the categorization of emotions is still an issue of debate, both in linguistics and psychology. The categorization used in the present treatise has been widely cited in social psychology and refers to the six primary emotions surprise, joy, liking, sadness, fear, and anger (see 4.1.2). Not all verbs analyzed here fall neatly into one of the six categories, but they nevertheless offer a good starting point that is also suitable for cross-cultural comparisons.

The results of the covarying collexeme analysis will be presented as a list of nouns with the strongest attraction (measured in log OR) to a particular construction, e.g. [*yllättyä* N-ELA]. The discussion of the results will be focused on the semantics of the top 10 collexemes and on the question what they reveal about the semantics of the constructions. Thus, the discussion is limited to a relatively small set of collexemes, but previous applications of collostructional analysis have shown that the collexemes with the strongest attraction to a particular construction provide the best insights on constructional semantics (see 4.3.1). Of course, the remaining combinations of inchoative emotion verbs

and stimulus nouns were also taken into account during the qualitative analysis, but they will not be treated as exhaustive as the combinations with the highest attraction.

6.1 Surprise

The first emotion under investigation is surprise. Whereas Ekman (1972) takes it to be one of the basic emotions, others refer to surprise as a cognitive state. The special status of surprise is also reflected in the semantics of English *surprise* (Goddard 2015) and conceptual metaphors related to it (Kövecses 2015). In contrast to more paradigmatic emotions like anger, fear, joy, or sadness, it is not quite clear whether surprise is positive or negative, as even large-scale studies could not determine its "valence".[70] A recent study suggests that surprise may in fact be a (mildly) negative emotion (Noordewier/Breugelmans 2013). Regardless of its status, we will see that surprise is related to a wide range of other emotions, such as disappointment and shock. Surprise itself can be defined as an "interruption of ongoing information processing and reallocation of processing resources", which is elicited by schema-discrepant or unexpected events and manifests itself in certain behavior and physiological changes (Meyer/Reisenzein/Schützwohl 1997: 253).

6.1.1 *yllättyä* 'be surprised'

According to Tuovila (2005: 117), the meaning of the Finnish noun indicating a state of surprise (*yllättyneisyys*) can be paraphrased in terms of NSM (see 2.2.1) as follows: "the experiencer knows something, which he did not know before". But she does not provide a further elaboration, because the lexeme is quite rare. In Finnish, surprise is typically expressed by the verb *yllättyä* 'be surprised', which appears 46 705 times in the Suomi24 corpus. The query `[lemma = "yllättyä"] [msd = ".*CASE_Ela.*" & pos = "N"]` yields 1 513 results. Considering the 302 stimulus nouns attested in the covarying collexeme analysis, we get 841 instances of the construction [*yllättyä* N-ELA]. Table 34 displays the 10 strongest collexemes of the construction, ordered according to the log odds ratio. The table includes (from left to right) the total number of appearances of the nouns in all sample sentences (∑), the absolute number of co-occurences of an emotion verb (V) and the stimulus nouns (N) in the construction (V+N), the lower or "left" limit of the confidence interval (CI(l)), the association value between the verb and the nouns (log OR), the upper or "right" limit of the confidence interval (CI(r)), and the significance of the observation ($-\log_{10}$ FYE).

[70] In psychology, the term *valence* refers to the subjective quality of a stimulus.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
suosio	popularity	8	**6**	3.67	**5.13**	6.59	9.48
voitto	victory	30	**17**	3.74	**4.45**	5.16	22.98
vastaanotto	reception	13	**6**	2.98	**4.04**	5.09	7.72
reaktio	reaction	50	**20**	3.23	**3.80**	4.36	22.98
tulos	result	325	**118**	3.52	**3.76**	4.00	128.30
vastaus	answer	299	**109**	3.51	**3.75**	4.00	118.60
määrä	amount	16	**6**	2.72	**3.70**	4.68	7.07
havainto	observation	18	**6**	2.57	**3.52**	4.47	6.72
hintataso	price level	19	**6**	2.51	**3.45**	4.39	6.56
vaikutus	effect	14	**4**	2.22	**3.33**	4.43	4.33

Table 34: Top collexemes of the construction [*yllättyä* N-ELA]

The qualitative noun *suosio* 'popularity' is the strongest collexeme of the verb *yllättyä*, with a log odds ratio of 5.13. The high value and the wide confidence interval (3.67-6.59) are partly due to the few occurrences of the noun, which only appears together with three verbs in the corpus, namely *yllättyä* 'bet surprised', *ilahtua* 'be delighted', and *säikähtää* 'get scared'. Yet, it appears logical to conclude that unexpected good[71] performance leads to surprise on behalf of the experiencer.

(109) *Sauli* *Niinistö* *ol-i* *hieman* *itse-kin* *yllätty-nyt*
Sauli Niinistö be-PST.3SG a.little self-CLT be.surprised-PTCP
suosio-sta-an
popularity-ELA-3SG.POSS
'Sauli Niinistö was even a little surprised himself by his popularity' (20595589)

Other attributive nouns, such as *määrä* 'amount', also display a high log odds ratio. Both quality nouns and quantity nouns rely on schemas, i.e. sets of beliefs about objects. According to the so-called *schema-theoretic framework*, perceptions, thoughts, actions, and emotions like surprise, "are to a large extent controlled by complex knowledge structures, called schemata, which can be regarded as informal, unarticulated theories about objects, situations, and events" (Meyer/Reisenzein/Schützwohl 1997: 253). Thus, an experiencer is surprised, when his/her observation is in conflict with his/her pre-existing

[71] The negative variant, *epäsuosio* 'unpopularity' only appears once in the corpus.

beliefs that are based on experience and world knowledge. This also applies to the noun *hintataso* 'price level', as in example (110) below:

(110) *Jos* *ole-t* *joskus* *tilan-nut* *Volvo-lta* *tax free*
if be-2SG sometimes order-PTCP Volvo-ABL tax.free

-hinnasto-n *ole-t* *saatta-nut* *yllätty-ä* *hintataso-sta*
price.list-ACC be-2SG may-PTCP be.surprised-INF price.level-ELA
'If you have ever ordered the tax free price list from Volvo, you might have been surprised about the price level' (2214938)

Beings or things themselves do not qualify as proper collexemes of the verb *yllättyä*. If we look at the common noun *asia* 'thing', we can once again see the advantage of collexeme analysis over absolute frequency counts. With no less than 57 co-occurrences, *asia* 'thing' is one of the most frequent collexemes of *yllättyä*. But, because of its high prevalence in the corpus, *asia* 'thing' is not among the top collexemes of the verb *yllättyä* and not even attracted to it. The log OR of -0.53 suggests a repulsion between both items.[72]

First-order nouns are among the collexemes with the lowest odds ratio values, except for the noun *lahja* 'gift' (log OR: 1.34; $-\log_{10}$ FYE: 0.84) and nouns referring to sensations like *ääni* 'sound' (log OR: 1.03; $-\log_{10}$ FYE: 0.85). Both the reception of a present and the hearing of a sound can be unexpected.[73] The same applies to the noun *havainto* 'observation', which can refer to (mostly visual) sensations, but also to the acquisition of information:

(111) *Nuo* *tutkija-t* *näyttä-vät* *yllätty-nee-n* *havainno-i-sta,*
those researcher-PL seem-3PL be.surprised-PTCP-GEN observation-PL-ELA

että *proteiini-t* *korjaa-vat* *ja* *säätele-vät* *itse-ä-än*
that protein-PL repair-3PL and regulate-3PL self-PTV-3PL
'Those researchers seem to have been surprised by the observations that proteins repair and regulate themselves' (33946008)

Most second-order nouns, i.e. nouns referring to events, actions, processes, or states also show no strong association with the verb *yllättyä*. The second-order noun with the highest log OR is *vastaanotto* 'reception'. Similar to the interrogative pronouns *kuinka* 'how' and *miten* 'id.', which also often appear with the verb (see 5.2.2), the noun *vastaanotto* highlights manner. Thus, one can assume that manner is subject to expectations, just like quality and quantity. Another second-order noun with a significant attraction to *yllättyä* is *reaktio* 'reaction' (112). This can be explained on the grounds of misexpectation. Every reaction

[72] As mentioned in 3.2.1, *asia* 'thing' does not only refer to concrete things, but also to abstract facts.

[73] But, judging from the low p-value ($-\log_{10}$ FYE), the attraction is not significant.

presupposes a prior action that evokes specific and usually explicit expectations. A similar observation can be made for various third-order nouns highlighting the relation between cause and effect. Therefore, it is not surprising to find the noun *vaikutus* 'effect' among the top collexemes of the verb *yllättyä*. Similarly, when the outcome of an event does not meet the expectations built up by the presupposed circumstances, the experiencer is surprised. This can be illustrated by the noun *tulos* 'result' (113), which comes with a log odds ratio of 3.76:

(112) *Luul-i-n* *että* *lähiperhe* *vastusta-isi* *ajatus-ta* *mutta*
think-PST-1SG that close.family oppose-COND.3SG thought-PTV but

ol-i-n-kin *positiivise-sti* *yllätty-nyt* *reaktio-sta*
be-PST-1SG-CLT positive-ADV be.surprised-PTCP reaction-ELA

'I thought my immediate family would oppose the idea, but actually I was surprised by the reaction' (46452514)

(113) *Ol-i-n* *tänään* *kuntotesti-ssä* *ja* *ylläty-i-n*
be-PST-1SG today fitness.test-INE and get.surprised-PST-1SG

tulokse-sta, *en* *ole-kaan* *rapakunno-ssa* *vaan* *ihan*
result-ELA NEG.1SG be-CLT dirt.condition-INE but quite

keskiverto *kondikse-ssa*
average condition-INE

'I took a fitness test today, and I was surprised by the results; I'm not in bad condition at all but actually in average condition' (46452514)

More specific, context limited nouns that highlight the outcome of an event include *lopputulos* 'final result' (log OR: 3.05; -$\log_{10}$ FYE: 24.65), *vaalitulos* 'election result' (log OR: 1.70; -$\log_{10}$ FYE: 1.10), and *voitto* 'victory' (cf. Table 34). Also in the case of the noun *vastaus* 'answer', we can think of misexpectation as the reason for the high association between the noun and the verb *yllättyä*, as in (114) below. The noun belongs to the *Communication response frame* and typically presupposes a question, which in turn serves as a benchmark for expectations.

(114) *Tapas-i-n* *sukellusvenee-n* *kapteeni-n* *ja* *kysy-i-n*
meet-PST-1SG submarine-GEN captain-ACC and ask-PST-1SG

häne-ltä, *että* *miksi* *he* *ovat* *Piellisjoe-lla* (sic) *ja*
3SG-ABL that why 3PL be.3PL Pielisjoki-ADE and

ylläty-i-n *vastaukse-sta*
get.surprised-PST-1SG answer-ELA

'I met the captain of the submarine and asked him why they are in Pielisjoki, and I was surprised by the answer' (67249729)

The prevalence of third-order nouns among the top collexemes of *yllättyä* is in line with the hypothesis that the verb is inclined towards propositional stimuli (see 5.2.1). But, it is worth noting that *vastaus* 'answer' is the only noun on the list that refers to a linguistic entity.

6.1.2 *hämmästyä* 'be astonished'

If we follow the hierarchical categorization of emotions proposed by Shaver et al. (2001), the verb *hämmästyä* 'be astonished' refers to an emotion subordinated to surprise. The corresponding noun *hämmästys* 'astonishment' is defined by Tuovila (2005: 84) in terms of the opposition "knowing/not knowing", similar to the noun *yllättyneisyys* 'surprise (state)'. The explication of *hämmästys* reads as follows (adapted[74] from Tuovila 2005: 117):

hämmästys
X feels something
    sometimes a person thinks something like this:
        something happens or happened
        I didn't know before that it can happen
        I know it now
    because of this, this person feels something for some time
X feels something like this

Furthermore, Tuovila (ibid.) argues that *hämmästys* does not entail any clear expectations. This hypothesis will be tested against the semantics of the top collexemes of the verb *hämmästyä*. Out of the 39 003 hits for the corpus query `[lemma = "hämmästyä"]`, more than one third belongs to the causative derivation *hämmästyttää* 'astonish', which constitutes a separate lexeme. The verb *hämmästyä* appears both with elative and partitive marking. As the former is more common, I will start with an analysis of the construction [*hämmästyä* N-ELA].

[74] The explications in Tuovila (2005) are directed towards Finnish readers and have a different semantic structure. For better readability, I translated all relevant explications using the semantic structure for emotion concecpts that was originally proposed by Wierzbicka (1996: 182).

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
ajatusmaailma	way of thinking	9	**2**	2.80	**4.24**	5.68	3.09
taito	skill	15	**3**	2.88	**4.07**	5.26	4.32
kyky	ability	23	**4**	2.85	**3.88**	4.91	5.37
havainto	observation	18	**3**	2.69	**3.85**	5.02	4.07
hintataso	price level	19	**3**	2.63	**3.79**	4.95	4.00
syytös	allegation	20	**3**	2.58	**3.73**	4.89	3.93
reaktio	reaction	50	**7**	2.82	**3.60**	4.38	8.34
asenne	attitude	28	**3**	2.23	**3.36**	4.48	3.48
soitto	call	48	**5**	2.39	**3.28**	4.18	5.45
tulos	result	325	**32**	2.87	**3.25**	3.64	31.28

Table 35: Top collexemes of the construction [*hämmästyä* N-ELA]

If we consider all possible combinations for the construction [*hämmästyä* N-ELA], we only get 266 sentences, which makes it difficult to determine association strength for some nouns. When using a discounted log OR for measuring association strength, combinations of two rare collexemes inevitably yield high values with broad confidence intervals. Nevertheless, the list of the top collexemes reveals several similarities to the collexemes of the verb *yllättyä* 'be surprised'. For instance, *taito* 'skill' (115) and *kyky* 'ability', two of the nouns with the strongest association to the construction [*hämmästyä* N-ELA] refer to a property ascribed to a human being. In this sense, they are quite similar to the noun *suosio* 'popularity', the strongest collexeme of *yllättyä* 'be surprised'.

(115) *Ole-n* *hämmästy-nyt* *taido-i-sta-si* *havait-a*
be-1SG be.astonished-PTCP skill-PL-ELA-2SG.POSS detect-INF

virite-tty-j-ä *mopo-j-a,* *ole-t-ko* *ajatel-lut*
tune-PASS.PTCP-PL-PTV moped-PL-PTV be-2SG-Q think-PTCP

poliisi-n *ammatti-a* *ura-na?*
police-GEN profession-PTV career-ESS

'I am amazed by your skills to detect tuned mopeds; have you considered a career as a police officer?' (52346033)

The construction [*hämmästyä* N-ELA] also attracts nouns referring to non-human qualities and quantities, *hintataso* 'price level' being the one with the strongest association. As in the case of *yllättyä* 'be surprised', most first-order nouns are repulsed by the construction [*hämmästyä* N-ELA]. The second-order

noun with the strongest attraction to construction [*hämmästyä* N-ELA] is *reaktio* 'reaction', with a log OR almost identical to the combination of *yllättyä* 'be surprised' and *reaktio* 'reaction'. As mentioned above, a reaction almost inevitably leads to specific and usually explicit expectations, because it is a response to a prior event, which serves as a benchmark. But, not every event is followed by a reaction. Events can also come unexpected, thus explaining the high log odds ratios of a noun like *soitto* 'call' in Table 35.

Similar to the verb *yllättyä* 'be surprised', the construction [*hämmästyä* N-ELA] is also attracted to the third-order noun *tulos* 'result', which stands for the outcome of a particular event and is also an indication for the importance of expectations in the semantics of the verb in question.

But, in order to understand the strong association between *hämmästyä* and a third-order noun such as *ajatusmaailma* 'way of thinking', outcome expectations do not provide a good explanation. The high value for *ajatusmaailma* is striking, because other mental concepts such as *ajatus* 'thought' (log OR: 0.15) do not show a strong association to the construction [*hämmästyä* N-ELA], if any. With only two instances, we do not have enough evidence to draw reliable conclusions about the reasons why *ajatusmaailma* (116) is attracted to the construction [*hämmästyä* N-ELA], but one should definitely take the attitudinal usage of the verb into account. This is supported by the high values for the noun *asenne* 'attitude':

(116) *Jos* *ole-t* *si-tä* *miel-tä,* *että* *sitoutu-minen*
if be-2SG that-PTV opinion-PTV CONJ engage-NMLZ

loppuelämä-n *aja-ksi* *on* *irstailu-a,* *ole-n* *aika*
end.of.life-GEN time-TRL be.3SG debauchery-PTV be-1SG quite

hämmästy-nyt *ajatusmaailma-sta-si*
be.astonished-PTCP think.world-ELA-2SG.POSS

'If you are of the opinion that committing oneself for the rest of one's life is debauchery, I am quite astounded by your way of thinking' (74203068)

(117) *Ole-n* *hämmästy-nyt* *asente-i-sta-nne* *ja* *kyynisyyde-stä*
be-1SG be.astonished-PTCP attitude-PL-ELA-2PL.POSS and cynicism-ELA

'I am astonished by your attitudes and cynicism' (10999945)

According to the dictionary of standard Finnish, the emotion described by the word *hämmästyä* is not only triggered by unexpected stimuli, but also by "strange" ones (KTS: s.v. *hämmästyä*). While this includes unusual and therefore unexpected phenomena, one may also think of irritation or even disagreement as a motivation for using *hämmästyä*, hinting at a difference in semantic prosody between a possibly evaluative *hämmästyä* 'be astonished' and

a possibly neutral *yllättyä* 'be surprised'. This would also fit example (115), above, which sounds a little ironic and criticial. The fact that both unpredictability and irritation/ disagreement play a role in the semantics of the verb, can also be seen together with fourth-order nouns, i.e. nouns referring to utterances, such as *syytös* 'allegation':

(118) *Muu-t* *tutkimuks-i-in* *joutu-nee-t* *kolme* *lasta* *ja*
other-PL investigation-PL-ILL end.up-PTCP-PL three child.PTV and

heidä-n *vanhempa-nsa* *ol-i-vat* *hyvin* *hämmästy-ne-i-tä*
3PL-GEN parent[PL]-3PL.POSS be-PST-3PL well be.astonished-PTCP-PL-PTV

seksuaalirikosväitte-i-stä, *eikä* *nii-lle* *löyty-nyt*
sex.crime.claim-PL-ELA and.not PN.PL-ALL find-PTCP

esitutkinna-ssa *mitään* *näyttö-ä*
preinvestigation-INE any[PTV] proof-PTV

'The other three children who got into the investigations along with their parents were pretty baffled by the sex crime claims, and there was no proof for them in the preliminary investigation' (63302945)

Unlike nouns belonging to the *Response frame*, they do not presuppose any prior utterance, one the one hand, which means they come unexpected (118), but on the other hand, they can also imply that the experiencer does not agree with the statement, e.g. *väite* 'claim', which is also significantly attracted to the construction [*hämmästyä* N-ELA], see Table 36 below. Thus, it seems that the NSM paraphrase quoted above is certainly correct in the sense that *hämmästys* 'astonishment' does not entail clear expectations. But, the aspect of irritation/ disagreement is missing in the explication.

The four nouns *havainto* 'observation', *reaktio* 'reaction', *tulos* 'result', and *hintataso* 'price level' are among the top ten collexemes of both [*hämmästyä* N-ELA] and construction [*yllättyä* N-ELA], suggesting a considerable overlap between the semantics of the verbs *hämmästyä* 'be astonished' and *yllättyä* 'be surprised'. This becomes particularly clear when we compare the association values for several nouns (see Table 36). The nouns *tulos* 'result' and *vastaus* 'answer' have a stronger association to the construction [*yllättyä* N-ELA], because results and answers are inherently connected to specific expectations. In contrast to that, *syytös* 'allegation' and *väite* 'claim' are more attracted to the construction [*hämmästyä* N-ELA], because allegations and claims are unpredictable and often lead to irritation/disagreement. But, judging from the high values on both columns of the table, the attraction of the mentioned nouns to either verb is just a matter of degree. For instance, the association value for *reaktio* 'reaction' is almost equal for both verbs. Preferred stimuli of the verb

yllättyä 'be surprised' tend to conflict with specific schemas, whereas preferred stimuli of the verb *hämmästyä* 'be astonished' tend to be inconsistent with background beliefs.

			[*yllättyä* N-ELA]		[*hämmästyä* N-ELA]	
N	Translation	∑	log OR	V+N	log OR	V+N
tulos	result	(325)	**3.76**	118	3.25	32
vastaus	answer	(299)	**3.75**	109	2.61	17
reaktio	reaction	(50)	**3.80**	20	**3.60**	7
syytös	allegation	(20)	2.17	2	**3.73**	3
väite	claim	(36)	2.43	5	**3.08**	3

Table 36: Comparing collexemes of the constructions [*yllättyä* N-ELA] and [*hämmästyä* N-ELA]

Coming back to the variation in the realization of nominal arguments, we can see that the construction [*hämmästyä* N-PTV] is attested 123 times in the corpus sample used for the covarying collexeme analysis. Due to this low number, the results of the covarying collexeme are also less significant, as indicated by the -$\log_{10}$ FYE values gathered in the far right-hand column of Table 37. Nevertheless, we can see that there is considerable overlap between the semantics of the nouns appearing in the nominal slot of the construction [*hämmästyä* N-ELA] and those appearing in the construction [*hämmästyä* N-PTV].

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
ilotulitus	fireworks	10	**2**	3.47	**4.90**	6.32	3.66
vaikutus	effect	14	**2**	3.14	**4.51**	5.88	3.36
tyhmyys	dumbness	15	**2**	3.07	**4.43**	5.79	3.30
typeryys	stupidity	15	**2**	3.07	**4.43**	5.79	3.30
pyyntö	request	17	**2**	2.95	**4.29**	5.64	3.19
väite	claim	36	**4**	3.16	**4.16**	5.16	5.89
kauneus	beauty	37	**3**	2.73	**3.84**	4.95	4.10
hinta	price	96	**8**	3.10	**3.83**	4.55	10.28
ero	difference; breakup	76	**6**	2.94	**3.77**	4.59	7.69
reaktio	reaction	50	**3**	2.42	**3.52**	4.62	3.71

Table 37: Top collexemes of the construction [*hämmästyä* N-ELA]

The list comprises nouns highlighting cause and effect (e.g. *vaikutus* 'effect' and *reaktio* 'reaction'), attributive nouns (e.g. *kauneus* 'beauty' and *hinta* 'price'), nouns referring to utterances (e.g. *pyyntö* 'request' and *väite* 'claim'), as well as nouns with a negative, evaluative meaning (e.g. *typeryys* 'stupidity' and *tyhmyys* 'dumbness'). The noun *ero* can refer to the end of a relationship ('breakup'), but in combination with the verb hämmästyä it is mostly used to indicate a difference, as in (119).

(119) *Katso* *ja* *hämmästy* *ero-a*
look.IMP and be.astonished.IMP difference-PTV
'Take a look and be astonished by the difference' (15310662)

The most interesting noun from the list is *ilotulitus* 'fireworks', because it is also significantly attracted to the constructions [*pelästyä* N-PTV] and [*säikähtää* N-PTV], cf. 6.5.3 and 6.5.4, respectively. As mentioned in 5.1.1, traces of the construction [*hämmästyä* N-PTV] can be found in older texts of the Finnish language, where the verb *hämmästyä* was used synonymously to the verbs *pelästyä* 'get frightened' and *säikähtää* 'get scared'. But, judging from the semantics of the collexemes analyzed here, there doesn't seem to be a striking semantic difference between the constructions [*hämmästyä* N-PTV] and [*hämmästyä* N-ELA]. The semantic motivation of the alternation between partitive and elative will be further discussed with regard to the aforementioned verbs.

6.2 Joy

Prototypically, joy is an emotional response associated with positive events. It is non-verbally expressed by smiling and laughter. A wide range of emotions is subordinated to the primary emotion of joy, which translates as *ilo* into Finnish. Apart from *ilahtua* 'be delighted', which is derived from the same stem as *ilo*, we can also add the verbs *innostua* 'get excited' and *kiinnostua* 'get interested' to the category. In the study by Shaver et al. (2001), interest did not constitute an emotion prototype, but a growing body of research emphasizes the importance of the phenomenon. As noted by Silvia (2006: 20), interest and enjoyment are traditionally seen as distinct, but related emotions, which should justify treating both under the same heading.

6.2.1 *ilahtua* 'be delighted'

With 13 677 tokens, the verb *ilahtua* 'be delighted' is the least frequent among the inchoative emotion verbs investigated in the present study. More than 10% of these tokens can be attributed to the causative derivation *ilahduttaa*

'delight', which should be treated separately. Compared to the verb *kiinnostua* 'get interested' with 371 516 tokens, *ilahtua* appears to be a marginal representative from the wide range of positive emotions. Yet, it is important for expressing a sudden experience of joy (KTS: s.v. *ilahtua*), as the dictionary of standard Finnish suggests. In her NSM explication of the Finnish term *ilo* 'joy', Tuovila (2005: 87) characterizes the corresponding emotion with regard to the aspect that "something very good happened/happens now":

ilo
X feels something
sometimes a person thinks something like this:
something very good happened/ happens now
I want this
because of this, this person feels something for some time
X feels something like this

Considering all investigated combinations of the verb *ilahtua* and elative-marked stimulus nouns, we get 566 sentences. Shaver et al. (2001) found out that joy is mainly elicited by desirable outcomes, i.e. getting something desired or desirable: "the desirable outcome that initiates happiness is frequently a gain or success in the achievement domain (task success, achievement) or in the social domain (receiving esteem or affection)" (p. 46). Accordingly, nouns from the social domain are preferred stimuli of the construction [*ilahtua* N-ELA]:

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
näkeminen	seeing	27	**23**	5.25	**6.27**	7.28	41.75
muistaminen	remembering	7	**6**	4.27	**6.05**	7.83	11.11
kohtaaminen	encounter	10	**6**	3.75	**4.95**	6.16	9.65
yhteydenotto	contact	69	**38**	4.36	**4.84**	5.32	56.71
vierailu	visitation	29	**16**	4.08	**4.80**	5.53	24.16
lahja	gift	44	**24**	4.20	**4.79**	5.39	35.82
kutsu	invitation	26	**14**	3.98	**4.75**	5.51	21.00
kortti	card	25	**13**	3.90	**4.67**	5.45	19.27
käynti	visit	16	**8**	3.63	**4.59**	5.54	11.87
soitto	call	48	**21**	3.79	**4.36**	4.93	28.72

Table 38: Top collexemes of the construction [*ilahtua* N-ELA]

At the top of the collexeme list, we find three nouns with the derivational suffix [*-minen*]. The high values for these deverbal nouns suggest a semantic preference of the construction for second-order nouns. This is in line with the high number of temporal (*kun*) and conditional (*jos*) complement clauses among the argument realization patterns of the verb *ilahtua* (see 5.2). Apparently, events and actions play an important role in the causality of the verb. This observation is further supported by a range of other nouns from Table 38 above, namely *yhteydenotto* 'contact (act of contacting)', *vierailu* 'visitation (act of visiting)', *käynti* 'visit', and *soitto* 'call (act of calling)'.

(120) *Toivottavasti* *sinä-kin* *nä-i-t* *se-n,* *kuinka* *minä*
hopefully 2SG-CLT see-PST-2SG PN-ACC how 1SG

ilahdu-i-n *näke-mise-stä-si*
be.delighted-PST-1SG see-NMLZ-ELA-2SG

'Hopefully, you also saw how I was delighted by seeing you' (unspecified)[75]

Usually, the patient (120) or agent (121) of an action is expressed by the corresponding possessive suffix.

(121) *Hän* *ilahtu-i* *vierailu-sta-ni* *ja* *selvä-sti*
3SG be.delighted-PST.3SG visit-ELA-1SG.POSS and clear-ADV

piristy-i *tapaa-mise-sta-mme*
get.perked.up-PST.3SG meet-NMLZ-ELA-1PL.POSS

'S/he was delighted by my visit and s/he was visibly perked up by our meeting' (unspecified)[76]

Human referents themselves are rather rare as stimuli of the verb *ilahtua*. But, with *lahja* 'gift' and *kortti* 'card', there are two nouns referring to concrete things among the strongest collexemes of the construction [*ilahtua* N-ELA]. More frequent nouns like *auto* 'car' or *raha* 'money' do not show any association with *ilahtua*, though. The noun *lahja* 'gift' can be used to make the point that metonymy can be a possible explanation for this inconsistency. Unlike other nouns referring to concrete things, it does not specify the kind or character of the thing it refers to. Of course, this information can be inferred from the context, but what the lexeme primarily does is to evoke the *Giving frame*. Thus, the act of receiving the object under question is foregrounded by the lexical choice. This line of reasoning cannot be directly transferred to *kortti* 'card', because the noun refers to a particular thing, typically made of paper. Yet, the act of receiving is also important for this noun, especially considering

[75] http://keskustelu.suomi24.fi/t/13656180/jaakkokulta

[76] http://keskustelu.suomi24.fi/t/9088422/soitin

that all 13 instances of the noun refer to post cards (122). By way of the conduit metaphor, the same applies to *kutsu* 'invitation', a linguistic noun with a focus on illocution (123):

(122) *Kyllä* *he* *välittä-vät* *ja* *ilahtu-vat* *korte-i-sta-si*
of.course 3PL care-3PL and be.delighted-3PL card-PL-ELA-2SG.POSS

vaikk-ei-vat (sic) *jaksa* *itse* *lähettä-ä* *enää* *kortte-j-a*
although-NEG-3PL be.able self send-3SG anymore card-PL-PTV

'Of course, they care and are delighted by your cards, even though they don't have the strength anymore to send cards themselves' (41334883)

(123) *Mies* *oletta-a,* *että* *ilahdu-t* *kutsu-sta* *ja* *suostut,*
man assume-3SG that be.delighted-2SG invitation-ELA and accept-2SG

tai *jos* *et* *suostu,* *niin* *silti* *ilahdu-t,*
or if NEG.2SG accept so nevertheless get.delighted-2SG

että *kutsu-ttiin*
that invite-PASS.PST

'The man assumes that you are delighted by his invitation and accept it, or if you don't accept it, you're nevertheless delighted to have been invited' (51167022)

Apart from the fact that all aforementioned nouns belong to the social domain, they also have in common that they refer in one way or another to events that may be unexpected, such as receiving an invitation or seeing somebody (in the street). This leads to the assumption that the verb *ilahtua* shares certain traits with the verb *yllättyä*, which is also supported by the strong association of the verb *ilahtua* 'be delighted' to the noun *yllätys* 'surprise' (log OR: 3.93; $-\log_{10}$ FYE: 6.52). This aspect could also be added to the NSM account of the prototypical cognitive scenario of *ilo* 'joy' presented by Tuovila (2005: 87).

6.2.2 *innostua* 'get excited'

Appearing 65 545 times in the Suomi24 corpus, the lexeme *innostua* 'get excited' is one of the most frequent inchoative emotion verbs. The query `[lemma = "innostua"] [msd = ".*CASE_Ela.*" & pos = "N"]` yields 7 933 results, of which 3 512 sentences remain if we consider the 302 stimulus nouns attested in the sample. Besides elative marking on argument nouns, *innostua* also allows for illative marking on nouns (684 tokens for the query `[lemma = "innostua"] [msd = ".*CASE_Ill.*" & pos = "N"]`) and infinitival complements (10 429 tokens for the query `[lemma = "innostua"] [msd = ".*CASE_Ill.*" & pos = "V"]`), which will be discussed below. According to the dictionary of standard Finnish, *innostua* expresses strong inter-

est; etymologically it is derived from the noun *into* 'eagerness, enthusiasm'. Table 39 shows the ten most important collexemes of the construction [*innostua* N-ELA].

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
lenkkeily	jogging	26	**20**	2.96	**3.85**	4.73	18.78
idea	idea	147	**86**	2.73	**3.06**	3.39	62.96
liikkuminen	exercising	38	**20**	2.17	**2.80**	3.43	13.93
liikunta	exercise (physical)	158	**82**	2.48	**2.79**	3.10	54.37
kuntoilu	fitness (physical)	37	**19**	2.11	**2.75**	3.39	13.01
ajatus	thought	805	**363**	2.45	**2.60**	2.74	214.90
leikki	play (children's activity)	114	**52**	2.16	**2.53**	2.90	31.14
harrastus	hobby	92	**30**	1.55	**1.98**	2.42	13.50
laji	kind, sort	219	**69**	1.65	**1.94**	2.22	29.02
lukeminen	reading	67	**21**	1.41	**1.93**	2.44	9.30

Table 39: Top collexemes of the construction [*innostua* N-ELA]

Similar to *ilahtua* 'be delighted' (6.2.1), we find two deverbal nouns with the derivational suffix [*-minen*] among the top ten collexemes of the construction [*innostua* N-ELA]. Taking a closer look, we can see that they do not refer to concrete actions, but to habitual actions or "activities" (see 3.2.1). This is also the case wth the nouns *lenkkeily* 'jogging', *liikunta* 'exercise', *kuntoilu* 'fitness', and *liikkuminen* 'exercising'.

(124) *Itse-kin* *innostu-i-n* *liikku-mise-sta* *pari* *vuot-ta*
self-CLT get.excited-PST-1SG move-NMLZ-ELA a.couple year-PTV

sitten *ja* *se* *on* *kyllä* *äärimmäise-n* *tärkeä*
ago and PN be.3SG of.course extreme-GEN important

kasa-ssa *pitä-vä* *voima*
heap-INE hold-PTCP power

'I myself got excited about exercising a couple of years ago and it is certainly an extremely important force to keep you in shape' (43886689)

The semantic preference of habitual actions is in line with the NSM explication of *innostus* 'excitement, enthusiasm' adapted from Tuovila (2005: 88): something good happened and therefore the experiencer wants more of this. Also note the prolonged duration ("long time"):

innostus
X feels something
  sometimes a person thinks something like this:
    something happened
    now I know: this is good
    I want more of this
  because of this, this person feels something good for a long time
X feels something like this

Unlike actions proper, activities cannot be located in time.[77] Thus, they would also qualify as third-order nouns. This becomes clear if we consider nouns like *leikki* 'play (children's activity)' and *harrastus* 'hobby' that do not refer to clearly defined actions. The noun *harrastus* 'hobby' can be taken to be a hyperonym for the above-mentioned activities. Besides, we can also add the noun *laji* 'kind, sort' to the category of activities, because in all 69 cases it stands for a certain type of sport, such as football:

(125) *Itse* *innostu-i-n* *laji-sta* *äskettäin,* *kun* *pääs-i-n*
self get.excited-PST-1SG kind-ELA recently when get.in-PST-1SG

firma-n *joukkuee-seen* *pelaa-ma-an*
company-GEN team-ILL play-INF-ILL

'I recently got excited about the sport myself when I had the chance to play on the company team' (unspecified)[78]

The strong association between *innostua* and actions proper is also reflected by the construction [*innostua* + V-*ma*/*mä*-ILL]. As mentioned above, the combination of the verb *innostua* and an illative-marked infinitive appears 10 429 times[79] in the Suomi24 corpus. Although the infinitival complement bears some resemblance to elative-marked arguments, it is not associated with the stimulus role (cf. 104, repeated as 126 for convenience):

(126) *Itse* *innostu-i-n* *toise-lla* *luoka-lla* *luke-ma-an*
self get.excited-PST-1SG second-ADE grade-ADE read-INF-ILL

[77] Of course, the moment, when the experiencer got excited about the activity functioning as a stimulus can be located in time, cf. example (125).

[78] http://keskustelu.suomi24.fi/t/948719/naisten-jalkapallo

[79] This number includes repetitions and expressions that are not instances of the construction under investigation.

englanni-n *kielis-i-ä* (sic) *kirjo-j-a* *ja* *si-tä* *kautta*
English-GEN language-PL-PTV book-PL-PTV and PN-PTV through

innostu-i-n *luke-mise-sta* *yleensä*
get.excited-PST-1SG read-NMLZ-ELA general

'I myself became an avid reader of English-language books in second grade, and because of that became enthusiastic about reading in general' (77220327)

We also find illative marking on nominal arguments (127), but as mentioned before, the number of instances is fairly low. According to a distinctive collexeme analysis (see 4.3.1), there are almost no significant differences between elative and illative marking here. But, the fact that the noun *toiminta* 'action' is more attracted by the illative (log OR: 2.95; $-\log_{10}$ FYE: 3.46), suggests that the construction [*innostua* N-ILL] inherits semantic features from the construction [*innostua* + V-*ma/mä*-ILL].

(127) *Kuinka* *usein* *sitten* *hän* *innostu-i* *seksi-in?*
how often than 3SG get.excited-PST.3SG sex-ILL

'How often did s/he get excited about sex?' (39177002)

Coming back to the elative-marked arguments of the verb, we find two highly abstract nouns among the top ten collexemes. The synonyms *idea* 'idea' and *ajatus* 'thought' refer to a wide range of mental concepts, such as plans (128) and views (129). This semantic unspecificity is typical for so-called *shell nouns* (see Schmid 2000: 74).

(128) *En* *liiemmin* *innostu-nut* *idea-sta* *viettä-ä* *ilta-a*
NEG.1SG overly get.excited-PTCP idea-ELA spend-INF evening-PTV

häne-n *exä-n-sä* *kanssa*
3SG-GEN EX-GEN-3SG.POSS with

'I was not overly excited about the idea spending the evening with her ex' (unspecified)[80]

(129) *Enkä* *muuten-kaan* *innostu* *ajatukse-sta* *että* *joku* *pieni*
and.not otherwise-CLT get.excited thought-ELA that some small

yksityiskohta *vaati-i* *älytön-tä* *tarkkailu-a*
detail require-3SG witless-PTV scrutiny-PTV

'And I generally don't get excited about the thought that some minor detail requires ridiculous scrutiny' (25495343)

In 25 percent or 92 out of 363 cases, the combination of *innostua* and *ajatus* 'thought' is followed by a complement clause, specifying the content of the conceptual shell.

[80] http://keskustelu.suomi24.fi/t/9705298/illanviettoon-naisen-exan-kanssa

6.2.3 *kiinnostua* 'get interested'

The verb *kiinnostua* 'get interested' is the most frequent verb analyzed here. In total, it appears 371 516 times within the Suomi24 corpus. The query `[lemma = "kiinnostua"] [msd = ".*CASE_Ela.*" & pos = "N"]` yields 5 221 results, of which remain 21 573 sentences, if we consider the 302 collexemes under investigation (i.e. all possible combinations).

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
historia	history	272	**267**	3.50	**4.35**	5.19	100.70
uskonasia	matter of faith	155	**152**	3.17	**4.23**	5.29	57.21
taide	art	138	**130**	2.49	**3.19**	3.88	42.58
ympäristö	environment	128	**114**	1.97	**2.52**	3.07	31.46
politiikka	politics	633	**554**	2.18	**2.41**	2.65	143.10
uskonto	religion	407	**354**	2.07	**2.35**	2.64	89.72
ala	area of work/study	374	**325**	2.05	**2.35**	2.65	82.17
asunto	apartment	191	**164**	1.84	**2.24**	2.65	40.29
urheilu	sports	221	**188**	1.82	**2.18**	2.55	44.82
kokemus	experience	157	**129**	1.56	**1.97**	2.37	27.93

Table 40: Top collexemes of the construction [*kiinnostua* N-ELA]

Many theories of emotion do not even consider interest, although it fulfills typical criteria for emotions, such as physiological changes and a subjective feeling (Silvia 2006: 57-58). Regarding its function, interest serves to motivate learning and exploration. Accordingly, Tuovila (2005: 117) defines the noun *kiinnostus* 'interest' in relation to the aim to gather knowledge, which is reflected by the attraction of the verb *kiinnostua* to the argument noun *kokemus* 'experience':

(130) *Nyt* *ol-isi-n* *kiinnostu-nut* *kokemuks-i-sta*
now be-COND-1SG get.interested-PTCP experience-PL-ELA
kyseis-i-stä *hoido-i-sta*
in.question.ADJ-PL-ELA treatment-PL-ELA
'Now, I'd be interested in experiences with the treatments in question'
(unspecified)[81]

[81] http://keskustelu.suomi24.fi/t/12680045/epilepsia

Among the top collexemes of *kiinnostua*, we find several nouns referring to general areas of human activity, such as *historia* 'history', *taide* 'arts', *ympäristö* 'environment', *politiikka* 'politics', *ala* 'area of work or study', *uskonto* 'religion', and *urheilu* 'sports'. It is fair to ask if we are still dealing with proper stimuli or rather with topics. In fact, the noun *aihe* 'topic' (log OR: 1.49; $-\log_{10}$ FYE: 153.50) is clearly attracted to the construction [*kiinnostua* N-ELA]. Thus, the construction is a good illustration for the causal-representative relation associated with elative marking (see 5.1.2). In example (131), *urheilu* 'sports' can be both cause and topic of the interest:

(131) *Harrasta-n* *paljon* *liikunta-a* *mm* (sic) *juoksu,* *uinti,*
hobby[v]-1SG lots exercise-PTV i.a. running, swimming

sali, *eli* *jos* *ole-t* *kiinnostu-nut* *urheilu-sta,* *niin* *voi-mme*
hall CONJ if be-2SG get.interested-PTCP sports-ELA CONJ can-1PL

joskus *vaikka* *reenai-lla* (sic) *yhdessä*
sometimes perhaps work.out-INF together

'I do a lot of exercise, such as running, swimming, fitness, basketball and so forth, so if you are interested in sports, we can work out together someday' (unspecified)[82]

The case of *uskonasia* 'matter of faith' is also interesting, because it appears next to the noun *uskonto* 'religion' and comes with plural marking in all 152 sentences analyzed here. By adding the noun *asia* 'thing', speakers hint at the complex nature of the topic in question (*usko* 'faith'), without explicitly referring to particular aspects. Examples like (133) furthermore suggest that the noun *uskonasia* 'matter of faith' is typical for colloquial registers and sometimes indicates an unfavorable attitude:

(132) *Minä* *olen* *kiinnostu-nut* *uskonasio-i-sta,* *mutta*
1SG be-1SG get.interested-PTCP matter.of.faith-PL-ELA but

en *nimenomaan* *vain* *kristinusko-n*
NEG.1SG precisely only christianity-GEN

'I am interested in matters of faith, but specifically not only in Christianity' (58392188)

(133) *Joo,* *mä* *en* *ole* *kiinnostu-nut* *uskonasio-i-sta,*
nope 1SG NEG.1SG be get.interested-PTCP matter.of.faith-PL-ELA

kiitos *vaan*
thanks anyway

'Nope, I'm not interested in religious stuff, thanks anyway' (28310651)

[82] http://keskustelu.suomi24.fi/t/13672715/kavereita-paakaupunkiseudulta

The aforementioned collexemes lead to the assumption that the verb *kiinnostua* 'get interested' primarily indicates the wish to attain knowledge about a certain topic. This is in line with the observation by Silvia (2006, Chapter 2) that antecedents of interest are typically new and complex to the experiencer. But, the verb *kiinnostua* can be used in peculiar ways, by pushing the aspect of knowledge into the background. Together with concrete nouns, such as *asunto* 'apartment', the verb *kiinnostua* can refer to wanting only. Thus, there are two possible interpretations for example (134) below: the speaker either wants to know more about the apartment in question or he simply wants to rent or buy it. The functional deviation of the verb becomes even clearer in combination with human referents (135), where *kiinnostua* refers to attraction.

(134) *Ol-isi-n* *kiinnostu-nut* *asunno-sta-si!*
be-COND-1SG get.interested-PTCP apartment-ELA-2SG.POSS
'I'm interested in your apartment!' (34638851)

(135) *En* *ikinä* *muista* *kiinnostu-nee-ni*
NEG.1SG ever remember get.interested-PTCP-[GEN]1SG.POSS
naise-sta *pelkä-n* *ulkonää-n* *takia*
woman-ELA mere-GEN look-GEN because
'I don't remember having ever gotten interested in a woman just because of her looks' (55536608)

This use of the verb *kiinnostua* can be seen as the first case of semantic prosody in the present analysis (see 2.3.2).What also sets *kiinnostua* apart from the other verbs analyzed so far is the circumstance that its collexemes indicate an association with beings and objects. In this sense, *kiinnostua* has some similarity to the verbs *ihastua* 'get infatuated' and *rakastua* 'fall in love', which both appear together with illative marking. Although *kiinnostua* refers to a directed emotion, it appears with the elative case, which has the basic meaning "out of". Of course, the elative has developed various abstract meanings, e.g. marking of topics, but this dissonance between the semantics of the verb and case marking can explain why we also find erroneous illative marking in the Suomi24 corpus:

(136) *Ei* *toi* *ol-i* *ikinä* *kiinnostu-nut* *naisi-in*
NEG PN be-3SG.PST ever get.interested-PTCP woman[PL]-ILL
'He was never interested in women' (53885528)

6.3 Love

Following Robinson (2009: 155), love can be defined as a positive, *cathected* emotion, i.e. an emotion directed at a person, object, or idea. Research from social psychology further suggests that "love may be conceptualized as a personalized form of joy" (Shaver et al. 2001: 47), especially considering the prototypical responses associated with both emotions: smiling and feeling excited. Among the 20 most common inchoative emotion verbs in Finnish, we find three verbs referring to love or liking, in a wider sense. Whereas *ihastua* 'get infatuated' and *rakastua* 'fall in love' are very frequent in the corpus, *mieltyä* 'become fond' is a rather marginal lexeme with a peculiar usage, as will be illustrated.

6.3.1 *ihastua* 'get infatuated'

As mentioned in 5.1.2, the verb *ihastua* has two different, yet related meanings, which is also reflected in the case marking of the verb's stimulus nouns. The aspect of 'getting pleased' is highlighted by the elative, whereas the meaning of 'getting infatuated' appears together with illative marking. From a semantic point of view, this coding can be explained by the fact that pleasure is induced by source-like stimuli, whereas (romantic) infatuation is inherently goal-oriented (cf. Verhoeven 2007: 62-63). In total, the verb *ihastua* appears 185 048 times in the corpus. If we compare the number of results for the two stimulus subroles within the Suomi24 corpus, i.e. `[lemma = "ihastua"] [msd = ".*CASE_Ela.*" & pos = "N"]` versus `[lemma = "ihastua"] [msd = ".*CASE_Ill.*" & pos = "N"]`, the latter appears to be far more common with 17 106 hits, opposed to only 782. In line with this divergence, elative marking was not attested in the analysis of the argument realization patterns of the verb in Chapter 5. For this reason, it will not be discussed here. Considering all collexemes analyzed in this study, we get 7 721 instances of the construction [*ihastua* N-ILL]. Table 41 reveals that the construction [*ihastua* N-ILL] is clearly associated with human stimulus referents. More precisely, the top nouns from the collexeme list come from social environments, such as school and work. Nouns like *opettaja* 'teacher' (137), *työkaveri* 'co-worker' (138), and *poika* 'boy' further suggest that we are dealing with a rather youthful, colloquial verb. This also holds for the noun *hetero* 'heterosexual person', which is an informal short form for the adjective *heteroseksuaali* 'heterosexual'.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
työkaveri	co-worker	760	**547**	2.67	**2.83**	2.99	294.10
opettaja	teacher	136	**94**	2.27	**2.63**	2.99	47.94
pomo	boss	60	**41**	2.04	**2.58**	3.12	21.01
hetero	heterosexual person	83	**55**	2.04	**2.49**	2.95	26.90
ihastuminen	adoration	32	**20**	1.61	**2.32**	3.02	9.51
luonne	character	148	**85**	1.80	**2.13**	2.45	34.25
työtoveri	colleague	80	**46**	1.68	**2.12**	2.56	18.92
nimi	name	183	**102**	1.77	**2.06**	2.35	39.35
mielikuva	mental image	118	**62**	1.57	**1.93**	2.29	22.38
poika	boy	982	**466**	1.64	**1.77**	1.90	142.40

Table 41: Top collexemes of the construction [*ihastua* N-ILL]

(137) *Mone-t* *kaveri-ni* *ja* *minä-kin* *ol-i-n* *ihastu-nut*
some-PL friend[PL]-1SG.POSS and 1SG-clt be-PST-1SG get.infatuated-PTCP
opettaji-in *yläastee-lla* *ja* *lukio-ssa*
teacher[PL]-ILL middle.school-ADE and gymnasium-INE
'Some of my friend and I myself got infatuated with teachers in middle school and gymnasium' (64548303)

(138) *minä* *myös* *naimisissa* *ja* *ihastu-i-n*
1SG also married and get.infatuated-PST-1SG
työkaveri-i-ni *joka* *on* *sinkku*
co-worker-ILL-1SG.POSS who be.3SG single
'I (was) also married and got infatuated with a co-worker who is single' (53727809)

The nouns *luonne* 'character' (139) and *nimi* 'name' also belong to the human domain, but instead of entities, they refer to attributes. It is nevertheless fair to say that the construction [*ihastua* N-ILL] displays a semantic preference of first-order nouns. Other nouns referring to human attributes also display relatively high association values, e.g. *ulkonäkö* 'look, appearance' (log OR: 1.40;

-$\log_{10}$ FYE: 40.75). The case of *mielikuva* 'mental image' is a bit more complicated: in combination with the construction [*ihastua* N-ILL], the noun *mielikuva* does belong to the human domain (140). But, instead of referring to attributes, *mielikuva* refers to a discrete mental entity or idea, which functions as a kind of placeholder.

(139) *Hän* *ihastu-i* *luontee-see-ni,* *ei* *ehkä*
3SG get.infatuated-PST.3SG character-ILL-1SG.POSS NEG perhaps

niin-kään *ulkonäkö-ö-ni*
so.much-CLT look-ILL-1SG.POSS

'S/he got infatuated with my character, perhaps not so much with my appearance' (42523222)

(140) *Ole-t* *ihastu-nut* *mielikuva-an* *häne-stä,*
be-SG get.infatuated-PTCP mental.image-ILL 3SG-ELA

et *häne-en*
NEG.2SG 3SG-ILL

'You are infatuated with a mental image of him/her, not with him/herself' (58388813)

With the deverbal noun *ihastuminen* 'adoration', there is also a second-order noun among the top collexemes. It refers to the process of becoming infatuated and if we compare (140) above with (141), we can see that both nouns are used in similar contexts:

(141) *Tä-stä* *syy-stä* *jotkut* *ovat* *pelkästään*
this-ELA reason-ELA some[PL] be.3PL merely

ihastu-ne-i-ta *ihastu-mise-en* *ja* *tai*
get.infatuated-PTCP-PL-PTV get.infatuated-NMLZ-ILL and or

rakastu-mise-en, *tuo-n* *tunte-en* *ei* *ihmise-n* *takia*
fall.in.love-NMLZ-ILL that-GEN feeling-GEN NEG human-GEN because

'For this reason, some are just infatuated with becoming infatuated and or falling in love, because of that feeling, not the person' (42204813)

The construction [*ihastua* N-ILL] also appears together with general third-order nouns, such as *ajatus* 'thought' (78 times) but there is a significant repulsion (log OR: -0.41; -$\log_{10}$ FYE: 3.82). This holds for most abstract nouns, which sets the verb *ihastua* apart from other emotion verbs, but connects it with the verb *rakastua* 'fall in love'. Considering the strong attraction of the verb *ihastua* to nouns referring to human beings it is interesting to note that the following NSM explication of the Finnish term *ihastus* 'crush, infatuation' (adapted from

Tuovila 2005: 89) does not make any explicit reference to the role of other persons in the prototypical cognitive scenario of the emotion:

ihastus
X feels something
    sometimes a person thinks something like this:
        something happened
        I know: this is good
        I want this
    because of this, this person feels good
X feels something like this

In this sense, the paraphrase is quite similar to that of *innostus* (Tuovila 2005: 89, see 6.2.2), which is also defined by a component of "wanting". But, as we will see in 6.3.2, the construction [*ihastua* N-ILL] shares many collexemes with the construction [*rakastua* N-ILL]. Therefore, one may consider reformulating the NSM paraphrase of *ihastus* 'crush, infatuation' in accordance with that of *rakkaus* 'love'.

6.3.2 *rakastua* 'fall in love'

In total, *rakastua* 'fall in love' appears 153 119 times within the Suomi24 corpus. If we consider the 302 collexemes analyzed here, we get 7 632 instances of the construction [*rakastua* N-ILL], which is almost identical with the number of instances (7 721) of the construction [*ihastua* N-ILL]. Even the similarity of the top collexemes of both verbs is striking. As one might expect, most of the nouns from Table 42 below refer to human entities. This is also in line with the NSM explication of the term *rakkaus* 'love' adapted from Tuovila (2005: 112):

rakkaus
X feels something
    sometimes a person thinks something like this:
        I think: there is a person
        when I think of this person, I feel very good
        I want good for this person
    because of this, this person feels something for a long time
X feels something like this

Some collexemes are surprising, such as the noun *renttu* 'bum', which is on top of the construction's list of collexemes[83] and appears as part of a proverb (142). Similarly, the high frequency of the noun *suomenruotsalainen* 'Finland Swede' can be explained by its use in a popular advertising campaign (143) launched some years ago by the Swedish language newspaper *Hufvudstadsbladet*.

[83] In fact, the $-\log_{10}$ FYE values are infinite, because of the strong association.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
renttu	bum	1258	**1164**	4.30	**4.51**	4.72	Inf
suomenruotsalainen	Finland Swede	50	**46**	3.21	**4.17**	5.14	34.53
ukkomies	married man	108	**82**	2.54	**2.98**	3.42	47.53
narsisti	narcissist	100	**70**	2.25	**2.68**	3.11	36.78
haavekuva	illusion	55	**36**	1.91	**2.46**	3.01	17.75
rakkaus	love	112	**73**	2.08	**2.46**	2.85	35.07
Jeesus	Jesus	263	**133**	1.63	**1.87**	2.11	45.22
vaimo	wife	295	**133**	1.42	**1.65**	1.88	38.23
mielikuva	mental image	118	**53**	1.27	**1.64**	2.00	15.63
ulkomaalainen	foreigner	93	**39**	1.11	**1.52**	1.93	10.57

Table 42: Top collexemes of the construction [*rakastua* N-ILL]

The meaningfulness of these correlations is of course questionable, because both sayings are probably stored as distinct constructions in the speakers' mental lexica. They do not say much about the combinatorics of the verb *rakastua,* yet they fit into the general schema and it would be difficult to exclude these kinds of utterances from the sample, both from a technical and a methodological point of view.

(142) *Siksi* *sanonta* *kuulu-u:* *naise-t* *rakastu-vat* *renttu-i-hin*
therefore saying be.heard-3SG woman-PL fall.in.love-3PL bum-PL-ILL
'For this reason, the saying goes: women fall in love with bums' (42279278)

(143) *tul-i* *miele-en* *mainos:* *ota* *riski,* *rakastu*
come-PST.3SG mind-ILL advertisement take[IMP] risk fall.in.love[IMP]
suomenruotsalaise-en
Finland.Swede-ILL
'An ad came to mind: take a risk, fall in love with a Finland Swede' (44710016)

If we consider the two nouns following *renttu* 'bum' and *suomenruotsalainen* 'Finland Swede' in the collexeme list, we will find ourselves dealing with words that have a negative connotation, e.g. *narsisti* 'narcissist' (144) or that are connected to social taboos, e.g. *ukkomies* 'married man'. Although these two cases do not indicate a particular semantic prosody of the verb *rakastua*, it

is interesting to see that a verb referring to a positive emotion does not only come with stimulus nouns of the same emotional value. Lexical items like *vaimo* 'wife' and *kumppani* 'partner' appear to be more natural in the context of the verb *rakastua*, as in (145).

(144) *Ol-i-n-kin* *tottu-nut* *luotta-ma-an* *tuo-hon* *kolmante-en*
be.PST-1SG-CLT get.used-PTCP trust-INF-ILL that-ILL third-ILL

silmä-ä-ni, *kunnes* *rakastu-i-n* *narsisti-in*
eye-PTV-1SG.POSS until fall.in.love-PST-1SG narcissist-ILL

'You could say I had been used to trusting my third eye until I fell in love with a narcissist' (75288351)

(145) *Sama-sta* *syy-stä* *minä-kin* *aikanaan* *rakastu-i-n*
same-ELA reason-ELA 1SG-CLT eventually fall.in.love-PST-1SG

vaimo-o-ni
wife-ILL-1SG.POSS

'For the same reason I eventually fell in love with my wife, too' (39052040)

Another peculiarity is the high association of the verb *rakastua* 'fall in love' with the proper noun *Jeesus* 'Jesus'. While it would appear natural to use the word *rakastaa* 'love' in a context like (146), *rakastua* 'fall in love' is rather out of place, because it evokes the concept of sexual attraction:

(146) *Kyllä* *minä-kin* *ole-n* *rakastu-nut* *Jeesukse-en,* *tai*
of.course 1SG-CLT be-1SG fall.in.love-PTCP Jesus-ILL or

ehkä *pitä-isi* *sano-a,* *että* *rakasta-n* *Jeesus-ta*
perhaps should-COND.3SG say-INF that love-1SG Jesus-PTV

'Of course, I've fallen in love with Jesus, too, or maybe I should say that I love Jesus' (11944464)

Like in the case of the construction [*ihastua* N-ILL], we encounter the noun *mielikuva* 'mental image' among the top collexemes of the construction [*rakastua* N-ILL]. Another very similar placeholder noun among the top collexemes is *haavekuva* 'illusion', which also belongs to the human domain, see (147) below. The only genuine mental entity with a strong association to the verb *rakastua* is the noun *rakkaus* 'love'; another similarity to the verb *ihastua* 'get infatuated', where we found the noun *ihastuminen* 'adoration' among the top collexemes.

(147) *ole-t* *rakastu-nut* *haavekuva-an,* *et* *oikea-an* *ihmise-en*
be-2SG fall.in.love-PTCP illusion-ILL NEG.2SG right-ILL human-ILL

'you are in love with an illusion, not with a real person' (48256148)

(148) *Näyttä-isi* *si-ltä,* *että* *ole-t* *enemmän* *rakastu-nut*
look-COND.3SG PN-ABL that be-2SG more fall.in.love

rakkaute-en *kuin* *miehe-en*
love-ILL than man-ILL

'It would look like you are more in love with love than with the man' (49394956)

Apart from *rakkaus* 'love', we can observe a clear repulsion of abstract nouns that is even stronger for the construction [*rakastua* N-ILL] than for the construction [*ihastua* N-ILL].

6.3.3 *mieltyä* 'become fond'

Compared to the verbs *ihastua* 'get infatuated' and *rakastua* 'fall in love', the verb *mieltyä* 'become fond' is quite marginal with only 18 153 hits in the Suomi24 corpus. Due to similarities in semantics and case marking, i.e. illative marking on stimulus nouns, it still makes sense to analyze the three verbs as one group. The corpus query `[lemma = "mieltyä"] [msd = ".*CASE_Ill.*" & pos = "N"]` leads to 1 750 results, but many of the sentences appearing in the concordance are repetitions that were removed in line with the methodology explained in 4.3. The collexeme of the verb *mieltyä* with the highest frequency is, in absolute terms, the noun *nöyryys* 'humility', with 322 hits:

(149) *Älköön* *tei-ltä* *riistä-kö* *voitto-palkinto-a-nne* *kukaan,*
NEG.IMP.3SG 2PL-ABL berave-CLT victory-price-PTV-2PL.POSS nobody

joka ***on*** ***mielty-nyt*** ***nöyryyte-en*** *ja* *enkeli-en*
who be.3SG become.fond-PTCP humility-ILL and angel-PL.GEN

palvele-mise-en
worship-NMLZ-ILL

'Do not let anyone **who delights in false humility** and the worship of angels disqualify you (Colossians 2:18; boldface M.M.)

Yet, the word is not considered in Table 43 below because it is always part of the exact same sentence, more precisely, a quote from the 1938 translation of the Bible, cf. (149). After removing all repetitions, there remain only 335 instances of the construction [*mieltyä* N-ILL], because there are many more, oft-quoted passages from the Bible that include the verb *mieltyä*. The strong prevalence of the verb in religious discourse is paralleled by its top collexemes, among which we find the third-order nouns *syntielämä* 'sinful life' and *synti* 'sin' (150).

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
syntielämä	sinful life	3	**3**	4.09	**7.05**	10.02	6.66
vääryys	injustice, wrong	41	**26**	5.08	**5.72**	6.35	47.34
valhe	lie	101	**48**	4.75	**5.16**	5.56	78.87
pahuus	evil	16	**7**	3.92	**4.88**	5.85	11.52
synti	sin	36	**14**	4.03	**4.70**	5.37	21.65
viini	wine	19	**6**	3.44	**4.39**	5.33	8.92
satu	tale	23	**3**	2.20	**3.34**	4.48	3.45
runo	poem	45	**6**	2.48	**3.31**	4.15	6.50
blondi	blonde	40	**5**	2.34	**3.25**	4.15	5.36
maisema	landscape	33	**4**	2.23	**3.23**	4.23	4.33

Table 43: Top collexemes of the construction [*mieltyä* N-ILL]

But, also the nouns *vääryys* 'injustice, wrong', *pahuus* 'evil', as well as the linguistic noun *valhe* 'lie' (151) mostly appear in the religious subsections of the Suomi24 corpus. What all these nouns have in common is a negative appraisal regarding appropriacy and/or truth.

(150) *Jumala* *ei* *pettä-nyt,* *vaan* *ihminen* *pett-i,*
God NEG betray-PTCP instead human betray-PST.3SG

mielty-i *synti-in*
become.fond-PST.3SG sin-ILL

'God did not betray, man betrayed, became fond of sin' (80523216)

(151) *Jumala* *lähettä-ä* *eksytykse-n* *nii-lle,* *jotka*
God send-3SG deception-ACC those-ALL who[PL]

mielty-vät *valhee-seen* *totuude-n* *sijasta*
become.fond-3PL lie-ILL truth-GEN instead

'God sends deception to those who become fond of the lie instead of the truth' (unspecified)[84]

The verb *mieltyä* thus seems to have a negative or maybe even ironic connotation, which is also supported by the example given for the noun *viini* 'wine' (152). In itself, a noun like *viini* 'wine' is not imbued with negativity, which

[84] http://keskustelu.suomi24.fi/t/13127835/onko-liberaalieksytys-jumalan-lahettama

means we strongly rely on context to determine whether the utterance has a negative connotation or not. This observation can also be extended to the noun *satu* 'tale', which may be interpreted in an unmarked way or as referring to a story that is not true, as in the example (153) below.

(152) *Usko-isi-n,* *että* *Mitro* *Repo* *on* *enemmän* *mielty-nyt*
believe-COND-1SG that Mitro Repo be.3SG more become.fond-PTCP

viini-in, *hyvä-än* *ruoka-an,* *kalli-i-siin* *auto-i-hin*
wine-ILL good-ILL food-ILL expensive-PL-ILL car-PL-ILL

ja *mu-i-hin* *elämä-n* *nautinto-i-hin*
and other-PL-ILL life-GEN pleasure-PL-ILL

'I'd believe that Mitro Repo[85] is more fond of wine, good food, expensive cars and other pleasures of life' (37712494)

(153) *Me* *elä-mme* *satumaailma-ssa,* *koska* *määrä-tty* *prosentti*
1PL live-1PL fairy.tale.world-INE because specify-PASS.PTCP percent

maailma-an *synty-ne-i-stä* *ihmis-i-stä* *on* *mielty-nyt*
world-ILL get.born-PTCP-PL-ELA human-PL-ELA be.3SG become.fond-PTCP

satu-i-hin *ja* *tarino-i-hin* *vielä* *aikuisiä-ssä-än-kin*
tale-PL-ILL and story-PL-ILL still adulthood-INE-3SG.POSS-CLT

'We live in a fairytale world, because a certain percentage of people born to this world are fond of tales and stories, even in their adulthood and we take the tales of the Bible to be true, for instance' (80490490)

This peculiar semantic prosody of the verb does not seem to be widespread outside of religious contexts. To speakers of Finnish that have a low attachment to religious topics, the verb *mieltyä* sounds rather antiquated, which is also reflected in other aspects of the following example (154), such as word order (*kovasti olen mieltynyt*, instead of *olen kovasti mieltynyt*):

(154) *kova-sti* *ole-n* *mielty-nyt* *runo-i-hi-si,* *vaikka*
hard-ADV be-1SG become.fond-PTCP poem-PL-ILL-2SG.POSS although

kovin *harvoin* *tulee-kin* *anne-ttu-a* *palaute-tta*
very seldomly come-CLT give-PASS.PTCP-PTV feedback-PTV

'I'm deeply fond of your poems, although I very seldomly give feedback' (37335585)

With collexemes like *blondi* 'blonde' and *maisema* 'landscape' it is not easy to determine the semantic nuances of the construction, but it seems that both ironic (155) and ornamental (156) aspects are prevalent here:

[85] An orthodox priest and (former) MEP.

(155) *Charlize,* *ihan* *nätti* *mutta* *en* *ole* *mielty-nyt*
Charlize quite pretty but NEG.1SG be become.fond-PTCP

blonde-i-hin *enkä* *julkkiks-i-in*
blond-PL-ILL and.not[1SG] celebrity-PL-ILL

'Charlize, quite pretty, but I'm neither fond of blonds nor celebrities' (15131312)

(156) *ole-n* *mielty-nyt* *maisemi-in/* *kivijala-n* *tuoksu-un*
be-1SG become.fond-PTCP landscape[PL]-ILL stone.foundation-GEN smell-ILL

'I'm fond of the landscapes/ the smell of the stone foundation' (unspecified)[86]

Due to the low number of examples it is even more difficult to formulate clear statements on the semantics of this rather unfrequent construction. Generally, the verb *mieltyä* seems to diverge from the verbs *rakastua* 'fall in love' and *ihastua* 'get infatuated', as it displays a semantic preference for abstract nouns.

6.4 Sadness

Whereas joy and love are related to desirable events, sadness is elicited by undesirable events. In Finnish, sadness is prototypically expressed by the noun *suru* 'sorrow' and the related verb *surra* 'mourn, grieve'. Among the inchoative emotion verbs, they do not have any cognate. Instead, a change of state can be expressed with perifrastic predicates of the type *tulla surulliseksi* 'become sad' or *tulla murheelliseksi* 'become sorrowful' (< *murhe* 'sorrow', cf. *murehtia* 'worry'). Following Shaver et al. (2001: 34-35) we can treat the subordinate emotions disappointment and depression within this category, as instantiated by the verbs *pettyä* 'get disappointed' and *masentua* 'get depressed'.

6.4.1 *pettyä* 'get disappointed'

Following the dictionary of standard Finnish, the verb *pettyä* is used for situations, where someone realizes that certain hopes or expectations are not fulfilled and where a positive assessment of something turns out to be wrong. This is also reflected by the NSM explication of the prototypical cognitive scenario given for the noun *pettymys* 'disappointment' (adapted from Tuovila 2005: 94):

pettymys
X feels something
sometimes a person thinks something like this:
I wanted that something good happens

[86] http://keskustelu.suomi24.fi/t/7046667/maailman-asema

I felt good, when I thought about this
I know now: this will not happen
because of this, this person feels very bad for some time
X feels something like this

In semantic terms, the verb *pettyä* is thus similar to *yllättyä* 'be surprised', but it comes with a different kind of stimulus marking, namely illative (for a possible explanation, see 5.1.3). The relation between the two verbs is also reflected in their collexemes. The top collexemes of the construction [*pettyä* N-ILL] are centered on two major domains: politics and economy. In total, the verb appears 81 056 times in the Suomi24 corpus and we get 2 534 instances of the construction [*pettyä* N-ILL].

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
ostos	purchase (item bought)	45	**37**	3.79	**4.54**	5.28	41.49
vaalitulos	election result	31	**21**	3.02	**3.76**	4.50	20.71
valinta	choice	42	**26**	2.90	**3.52**	4.14	23.97
Kokoomus	Coalition (party)	41	**25**	2.86	**3.48**	4.10	22.83
odotus	expectation	33	**20**	2.77	**3.46**	4.15	18.31
Halonen	[Tarja] Halonen	42	**25**	2.81	**3.42**	4.03	22.46
persu	True Finn (nickname)	75	**44**	2.94	**3.40**	3.86	38.64
lopputulos	final result	118	**67**	2.97	**3.33**	3.70	57.19
palvelu	service	81	**45**	2.84	**3.27**	3.71	38.03
laatu	quality	57	**31**	2.70	**3.22**	3.74	26.02

Table 44: Top collexemes of the construction [*pettyä* N-ILL]

On top of the list, we find the noun *ostos* 'purchase (item bought)', which evokes the *Commercial transaction frame*. It is derived from the verb *ostaa* 'buy' and can refer to the act of buying as well as to the item bought. Judging from the construction's general semantic preference of first-order nouns, the latter reading is probably more prevalent here (cf. 157). This assumption is further supported by the noun *laatu* 'quality' (158), which is also among the top ten collexemes of *pettyä*. In commerce, the term refers to the degree to which a product fulfills the needs or expectations of a customer. Thus, we are dealing with a highly subjective concept.

(157) *En* *ole* *elä-i-ssä-ni* (sic) *niin* *petty-nyt*
NEG.1SG be live-INF-INE-1SG.POSS so get.disappointed-PTCP

ostokse-en *kuin* *tä-hän* *6600* *muovilelu-un*
purchase-ILL as this-ILL 6600 plastic.toy-ILL

'I have never been as disappointed in a purchase as in this 6600 plastic toy' (4357812)

(158) *ystävä-ni* *ol-i* *osta-nut* *iso-lta* *multatoimittaja-lta*
friend-1SG.POSS be-PST.3SG buy-PTCP big-ABL soil.delivery-ABL

multa-a *ja* *petty-i* *laatu-un,* *hinta-an* *ja*
soil-PTV and get.disappointed-PST.3SG quality-ILL price-ILL and

toimitusjäykkyyte-en
delivery.stiffness-ILL

'my friend had bought soil from a big soil delivery and was disappointed with the quality, the price and the stiffness of delivery' (unspecified)[87]

The classification of the noun *palvelu* 'service' is more complicated. It refers to various acts of serving people, such as serving food by waiters and waitresses and providing assistance by companies, but in a wider sense, service is also conceived of as a non-material equivalent of goods in commerce. In combination with the verb *pettyä*, speakers mostly refer to customer service:

(159) *Matkapörssi-n* *pitkäaika-ise-na* *kantaasiakkaa-na* *ole-n*
Matkapörssi-GEN long.time-ADJ-ESS stem.customer-ESS be-1SG

petty-nyt *palvelu-un* *enkä* *ensi* *kerta-a*
get.disappointed-PTCP service-ILL and.not[1SG] first time-PTV

'As a long-time regular customer of Matkapörssi,[88] I am disappointed with the service and not for the first time' (59518661)

Coming to the top collexemes from the political domain, we encounter three proper nouns referring to human beings. Most notably, *Halonen* (160) refers to the former president of Finland, Tarja Halonen, who served from 2000 until 2012. Even the proper noun *Soini*, referring to Timo Soini, former leader of the Finns Party and former foreign minister of Finland, is significantly attracted by the verb *pettyä* (log OR: 2.59; -$\log_{10}$ FYE: 14.64). The members of his (former) party *Perussuomalaiset* are also among the top ten collexemes of the construction [*pettyä* N-ILL], but as the colloquial abbreviation *persu* 'True Finn (nickname)', which is always used in plural in the sample. In contrast, the collective proper noun *Kokoomus* takes the National Coalition Party as a whole.

[87] http://keskustelu.suomi24.fi/t/8223887/suosittelen-hyvaa-multatoimittajaa

[88] *Matkapörssi* is the name of a Finnish travel agency.

(160) *On* *mon-i-a,* *jotka* *ovat* *petty-nee-t*
be.3SG many-PL-PTV who[PL] be.3PL get.disappointed-PTCP-PL

Halose-en, *ja* *ajattele-vat,* *että* *on* *aika* *vaihta-a*
Halonen-PTV and think-3PL that be.3SG time change-INF

presidentti-ä
president-PTV

'There are many, who are disappointed in [Tarja] Halonen and think it's time to change the president' (12675195)

(161) *pety-i-n* *persu-i-hin,* *tuntu-u* *ole-va-n*
get.disappointed-PST-1SG True.Finn-PL-ILL seem-3SG be-PTCP-GEN

valittaj-i-a *kaikki*
complainer-PL-PTV all

'I myself became disappointed with the "True Finns"; they all seem to be complainers' (59020306)

(162) *Ole-n* *syvä-sti* *petty-nyt* *kokoomukse-en,* *joka*
be-1SG deep-ADV get.disappointed-PTCP coalition-ILL which

on *todellinen* *nahjuspuolue*
be.3SG real wimp.party

'I am deeply disappointed with the National Coalition Party, which is a real good-for-nothing party' (22913511)

The construction [*pettyä* N-ILL] appears with human and non-human stimulus referents alike. A highly attracted third-order noun from the domain of politics is *vaalitulos* 'election result', which is clearly related to (wrong) expectations. This also holds for the more general noun *lopputulos* 'final result', as in (163). Both nouns are also significantly attracted to the verb *yllättyä* 'be surprised' (see 6.1.1). Particularly interesting is the fact that the noun *odotus* 'expectation' (164) itself is also among the top collexemes.

(163) *Ol-i-n* *aika* *petty-nyt* *lopputulokse-en,* *koska*
be-PST-1SG pretty get.disappointed-PTCP final.result-ILL because

odot-i-n *jotain* *todella* *konkreettis-ta*
wait-PST-1SG something[PTV] really concrete-PTV

'I was pretty disappointed in the final outcome, because I expected something really concrete' (51463455)

(164) *Usko-n* *suure-sti,* *että* *tule-t* *petty-mä-än*
believe-1SG big-ADV that come-2SG get.disappointed-INF-ILL

odotuksi-i-si *lapse-sta-si,* *koska* *ne* *ei-vät* *ole*
expectation[PL]-ILL-2SG.POSS child-ELA-2SG.POSS because PN.PL NEG-3PL be

realistis-i-a
realistic-PL-PTV
'I strongly believe you will be disappointed with your expectations about your child, because they are not realistic' (49870121)

The noun *valinta* 'choice' is another peculiar case, because it fits better with the notion of regret, which is not part of the present analysis. In contrast to disappointment, which primarily focuses on a poor outcome of an event, regret relates to the individual choices that led up to a poor outcome:

(165) *Tunnust-i-vat* *reilu-sti* *itse,* *että* *ovat* *erittäin*
acknowledge-PST-3PL fair-ADV self that be.3PL extremely

petty-ne-i-tä *valinta-an*
get.disappointed-PTCP-PL-PTV choice-ILL
'They openly admitted themselves that they are extremely disappointed with the choice' (11032050)

6.4.2 *masentua* 'get depressed'

In everyday language, depression refers to a strong feeling of sadness, but in a strict sense, depression refers to a mental disorder. This is also reflected by the fact that 38.5% (i.e. 29 380 tokens) of all 76 393 instances of the verb *masentua* 'get depressed' within the Suomi24 corpus belong to the health section. 395 sentences were analyzed as instances of the construction [*masentua* N-ELA]. As already mentioned in 4.3.2, explicit reference to stimuli is not very common for the verb. It is also noteworthy that the verb often appears in a negated form, cf. (166) and (167) below. The NSM explication of the Finnish emotion term *masennus* reads as follows (adapted from Tuovila 2005: 106):

masennus
X feels something
  sometimes a person thinks something like this:
    something bad happened to me
    I can't do anything
    nothing good can happen to me
  because of this, this person feels bad for a long time
X feels something like this

In line with the explication, the list of collexemes is dominated by non-agentive nouns referring to aversive events and (personal) calamities, e.g. *takaisku* 'setback', *repsahdus* 'collapse', *vastoinkäyminen* 'adversity, misfortune', and *epäonnistuminen* 'failure'.

In the corpus sample used for the present study, the nouns *takaisku* 'setback' and *repsahdus* 'collapse' appear exclusively in the nominal slot of the construction [*masentua* N-ELA]. Furthermore, they mostly appear in negated and imperative expressions, as in (166), where an internet user gives advice on diet setbacks. The attraction to negation is also given for the deverbal nouns *vastoinkäyminen* 'adversity, misfortune', and *epäonnistuminen* 'failure' (167). This observation supports the hypothesis formulated in Chapter 5 that stimuli of the verb *masentua* are only explicitly mentioned, when they need to be emphasized.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
takaisku	setback	5	**5**	4.43	**7.33**	10.23	10.71
repsahdus	collapse	4	**4**	4.20	**7.13**	10.05	8.57
vastoinkäyminen	adversity, misfortune	11	**7**	4.27	**5.45**	6.62	12.50
tappio	defeat	12	**7**	4.14	**5.25**	6.35	12.12
abortti	abortion	20	**10**	4.08	**4.94**	5.81	16.21
epäonnistuminen	failure	12	**6**	3.84	**4.93**	6.03	9.91
avioero	divorce	7	**3**	3.27	**4.68**	6.08	4.89
pimeys	darkness	12	**5**	3.52	**4.62**	5.73	7.83
työttömyys	unemployment	33	**13**	3.84	**4.53**	5.23	19.20
ero	difference; breakup	76	**22**	3.59	**4.09**	4.59	28.63

Table 45: Top collexemes of the construction [*masentua* N-ELA]

(166) *Älä* *masennu* *takaisku-i-sta*
NEG.IMP get.depressed setback-PL-ELA
'Don't get depressed about setbacks' (37661105)

(167) *Enää* *en* *niin* *paha-sti* *masennu* *epäonnistumis-i-sta,*
anymore NEG.1SG so bad-ADV get.depressed failure-PL-ELA
kuin *joskus* *aiko-i-na-an*
like sometime time-PL-ESS-3SG.POSS
'I don't become so extremely depressed about failures anymore, unlike back in the past' (53048208)

Apart from negative events themselves, such as *abortti* 'abortion' in (168), nouns referring to undesirable outcomes, i.e. third-order nouns, are the second most common group of words among the top collexemes of the construction [*masentua* N-ELA]. We also find the nouns *ero* 'breakup/divorce'[89] and *avioero* 'divorce' (169) among the top collexemes of the construction. Accordingly, the relationship section immediately follows the section health in the absolute distribution of the verb *masentua*. This is in line with the observation by Wallbott and Scherer (1986: 79-80) that sadness is predominantly elicited by problems with relationships. Of course, the verb *masentua* also appears in other contexts. The noun *tappio* 'defeat' is the negative counterpart of the resultative noun *voitto* 'victory' (see 6.1.1) and mostly appears in the context of sports (170):

(168) *ne-kin* *jotka* *ei-vät* *edes* *ole* *halun-nee-t* *lasta,*
PN.PL-CLT who[PL] NEG-3PL even be want-PTCP-PL child[PTV]

kuitenkin *masentu-vat* *aborti-sta*
nevertheless get.depressed-3PL abortion-ELA

'even those who didn't actually want a child, are depressed by an abortion' (48138796)

(169) *Entise-n* *työpaika-n* *yksi* *työkaveri* *masentu-i*
former-GEN work.place-GEN one co-worker get.depressed-PST.3SG

avioero-sta-an *niin* *vahva-sti,* *että* *lamaantu-i*
divorce-ELA-3SG.POSS so strong-ADV that get.paralyzed-PST.3SG

aivan *totaalisesti*
completely totally

'One colleague from where I used to work got so depressed by her/his divorce that s/he became completely paralyzed' (38822181)

(170) *Kannatta-a* *kokei-lla* *kilpaile-mis-ta.* *Se* *on* *mahtava*
be.worth-3SG try-INF compete-NMLZ-PTV PN be.3SG great

fiilis! *Eikä* *pidä* *masentu-a* *tappio-i-sta*
feeling and.not should get.depressed-INF defeat-PL-ELA

'It is worth trying competition. It gives you a great feeling! And there is no need to become depressed by defeats' (39976006)

Finally, we also find stative nouns among the top collexemes of the verb *masentua*. Like the majority of the aforementioned collexemes, *työttömyys* 'unemployment' is associated with personal hardship (171). In contrast, *pimeys* 'darkness' refers to an external state or condition, cf. the discussion of the ontological status of *hiljaisuus* 'silence' in 6.5.2:

[89] In these cases, we do not find the noun *ero* in its primary meaning 'difference'.

(171) *Kuulosta-a,* *että* *miehe-si* *on* *masentu-nut*
sound-3SG that husband-2SG.POSS be.3SG get.depressed-PTCP

työttömyyde-stä
unemployment-ELA

'It sounds (like) your husband is depressed by his unemployment' (5205171)

(172) *en* *vaan* *pysty* *tunte-ma-an* *empatia-a* *ketään*
NEG.1SG just be.able feel-INF-ILL empathy-PTV nobody[PTV]

kohtaan *joka* *oikea-sti* *masentu-u* *pimeyde-stä*
towards who right-ADV get.depressed-3SG darkness-ELA

'I am just not able to feel empathy for anybody who really becomes depressed due to darkness' (41331171)

6.5 Fear

In contrast to sadness, fear is not only elicited by events that already happened, but also by imagined threats (Shaver et al. 2001: 44). Typically, fear is expressed in Finnish by the stative verb *pelätä* 'fear, be afraid', which was described in detail by Siiroinen (2001). Its equivalent among the inchoative emotion verbs is *peläst*yä 'get frightened, scared', but in this section, we will also analyze related terms such as *säikähtää* 'get scared', *huolestua* 'get worried', *ahdistua* 'get anxious', and *järkyttyä* 'be shocked'. According to Shaver et al. (2001: 34-35), concepts like worry, anxiety, and shock are specialized forms of fear.

6.5.1 *huolestua* 'get worried'

Worry is an emotional thought process characterized by concern and disquiet, which can be taken as an aspect of perseverative cognition, i.e. "the repeated or chronic activation of the cognitive representation of one or more psychological stressors" (Brosschot/Gerin/Thayer 2006: 113). Stressful events can be salient after, during, or before their (potential) occurrence. Worry does not predetermine that the projected event actually takes place. In fact, the situation may even turn out to be positive in the end, as Tuovila (2005: 96) notes. The adaption of her explication of the corresponding Finnish emotion term *huoli* reads as follows (ibid.):

huoli
X feels something
sometimes a person thinks something like this:
something bad can happen
I don't want this to happen

I don't know what happens
It's possible that this doesn't happen
because of this, this person feels bad
X feels something like this

Stimulus nouns of the verb are typically marked by the elative. In total, the verb *huolestua* appears 67 712 times, of which 1 320 instances were analyzed as part of the construction [*huolestua* N-ELA]. Second-order nouns are the strongest collexemes of the construction, more precisely nouns referring to states or changes of a state. The observation is further supported by the fact that the general nouns *tila* 'state' and *kehitys* 'development' are among the top collexemes. All 34 relevant instances of the former are marked with a possessive suffix, thus referring to an internal state of the speaker, the hearer, or a third person.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
mielenterveys	mental health	36	**34**	5.08	**6.36**	7.65	52.57
toimeentulo	livelihood	10	**8**	3.53	**4.94**	6.35	11.36
tila	state	50	**34**	3.89	**4.48**	5.06	42.82
turvallisuus	safety	35	**23**	3.67	**4.36**	5.05	28.60
kehitys	development	22	**14**	3.41	**4.26**	5.10	17.32
tietoturva	data security	19	**12**	3.32	**4.23**	5.14	14.86
terveydentila	state of health	14	**8**	2.96	**3.99**	5.01	9.57
tulevaisuus	future	90	**41**	3.15	**3.57**	3.98	41.42
asema	position	16	**7**	2.52	**3.48**	4.44	7.39
ilmastonmuutos	climate change	37	**16**	2.82	**3.46**	4.10	16.10

Table 46: Top collexemes of the construction [*huolestua* N-ELA]

Internal states are often centered on mental or physical conditions (173) and therefore it is not surprising to find the noun *mielenterveys* 'mental health' (174) at the top of the collexeme list. Also the nouns *terveydentila* 'state of health' (cf. Table 46) and *terveys*[90] 'health' (log OR: 3.11; $-\log_{10}$ FYE: 47.23) are significantly attracted by the construction [*huolestua* N-ELA]:

[90] In a medical sense, the term *health* refers to a complex system of bodily conditions, but in everyday language, *health* is often used synonymous to the state of being healthy, i.e. a normal functioning of the (human) body and the absence of diseases (see KTS: s.v. *terveys*).

(173) *Vaimo-ni* *huolestu-i* *tila-sta-ni* *ja* *varas-i*
wife-1SG.POSS get.worried-PST.3SG state-ELA-1SG.POSS and reserve-PST.3SG

minu-lle *aja-n* *työterveyslääkäri-lle*
1SG-ALL time-ACC work.health.physician-ALL

'My wife got worried about my state (of health) and made an appointment for me with the work health physician' (48522141)

(174) *Luule-n* *että* *ole-t* *vain* *huolestu-nut* *mielenterveyde-stä-si*
think-1SG that be-2SG just get.worried-PTCP mental.health-ELA-2SG.POSS

koska *läheise-llä* *sukulaise-lla-si* *on* *skitsofrenia*
because close-ADE relative-ADE-2SG.POSS be.3SG schizophrenia

'I think you are just worried about your mental health, because one of your close relatives has schizophrenia' (55415653)

An external state noun with a strong association to the verb *huolestua* is *turvallisuus* 'safety', which refers to the condition of being safe from harm, as in (175). This also applies to the more specialized noun *tietoturva* 'data security' (176):

(175) *Mopo-i-lla* *kaaha-taan* *laitakaupungi-lla* *niin* *että*
moped-PL-ADE drive.recklessly-PASS edge.town-ADE so that

poliisi *on* *huolestu-nut* *turvallisuude-sta*
police be.3SG get.worried-PTCP safety-ELA

'There is such reckless driving on mopeds in the outskirts that the police are worried about safety' (unspecified)[91]

(176) *Jos* *on* *noin* *huolestu-nut* *tietoturva-sta-an,*
if be.3SG so get.worried-PTCP data.security-ELA-3SG.POSS

kannatta-a *käyttä-ä* *mu-i-ta* *käyttöjärjestelm-i-ä*
be.worth-3SG use-INF other-PL-PTV operating.system-PL-PTV

'If s/he is so worried about her/his data security, s/he ought to use different operating systems' (11710153)

The status of the noun *toimeentulo* 'livelihood' is more complicated. Being derived from the verb *tulla* 'come', the second part of the compound (*-tulo*) misleadingly suggests a dynamic reading. Primarily, it refers to the condition of getting along, mostly in an economic sense (< *tulla toimeen* 'get along'). It also refers to the actual means of getting along economically, i.e. income. From the sample sentences given in the corpus, one cannot determine whether internet users refer to the former or to the latter aspect:

(177) *Ihmise-t* *ovat* *tosi-ssa-an* *huolestu-ne-i-ta*
human-PL be.3SG true-INE-3PL get.worried-PTCP-PL-PTV

[91] http://keskustelu.suomi24.fi/t/9944519/mopokaahus

toimeentulo-sta-an
livelihood-ELA-3PL.POSS

'People are truely worried about their livelihood' (79506275)

Dynamic situations are prototypically expressed by the general noun *kehitys* 'development', which is also among the top collexemes of the construction [*huolestua* N-ELA]. A more specific term referring to a dynamic situation is the noun *ilmastonmuutos* 'climate change'. Unlike the aforementioned collexemes, the noun *ilmastonmuutos* 'climate change' refers to a potential source of problems that may eventually lead to harm:

(178) *Ol-i-n* *3-4* *vuot-ta* *sitten* *hyvin* *huolestu-nut*
be-PST-1SG 3-4 year-PTV ago pretty get.worried-PTCP

ilmastonmuutokse-sta *ja* *kannat-i-n* *myös*
climate.change-ELA and support-PST-1SG also

CO_2:n *päästö-j-en* *rajoitta-mis-ta*
CO_2:GEN emission-PL-GEN limit-NMLZ-PTV

'3-4 years ago, I was pretty worried about climate change, and I also supported the limitation of CO_2 emissions' (38745304)

Other collexemes, such as *työttömyys* 'unemployment' and *juominen* 'drinking', support the observation that the construction [*huolestua* N-ELA] often co-occurs with stimuli that have a negative connotation. Nevertheless, there is a major semantic difference between a stimulus noun like *ilmastonmuutos* 'climate change' and the nouns *toimeentulo* 'livelihood', *turvallisuus* 'safety', *terveys* 'health', etc. Example (178) suggests that a potentially harmful process like climate change is a cause for worry (i.e. stimulus), whereas income (177) appears to be the subject matter of worry (i.e. topic). Thus, the construction [*huolestua* N-ELA] offers another example of the causal-representative relation (Leino 1993: 228-235), which was already attested for the construction [*kiinnostua* N-ELA], see 6.2.3 and 5.1.2. Furthermore, it is worth noting that the nominal slot of the construction [*huolestua* N-ELA] can also be filled with first-order nouns, such as *tytär* 'daughter' (log OR: 2.04; $-\log_{10}$ FYE: 4.46) and *lapsi* 'child' (log OR: 0.58; $-\log_{10}$ FYE: 3.60), but they do not reach the same level of attraction as second-order nouns. When both stimulus and topic are explicitly mentioned in the same utterance, speakers often use causal postpositions like *vuoksi* 'because of' (cf. 4.3.1) to stress the difference:[92]

[92] Similar to English, the Finnish language does not provide a systematic way to differentiate between topic- and stimulus-like arguments of the verb *huolestua*, cf. *to worry **about** security* and *to worry **about** climate change*, respectively. In contrast to that, German reflects the difference between topic and stimulus in the selection of prepositions: *um* 'about; around' is reserved for the former, über 'above; about' for the latter, cf. *sich um die Sicherheit sorgen* vs. *sich über den Klimawandel sorgen*.

(179) *On-ko* *sinu-sta* *epänormaali-a* *tai* *asiaton-ta* *että*
be-Q 2SG-ELA unnormal-PTV or inappropriate-PTV that

joku *on* *huolestu-nut* *lapsi-sta-si* *ilmeise-n*
somebody be.3SG get.worried-PTCP child[PL]-ELA-2SG.POSS obvious-GEN

vaikeuks-i-e-si *vuoksi?*
difficulty-PL-GEN-2SG.POSS because

'Do you find it abnormal or inappropriate that somebody is worried about your children because of your obvious difficulties?' (68041438)

Besides eventive nouns, also circumstantial nouns like *tulevaisuus* 'future' and *asema* 'position' are among the top collexemes. Of course, the noun *tulevaisuus* 'future' is inherently connected to the noun *kehitys* 'development' and related terms. Note that the nouns *tulevaisuus* 'future' and *asema* 'position' are both marked by a possessive suffix in the following examples:

(180) *Kuinka* *olla-kaan,* *siinä* *saamelainen* *poromies* *ol-i*
how be.INF-CLT PN.INE Saami[ADJ] reindeer.man be-PST.3SG

huolestu-nut *tulevaisuude-sta-an,* *sillä* *lämpene-vä-t*
get.worried-PTCP future-ELA-3SG.POSS because warm.up-PTCP-PL

sää-t *ilmeisesti* *tuhoa-vat* *poro-j-en* *laidunalue-i-ta*
weather-PL apparently destroy-3PL reindeer-PL-GEN grazing.ground-PL-PTV

'Be that as it may, the Saami reindeer herder was worried about his future, because the warming weather will apparently destroy the reindeer grazing lands' (unspecified)[93]

(181) *USA* *on* *selkeä-sti* *huolestu-nut* *asema-sta-an*
USA be.3SG clear-ADV get.worried-PTCP position-ELA-3SG.POSS

yksinapaise-n *maailma-n* *johta-va-na* *sotilasmahti-na*
unipolar-GEN world-GEN lead-PTCP-ESS military.power-ESS

'The USA is clearly worried about its position as the leading military power of a unipolar world' (unspecified)[94]

The possessive marking of both nouns suggest that they evoke similar aspects as the nouns *tila* 'state' and *tilanne* 'situation' (log OR: 2.51; $-\log_{10}$ FYE: 125.90). Neither *tulevaisuus* 'future' nor *asema* 'position' are used to only refer to a temporal or local situation, respectively.

[93] http://keskustelu.suomi24.fi/t/8514372/kuka-kertoisi

[94] http://keskustelu.suomi24.fi/t/633082/usa-panikoi

6.5.2 *ahdistua* 'get anxious'

The verb *ahdistua* 'get anxious' appears 32 039 times in the corpus, of which 700 instances were analyzed as part of the construction [*ahdistua* N-ELA]. Similar to worry, anxiety refers to a state of concern and disquiet, which is provoked by unpleasant events. From a psychological point of view the major difference between the two states is that the former rests more on cognition than on emotion. The similarity is also reflected in the NSM paraphrases of the terms *huoli* 'worry' (see 6.5.1) and *ahdistus* 'anxiety' (adapted from Tuovila 2005: 98):

ahdistus
X feels something
    sometimes a person thinks something like this:
        bad things can happen
        I don't want this
        I cannot stop thinking about what happens
        I cannot do anything about this
    because of this, this person feels bad for a long time
X feels something like this

Table 47 furthermore suggests that anxiety is a reaction to more immanent, less abstract stimuli.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
läheisyys	closeness	22	**9**	3.19	**4.02**	4.85	11.47
yksinolo	solitude	40	**11**	2.74	**3.43**	4.12	11.69
läsnäolo	presence	12	**3**	2.13	**3.36**	4.59	3.39
hiljaisuus	silence	24	**6**	2.42	**3.32**	4.22	6.35
syöminen	eating	32	**6**	2.10	**2.96**	3.82	5.56
tilanne	situation	987	**152**	2.69	**2.89**	3.08	117.10
yksinäisyys	loneliness	80	**13**	2.18	**2.77**	3.35	10.56
ero	difference; breakup	76	**11**	2.00	**2.63**	3.26	8.48
joulu	Christmas	36	**5**	1.71	**2.62**	3.53	4.06
uni	sleep; dream	37	**5**	1.68	**2.59**	3.49	4.00

Table 47: Top collexemes of the construction [*ahdistua* N-ELA]

On top of the list, we find two seemingly contradictory nouns, which both refer to states. *Läheisyys* 'closeness' is the noun with the strongest attraction to the construction [*ahdistua* N-ELA]. This is not surprising, considering that the verb *ahdistua* is etymologically related to the adjective *ahdas* 'narrow'. Whereas *läheisyys* is in all 9 examples provided by the corpus synonymous to emotional intimacy (182), the related term *läsnäolo* 'presence' simply refers to the physical presence of somebody or something. Interestingly, the experiencer in (183) is not a human being, but a dog.

(182) *Ole-n* *minä-kin* *ol-lut* *ahdistu-nut* *läheisyyde-stä*
be-1SG 1SG-CLT be-PTCP get.anxious-PTCP closness-ELA

ja *rakkaude-sta*
and love-ELA

'You know, closeness and love have made me anxious, too' (4896348)

(183) *kun* *on* *näet* *todella* *stressaantu-nut* *ja* *ahdistu-nut*
as be.3SG ADV really get.stressed-PTCP and get.anxious-PTCP

läsnäolo-sta-ni, *jos* *liian* *lähe-lle* *ruoka-a* *laitta-essa*
presence-ELA-1SG.POSS if too close-ALL food-PTV prepare-CVB

käte-ni *pistä-n*
hand[ACC]-1SG.POSS put-1SG

'when it is really stressed and anxious about my presence, if I put my hand to close while preparing food' (34426162)

A similar opposition between an emotionally marked word and a neutral word can also be noted for the pair *yksinäisyys* 'loneliness' and *yksinolo* 'solitude'. The morphological structure of the nouns suggests that the former refers to the emotion of loneliness (third-order), whereas the latter refers to the state of being alone (second-order). The noun *olo* is derived from the verb *olla* 'be', but the noun can also be translated as 'feeling' in some cases. Likewise, the noun *yksinäisyys* 'loneliness' can be interpreted as a state in certain contexts. A further discussion of this matter is certainly in need of a profound understanding of abstract nouns, which is still due to research.

(184) *On* *paljon* *yksinäis-i-ä* *ihmis-i-ä* *jotka* *ahdistu-vat*
be.3SG many lonely-PL-PTV human-PL-PTV who[PL] get.anxious-3PL

yksinäisyyde-stä *juuri* *joulu-na*
loneliness-ELA right Christmas-ESS

'There are many lonely people who become anxious about loneliness right at Christmas' (21679221)

(185) *Yleensä* *ole-n* *ihmis-ten* *seura-ssa* *hyvin* *jännitty-nyt*
generally be-1SG human-GEN.PL company-INE pretty get.tensed-PTCP

ja *ahdistu-n* *hiljaisuude-sta*
and get.anxious-1SG silence-ELA

'Generally, I am pretty uptight in the company of people and become anxious about silence' (unspecified)[95]

A similar problem arises for the noun *hiljaisuus* 'silence'. Example (185) evokes the scene of a dialogue that is interrupted by awkward silence and intuitively it is understandable that such a situation leads to an unpleasant feeling. But, does the noun *hiljaisuus* 'silence' refer to a state or to a sensation? And, if we opt for the latter: are we dealing with a concept of first or second order? Judging from the strong presence of state nouns among the top collexemes of the construction [*ahdistua* N-ELA], it can be assumed that we are dealing with a second-order entity. This is also manifested by the general noun *tilanne* 'situation', which can be taken to be a proxy for the aforementioned collexemes.

(186) *Avomies* *ol-i* *kerto-ma-n-sa* *mukaan* *järkytty-nyt* *ja*
husband be-PST.3SG tell-PTCP-GEN-3SG.POSS according get.shocked-PTCP and

ahdistu-nut *tilantee-sta* *ja* *ol-i* *paen-nut*
get.anxious-PTCP situation-ELA and be-PST.3SG flee-PTCP

nopea-sti *paika-lta*
quick-ADV place-ABL

'According to the husband, he had been shocked and anxious about the situation, and he had fled the place quickly' (unspecified)[96]

The fact that second-order nouns are the prime collexemes of the construction [*ahdistua* N-ELA] is also reflected by the non-stative nouns *syöminen* 'eating' (187) and *ero* 'breakup' (188).

(187) *Ei-hän* *se* *kuulemma* *tosiaan-kaan* *ole* *normaali-a*
NEG.3SG-CLT PN said.to.be indeed-CLT be normal-PTV

mietti-ä *ja* *ahdistu-a* *syö-mise-stä*
ponder-INF and get.anxious-INF eat-NMLZ-ELA

'You know, I hear it is not normal at all to ponder and get anxious about eating' (64330520)

(188) *Ilmeise-sti* *lapse-t* *ovat* *ahdistu-ne-i-ta* *ero-sta*
obvious-ADV child-PL be.3PL get.anxious-PTCP-PL-PTV breakup-ELA

'Obviously, the children are anxious about the breakup' (42689233)

Note that *ero* 'breakup; divorce' can refer to the actual events of separating or dissolving a relationship, as well as to the final result of the event, which means that the noun *ero* 'breakup' lies between second-order and third-order. The

[95] http://keskustelu.suomi24.fi/t/10704377/rakastunut

[96] http://keskustelu.suomi24.fi/t/10997243/avomies-ja-pikkusiskoni-(apua!)

same applies to the noun *uni* 'sleep; dream', which can refer to the act of sleeping/dreaming, but also to the (mental) content of the dream, as in (189):

(189) *Heräs-i-n* *tuskastu-nee-na* *ja* *aivan* *hie-ssä* *ja*
wake.up-PST-1SG grow.weary-PTCP-ESS and pretty sweat-INE and

ahdistu-i-n *une-sta* *todella* *paljon*
get.anxious-PST-1SG sleep-ELA really a.lot

'I woke up distraught and drenched in sweat and became really anxious about my dream' (unspecified)[97]

Finally, we can observe a similar ambiguity with regard to the noun *joulu* 'Christmas':

(190) *Itse-kkin* *ahdistu-n* *joulu-sta* *suunnattoma-sti* *ja* *tä-llä*
self-CLT get.anxious-1SG Christmas-ELA enormous-ADV and this-ADE

kerta-a *aio-n* *teh-dä* *niinkuin* (sic) *oma* *sydän* *sano-o,*
time-PTV plan-1SG make-INF as.if own heart says-3SG

eikä *niin* *että* *väkisin* *juhl-isi-n* *si-tä*
and.not so that by.force celebrate-COND-1SG PN-PTV

'I myself get enormously anxious about Christmas and this time I plan to act as my heart tells me, and not celebrate it at all costs' (74154984)

The noun *joulu* can either refer to the event of celebrating Christmas or also to the date, which is a circumstantial notion.

6.5.3 *pelästyä* 'get frightened'

The verb *pelästyä* 'get frightened' is the inchoative counterpart of *pelätä*[98] 'fear' and refers to a strong and immediate emotional reaction (i.e. change of state) in the face of a potentially harmful stimulus. According to the NSM explication adapted from Tuovila (2005: 96), the major difference between *ahdistus* 'anxiety' and *pelko* 'fear' is that the former is less intense and comprises a component of uncertainty (see 6.5.1), whereas the latter comprises a component of helplessness:

pelko
X feels something
sometimes a person thinks something like this:
something bad can happen
I don't want that this happens
I don't know what happens
I don't know if I can do anything about this

[97] http://keskustelu.suomi24.fi/t/5403340/ahdistavaaa!!!

[98] One of the most frequent emotion verbs, extensively described by Siiroinen (2001).

because of this, this person feels bad for some time
X feels something like this

As we will see, the verb *pelästyä* partly diverges from this prototypical cognitive scenario in the sense that it primarily refers to situations, where a concrete, observable stimulus provokes fear. Within the Suomi24 corpus, the verb *pelästyä* appears 21 794 times. Unlike the aforementioned verbs, *pelästyä* first and foremost appears with partitive marking on stimulus nouns, which may be due to the perceived semantic similarity to the verb *pelätä* '(to) fear', see 5.1.1. The corpus query and a following control of the results yield 423 instances of the construction [*pelästyä* N-PTV]. As observed in 5.1, the verb *pelästyä* also appears with elative marking on stimulus nouns. At first I will focus on the construction [*pelästyä* N-PTV] and then get back to the construction [*pelästyä* N-ELA]. The collexeme with the highest attraction to the construction [*pelästyä* N-PTV] might come a bit surprising. The attributive noun *innokkuus* 'avidness' is derived from the adjective *innokas* 'avid, eager' and not very frequent in the present corpus.

In 4 out of 5 total instances, *innokkuus* 'avidness' appears in the stimulus slot of the construction [*pelästyä* N-PTV], which explains the high log odds ratio. Besides that, *innokkuus* 'avidness' only appears together with the near-synonymous construction [*säikähtää* N-PTV] 'get scared' (see 6.5.4). All 5 instances of the noun are connected with the topic of dating and metonymically refer to a certain behavior, as in (191). A look at the extended list of collexemes reveals that there are not enough instances of the construction [*pelästyä* N-PTV], in order to determine whether manner nouns are significantly attracted to it. The general noun *käytös* 'behavior' does not even co-occur with the construction.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
innokkuus	avidness	5	**4**	4.12	**5.97**	7.82	7.78
pamaus	boom, bang	9	**6**	4.20	**5.50**	6.80	10.80
pauke	bang	12	**6**	3.79	**4.88**	5.97	9.77
kilometri	kilometer	8	**3**	3.08	**4.42**	5.76	4.62
huuto	scream	25	**9**	3.53	**4.33**	5.14	12.83
tuntemus	sensation	21	**7**	3.34	**4.22**	5.11	9.81
tunne	feeling	162	**51**	3.87	**4.22**	4.56	66.98
kohtaus	attack	13	**4**	3.00	**4.13**	5.25	5.64
ilotulitus	fireworks	10	**3**	2.84	**4.11**	5.38	4.29
ääni	sound	84	**24**	3.54	**4.02**	4.50	30.47
uhkailu	threatening	22	**6**	3.04	**3.95**	4.86	7.89

Table 48: Top collexemes of the construction [*pelästyä* N-PTV]

(191) *Tai* *itseasiassa* (sic) *Etelä-Euroopa-ssa* *miehe-t* *ei-vät*
or as.a.matter.of.fact southern.Europe-INE man-PL NEG-3PL

pelästy *innokkuu-tta-ni* *niin* *paljon,* *kun* *ovat* *itse*
get.frightened avidness-PTV-1SG.POSS so much as be.3PL self

vielä *innokkaa-mp-i-a!*
even avid-COMP-PL-PTV

As a matter of fact, men in southern Europe don't get frightened by my avidness, as they are even more avid themselves!' (15802443)

A lot clearer is the importance of nouns referring to auditory sensations, as instantiated by *pamaus* 'boom, bang', *pauke* 'bang', and *huuto* 'scream'. The presence of these nouns is particularly noteworthy because they refer to concrete physical phenomena, i.e. loud sounds that are perceived by the sense of hearing. Of course, the sounds themselves are not harmful, but experiencers interpret them as being linked to harmful events. Although we are dealing with very basic stimuli here, their ontological status is still open with regard to several questions (see O'Callaghan 2007). For instance, whether sounds are *properties* or *individuals* and if we opt for the latter, whether these individuals are more object-like or more event-like (see 3.2.1)? A thorough discussion of such questions lies beyond the scope of the present study, but it has to be part of a comprehensive theory of noun categorization, because it is also necessary to categorize a multimodal experience such as that encoded by the noun *ilotulitus* 'fireworks', which evokes auditory and visual but also olfactory perception. It is most likely the auditory aspect, however, that is highlighted in (192). The semantic preference of sounds is also supported by the high log odds ratio of the general noun *ääni* 'sound'. Note also that the experiencer role in (192) and (193) is filled with non-human animate referents, which seems to be quite common for the verb *pelästyä*, at least in the given corpus. The first example is from a discussion on hunting:

(192) *Meidä-n* *pikku* *tiibetinspanieli* *karkas-i* *kerran* *Alajärve-llä,*
1PL-GEN little Tibetan.Spaniel flee-PST.3SG once Alajärvi-ADE

koska *pelästy-i* *ilotulitus-ta*
because get.frightened-PST.3SG firework-PTV

'Our little Tibetan Spaniel ran away once at Alajärvi because it got frightened by the fireworks' (27106166)

(193) *Todennäköise-sti* *lintu* *pelästy* (sic) *pauke-tta* *ja* *horjaht-i*
probable-ADV bird get.frightened[3SG] bang-PTV and sway-PST.3SG

oksa-lta *kiro-ten* *ja* *vaihto-i* *kirja-t* *toise-en*
twig-ABL curse-CVB and change-PST.3SG book-PL.ACC other-ILL

pitäjä-än
county-ILL

'Probably the bird got frightened by the bang and swayed off the branch cursing and registered in another county' (52137197)

A problem similar to the categorization of nouns referring to sound is given in the case of the nouns *tunne* 'feeling' and *tuntemus* 'sensation'. The connection between (somatic) sensations and emotions is further underlined by the fact that both nouns are ambiguous regarding the former and the latter.

(194) *Minä-kin* *ole-n* *pelästy-nyt* *tunne-tta* *ja* *se* *myös*
1SG-CLT be-1SG get.frightened-PTCP feeling-PTV ja PN also

osa-lta-an *voi* *aiheutta-a* *hengenahdistus-ta*
part-ABL-3SG.POSS can[3SG] cause-INF dyspnea-PTV

'I am also frightened by the feeling and it can in turn also bring on dyspnea' (13914768)

Several second-order nouns are significantly attracted to the construction [*pelästyä* N-PTV] as well, most notably *kohtaus* 'attack', which typically refers to the temporary occurrence of an illness or disease. In (195), the speaker refers to a fit of rage, though. The noun *uhkailu* 'threatening', a speech act noun referring to the intention to inflict harm is particularly interesting, because it shows how fear, similar to worry, can also be evoked by the prospect of a harmful event. Like (195), example (196) originates from a discussion about domestic abuse:

(195) *Joskus* *avovaimo* *on* *pelästy-nyt* *kohtauks-i-a*
sometimes wife be.3SG get.frightened-PTCP attack-PL-PTV

'Sometimes, (my) wife is frightened by the fits' (44408932)

(196) *Hän* *tarvitse-e* *vakuuttelu-j-a,* *ja* *sinä* *vakuuta-t* *häne-t*
3SG need-3SG affirmation-PL-PTV and 2SG affirm-2SG 3SG-ACC

joka *kerta* *kun* *kestä-t* *viha-n* *ja* *pelästy-t*
each time when endure-2SG hate-ACC and get.frightened-2SG

uhkailu-j-a
threat-PL-PTV

'He needs affirmation, and you affirm him each time you endure the hate and get frightened by the threats' (55208537)

Finally, we also find the noun *kilometri* 'kilometer' among the top collexemes of the construction [*pelästyä* N-PTV]. The co-occurrence of *pelästyä* and *kilometri*, meaning 'kilometrage', is limited to discussions about cars, but nevertheless significant from a statistical point of view. Example (197) refers to the following situation: somebody who is interested in buying a car is afraid or

rather worried that the high kilometrage of the car in question may lead to problems. Another internet user tries to comfort him. In this context, one may argue that the verb is stylistically overemphasized.

(197) *Näi-llä* *yleensä* *aje-taan* *Paljon* (sic), *ei* *siis* *pidä*
PN.PL-ADE generally drive-PASS a.lot NEG.3SG thus have.to

pelästy-ä *kilometre-j-ä*
get.frightened-INF kilometer-PL-PTV

'They usually drive these a lot, so there is no need to be afraid of the kilometers' (10587919)

But, it is interesting to find the noun *kilometri* 'kilometre' also among the top collexemes of the construction [*säikähtää* N-PTV]. As mentioned above, the verb *pelästyä* also appears with elative marking on stimulus nouns. But, this combination is rather rare. If we consider all possible combinations for the construction [*pelästyä* N-ELA], we only get 42 sentences. Thus, the covarying collexeme analysis only provides 5 collexemes that are significantly attracted to the construction [*pelästyä* N-ELA]:

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
uhkaus	threat	9	**2**	4.66	**6.12**	7.59	4.70
uhkailu	threatening	22	**3**	4.35	**5.53**	6.71	6.21
aloite	initiative	27	**2**	3.56	**4.90**	6.23	3.71
kirjoitus	writing	197	**3**	2.12	**3.22**	4.33	3.34
tilanne	situation	987	**5**	1.20	**2.09**	2.99	3.06

Table 49: Top collexemes of the construction [*pelästyä* N-ELA]

The list reveals that both the construction [*pelästyä* N-PTV] and the construction [*pelästyä* N-ELA] are significantly attracted to the noun *uhkailu* 'threatening', which refers to the act of threatening. In contrast to that, *uhkaus* 'threat', the noun with the highest attraction to the latter refers to the actual utterance of a threat. Once again, the absolute numbers for this combination are very low, but with *kirjoitus* 'writing', there is another noun referring to propositional content on the list. In general, the nouns attracted to the construction [*pelästyä* N-ELA] appear to be more abstract than those attracted to the construction [*pelästyä* N-PTV]. There are, for instance, no attested comibations of the construction [*pelästyä* N-ELA] and nouns referring to (perceivable) auditory sensations, such as *ääni* 'sound' and *huuto* 'scream' in the corpus sample.

Taking into account that the comparison of the construction [*hämmästyä* N-ELA] and [*hämmästyä* N-PTV] led to similar results (see 6.1.2), it seems that partitive marking implies an object-like conceptualization of stimuli, whereas elative marking implies a topic-like conceptualization. In terms of numbers, the evidence for this hypothesis is not very solid, but the analysis of the collexemes associated with the constructions [*säikähtää* N-PTV] and [*säikähtää* N-ELA] point in a similar direction.

6.5.4 *säikähtää* 'get scared'

Similar to the verb *pelästyä* 'get frightened', the verb *säikähtää* 'get scared' primarily appears with partitive marking on stimulus nouns, but also allows for elative marking. The top collexemes of the construction [*säikähtää* N-ELA] are highly similar to those of the construction [*pelästyä* N-PTV]:

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
kilometri	kilometer	8	**5**	3.84	**5.18**	6.52	8.54
kohtaus	attack	13	**7**	3.82	**4.88**	5.93	11.18
ilotulitus	fireworks	10	**5**	3.54	**4.73**	5.91	7.89
raketti	rocket	20	**9**	3.68	**4.55**	5.41	13.33
pamaus	boom, bang	9	**3**	2.80	**4.11**	5.41	4.26
uhkaus	threat	9	**3**	2.80	**4.11**	5.41	4.26
näky	sight	23	**7**	3.08	**3.95**	4.81	9.06
huuto	scream	25	**7**	2.98	**3.83**	4.68	8.77
peilikuva	mirror image	15	**4**	2.70	**3.79**	4.88	5.12
pauke	bang	12	**3**	2.50	**3.73**	4.96	3.85

Table 50: Top collexemes of the construction [*säikähtää* N-PTV]

In addition to auditory percepts, we find the two "visual" nouns *näky* 'sight' (198) and *peilikuva* (199) 'mirror image' on the list. Both nouns are also attracted to the construction [*pelästyä* N-PTV]: *näky* 'sight' (log OR: 2.72; -$\log_{10}$ FYE: 1.88); *peilikuva* 'mirror image' (log OR: 3.94; -$\log_{10}$ FYE: 5.37). But, note that the noun *näky* 'sight' does not pass the significance threshold of 3.0 (-$\log_{10}$ FYE) in the case of [*pelästyä* N-PTV].

(198) *Kalle* *säikäht-i* *näky-ä* *ja* *säntä-si* *pako-on*
Kalle get.scared-PST.3SG sight-PTV and dart-PST.3SG escape-ILL

niin *luja-a* *kuin* *jalo-i-sta* *läht-i*
so hard-PTV as leg-PL-ELA leave-PST.3SG

'Kalle got scared by the sight and ran away as fast as he could' (16863973)

(199) *säikähd-i-n* *peilikuva-a-ni,* *niskakyhmy-ä* *ja*
get.scared-PST-1SG mirror.image-PTV-1SG.POSS neck.swelling-PTV and

soliskuopp-i-en *häviä-mis-tä,* *valtava-a* *vatsa-a-ni*
collarbone.pit-PL-GEN vanish-NMLZ-PTV enormous-PTV belly-PTV-1SG.POSS

'I got scared by what I saw in the mirror, the swelling on the neck and the disappearance of my supraclavicular fossa, my enormous belly' (unspecified)[99]

In the case of the nouns *tunne* 'feeling' (log OR: 3.39; -$\log_{10}$ FYE: 32.98) and *tuntemus* 'sensation' (log OR: 3.63; -$\log_{10}$ FYE: 5.98) it is the other way around: they are not among the top collexemes of the construction [*säikähtää* N-PTV], but also significantly attracted to it. Not only do the near-synonyms *säikähtää* 'get scared' and *pelästyä* 'get frightened' share semantic preferences, but also a similar distribution over topics and a similar number of tokens. The verb *pelästyä* appears 21 794 times in the Suomi24 corpus, compared to 23 659 tokens of the verb *säikähtää*, of which 489 were analyzed as instances of the construction [*säikähtää* N-PTV], as opposed to 423 instances of the construction [*pelästyä* N-PTV]. The present study cannot reveal any major differences between the two verbs. If one expects to find a semantic distinction, they must be sought elsewhere.

What the two verbs also have in common is the alternation between partitive and elative marking. Also in the case of the verb *säikähtää* elative marking of stimuli is rather marginal, with only 37 attested tokens of the construction [*säikähtää* N-ELA] in the entire corpus sample. Therefore, the list of collexemes is limited to two nouns that are significantly attracted to the construction:

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
puhe	talk	53	**3**	3.60	**4.74**	5.87	5.24
tilanne	situation	987	**5**	1.36	**2.27**	3.18	3.37

Table 51: Top collexemes of the construction [*säikähtää* N-ELA]

Like in the case of the construction [*pelästyä* N-ELA], the two collexemes are rather abstract. Furthermore, there is only one attested combination of the construction with a noun referring to a perceivable sensation (i.e. *ääni* 'sound'). Thus, one may conclude that partitive-marking has a more object-like reading, whereas elative-marking has a more topic-like reading. This would con-

[99] http://keskustelu.suomi24.fi/t/13403827/cushing-epaily

tradict the idea formulated by Sakuma (2012) that elative arguments can be seen as quasi-objects, cf. also 5.1.2. But, considering the low absolute numbers, this issue needs further investigation. Case alternation will also be relevant with regard to certain verbs of anger (6.6).

6.5.5 *järkyttyä* 'be shocked'

The verb *järkyttyä* 'be shocked' appears 23 557 times in the Suomi24 corpus, of which 740 instances remained that were analyzed as part of the construction [*järkyttyä* N-ELA]. In most research on emotion, "shock" is not treated as a discrete emotion. The closest concept in psychology is that of *acute stress reaction* or *acute stress disorder*, which is defined as follows:

> Experiencing an extreme traumatic stressor such as military combat, sexual assault, or a natural or human-made disaster will nearly always produce a stress reaction, which includes release of stress hormones, elevated heart rate and blood pressure, release of glucose by the liver, hypervigilance, and a variety of other symptoms that enable the individual to fight or flee (Reevy 2010: 35).

According to the study of adults' emotion knowledge by Shaver et al. (2001: 34-35), shock designates a specialized form of fear. In everyday language, the verb *järkyttyä* refers to an intense reaction to negative (e.g. frightening) events, which is supported by the high prevalence of second-order nouns among the top collexemes of the verb. Apart from the general nouns *tapahtuma* 'event' and *tapaus* 'incident', we also find second-order nouns emphasizing agentivity (*teko* 'act') and manner (*kohtelu* 'treatment') in the list of the top collexemes.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
näkemä-	thing seen	139	**66**	3.95	**4.29**	4.63	84.75
lukema-	thing read	71	**34**	3.80	**4.26**	4.73	43.93
kertomus	story	11	**5**	3.00	**4.14**	5.28	6.74
tapahtuma	event	88	**35**	3.51	**3.94**	4.37	41.60
teko	act	33	**13**	3.21	**3.90**	4.59	15.76
tapaus	incident	207	**61**	3.21	**3.52**	3.82	62.89
kohtelu	treatment	29	**8**	2.59	**3.38**	4.18	8.48
löytö	discovery	24	**5**	2.09	**3.04**	3.99	4.84
yllätys	surprise	15	**3**	1.84	**3.03**	4.22	3.02
uutinen	news	120	**25**	2.57	**3.01**	3.46	21.92

Table 52: Top collexemes of the construction [*järkyttyä* N-ELA]

A noun like *näkemä-* 'thing seen' also places the act of perceiving (200) above the percept. Morphologically, the noun was formed by adding the agent participle suffix *-ma* to the verbal stems *näke-* 'see'. The same applies to the noun *lukema-*. In the corpus, both verbs always appear with a possessive suffix, indicating the person who saw or read something, respectively.

(200) *Eräs* *ystävä-ni* *katso-i* *ja* *järkytty-i*
one friend-1SG.POSS look-PST.3SG and be.shocked-PST.3SG

näke-mä-stä-än
see-INF-ELA-3SG.POSS

'A friend of mine looked and got shocked by what he saw' (40353175)

Like *lukema-*, the noun *kertomus* 'story' belongs to the domain of discourse, but instead of highlighting the process of accessing content, it focuses on the content itself, mostly new information. This is especially true for the noun *uutinen* 'news', which refers to information about something that has recently happened. The presence of the aforementioned nouns is noteworthy, considering the fact that news does not belong to the typical antecedents of fear (see Wallbott/Scherer 1986: 71). Interestingly, instances of the noun *uutinen* 'news' often indicate whether the information comes unexpected or not, as in example (201) below:

(201) *Kun* *pappa* *kuol-i,* *ol-i-n* *jo* *jotenkin*
when grandpa die-PST.3SG be-PST-1SG already somehow

valmistautu-nut *sii-hen* *enkä* *kauhea-sti* *järkytty-nyt*
get.prepared-PTCP PN.ILL and.not[1SG] terrible-ADV be.shocked-PTCP

uutise-sta
news-ELA

'When grandpa died, I was somehow already prepared for that and was not terribly shocked by the news' (16283789)

Thus, we are dealing with expectations here, as in the case of the verb *yllättyä* 'be surprised'. This is also supported by the noun *yllätys* 'surprise' among the top collexemes of the construction [*järkyttyä* N-ELA]. The major difference between the verbs *yllättyä* 'be surprised' and *järkyttyä* 'be shocked' lies in their emotional valence. Whereas the former is basically neutral, the latter is clearly negative and refers to an intense feeling.

6.6 Anger

According to De Rivera (2006: 222), anger is elicited by situations that are contrary to what *ought* to be. The situations might be harmful or they might be a bar to a person's achievement goals. Typically, they are provoked by another per-

son. Under the basic emotion of anger, we can find a wide range of subcategories. This is also reflected by the inchoative emotion verbs in Finnish, i.e. *suuttua* 'get angry', *ärsyyntyä* 'get irritated', *raivostua* 'get furious', *hermostua* 'get agitated', and *kyllästyä* 'get fed up', of which neither fall neatly into one subcategory only. Whereas the first three mentioned verbs represent rage and irritation, *kyllästyä* 'get fed up' rather falls into the categories of irritation and disgust, but in terms of the emotional experience they all share a strong semantic component of "not wanting" to be confronted with something (see Tuovila 2005: 83). Even the classification of the verb *hermostua* 'get agitated' is not straightforward: in the classifications of Tuovila (ibid.) and Siiroinen (2001: 88) it can be found within the category of verbs of fear. But, according to Shaver et al. (2001: 34-35) agitation is a concept subordinated to anger. In line with this assumption, the verb *hermostua* behaves more like a verb of anger than a verb of fear, when it comes to the realization of nominal arguments (preference of elative/illative/allative over partitive/elative; see 5.1). This also holds for the verb's preference of collexemes, as we will see in 6.6.1 below.

6.6.1 *hermostua* 'get agitated'

The verb *hermostua* 'get agitated; have something/someone get on one's nerves' appears 41 671 times in the Suomi24 corpus. In a strict sense, the verb *hermostua* 'get agitated' (< *hermo* 'nerve') does not refer to an emotion, but to a psychophysical state of unrest and tenseness. A total of 441 sentences were analyzed as instances of the construction [*hermostua* N-ELA]. The constructions [*hermostua* N-ILL] and [*hermostua* N-ALL] will be discussed at the end of the paragraph.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
nimittely	name-calling	9	**4**	3.38	**4.63**	5.88	6.31
provosointi	provocation	7	**3**	3.18	**4.58**	5.98	4.77
pikkuasia	minor thing	83	**22**	3.38	**3.87**	4.36	26.76
kritiikki	critique	62	**16**	3.25	**3.82**	4.39	19.41
meteli	noise	22	**5**	2.71	**3.68**	4.64	6.13
kysely	inquiry	38	**8**	2.80	**3.56**	4.33	9.22
pikkujuttu	minor thing	21	**4**	2.43	**3.47**	4.51	4.67
kysymys	question	184	**23**	2.50	**2.95**	3.39	19.98
aloitus	start	37	**4**	1.84	**2.82**	3.81	3.67
tosiasia	fact	60	**6**	1.89	**2.71**	3.53	5.07

Table 53: Top collexemes of the construction [*hermostua* N-ELA]

According to the dictionary of standard Finnish, the verb *hermostua* (KTS: s.v. *hermostua*) is synonymous to various verbs of anger, such as ärsyyntyä 'get irritated' (see 6.6.4). In line with this, the high attraction of the construction [*hermostua* N-ELA] to linguistic nouns is paralleled with the collexemes of the verbs *suuttua* 'get angry', *ärsyyntyä* 'get irritated', and *raivostua* 'get furious'.

(202) *En* *riitatilantee-ssa* *hermostu-nut* *nimittely-stä,*
NEG.1SG conflict-INE get.agitated-PTCP name.calling-ELA

koska *halus-i-n* *vain* *selvittä-ä* *asia-n* *ja* *osas-i-n*
because want-PST-1SG just clarify-3SG thing-ACC and can-PST-1SG

odotta-a, *että* *hän* *puolustautu-u* *hyökkää-mä-llä*
wait-3SG that 3SG defend-3SG attack-INF-ADE

'I didn't get agitated about the name-calling during the conflict, because I just wanted to clarify the situation and could expect that s/he would defend her-/himself by attacking' (unspecified)[100]

The two nouns from the top of the collexeme list, i.e. *nimittely* 'name-calling' (203) and *provosointi* 'provocation', refer to offensive speech-acts aimed at other discourse-participants. The same applies to the less aggressive noun *kritiikki* 'critique'. Besides, we also find the rogative nouns *kysely* 'inquiry' and *kysymys* 'question' among the top collexemes of the construction [*hermostua* N-ELA].

(203) *Soit-i-n* *headhunteri-lle* *ja* *ol-i-n* *aivan* *ymmällä-ni,*
call-PST-1SG headhunter-ALL and be-PST-1SG pretty baffled-1SG

kun *hän* *hermostu-i* *kysely-i-stä-ni*
as 3SG get.agitated-PST.3SG inquiry-PL-ELA-1SG.POSS

'I called the headhunter and was pretty baffeled, as s/he got agitated over my enquiries' (37677491)

At first sight, the three third-order nouns *pikkuasia* 'minor thing, thing of little importance', *pikkujuttu* 'id.', and *tosiasia* 'fact' also seem to form a larger group. But, there are differences between the synonymous nouns *pikkuasia*/*-juttu* 'thing of little importance' and the noun *tosiasia* 'fact'. Speakers use the nouns *pikkuasia* and *pikkujuttu* to de-emphasize the cause(s) for becoming agitated (204). The noun *tosiasia* 'fact' may appear like a proper stimulus, but it is mostly used in negated sentences (205).

(204) *Minu-lla* *on* *tapa-na* *hätäänty-ä* *ja* *hermostu-a*
1SG-ADE be.3SG habit-ESS get.distressed-INF and get.agitated-INF

[100] http://keskustelu.suomi24.fi/t/1076457/poikaystava-ammitteli

pikkuasio-i-sta
small.thing-PL-ELA
'I have the habit to get distressed and agitated over minor things' (5093233)

(205) *Ei* *tarvitse* *hermostu-a* *tosiasio-i-sta*
NEG.3SG need get.agitated-INF fact-PL-ELA
'There is no need to get agitated over facts' (55901744)

With *meteli* 'noise', there is also a noun referring to an auditory sensation among the top collexemes, which hints at a semantic relation to verbs of fear, such as *pelästyä* 'get frightened' (6.5.3) and *säikähtää* 'get scared' (6.5.4). Similar nouns like *ääni* 'sound' and *pauke* 'bang' also appear together with the construction [*hermostua* N-ELA], but due to low absolute numbers, the correlation is not significant.

(206) *Koira-t* *vaistoa-a* *se-n* *jos* *emäntä* *tai* *isäntä* *itse*
dog-PL sense-3SG PN-ACC if mistress or master self
hermostu-u *meteli-stä*
get.agitated-3SG noise-ELA
'Dogs sense it if their master or mistress gets agitated by the noise him/herself' (63267309)

Besides elative marking, arguments of the verb *hermostua* also appear with illative and allative marking, a trait it has in common with several verbs that will be discussed in the subsequent paragraphs. Considering all possible combinations, we get 112 results for the construction [*hermostua* N-ALL]. Due to this low number, only 6 nouns are significantly attracted to the construction:

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
keskustelukumppani	interlocutor	10	**2**	3.57	**4.99**	6.41	3.74
pentu	cub, puppy	135	**9**	3.00	**3.69**	4.38	10.99
koira	dog	368	**16**	2.75	**3.28**	3.81	16.25
vauva	baby	113	**5**	2.38	**3.26**	4.14	5.44
lapsi	child	1204	**29**	2.34	**2.79**	3.21	22.36
poika	boy	982	**11**	1.21	**1.85**	2.44	5.27

Table 54: Top collexemes of the construction [*hermostua* N-ALL]

As mentioned in 5.1.4, allative marking is reserved for human or animate referents (207) and organizations (208).

(207) *Kotona* *hermostu-n* *lapsi-lle* *melko* *helpo-sti*
at.home get.agitated-1SG child[PL]-ALL pretty easy-ADV
'At home, I get agitated with the children pretty easily' (unspecified)[101]

(208) *Kohta* *Turkki-kin* *hermostu-u* *Venäjä-lle*
soon Turkey-CLT get.agitated-3SG Russia-ALL
'Soon, even Turkey will get agitated with Russia' (75925062)

The case of illative marking is more difficult, because it can be used for both human/animate and non-human/inanimate referents. This is also reflected by the list of collexemes. Considering all possible combinations, we get 154 results for the construction [*hermostua* N-ILL]. For one thing, the nouns *anoppi* 'mother-in-law', *pentu* 'cub, puppy', and *hallitus* 'government' indicate that illative marking is associated with human and animate stimuli and, via metonymy, organizations. But, most importantly, the deverbal noun *odottaminen* 'waiting', as well as the noun *jahkailu* 'delay' imply a relation between the construction [*hermostua* N-ILL] and prolonged situations (209).

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
jahkailu	delay	15	**3**	3.43	**4.63**	5.82	5.03
anoppi	mother-in-law	29	**5**	3.48	**4.42**	5.36	7.76
hallitus	government	18	**3**	3.24	**4.41**	5.58	4.78
kysely	inquiry	38	**6**	3.45	**4.31**	5.17	8.97
itku	crying	16	**2**	2.78	**4.13**	5.49	3.05
odottaminen	waiting	55	**6**	3.05	**3.89**	4.72	7.96
kysymys	question	184	**9**	2.35	**3.02**	3.69	8.55
pentu	cub, puppy	135	**6**	2.12	**2.92**	3.73	5.63
lapsi	child	1204	**41**	2.47	**2.83**	3.19	31.86
koira	dog	368	**12**	2.02	**2.60**	3.19	9.19

Table 55: Top collexemes of the construction [*hermostua* N-ILL]

This supports the hypothesis formulated in 5.1.3 that an exposure to the stimulus prior to the emotional reaction may be the motivation for using the illative case in combination with emotion verbs, as well as some other verbs.

[101] http://keskustelu.suomi24.fi/t/6027595/olenko-lopussa-vai-mita-tama-on---

Note that *odottaminen* 'waiting' and *jahkailu* 'delay' are also among the nouns with the highest attraction to the verb *kyllästyä* 'get fed up' (see 6.6.2)

(209) *Saigoni-ssa* *palvelu* *toimi-i* *ripeä-mmin* *kuin*
Saigon-INE service work-3SG rapid-COMP.ADV than

rantakohte-i-ssa, *joissa* *voi* *välillä* *hermostu-a*
coast.place-PL-INE in.which can[3SG] sometimes get.nervous-INF

odotta-mise-en *ja* *jahkailu-un*
wait-NMLZ-ILL and delay-ILL

'In Saigon, the service is more rapid than in the coastal places, where one sometimes gets agitated by waiting and delays' (13602180)

One can assume that this meaning compoment is also salient, when the nominal slot of the construction [*hermostua* N-ILL] is filled with other nouns.

6.6.2 *kyllästyä* 'get fed up'

In total, the verb *kyllästyä* appears 96 775 times, of which 3 247 instances were analyzed as part of the construction [*kyllästyä* N-ILL]. The dictionary of standard Finnish suggests that the verb *kyllästyä* can be understood in various ways, e.g. as 'get bored with', 'get tired of', 'get sick of', and also 'get fed up with', which comes closest to its original meaning 'to get saturated' (see SSA: s.v. *kyllä*).[102] Tuovila (2005: 103) states that the semantics of the noun *kyllästyminen* is closely related to that of the noun *inho* 'disgust'. Both *kyllästyminen* and *inho* entail the wish to withdraw from an unpleasant situation. The major difference is that disgust refers to an immediate rejection of stimuli such as food, body products, animals, and sexual behaviors,[103] whereas annoyance and boredom imply a change in the attitude of the experiencer: stimuli that first appear unproblematic or even pleasant turn out to be annoying or boring. This is also reflected by the list of top collexemes. Most notable are the nouns *jahkailu* 'delay' and *odottaminen* 'waiting', which both refer to a prolonged situation and were also among the top collexemes of the construction [*hermostua* N-ILL], see 6.6.1.

[102] It is interesting to note that the concept of saturation is also the origin of expressions of anger and boredom in other languages, e.g. English *fed up*. On the other hand, the very same concept is also the foundation for different emotion, e.g. English *sad* (Old English <*sæt* 'sated'), see Györi (1998: 108).

[103] In many cultures, including Finnish, disgust also encompasses moral violations (see Reevy 2010: 206).

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	-$\log_{10}$ FYE
arki	everyday life	76	**69**	4.27	**5.02**	5.78	76.13
odottaminen	waiting	55	**48**	3.89	**4.66**	5.43	51.14
riitely	quarrel	30	**26**	3.56	**4.56**	5.56	27.73
turisti	tourist	32	**26**	3.33	**4.19**	5.05	26.26
touhu	fuss	117	**88**	3.48	**3.90**	4.32	82.23
nykymeno	current course (of things)	52	**39**	3.24	**3.86**	4.48	36.66
jahkailu	delay	15	**11**	2.63	**3.72**	4.81	10.52
perhe-elämä	family life	48	**32**	2.87	**3.46**	4.06	27.53
yksinäisyys	loneliness	80	**53**	3.00	**3.46**	3.92	44.96
yksinolo	solitude	40	**25**	2.65	**3.28**	3.91	20.60

Table 56: Top collexemes of the construction [*kyllästyä* N-ILL]

In neutral terms, waiting simply refers to the act of staying in place in expectation of somebody coming or something happening. Intuitively it seems understandable that the noun *odottaminen* 'waiting' is so strongly attracted to the construction [*kyllästyä* N-ILL], because the time of waiting can be uncertain and long, cf. example (210). The frequentative noun *riitely* 'quarrel' can also denote a continuous situation. But, it can also denote a punctually conceived situation (211), which suggests that both constant and repeated exposure to a situation leads to annoyance and boredom.

(210) *Lopu-lta* *hän* *kyllästy-i* *odotta-mise-en* *ja* *tassuttel-i*
end-ABL 3SG get.fed.up-PST.3SG wait-NMLZ-ILL and pad-PST.3SG
keittiö-ön
kitchen-ILL
'At last, s/he got fed up with waiting and padded into the kitchen' (unspecified)[104]

(211) *ole-mme* *avopuoliso-ni* *kanssa* *riidel-lyt* *3* *vuotise-n*
be-1SG spouse-[GEN]1SG.POSS with argue-PTCP 3 year.ADJ-GEN
suhtee-n *aika-na* *melko* *useasti* *ole-n* *itse*
relationship-GEN time-ESS quite often be-1SG self

[104] https://keskustelu.suomi24.fi/t/2294221/unta

kyllästy-nyt *riitely-i-hi-mme*
get.fed.up-PTCP quarrel-PL-ILL-1PL.POSS
'During our 3 year relationship, I have argued with my spouse quite often[.] I'm fed up with our quarrels' (unspecified)[105]

In the case of *odottaminen* 'waiting' and *riitely* 'quarrel', we are clearly dealing with second-order nouns, but the ontological status of other nouns, such as *touhu* 'fuss' is a bit more complicated. Like *riitely* 'quarrel', the noun *touhu* 'fuss' can refer to some kind of conflict, but it also refers to a state of agitation, cf. example (212).

(212) *Lopu-lta* *kyllästy-i-n* *touhu-un* *ja* *lopet-i-n* *suhtee-n!*
end-ABL get.fed.up-PST-1SG fuss-ILL and end-PST-1SG relationship-ACC
'Eventually, I got fed up with the fuss and ended the relationship!' (unspecified)[106]

Other nouns among the top collexemes are more circumstantial, especially *arki* 'everyday life' and *perhe-elämä* 'family life'. Unlike the aforementioned nouns the two lexemes do not refer to concrete events that can be located in time.

(213) *Ehkä* *hän* *on* *kyllästy-nyt* *arke-en* *se-n*
perhaps 3SG be.3SG get.fed.up-PTCP everyday-ILL PN-GEN
kaikki-ne *velvoitte-i-ne-en*
all-COM obligation-PL-COM-3SG.POSS
'Perhaps s/he is fed up with everyday life and all its obligations' (49344894)

Instead, a noun like *arki* 'everyday life' (213) metonymically stands for a complex of various events. The same applies to the noun *nykymeno* 'current course (of things)', which is often used in the context of politics, as in (214) below.

(214) *Kansa* *on* *kyllästy-nyt* *nykymeno-on* *ja* *äänestä-ä*
people be.3SG get.fed.up-PTCP current.course-ILL and vote-3SG
Keskusta-a
Center.Party-PTV
'The people are fed up with the current course of things' and votes for the Center Party' (1679688)

The ontological status of the two nouns *yksinäisyys* 'loneliness' and *yksinolo* 'solitude' is also a matter of debate, as mentioned in 6.5.2:

[105] https://keskustelu.suomi24.fi/t/10041858/paha-olo---

[106] https://keskustelu.suomi24.fi/t/2061710/onko-normaalia!

(215) *Minä* *väsy-i-n* *ja* *kyllästy-i-n* *yksinäisyyte-en* *jota*
1SG get.tired-PST-1SG and get.fed.up-PST-1SG loneliness-ILL which

ei *edes* *syvä* *rakkaus* *tois-ta* *kohtaan* *helpotta-nut*
NEG.3SG even deep love other-PTV towards ease-PTCP

'I got tired and sick of the loneliness that even deep love for someone won't ease' (5219148)

(216) *Eliel* *kyllästy-y* *yksinolo-on,* *palaa* *takaisin* *sisä-lle*
Eliel get.fed.up-3SG solitude-ILL return[3SG] back inside-ALL

'Eliel becomes fed up with solitude/being alone, [and] he goes back inside' (22635251)

The fact that the two nouns are among the top collexemes of both [*kyllästyä* N-ILL] and [*ahdistua* N-ELA] suggests a semantical overlap between the verbs *kyllästyä* 'get fed up' and *ahdistua* 'get anxious'. In general, both nouns referring to states and nouns referring to other emotions are attracted by the construction [*kyllästyä* N-ILL]. *Turisti* 'tourist', the remaining noun among the top collexemes of the construction is mostly used in the plural, thus referring to a collective. Even other nouns referring to human entities are significantly attracted to the verb. These nouns are either names of politicians, such as [Timo] *Soini* (log OR: 1.49; $-\log_{10}$ FYE: 4.01), or relational nouns from the social domain, such as *puoliso* 'spouse' (log OR: 1.98; $-\log_{10}$ FYE: 15.74). As in the case of *ilahtua* 'be delighted' (see 6.2.1) it is possible to think of metonymy as an explanation for the correlation between the construction [*kyllästyä* N-ILL] and the first-order nouns mentioned. Human referents do not constitute proper stimuli of the construction, unlike their presence or actions.

(217) *Kyllä* *siellä* *Thaimaa-ssa* *ol-laan* *kyllästy-ne-i-tä*
of.course there Thailand-INE be-PASS get.fed.up-PTCP-PL-PTV

turiste-i-hin, *ja* *enkä* *ihmettele* *yhtään*
tourist-PL-ILL and and.not[1SG] wonder at.all[PTV]

'Of course, the people in Thailand are fed up with tourists and I am not surprised at all' (71407289)

This is also in line with the observation that permanent or repeated exposure to a situation results in annoyance and boredom.

6.6.3 *suuttua* 'get angry'

As mentioned in 6.6, anger is represented by several distinct verbs in Finnish, *suuttua* 'get angry' being the most basic one. From a functional point of view, anger is a short, intense emotion related to self-defense and the overcoming of obstacles. Thus, the emotion is typically provoked by the behavior of other

people. These aspects are also reflected by the NSM explication of the corresponding Finnish noun *suuttumus* adapted from Tuovila (2005: 101):

suuttumus
X feels something
  sometimes a person thinks something like this:
    someone did something bad (to me)
    I didn't want that something like this happens
    I want to do something about this
  because of this, this person feels bad for a short time
X feels something like this

In total, *suuttua* appears 79 522 times in the Suomi24 corpus. As mentioned in 4.3, nominal stimulus arguments of the verb *suuttua* are either marked with allative, elative, or illative. The discussion will begin with the collexemes of the construction [*suuttua* N-ALL]. The construction appears 763 times in the corpus and provides a rather clear picture. The nominal slot of the construction [*suuttua* N-ALL] is exclusively filled with human referents. The list of collexemes comprises both relational (e.g. *isä* 'father' and *äiti* 'mother') and functional nouns (e.g. *poliisi* 'police; police officer' and *myyjä* 'seller'). Note that the noun *poliisi* can also refer to the institution of the police. Due to metonymy, this combination is also possible with the construction [*suuttua* N-ALL]. But, it is especially worth noting that we also find a noun within the list that actually profiles the misbehavior of the referent: the noun *kiusaaja* 'bully (person)' is derived from the verb *kiusata* '(to) bully' and thus refers to a person who is insulting or threatening to others who are in some way vulnerable.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
tuttava	acquaintance	15	**5**	2.60	**3.63**	4.66	5.88
kakkonen	second-born	18	**6**	2.67	**3.62**	4.57	6.97
kiusaaja	bully	16	**5**	2.52	**3.54**	4.56	5.72
isä	father	104	**32**	3.09	**3.51**	3.93	33.42
äiti	mother	121	**36**	3.07	**3.47**	3.86	36.93
tyttöystävä	girlfriend	24	**6**	2.33	**3.23**	4.13	6.14
poikaystävä	boyfriend	62	**15**	2.59	**3.17**	3.75	14.26
sisko	sister	70	**16**	2.54	**3.10**	3.65	14.74
poliisi	police	34	**7**	2.17	**2.98**	3.79	6.45
myyjä	seller	31	**6**	2.05	**2.91**	3.77	5.43

Table 57: Top collexemes of the construction [*suuttua* N-ALL]

The noun *kiusaaja* can also refer to a person, who teases or seduces someone, but I use the translation 'bully (person)', because this meaning is prevalent in the corpus sample, cf. the following example:

(218) *Kiusaa-minen* *tuntu-i* *aina* *vain* *lisäänty-vä-n* *kun*
bully-NMLZ seem-PST.3SG always just increase-PTCP-GEN when

suutu-i-n *kiusaaj-i-lle*
get.angry-PST-1SG bully-PL-ALL

'The bullying always seemed to increase when I got angry at the bullies' (1876860)

Example (218) also supports the hypothesis that allative-marked referents are not proper stimuli, but rather recipients, as the use of the allative implies that some kind of emotional expression is directed towards the corresponding referent (see 5.1.4). One can assume that it must have been the expression of the emotion that led to more bullying in (218). But, the present analysis cannot provide a conclusive answer to that question. Coming back to the alternation in argument marking, we can see that the nominal slot of the construction [*suuttua* N-ELA] is exclusively filled with nouns referring to inanimate entities. The construction is attested 780 times in the corpus sample. The construction's top collexemes include a wide range of nouns not only referring to linguistic entities (e.g. *vitsi* 'joke') and mental entities (e.g. *epäily* 'doubt'), but also nouns referring to events (e.g. *pettäminen* 'cheating') and results (e.g. *häviö* 'defeat').

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
vitsi	joke	7	**5**	3.55	**5.04**	6.54	7.95
häviö	defeat	11	**6**	3.28	**4.42**	5.56	8.48
pilakuva	caricature	11	**6**	3.28	**4.42**	5.56	8.48
pikkujuttu	minor thing	21	**11**	3.51	**4.35**	5.19	14.90
arvostelu	criticism	25	**13**	3.57	**4.34**	5.11	17.46
epäily	doubt	20	**9**	3.21	**4.07**	4.93	11.52
pakki	rebuff	33	**14**	3.29	**3.97**	4.65	17.16
epäoikeudenmukaisuus	injustice	18	**7**	2.91	**3.83**	4.75	8.53
pikkuasia	minor thing	83	**30**	3.27	**3.72**	4.17	33.54
pettäminen	treason; cheating	17	**6**	2.72	**3.68**	4.65	7.08

Table 58: Top collexemes of the construction [*suuttua* N-ELA]

The noun *vitsi* 'joke', which stands at the top of the collexeme list, refers to an utterance with a humorous twist. In a similar way, the compound *pilakuva* 'caricature' (< *pila* 'joke' + *kuva* 'image, picture') does not refer to a neutral picture, but to a picture implying mockery. Both jokes and caricatures can be interpreted as an insult or offense. This applies even more to the noun *arvostelu* 'criticism', which is a verbal attack on another person's position.[107]

(219) *Minu-n* *anoppi* *suuttu-u* *anoppivitse-i-stä* *ja*
1SG-GEN mother.in.law get.angry-3SG mother.in.law-joke-PL-ELA and

on *muuten-kin* *huumorintaju-ton*
be.3SG anyway-CLT humor.sense-PTCL

'My mother-in-law gets angry when she hears mother-in-law jokes and she lacks a sense of humor in general' (17340004)

(220) *Vielä* *hän* *ei* *ilmeise-sti* *pysty* *asia-a*
still 3SG NEG.3SG apparent-ADV be.able thing-PTV

käsittele-mä-än *kun* *on* *suuttu-nut* *arvostelu-sta-si*
handle-INF-IL as be.3SG get.angry-PTCP criticism-ELA-2SG.POSS

'Apparently, s/he is not able to deal with the matter yet, as s/he is angry because of your criticism' (43745454)

The noun *epäily* 'doubt' is not as offensive, but nevertheless among the top collexemes of the construction [*suuttua* N-ELA] (221). What is more, the questioning of truth and a lack of confidence can also be seen as unjustified by the experiencer, whom the doubts are aimed at. In line with this observation, we also find the noun *epäoikeudenmukaisuus* 'injustice' among the top collexemes:

(221) *Välillä* *epäil-i-n* *häne-n* *uskollisuu-tta-an,* *jolloin*
sometimes doubt-PST-1SG 3SG-GEN faithfulness-PTV-3SG.POSS whereupon

hän *suuttu-i* *epäily-i-stä-ni* *ja* *vanno-i*
3SG get.angry-PST.3SG doubt-PL-ELA-1SG.POSS and swear-PST.3SG

viattomuu-tta-an
innocence-PTV-3SG.POSS

'Sometimes, I doubted his faithfulness, whereupon he got angry about my doubts and he insisted upon his innocence' (unspecified)[108]

(222) *Mä* *suutu-n* *epäoikeudenmukaisuude-sta,* *en* *mä*
1SG get.angry-1SG injustice-ELA NEG.1SG 1SG

nyt *raivoo-ma-an* *ala* *mut* *jos* *ei* *muuta* *niin*
now rage-INF-ILL start but if NEG.3SG else[PTV] so

[107] The noun can also refer to the process of giving grades in school etc.

[108] http://keskustelu.suomi24.fi/t/13469639/taydellisesti-hoynaytetty

kiehu-n *sisäise-sti*
boil-1SG internal-ADV
'I get angry about injustice, I'm not gonna start to go on the rampage, but at least I boil inside' (61904485)

Although the noun *epäoikeudenmukaisuus* 'injustice' is, in a strict sense, a hypostatized quality, it refers metonymically to behavior that is perceived as amoral by the experiencer. This dimension of morality is even more obvious with regard to the noun *pettäminen* 'cheating':

(223) *Nainen* *suuttu-i* *pettä-mise-stä,* *mies* *lyö-mise-stä*
woman get.angry-PST.3SG cheat-NMLZ-ELA man hit-NMLZ-ELA
'The woman got angry at his cheating, the man at her hitting' (24880)

(224) *Mu-n* *ex* *ol-i* *just* *tuollainen* *herkkätunteinen,*
1SG-GEN ex be-PST.3SG exactly such oversensitive
suuttu-i *pikkujutu-i-sta*
get.angry-PST.3SG small.thing-PL-ELA
'My ex was exactly like that an oversensitive person who got angry about minor stuff' (15937782)

The wide variety of stimulus nouns among the top collexemes of the construction [*suuttua* N-ELA] suggests it is highly dependent on the experiencer, what exactly leads to anger. But, in (224) we find an external appraisal on behalf of the internet user and not an appraisal that was made by the experiencer. The synonymous third-order nouns *pikkujuttu* 'minor thing, thing of little importance' and *pikkuasia* 'id.' imply that the cause of anger is minor and that anger may be an inappropriate or incomprehensible reaction. This aspect recalls the collexemes of the construction [*hermostua* N-ELA]. But, the semantic parallels between the verbs *suuttua* 'get angry' and *hermostua* 'get agitated' go even further, if we consider illative marking on stimulus nouns. Like in the case of *hermostua* 'get agitated' (6.6.1), illative marking is attested for both human/animate referents (225) and non-human/inanimate nouns (226):

(225) *Jumala* *ol-i* *jo* *niin* *suuttu-nu* (sic) *Ahabbi-in* (sic),
God be-PST.3SG already so get.angry-PTCP Ahab-ILL
että *sall-i* *häne-n* *men-nä* *sota-an,* *saa-ma-an*
that let-PST.3SG 3SG-GEN go-INF war-ILL get-INF-ILL
loppu-n-sa
end-ACC-3SG.POSS
'God was already so angry with Ahab that he let him go to war, to perish' (60713370)

(226) *Voi-si-n* *suuttu-a* *vastaukse-e-si* *ja* *suutu-n-kin!*
can-COND-1SG get.angry-INF answer-ILL-2SG.POSS and get.angry-1SG-CLT
'I could get angry about your answer, and I do get angry!' (79636163)

But, due to the fact that the construction is only attested 70 times in the corpus sample, the covarying collexeme analysis yields mainly non-significant log OR values. The only three nouns that are significantly attracted to the construction are *äiti* 'mother' (log OR: 3.18; $-\log_{10}$ FYE: 3.30), *Jeesus* (log OR: 2.66; $-\log_{10}$ FYE: 3.45), and *ihminen* (log OR: 1.27; $\log_{10}$ FYE: 3.07). Thus, the construction [*suuttua* N-ILL] seems to be primarily associated with human/animante referents. In contrast to the analysis of the verb *hermostua* 'get agitated' there is not enough evidence to conclude that the construction [*suuttua* N-ILL] is associated with a particular function or meaning that is fundamentally different from that of [*suuttua* N-ALL] or [*suuttua* N-ELA].

As the attraction of the proper noun *Jeesus* and the context of example (225) suggest, the construction [*suuttua* N-ILL] often occurs in religious contexts, more often than [*suuttua* N-ALL] or [*suuttua* N-ELA]. A look into the oldest translations of the Bible into Finnish reveals that the construction [*suuttua* N-ILL] was more common in the earliest written texts than the constructions [*suuttua* N-ALL] or [*suuttua* N-ELA]. Note also that the verb *suuttua* 'get angry' is semantically related to the verb *kyllästyä* 'get fed up', which happens to appear with illative marking on stimulus nouns. This is supported by a comparison of different Bible translations, as exemplified in 5.1.3. On the grounds of a usage-based approach, it is fair to assume that the more frequent use of the illative in religious contexts reflects the more frequent encounter of biblical illatives of these speakers.

6.6.4 *ärsyyntyä* 'get irritated'

A less frequent verb of anger considered in this study is *ärsyyntyä* 'get irritated', which appears 14 534 times in the Suomi24 corpus. Stimulus nouns of the verb *ärsyyntyä* are primarily marked by the elative case, but according to the analysis of argument realization patterns in 5.1, it also allows for illative marking. Considering all possible combinations, the construction [*ärsyyntyä* N-ILL] is attested 53 times in the corpus sample. The noun slot can equally be filled with animate and inanimate referents, but the only noun that is significantly attracted to the construction is *lapsi* 'child' (log OR: 1.99; $-\log_{10}$ FYE: 3.84). Thus, the numbers do not allow drawing further conclusions on the nature of the collexemes. More common is the construction [*ärsyyntyä* N-ELA], of which 290 instances are attested. Overall, the top collexemes of the construction [*ärsyyntyä* N-ELA] fall into two preferred semantic groups: nouns referring to propositional content (e.g. *kirjoitus* 'writing') and nouns referring to

actions (cf. Table 59). Therefore, the noun at the top of the collexeme list, i.e. *asukas* 'inhabitant' seems to be out of place.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
asukas	inhabitant	4	**2**	3.49	**5.25**	7.01	3.79
tuijottaminen	staring	4	**2**	3.49	**5.25**	7.01	3.79
pikkuasia	minor thing	83	**12**	2.93	**3.54**	4.15	13.63
kirjoittelu	scribble	29	**4**	2.51	**3.52**	4.53	4.80
teksti	text	76	**8**	2.46	**3.18**	3.91	8.15
kirjoitus	writing	197	**20**	2.68	**3.15**	3.63	19.20
aloitus	start	37	**3**	1.86	**2.97**	4.07	3.01
käytös	behavior	52	**4**	1.91	**2.88**	3.85	3.79
ääni	sound	84	**6**	1.96	**2.77**	3.58	5.25
tapa	manner	100	**7**	1.99	**2.74**	3.50	5.97

Table 59: Top collexemes of the construction [*ärsyyntyä* N-ELA]

No other noun referring to a human is significantly attracted to the construction [*ärsyyntyä* N-ELA]. The correlation between *ärsyyntyä* 'get irritated' and *asukas* 'inhabitant' is obviously significant, but should not be overrated, considering the low number of tokens. In fact, the only two times both lexemes appear together, is in the context of the reality TV show "Big Brother":

(227) *Ei* *se* *ole* *kateut-ta,* *jos* *kritiso-i* *ja* *ärsyynty-y*
NEG.3SG PN be envy-PTV if criticize-3SG and get.irritated-3SG
asukka-i-sta
inhabitant-PL-ELA
'It's not envy if one criticizes and gets irritated by inhabitants' (unspecified)[109]

Content-related nouns referring to written utterances, i.e. *kirjoittelu* 'scribble' and *teksti* 'text', form the major semantic group among the verb's top collexemes. As (229), a major part of the given examples refers to utterances within the Suomi24 internet forum.

(228) *Ole-n* *niin* *totaalise-n* *kyllästy-nyt* *ja* *ärsyynty-nyt*
be-1SG so total-GEN get.fed.up-PTCP and get.irritated-PTCP

[109] http://keskustelu.suomi24.fi/t/8605870/kateellisuudesta

mainokse-sta, *si-tä* *tule-e* *aivan* *liika-a*
advertisement-ELA PN-PTV come totally too.much-PTV
'I am so completely fed up and irritated by the advertisement, it is simply shown too much' (unspecified)[110]

(229) *Pyydä-n* *vielä* *uudelleen* *anteeksi,* *jos* *joku* *ärsyynty-y*
beg-1SG yet again pardon if somebody get.irritated-3SG
kirjoittelu-sta-ni
scribble-ELA-1SG.POSS
'I apologize again, if somebody gets irritated by my scribble' (57139393)

The noun *aloitus* 'start' also appears to refer to written utterance in the 3 given sentences. One possible explanation might be that speakers confuse the nouns *aloitus* 'start' and *aloite* 'initiative'. This issue is once again related to the low absolute numbers of both verb and noun. Therefore, the result should not be overstressed.

(230) *Sama-lla* *näytt-i-vät* *kommari-t* *ja* *sossu-t* *ärsyynty-vät*
same-ADE seem-PST-3PL communist-PL and socialist-PL get.irritated-3PL
aloituks-i-sta, *vaikka-kin* *eri* *sy-i-stä*
initiative-PL-ELA although-CLT different reason-PL-ELA
'At the same time, commies and pinkos appeared to get irritated by the initiative, albeit because of different reasons' (unspecified)[111]

Among the top collexemes of the construction [*ärsyyntyä* N-ELA], non-speech acts are represented by the nouns *tuijottaminen* 'staring' and *käytös* 'behavior', which fall into the realm of social norms. Like the noun *pettäminen* 'cheating' (see 6.6.2), *tuijottaminen* 'staring' refers to inappropriate behavior. Manner is highlighted by the general nouns *käytös* 'behavior' and *tapa* 'manner'. The noun *pikkuasia* 'minor thing', as mentioned earlier, indicates anger is seen as an overreaction to a certain stimulus.

(231) *Ärsyynny-n* *tuijotta-mise-sta,* *pidä-n* *si-tä* *juntti-maise-na*
get.irritated-1SG stare-NMLZ-ELA hold-1SG PN-PTV redneck-ADJ-ESS
ja *häiritse-vä-nä,* *ja* *tarvi-ttaessa* *puutu-n* *sii-hen*
and disturb-PTCP-ESS and need-CVB intervene-1SG PN-ILL
'I get irritated by staring, I find it redneckish and disturbing, and if necessary I intervene' (61957218)

(232) *Muu-t* *ihmise-t* *joko* *ei-vät* *huoma-a* *minu-a* *tai*
other-PL human-PL either NEG.3PL notice-3SG 1SG-PTV or

[110] http://keskustelu.suomi24.fi/t/13847545/avan-mainos

[111] http://keskustelu.suomi24.fi/t/10919251/muistohuomio

ovat *ärsyynty-nee-t* *käytökse-stä-ni*
be.3PL get.irritated-PTCP-PL behavior-ELA-1SG.POSS
'Other people either don't notice me or are irritated by my behavior' (72003831)

Finally, we also find the noun *ääni* 'sound' among the top collexemes, suggesting a certain similarity to the verb *hermostua* 'get agitated' (see 6.6.1):

(233) *Ehkä* *mä* *oon* *vähän* *ääniyliherkkä,* *mutta*
perhaps 1SG be[1SG] a.little sound.over.sensitive but
ärsyynny-n *ään-i-stä* *muuten-kin* *ihan* *hirvee-sti*
get.irritated-1SG sound-PL-ELA anyway-CLT rather terrible-ADV
'Perhaps I'm a bit oversensitive to sound, but anyway I get irritated by sounds rather terribly' (53957010)

6.6.5 *raivostua* 'get furious'

In total, the verb *raivostua* 'get furious' appears 14 570 times. Regarding semantics, the verb is very similar to *suuttua* 'get angry'. In 6.6.3, I mentioned that *suuttumus* 'anger' is typically provoked by the behavior of other people (see Tuovila 2005: 101). This aspect is not reflected in the corresponding NSM paraphrase of *raivo* 'fury'. Instead, the term is said to highlight the urge to react in a violent way (ibid.: 102):

raivo
X feels something
sometimes a person thinks something like this:
something happened to me some time ago
I did not want that something like this happens
Now I want to do something bad because of this
I don't know what I do
because of this, this person feels bad for some time
X feels something like this

But, considering that the verb *raivostua* frequently appears with allative marking, one can assume that other people do play a role in the conceptualization of the emotion described by the noun *raivo* and the verb *raivostua*. The construction [*raivostua* N-ALL] is attested 83 times in the corpus sample.

Due to this low number, only five results of the covarying collexeme analysis are significant, cf. Table 60. As expected, the list mainly features nouns referring to human referents and, via metonymy the noun *media* 'media'. The construction [*raivostua* N-ILL] is attested with both animate and inanimate referents (∑=21). But, as the covarying collexeme analysis of the construction did not yield any significant results, it will not further be discussed. If we turn to

elative marking, the collexeme list of the construction [*raivostua* N-ELA] looks fairly similar to that of [*suuttua* N-ELA], see 6.6.3. Not only do we find near-synonyms like *kritiikki* 'critique' and *arvostelu* 'criticism' among the top collexemes of the two constructions, but also three exact matches, i.e. *epäoikeudenmukaisuus* 'injustice', *pilakuva* 'caricature', and *pikkuasia* 'minor thing'.

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
media	media	20	**2**	3.18	**4.52**	5.86	3.38
isä	father	104	**5**	2.77	**3.66**	4.55	6.26
äiti	mother	121	**4**	2.31	**3.28**	4.25	4.46
Jeesus	Jesus	263	**5**	1.83	**2.70**	3.58	4.30
lapsi	child	1204	**15**	1.78	**2.33**	2.89	9.49

Table 60: Top collexemes of the construction [*raivostua* N-ALL]

N	Translation	∑	**V+N**	CI(l)	**log OR**	CI(r)	$-\log_{10}$ FYE
mitättömyys	triviality	2	**2**	4.71	**7.75**	10.80	5.33
epäoikeudenmukaisuus	injustice	18	**4**	3.92	**4.99**	6.06	7.20
lausunto	statement	11	**2**	3.40	**4.81**	6.21	3.60
pilakuva	caricature	11	**2**	3.40	**4.81**	6.21	3.60
video	video	20	**3**	3.38	**4.54**	5.71	4.96
pikkuasia	minor thing	83	**9**	3.44	**4.14**	4.85	12.65
syytös	allegation	20	**2**	2.81	**4.14**	5.48	3.06
kritiikki	critique	62	**5**	2.93	**3.82**	4.72	6.59
ehdotus	suggestion	77	**3**	2.01	**3.09**	4.18	3.19
kysymys	question	184	**4**	1.51	**2.47**	3.42	3.14

Table 61: Top collexemes of the construction [*raivostua* N-ELA]

Similar to the construction [*ärsyyntyä* N-ELA], the construction [*raivostua* N-ELA] displays a stronger association to linguistic nouns than [*suuttua* N-ELA]:

(234) *Jos* *mies* *raivostu-u* *kritiiki-stä,* *hän* *on* *lapse-llinen,*
if man get.furious-3SG critique-ELA 3SG be.3SG child-ADJ

keskenkasvuinen, *vähän* *yksinkertainen* *tai* *sitten:* *narsisti*
immature a.little simple or than narcissist

'If a man gets furious about critique, he is childish, immature, a bit of a simpleton or just: a narcissist' (39151629)

The construction [*ärsyyntyä* N-ELA] is particularly attracted to nouns referring to illocutionary acts, namely *lausunto* 'statement', *syytös* 'allegation', *kritiikki* 'critique', and *ehdotus* 'suggestion'. Leaving these minor differences aside, we can clearly see that the semantic similarities between the verbs of anger analyzed here are also reflected in the semantic preferences of stimulus nouns co-occuring with them.

6.7 Discussion of the results

The purpose of this chapter was to show which nouns appear as stimuli of inchoative emotion verbs. In 2.3.2, I introduced the term semantic preference to capture the association between the emotion verbs and particular concepts. The analysis revealed that verbs with a similar meaning also co-occur with similar stimulus nouns. For instance, verbs of surprise (i.e. *yllättyä* 'be surprised' and *hämmästyä* 'be astonished) appear with stimulus nouns that appear to be related to expectations in one way or another, e.g. *tulos* 'result' and *syytös* 'allegation'. At closer inspection, the collexemes even help to determine subtle semantic differences between the two verbs of surprise: preferred stimuli of the verb *yllättyä* 'be surprised' can be characterized by the term misexpected, whereas preferred stimuli of the verb *hämmästyä* 'be astonished' tend to be unexpected by the experiencer.

Expectations also appear to play a role in the semantics of the verb *ilahtua* 'be delighted'. Among the collexemes of the construction [*ilahtua* N-ELA], we primarily find nouns referring to actions and events, e.g. *soitto* 'call'. The verb's semantic preference of events is also in line with the high number of temporal *kun*-clauses and conditional *jos*-clauses attested in 5.2. In a similar way, *innostua* 'get excited' appears to be attracted to second-order entities. But, at closer inspection, we can see that many of the top collexemes of the verb do not refer to concrete actions, but rather to habitual actions or "activities", e.g. *lenkkeily* 'jogging' and *kuntoilu* 'fitness (physical). In contrast, the verb *kiinnostua* 'get interested' is primarily attracted to more abstract, topic-like stimulus nouns

such as *historia* 'history' and *taide* 'arts'. But, the verb is also attracted to concrete nouns such as *asunto* 'apartment', which suggests a functional deviation in terms of semantic prosody ('get interested' > 'want').

Considerable overlap was found among the collexemes of the verbs *ihastua* 'get infatuated' and *rakastua* 'fall in love'. Both verbs are significantly attracted to human stimulus referents such as *työkaveri* 'co-worker' and *vaimo* 'wife'. Differences in the semantic preferences of the two verbs are minor, but the attraction of the verb *ihastua* 'get infatuated' to nouns such as *opettaja* 'teacher' and *poika* 'boy' suggests that it is more youthful and colloquial then *rakastua* 'fall in love'. In contrast, *rakastua* 'fall in love' designates a more serious feeling that is expected to last longer. More fundamental differences were attested for the verb *mieltyä* 'become fond'. Its preference for stimulus nouns with a negative connotation even suggests an attitudinal deviation in terms of semantic prosody.

Like in the case of *yllättyä* 'be surprised', *hämmästyä* 'be astonished', and *ilahtua* 'be delighted', expectations also play a role with regard to the collexemes of the verb *pettyä* 'get disappointed'. This is supported by collexemes such as *odotus* 'expectation' and *lopputulos* 'final result'. Unlike the aforementioned verbs, *pettyä* also co-occurs with human stimulus referents, e.g. *persu* 'True Finn (nickname)'. As mentioned in 5.1.3, this behavior is typical for verbs appearing with illative marking. Semantically more limited are the collexemes of the verb *masentua* 'get depressed', which is primarily associated with non-agentive nouns referring to aversive events, such as *takaisku* 'setback'.

The verb *huolestua* 'get worried' is particularly interesting, because both stimulus- and topic-like arguments of the verb are marked with the elative case. Thus, there is a semantic difference whether one is worried about his income (topic) or about climate change (stimulus). But, this difference is not reflected by case marking. What the verb *huolestua* has in common with *ahdistua* 'get anxious', another verb of fear, is its preference for nouns referring to rather abstract states and situations, e.g. *tila* 'state' and *tilanne* 'situation'. In contrast, the verbs *pelästyä* 'get frightened' and *säikähtää* 'get scared' primarily co-occur with rather concrete, perceivable stimuli, e.g. *huuto* 'scream' and *ääni* 'sound'. The comparison of the constructions [*pelästyä* N-PTV] and [*säikähtää* N-PTV] with [*pelästyä* N-ELA] and [*säikähtää* N-ELA] suggests that elative marking is reserved for more abstract, topic-like stimuli, e.g. *uhkaus* 'threat' and *puhe* 'talk'. This is in line with the observations made in 5.1. Concerning *järkyttyä* 'be shocked', the analysis of the collexemes once again hinted at the importance of expectations (or a lack thereof) in the conceptualization of many emo-

tions. Thus, we find nouns such as *löytö* 'discovery', *yllätys* 'surprise', and *uutinen* 'news' among the top collexemes of the verb.

Finally, the verbs of anger provide a rather diverse picture, when it comes to semantic preferences of stimuli. The distribution ranges from concrete sensations (e.g. *meteli* 'noise') over actions (*pettäminen* 'treason; cheating') to utterances (e.g. *vitsi* 'joke'). In the case of the verb *hermostua* 'get agitated', the collexeme analysis provided further clues on the alternation between elative, illative, and allative. First of all, we can see a clear division between elative and allative: the former is reserved for inanimate nouns (e.g. *provosointi* 'provocation'), the latter for animate nouns (e.g. *äiti* 'mother'). The function of illative marking is more complicated, because it covers both animate and inanimate referents. But, the covarying collexeme analysis suggests that the construction [*hermostua* N-ILL] is used to emphasize that the experiencer was already exposed to the stimulus prior to the emotional reaction (see 5.1.3). This is supported by collexemes such as *jahkailu* 'delay' and *odottaminen* 'waiting', which are also significantly attracted to the verb *kyllästyä* 'get fed up'. Similar patterns can be observed with regard to other verbs of anger (*suuttua* 'get angry', *ärsyyntyä* 'get irritated', and *raivostua* 'get furious'), but in their case the covarying collexeme analysis does not provide enough significant results to draw further conclusions.

The results of the collexeme analysis were also contrasted with the NSM explications given by Tuovila (2005). As mentioned in 4.1.2, this was not possible for every verb, as the present study differs in its selection of emotion terms. Nevertheless, the comparison suggested that it might be worth reformulating some of the explications. For instance, the explication of *ihastus* does not make any reference to other people, i.e. the target of the emotion, although the verb *ihastua* is significantly attracted to nouns referring to human beings.

In conclusion, semantic preferences can be observed at different levels, i.e. 1) ontology, 2) topics, and 3) features. The aspect of ontology can be illustrated with the verbs *rakastua* 'fall in love' and *ihastua* 'get infatuated', which share a strong attraction to nouns referring to human referents and, more general, to first-order nouns, i.e. entities and qualities. In contrast, the semantic preferences of the verb *ilahtua* 'be delighted' can rather be boiled down to the topic or domain of social life. Semantic preferences of emotion verbs can also be related to certain semantic features of stimulus nouns. For instance, the verbs *yllättyä* 'be surprised', *hämmästyä* 'be astonished', *ilahtua* 'be delighted', *pettyä* 'get disappointed', and *järkyttyä* 'be shocked' appear together with nouns that are in one way or another related to expectations.

7. Conclusion

The aim of the present study was to shed light on inchoative emotion verbs in Finnish, a set of verbs used to express a change from a non-emotive to an emotive state that has not received much attention in Finnish Studies and other linguistic disciplines. Particular focus was put on argument structures and stimuli of these verbs.

An introductory overview on the relation between emotion and language revealed that the number of publications in emotion research has grown considerably in the recent years. In order to place the treatise in the wider context of emotion research, I presented three long-standing research traditions in psychology, i.e. basic emotion theory, appraisal theory, and constructivist psychology. It was shown that all three approaches contribute to the understanding of emotions, but due to its emphasis on language, constructivist psychology proves to be the best starting point for the present study. Within linguistics, it is natural semantic metalanguage (NSM), cognitive linguistics, and corpus linguistics that stand out the most in emotion research. Finnish emotion terms have been fruitfully studied from the perspective of NSM and cognitive linguistics, but thorough corpus-based studies of the Finnish emotion vocabulary are still lacking. The present study aims to fill this gap by employing a usage-based approach that combines insights from corpus linguistics and cognitive linguistics (in particular construction grammar).

The choice of a usage-based approach is founded on recent insights into the status of argument structures. Corpus data and experimental data suggest that argument structures are related to both item-specific knowledge (i.e. lexically-bound argument structure constructions) and generalized knowledge (i.e. phrasal argument structure constructions). More problematic is the issue of noun categorization, which is necessary to determine the semantics of the nouns appearing as stimuli of the inchoative emotion verbs. Drawing on cognitive and functional aspects, the present study provided a tentative categorization of Finnish nouns used in the analysis.

Regarding methodology, the study adopted a corpus-based approach that combines qualitative and quantitative analysis in a complementary and synergistic way. The data used for this study is drawn from the Suomi24 corpus, a massive corpus based on the social networking website Suomi24. The study itself is limited to the 20 inchoative emotion verbs that are most frequent in the corpus. The analysis of the verbs' argument structures is based on a de-

scription of the different argument realization patterns attested in a randomly chosen sample of 100 sentences for every verb. In order to get a detailed picture of the semantics of the emotion verbs, the analysis of stimulus nouns makes use of a covarying collexeme analysis, i.e. a structure-sensitive collocate analysis that is particularly apt for usage-based approaches. Although the corresponding R-script Coll. Analysis 3.5 (Gries 2014) uses the p-value of the Fisher-Yates exact test as a default measure of association, the present study makes use of log odds ratios, as they are more transparent and less dependent on sample size.

The first analysis revealed that the inchoative emotion verbs vary considerably with regard to argument realization, both in terms of quantity and quality. For instance, some verbs (e.g. *mieltyä* 'become fond' and *ihastua* 'get infatuated') clearly prefer explicit argument realization, whereas others (e.g. *ahdistua* 'get anxious' and *masentua* 'get depressed') tend to appear without any explicit argument. In a similar way, some verbs prefer nominal arguments (e.g. *kiinnostua* 'get interested'), yet others (e.g. *yllättyä* 'be surprised') prefer clausal arguments. In many cases, variations in argument realization can be attested to verbal semantics: reference to a particular stimulus is of great importance for directed emotions (e.g. love and interest), but negligible for others (e.g. depression). Similarly, the directionality between experiencer and stimulus differs for verbs referring to directed emotions (experiencer > stimulus) and verbs referring to undirected emotions (stimulus > experiencer), such as anxiety and surprise. In Finnish, this difference is also reflected by the choice of case marking on nominal stimuli, i.e. illative and elative, respectively.

Variations in argument realization do not only pertain to verbs with different semantics, but also to near-synonymous lexemes like *säikähtää* 'get scared' and *pelästyä* 'get frightened'. When it comes to nominal arguments, *säikähtää* 'get scared' and *pelästyä* 'get frightened' both appear with partitive marking (and to some extent also elative marking) on stimulus nouns, but explicit argument realization is much more common for the former. The picture is even more diverse with regard to the three verbs of anger *ärsyyntyä* 'get irritated', *raivostua* 'get furious', and *suuttua* 'get angry', where the differences not only pertain to the frequency of argument realization, but also to case marking on stimulus nouns (elative vs. illative vs. allative). These results suggest that argument realization cannot be fully explained by the semantics of the inchoative emotion verbs. This is in line with the observation by Faulhaber (2011), who found out that semantically similar verbs tend to display common syntactic behavior (especially when it comes to formal realization of argument

structures), albeit there is a lot of room for divergence (especially when it comes to the frequency of argument realization patterns). Yet, the analysis of the sample sentences also suggested that case marking is a matter of conceptualization and depends on the nature of the verb as well as the nature of the stimulus. This is particularly reflected by variations in case marking, which were found to originate in diachronic changes. The fact that the choice of the local case has both a synchronic and a diachronic motivation is in line with the usage-based model used in this thesis.

The second analysis dealt with the preferred stimuli of the inchoative emotion verbs. For this purpose, an exhaustive corpus study of more than 50 000 sentences was conducted. The analysis was centered on the top collexemes of every inchoative emotion verb. As the study also considered alternations in case marking, a total of 29 constructions were analyzed. The 302 nouns that were attested in conjunction with these constructions were distributed over all four orders of entities. The analysis, which made use of the cognitive-functional noun classification presented in Chapter 3, revealed that verbs with similar semantics also co-occur with similar stimulus nouns. By way of example, the near-synonymous lexemes *säikähtää* 'get scared' and *pelästyä* 'get frightened' even share some common collexemes, e.g. nouns referring to auditory sensations, such as *huuto* 'scream'. The semantic preferences of the inchoative emotion verbs pertain to ontology (e.g. first-order nouns, as in the case of *rakastua* 'fall in love' and *ihastua* 'get infatuated'), topics (e.g. nouns from social life, as in the case of *ilahtua* 'be delighted'), and features (e.g. expectations, as in the case of *yllättyä* 'be surprised' and *hämmästyä* 'be astonished').

The approach also proved to be helpful for identifying nuances of verbs with similar semantics, as in the case of *yllättyä* 'be surprised' and *hämmästyä* 'be astonished'.[112] Whereas *yllättyä* is highly attracted to nouns implying explicit expectations (e.g. *tulos* 'result' or *vastaus* 'answer'), *hämmästyä* is more attracted to nouns referring to unexpected situations (e.g. *havainto* 'observation') and nouns implying disagreement/irritation (e.g. *syytös* 'allegation' and *väite* 'claim'). In cases like this, results were also used to critically discuss previous explications of Finnish emotion concepts in terms of natural semantic metalanguage.

[112] Yet, it is difficult to identify semantic nuances of near-synonymous verbs (e.g. *säikähtää* 'get scared'/ *pelästyä* 'get frightened' and *ärsyyntyä* 'get irritated'/ *suuttua* 'get angry'/ *raivostua* 'get furious') with this method.

Semantic preferences of particular stimuli also hint at differences in semantic prosody: for instance, *yllättyä* being neutral, *hämmästyä* being evaluative. The issue of semantic prosody proved to be even more prominent in the case of the verbs *mieltyä* 'become fond' and *kiinnostua* 'get interested': unlike other verbs referring to attraction (*rakastua* 'fall in love' and *ihastua* 'get infatuated'), *mieltyä* 'become fond' is highly attracted to nouns carrying a negative connotation (e.g. *vääryys* 'injustice, wrong', *valhe* 'lie', and *synti* 'sin'). This semantic preference indicates a negative connotation of the verb itself. In the case of the verb *kiinnostua* 'get interested', certain collexemes, i.e. nouns referring to human beings (*nainen* 'woman') and concrete things (*asunto* 'apartment'), indicate 'attraction' or 'wanting', which is certainly a functional extension of the verb's core meaning.

Particularly fruitful was the investigation of variation in case marking. A comparision of the nominal slots of related constructions (e.g. [*hermostua* N-ELA], [*hermostua* N-ILL], and [*hermostua* N-ALL]) makes it possible to pinpoint subtle differences in constructional semantics. For instance, elative and allative marking appear to be the neutral choice for the verb *hermostua* 'get agitated'. Elative marking is reserved for inanimate referents, allative marking for animate referents. In contrast to that, illative marking is used to emphasize that the experiencer was exposed to the stimulus for a considerable amount of time prior to the emotional reaction denoted by *hermostua*. This is supported by a number of collexemes which are also common to the verb *kyllästyä* 'get fed up' ([*kyllästyä* N-ILL]). Thus, this peculiar function of the illative case appears to be motivated by a link in the constructional network, which speaks in favor of low-level generalizations and lexically-bound argument structure constructions (see 3.1.3). Insights of this kind are also relevant for second-language acquisition, as it is often difficult to grasp the semantics of argument structure constructions with intuition.

In conclusion, it is fair to say that an analysis of emotion terms and their collocates offers more than just showing that "those words are related" (Soriano 2013a: 76). A study of stimulus nouns does shed light on the conceptual knowledge of emotion terms. This opens several new perspectives for emotion research. For instance, one may think of a diachronic comparison of an emotion verb's preferred stimulus nouns and thus construct some kind of linguistic mood barometer, e.g. what were people worried about two/twenty/two hundred years ago? But, a collexeme analysis does not have to be restricted to stimulus nouns of inchoative emotion verbs: the method may also be extended to other emotion verbs or even other emotion terms. Besides, collo-

structional analysis proved to be a useful methodological tool that yields meaningful results in investigations of lexical semantics.

Corpus linguistic methods generally hold a lot of promise for emotion research. Instead of a lemma-based approach, a next step would be to opt for a more fine-grained, inflectional-form-based analysis. This way, it would be possible to determine whether preferred stimuli differ when it comes to the expression of personal/private emotions (experiencer= 1st person) and the emotions of others (experiencer = non 1st person). One can also assume that a more complex, multifactorial method that does not only consider argument realization patterns and stimulus nouns but also other aspects (e.g. tense-aspect-mood), such as "behavioral profiles" (e.g. Gries/Divjak 2009, Gries 2010), would also provide more insight on the semantics of near-synonymous verbs like *ärsyyntyä* 'get irritated', *suuttua* 'get angry', and *raivostua* 'get furious'. Other potentially fruitful applications of corpus linguistic methods may be found in metaphorical pattern analysis and the analysis of constructional profiles (see 2.2.3). Finally, the growing interest in the conceptualization of emotion should see a rise in research dealing with diachronic aspects. In line with insights from usage-based construction grammar (see Perek 2015), the present study has revealed how the history of an emotion term like *suuttua* 'get angry' or *hämmästyä* 'be astonished' can be seen as a main motivation for alternations between argument structures. So far, linguistics has not contributed much to the historical study of human emotion, an increasingly productive field of research, which is essentially dependent on the study of texts. Closing this gap would be worthwhile for all disciplines studying the nature of emotions.

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Abbreviations

1	first person
2	second person
3	third person
ACC	accusative
ADE	adessive
ADV	adverb(ial)
ALL	allative
CLT	clitic
COM	comitative
COMP	comparative
COND	conditional
CONJ	conjunction
CVB	converb
ELA	elative
ESS	essive
GEN	genitive
ILL	illative
IMP	imperative
INE	inessive
INF	infinitive
N	noun
NEG	negation
NMLZ	nominalizer/nominalization
NOM	nominative
PASS	passive
PL	plural
PN	pronoun
POSS	possessive
PRS	present
PST	past
PTCP	participle
PTV	partitive
Q	question particle
REFL	reflexive
SG	singular
TRL	translative
V	verb
FYE	Fisher-Yates exact test
log	logarithm
msd	morphosyntactic description
OR	odds ratio
pos	part of speech

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The volume investigates the syntagmatic relations of certain Finnish emotion verbs that are formed by the derivational suffix *-ua/-yä* (e.g. *suuttua* 'get angry', *pelästyä* 'get frightened'). Prototypically, the suffix expresses reflexivity, but in the case of the "inchoative" emotion verbs, it indicates a change of state on behalf of the experiencer, from a non-emotional state to an emotional state. The starting point of the investigation is a discussion of different psychological theories of emotion. The discussion shows that constructivist theories particularly emphasize the role of language and offer several links to the cognitive, usage-based model of language that constitutes the theoretical framework guiding the thesis. With regard to the usage-based model, special focus will be put on argument structures and stimulus nouns. The empirical part makes use of different forms of co-occurrence analysis in order to shed light the syntagmatic relations of the inchoative emotion verbs.

„Inchoative Emotion Verbs in Finnish" won the 2019 Doctoral Dissertation Award of the Society for the Study of Finnish (Kotikielen Seura).

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