THE SEMANTICS OF SYNTACTIC CHOICE

AN ANALYSIS OF ENGLISH EMOTION VERBS

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Abstract

Psychological verbs ("psych-verbs") such as *admire, amaze, fear*, and *frighten*, have long been known to exhibit marked syntactic behavior in many languages. This behavior has inspired numerous analyses which assume that there is a unified explanation for the observed patterns. In this dissertation, I focus on the more problematic class of psych-verbs, the so-called Object-Experiencer (Obj-Exp) verbs (e.g. *amaze*, *depress*, *frighten*, *fascinate*) and argue, as some others have, that the explanation for their unusual character is primarily semantic in nature, and can be traced back to the ways in which humans conceptualize psychological events and processes. It is commonly argued that the special behavior of these verbs obtains only in their stative and/or more controversially non-agentive readings.

Through qualitative and quantitative analyses of the semantic properties of Obj-Exp verbs and their arguments, I explore a controversial topic in previous research: the interaction of stativity and passivization among different subclasses of Obj-Exp verbs in English. Analysis of corpus data shows that eventive and stative uses are available to all Obj-Exp verbs in both the active and passive. I show that the choice between active and passive uses is particularly sensitive to the causal role of the stimulus and the nature of the emotion denoted by the verb; together these determine the linguistic construal of the situation as either a causative process or an attitudinal state.

Additionally, I examine the variable (un-)acceptability of English Obj-Exp verbs in agentive contexts, and offer experimental and corpus data showing that a given verb's acceptability in an agentive context directly correlates with the tendency for its emotion to be

associated with a controllable antecedent. These facts argue against analyzing differences in agentivity among psych-verbs at the level of lexical semantic structure, and instead suggest treating agentivity as an inference arising from the total integration of semantic, syntactic, and contextual information in the clause.

Overall, the findings of these linguistic studies align well with recent theories developed in the psychological literature on emotion.

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A note on data sources

Throughout this work I present linguistic data from several sources: the Corpus of Contemporary American English (COCA) (Davies 2008–), the Corpus of Contemporary American Soap Operas (SOAP) (Davies 2012), web searches via Google, and sentences of my own creation. When not otherwise indicated in the text, I mark examples with (COCA), (SOAP), or (G) for Google.

   (i)   I like dinosaurs. I think they're fascinating.   (COCA)

   (ii)   I've always been fascinated by a mullet.   (SOAP)

   (iii)   Dinosaurs fascinate us so much, that many people wish they were still among us.
           (G)

All three of the sources represented in (i)-(iii) are freely available online, and searches for specific examples can be easily reproduced using the basic search interfaces which first identified them. With regard to Web examples, capitalization is represented as found in the original, while errors of spelling, punctuation, or grammar in the original are indicated with "[sic]". In addition to the source tags listed above, examples from (non-linguistic) published sources, including those found in Google Books or online archives like Twitter, are referenced explicitly with endnotes within each chapter (under "Example sources"). Any examples reproduced from prior research literature are cited with the appropriate references. Finally, any examples without marking or citation are my own creation.

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Chapter 1

Introduction

Humans are emotional creatures. This statement should be obvious to anyone who has lived any kind of life worth living. But while the fact that we experience things we call emotions is not in dispute, it has raised a myriad unanswered questions that psychologists, philosophers, anthropologists, linguists, and others have struggled with for centuries. What exactly are emotions? How do we understand them in ourselves, and how do we recognize or identify them in others? Are emotion categories psychologically universal, or are they primarily socio-culturally constructed; can we even draw a clear line between the two? How are different kinds of emotions represented and organized conceptually in our minds, and how are these concepts formed in the first place? Answering any of these questions alone would provide enough challenges for several lifetimes. As a linguist however, my primary interest is in understanding language's role in reflecting and shaping speakers' understanding of emotion concepts. Providing further insight into the relationship between language and emotion concepts lies at the heart of this dissertation.

We can begin to understand this relationship by exploring how the conceptual properties of emotions are encoded in the words and constructions used to describe them. It is commonly assumed that humans build mental concepts of various kinds which reflect

their experience, and that many of these concepts are encoded in the meanings of individual words, often conceived as 'entries' in a mental lexicon (e.g. Jackendoff 1989; Levin and Pinker 1991; Pustejovsky 1995; Tyler and Evans 2001). Such approaches maintain that lexical entries comprise varying degrees of semantic information, conceived of as sets of privative features, thematic role lists, and/or event structures, and that words are individuated conceptually in terms of the information that they denote. With regard to verbs—which are the focus of this dissertation—it is argued in a wide variety of theoretical approaches that a verb's semantic representations determine the range of syntactic realizations of its arguments (e.g. Croft 2012; Dowty 1991; Goldberg 1995; Jackendoff 1990; Langacker 1987; Pinker 1989; Rappaport Hovav and Levin 1998; Van Valin and LaPolla 1997). Theorists working in the realm of lexical semantics, and the syntax-semantics interface more broadly, therefore take as their prime directive the identification of those facets of meaning relevant to grammatical structure. Identifying those relevant aspects of meaning is not a simple matter however, and the consequences for misidentifying them can give rise to erroneous generalizations about semantic structure and lexical conceptual organization both within and across languages (Levin and Rappaport Hovav 1995).

The goal of the present study is to explore aspects of meaning as they pertain to the syntactic patterns of argument realization found in the class of English emotion verbs— the so-called "psychological verbs", or simply "psych-verbs". In particular, I focus on the subset of psych-verbs commonly referred to as Object Experiencer (Obj-Exp) verbs, e.g. *amaze, bother, captivate, depress, frighten, please* and *surprise*, as these verbs have long been argued to pose challenges for theories of semantic and syntactic structure in English (and many other languages as well). My task throughout this dissertation is to identify those aspects of psych-verb meaning that give rise to the various linguistic behaviors involving them.

The methods I use however, depart from those in much of the previous literature on this topic, especially work in generative frameworks which have focused almost entirely

on researchers' intuitions about isolated, artifically constructed sentences. In the chapters that follow, I present evidence that many claims linguists have made about English Obj-Exp verbs over the years are based on considerable mis-characterization(s) of the facts. The reliance on limited data has led to a number of mistaken overgeneralizations about these verbs, and I argue this is due in large part to the failure to consider other lines of evidence. In response, this dissertation presents a detailed examination of psych-verb usage in context, focusing on the interaction of verb meaning and constructional alternations, in the spirit of other recent corpus-based studies of lexical semantics (e.g. Glynn 2010; Gries 2006; Lewandowska-Tomaszczyk and Wilson 2010). But more than this, I use the analysis of corpus data and other offline assessments of knowledge about emotional concepts and lexical items to help understand some of the well-known claims about Obj-Exp verbs deriving from meta-linguistic tasks, i.e. acceptability judgments (both within the literature and experimentally obtained). By collecting data from these multiple lines of evidence, I show that many apparent puzzles which have featured prominently in discussions of these verbs disappear upon closer inspection.

In the rest of this chapter, I continue the discussion of semantic verb classification, briefly reviewing the theoretical background of several proposals for lexical semantic representation and the empirical methods involved in discerning it. Following this, I describe in more detail the class of psych-verbs in English and discuss several theoretical proposals regarding their semantic (or syntactic) structure. In the final section, I lay out the organization of the rest of the dissertation.

1.1 Lexical meaning and argument realization

The question of what semantic dimensions are relevant to grammatical structure has prompted an extremely rich field of research to say the least (e.g. Ackerman and Moore 2001; Baker 1988; Bouchard 1995; Bresnan and Kanerva 1989; Croft 1991; Davis and Koenig 2000;

Dowty 1991; Fillmore 1968; Goldberg 1995; Grimshaw 1990; Gruber 1976; Hale and Keyser 1993; Jackendoff 1990; Levin and Rappaport Hovav 1995; Pesetsky 1995; Pustejovsky 1995; Rappaport Hovav and Levin 1998; Reinhart 2002; Schlesinger 1995; Van Valin and LaPolla 1997; Talmy 1976; Wechsler 1995). As Levin and Rappaport Hovav (2005: 7) note, the success of any theoretical enterprise attempting to derive the syntactic properties of verbs from facets of their meanings is dependent on the existence of a theory of lexical semantic representation, and on a theory of the mapping between lexical semantics and syntactic structures. In this section I introduce some approaches to lexical semantic representation and the syntax-semantics mapping. For the most part, I will focus on those theoretical models that have been used to derive psych-verb representations.

1.1.1   Thematic roles

The idea that patterns in argument realization are better understood in terms of semantic or 'thematic' roles rather than grammatical functions traces back to early work of Gruber (1965) and Fillmore (1968). For Fillmore in particular, the reasoning was that by appealing to the deeper semantic relationships between predicates and their arguments, he could capture typologically universal patterns, regardless of differences in languages' surface syntactic structure. A great deal of subsequent work has of course followed in this tradition. Such theories maintain that the assignment of grammatical functions is determined in large part by the underlying thematic roles associated with a given verb, typically defined in terms of the polar opposition between agent-hood and patient-hood. Subjects canonically refer to Agents, while objects generally refer to Patients (Themes). Other thematic roles, such as Experiencer, Goal, or Instrument, are said to occupy positions along a hierarchy delimited at the top by the Agent role and at the bottom by a number of possible roles, depending on one's particular theory. Grimshaw (1990) for example, places the Theme role last, while Speas (1990) on the other hand, places it roughly in the middle of the hierarchy.

(1.1) a. Agent > Experiencer > Goal/Source/Location > Theme

(Grimshaw 1990)

b. Agent > Experiencer > Theme > Goal/Source/Location > Manner/Time

(Speas 1990)

Levin and Rappaport Hovav (2005: 162-164) provide a list of the many various hierarchies that have been proposed, revealing a worrisome lack of agreement about the existence and relative importance of different roles. Of course, disagreement among theories is not necessarily a bad thing, but such widespread uncertainty should give us pause.

Over the years, it has become clear that these semantic role lists as traditionally described are simply too abstract or too coarse to capture the linguistic facts. Ultimately, semantic role lists all suffer from the same problem: they fail to adequately explain why arguments bearing specific semantic roles should be realized in given syntactic positions. This drawback has led to the prevailing view of semantic roles as generalizations derived from more elementary aspects of lexical semantic representations (e.g. Dowty 1991; Jackendoff 1990; Levin and Rappaport Hovav 1995; Schlesinger 1995; Van Valin and LaPolla 1997). In response to this problem, various researchers have attempted to explicate roles in terms of more primitive semantic features, specific combinations of which give rise to the patterns in argument realization that the traditional roles of Agent, Patient, Experiencer, etc, were intended to explain (e.g. Dowty 1991; Primus 1999; Schlesinger 1995). In perhaps the most widely known development of such an analysis, Dowty (1991) theorized that traditional roles emerge from a set of "Proto-properties" defined in terms of the lexical entailments of the event described by the predicate. In this view, arguments possessing more "Proto-Agent" properties, e.g. volition, sentience, movement, or "causing an event or change of state", are more likely to be realized as canonical subjects. On the other hand, canonical objects are those instantiating more 'Proto-Patient' properties, such as lack of movement or independent existence, undergoing a change of state, and/or being causally affected by

another participant. For Dowty (1991), it is the relative number of Proto-Agent or Proto-Patient properties a verb's arguments instantiate, i.e. the relative thematic prominence between the two specific arguments, that determines the arguments' syntactic realization.

An alternative approach popular in the field has been to define semantic roles in terms of structural positions within articulated lexical semantic representations. These representations go by many names, e.g. event structures, predicate decompositions, logical structures, (lexical) conceptual structures, and so on (e.g. Croft 1998; Jackendoff 1990, 2007; Levin 1999; Levin and Rappaport Hovav 2011; Rappaport Hovav and Levin 1998, 2012; Van Valin and LaPolla 1997; Van Valin 2005; Wunderlich 1997). In the next section I give a short overview of such approaches to what I will call Lexical Conceptual Structure (LCS), following Levin and Rappaport Hovav (2011).

1.1.2   Lexical Conceptual Structure

Regardless of the exact formulation, structural theories of lexical semantic representations are all intended to express the same basic idea: that a verb's argument realization options are a function of the depth of embedding of its arguments within its event structure. Naturally, such a move relies on the idea that verb meaning have internal structure, and so the investigation of the mapping between syntax and semantics shifts to the exploration of internal verbal structure. A further advantage of this approach is that we can use the components of these (sub)structures to identify and define semantically coherent classes of verbs. The existence of such verb classes indicates that speakers can make generalizations over the rules what govern the mapping from semantic structure to syntactic structure. Thus, it would appear that some properties of verbs are learned by analogy from other members of their class. The belief is that understanding what unifies particular verb classes should help us identify those components of meaning which circumscribe a verb's syntactic behavior (Levin 1993).

All theories of LCS draw a distinction between a structural component and an idiosyncratic component to verb meaning (Rappaport Hovav and Levin 1998). The structural aspect comprises the primitive predicates that are responsible for determining the range of event types available, i.e. the classes of verbs that are relevant to the patterns of argument realization. The idiosyncratic component on the other hand, is the part of meaning that is unique to the individual lexeme. Following Pesetsky (1995: 70), I adopt the term "root" to refer to the idiosyncratic component of a verb's meaning.[1] The representations of the verbs *fear, frighten,* and *scare* in (1.2) help to illustrate this distinction (representations are based on Biały (2005) and DiDesidero (1999)).

(1.2) a.   *fear*: [x *<FEAR>* y]

 b.   *frighten*: [*e* CAUSE [BECOME [y *<FRIGHTENED>*]]]

 c.   *fascinate*: [*e* CAUSE [BECOME [y *<FASCINATED>*]]]

 (*e* denotes a causing subevent)

In these representations, the operators CAUSE and BECOME in (1.2b-c) are basic subcomponents of the system that appear in the representations of many different verbs, while the idiosyncratic elements of these verbs' meanings are represented by *FEAR, FRIGHTENED,* and *SCARED*. The variables x, y and *e* stand in for the distinct argument positions of the verb.

The essential idea is that verbs belonging to the same class will share the same substructures in their LCSs. CAUSE for instance, is part of the representation of causative psych-verbs like *frighten* and *scare*, but it also is part of the representation of other causative verbs, such as *break, bend, melt, kill,* and so on. Generalizing from examples like these (and others), it is possible to identify a set of structural "templates" that define the range of possible LCSs within the language. These structures have gone under various names, including "event templates" (Rappaport Hovav and Levin 1998), "constructions" (e.g. Goldberg

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[1]This notion of root is distinct from the notion of root used in morphology (e.g. Aronoff 1993).

1995), "logical structures" (e.g. Van Valin and LaPolla 1997), and "conceptual structures" (Jackendoff 1990), but details aside, the broader point is that all such approaches posit sets of structures which largely tend to conform to generally acknowledged event types. For example, all approaches to event structure mark a distinction between stative event types and causative event types—to name one distinction relevant to the discussion of psych-verbs. In the spirit of Rappaport Hovav and Levin (2008: 134), I use the general term "event schema" as a descriptive abstraction over the various models of the structural aspect of lexical meaning.

The usefulness for these kinds of representations can be seen quite clearly in the difference between the event structures of *fear* and *frighten*. Verbs like *fear* express stative relations, which in the notation of Rappaport Hovav and Levin are represented through the basic schema [x *<STATE>* y], where the individual character of the state is represented by *FEAR* in (1.3), repeated from (1.2a).

(1.3)　*fear*: [x *<FEAR>* y]

Verbs like *frighten* however, express (externally) caused changes of state, where causation and change-of-state are captured via the CAUSE and BECOME primitives. At its core, *frighten* too involves a stative relation, as represented by [y *<FRIGHTENED>*] in (1.4), but in the case of meaning of *frighten*, the state *FRIGHTENED* is embedded within a larger structure.

(1.4)　*frighten*: [*e* CAUSE [BECOME [y *<FRIGHTENED>*]]]

This latter point highlights a crucial distinction among event type which will feature in the discussion of psych-verb representations below. This is the distinction between simple and complex events (e.g. Arad 1998; Biały 2005; Croft 1993; DiDesidero 1999; Jackendoff 2007; Levin 1999; Pustejovsky 1995).

Psych-verbs present a challenge for semantic representations because we are faced with

the task of capturing the aspects of meaning shared by the verbs in various sub-classes using a set of common primitives, while at the same time distinguishing individual verbs from each other in terms of their idiosyncratic components of meaning, i.e. their roots (DiDesidero 1999). While it is generally assumed that the range of available event schemas is fixed, the class of roots is taken to be open-ended. Each root is characterized by an ontological type (e.g. Jackendoff 1990; Pinker 1989; Rappaport Hovav and Levin 1998), drawn from a finite set of categories, including result state (*clean*), manner (*scrub*), substance (*paint*), and many others. The ontological type of a root determines its association with a particular event structure, thereby indirectly influencing the verb's argument realization patterns. Exactly to what extent a verb's root directly influences its argument realization is still a topic of much debate. Levin (2010) for example, argues that roots can be further divided into semantically coherent subtypes (e.g. manner of motion vs. manner of speaking), and that these subtypes constitute meaningful generalizations (verb classes) relevant to semantic selection and participation in various types of argument realization alternation. Others, e.g. Boas (2006, 2008), propose still finer-grained distinctions in meaning, arguing that the relevant level of classification pertains to the degree of verb "descriptivity" (Snell-Hornby 1983), with the consequence that the connection between verb meaning and grammatical structure lies at the level of 'mini-constructions' (Boas 2003) in which "each sense of a verb constitutes its one conventionalized pairing of form and meaning, together with appropriate. . . subcategorization restrictions" (Boas 2008: 42).

As will become clear, the question of semantic granularity lies at the heart of many analyses of psych-verbs, which posit grammatically meaningful distinctions between stative and non-stative, or agentive and non-agentive Obj-Exp verb roots. Naturally, as we probe deeper into the meanings of individual verbs (and verb classes) we must think carefully about the methods we use to identify both the relevant semantic distinctions, as well as the reliability of their interaction with different grammatical, i.e. syntactic forms. Such considerations motivate the various methodologies applied to the investigation of English

psych-verbs here.

To preview the main claim of this dissertation, I argue that the evidence does not support a theoretical distinction among different subtypes of Obj-Exp verbs, at least at the level of semantic structure that determines their participation in a number of argument realization patterns and constructional alternations available to the class as a whole. Still, we will see that fine-grained semantic detail nevertheless does play a role the way different Obj-Exp verbs are used, however this influence is more properly understood in terms of the gradient likelihood of a given verb being used in a particular manner. These fine-grained differences in meaning are particularly influential in determining acceptability in the absence of contextual support (Levin 2010).

But before I get ahead of myself, it is necessary to lay out some of the various analyses of psych-verbs that have been proposed over the years. This is the task to which I turn now.

1.2   Psych-verbs in linguistic theory

The label "psychological verbs", or "psych-verbs", by my definition, is restricted to those verbs which express emotions or emotion-laden attitudes, for example *admire, amaze, amuse, annoy, enjoy, fascinate, fear, frighten, hate, like, love, madden, please, sadden,* and *surprise*. By nature, psych-verbs involve at least one argument referring to a sentient, typically human, EXPERIENCER who is capable of feeling the emotion described by the verb. Most languages have a class of transitive verbs of this type in which the second argument, often referred to as the STIMULUS (Talmy 1985), marks the object, target, or cause of the emotion. This second argument may be either animate or inanimate, abstract or concrete. Verbs of this class have long been known to exhibit marked syntactic behavior in many languages, making them a useful testing ground for investigating the nature of verb meaning and its relation to grammatical structure (Belletti and Rizzi 1988; Biały 2005; Bickel 2004; Comrie and van den Berg 2006; Evans 2004; Haspelmath 2001; Jelinek and Willie 1996;

Jónsson 2003; Nelson 2003; Rudolph and Försterling 1997; Verhoeven 2010a; Whitley 1998). The assumption is that there is an underlying explanation for the patterns seen in psych-verbs across languages, and that this explanation can be traced back to the ways in which humans conceptualize mental events in general. But despite the seeming agreement in this respect, there has been little consensus regarding the best method for characterizing these differing conceptual perspectives.

In some part, this lack of consensus follows from the theoretical assumptions embedded within different frameworks, which necessarily constrain the kinds of analyses theorists can propose. Analyses of these different classes of these verbs have taken on many forms, with various authors claiming that different elements of meaning are relevant to the verbs' syntactic behavior. Throughout the literature, three elements of meaning have taken center stage in the discussion of psych-verb behavior: stativity, agentivity, and most importantly, causativity.

1.2.1   Experiencers as subjects and objects: The linking problem

It is widely acknowledged that the class of psych-verbs in English can be divided according to whether the Experiencer argument is mapped either to the syntactic subject (Subj-Exp verbs) or to the syntactic object (Obj-Exp verbs) (e.g. Arad 1998; Belletti and Rizzi 1988; Grimshaw 1990; Levin 1993; Postal 1970; Pesetsky 1995; Rogers 1974; Zubizaretta 1992).

(1.5) a.   Jason fears/hates/loves dinosaurs.   (Subj-Exp)

b.   Dinosaurs frighten/disgust/fascinate Jason.   (Obj-Exp)

A common observation about these two types of verbs is that they represent (at least) two distinct ways of conceptualizing events in the world, and the distinction is thought to follow from the ways it is possible to view the relations between an experiencer, his/her emotional

state, and the object of that emotional state (e.g. Arad 1998; Biały 2005; Bouchard 1995; Croft 1993; DiDesidero 1999; Hatori 1997; Iwata 1995; Jackendoff 2007; Landau 2010b; Malle 2002; Pesetsky 1995; Schlesinger 1995; Wechsler 1995).

For almost as long as psych-verbs have been talked about in the literature, it has also been noted that this basic fact poses a significant problem for semantic role based theories of the lexicon-syntax interface (e.g. Belletti and Rizzi 1988). Most such theories posit a direct one-to-one mapping between semantic roles and syntax, such that an argument instantiating a particular semmatic role (Causer) should always appear in the same syntactic position (Baker 1988; Perlmutter and Postal 1984). The problem is that both Subj-Exp and Obj-Exp verbs appear to realize the same roles (Experiencer and Stimulus) in opposite positions.

(1.6) a. Swimmers   fear sharks.

            Experiencer   *Stimulus*

     b. Sharks   frighten swimmers.

            Stimulus   *Experiencer*

These verbs therefore seem to present direct counterexamples to general principles such as Baker's (1988: 46) Uniformity of Theta Assignment Hypothesis (UTAH) and Perlmutter and Postal's (1984: 97) Universal Alignment Hypothesis (UAH).

(1.7) a. Uniformity of Theta Assignment Hypothesis (UTAH):

        Identical thematic relationships between items are presented by identical structural relationships between those items at the level of D-structure.

     b. Universal Alignment Hypothesis (UAH):

        There exist principles of Universal Grammar which predict the initial relation borne by each [argument] in a given clause from the meaning of the clause.

In general, researchers have followed two different types of approaches to resolving this problem: appeal to finer-grained syntax, or finer-grained semantics (Pesetsky 1995). While

most syntactic approaches do contain some element of 'finer-grained' semantics, they all rely on some additional syntactic structures/mechanisms, e.g. movement, to explain psych-verb behavior (e.g. Arad 1998, 1999; Belletti and Rizzi 1988; Grimshaw 1990; Landau 2010b; Pylkkänen 1999, 2000). Semantic approaches tend to focus entirely on differences in the causal nature of psych-verb event structures, in particular making no syntactic distinction between Obj-Exp verbs and other non-psychological causatives (e.g. Bouchard 1995; DiDesidero 1999; Hatori 1997; Iwata 1995; Jackendoff 2007; Pesetsky 1995; Pustejovsky 1995). I explore some of these in turn below.

1.2.2 Syntactic accounts

1.2.2.1 Unaccusative approaches

When it comes to syntactic approaches to psych-verbs, there are a number of analyses that resort to some variant of constituent movement to account for the differing linking patterns between Subj-Exp and Obj-Exp verbs. Following Pesetsky (1995: 19), I refer to such accounts in general terms as 'unaccusative' accounts in that these accounts all make the claim that at least some, and possibly all, Obj-Exp verbs do not take external arguments (they do not assign thematic roles "θ-roles" to their subject). One of the most influential of these unaccusative analyses is Belletti and Rizzi's (1988) account of psych-verbs in Italian, but others have more recently provided additional support for the general analysis, albeit with some important differences in the details.

The basic idea behind Belletti and Rizzi's analysis is that while the s-structures of the two verb classes differ, they are identical at the underlying level of d-structure, with the assumption that the non-experiencer argument of both the Subj-Exp and the Obj-Exp classes (which they refer to as the *temere* 'fear' and the *preoccupare* 'worry' classes respectively) instantiates the same thematic role (Theme). Crucially, they argue that in both classes of verbs the Theme argument is internal, i.e. is a sister of the V head.

(1.8)   [_{VP} [V Theme] Exp]

This allows them to maintain a uniform mapping principle, like the UTAH. Specifically, they propose the following linking rule for psych-verbs, along with the associated θ-grids for *temere* and *preoccupare* verbs, where underlining marks an argument as external.

(1.9)   Linking Principle for Experiencer Verbs:

   Given a θ-grid [Experiencer, Theme], the Experiencer is projected to a higher position than the Theme. (344)

(1.10)   Belletti and Rizzi's (1988) thematic structures

   temere: θ-grid   [Experiencer, Theme]

   preoccupare: θ-grid   [Experiencer, Theme]

Under normal circumstances, this principle should result in both the *temere* and the *preoccupare* verbs mapping their Experiencer arguments to the subject positions, except B&R argue that *preoccupare* verbs do not take external (subject) arguments. This poses a problem because according to (Burzio 1986), verbs that do not take external arguments do not assign structural accusative case, and yet this is exactly what is found with Experiencers of Obj-Exp verbs. B&R get around "Burzio's Generalization" by proposing that accusative case with Experiencers in *preoccupare* verbs is in fact lexically governed inherent case. The Theme however is not assigned any case in its base position, so in accordance with the principles of Case Theory, it must move to subject position (and so be assigned structural nominative case) in order to satisfy the Extended Projection Principle (EPP) (Chomsky 1982). This is essentially what happens with intransitive unaccusatives (*The vase broke*) whose sole arguments are also internal arguments, and so must move to subject position by the EPP.

   Belletti and Rizzi (1988) argue that their analysis can explain a number of phenomena, including the well-known "backward binding" facts (which I explore more in Chapter

2), but their analysis is ultimately more descriptive than explanatory. Grimshaw (1990) for example, claims that it is entirely stipulative, noting that simply positing inherent case marking does nothing to illuminate why these verbs should behave this way. In response, she proposes an analysis that takes into account differences in the event (aspectual) structure of the different verb classes as well as their thematic relations. Thus, Grimshaw (1990) argues that the lexical entry of a verb contains two "tiers" of information that is relevant to argument realization, and that this information is organized along two dimensions of prominence: a thematic tier, and an aspectual tier. These two prominence hierarchies, the thematic and the aspectual tiers, govern the link between a predicate's argument structure and the syntactic realization of its arguments. The thematic dimension assigns a verb's arguments to one of several thematic roles, and orients them along a familiar hierarchy (Grimshaw 1990: 24), while the aspectual dimension ranks arguments according to their participation in sub-parts of the verb's event structure.

(1.11)   Grimshaw's (1990) Prominence Hierarchies

Thematic Tier: (Agent (Experiencer (Goal/Source/Location(Theme))))

Aspectual Tier: (Cause (other...))

For Grimshaw, external arguments must be both thematically and aspectually the most prominent. An external argument must have the highest ranking available position on the thematic hierarchy, and at the same time must be associated with the first subevent of the event denoted by the verb. Agents are typically associated with causing subevents, and they are the highest ranking thematic role, thus the agent is an external argument in most typical causative verbs. Grimshaw argues that it is the interplay between the arguments' prominence on the two tiers that distinguishes the two major psych-verb classes from each other (a view shared by many). Subj-Exp verbs denote simple stative events with no distinct subevents, while the events denoted by Obj-Exp verbs are complex events composed of (at least) two distinct subevents, the first of which causes the second. For Subj-Exp verbs, the

Experiencer is thematically more prominent than the Theme, and due to the fact that both are part of a simple event, the Experiencer can be treated as aspectually more prominent as well. Experiencers of verbs like *fear, admire, love,* and so on are therefore external arguments, and hence mapped to subject position.

With Obj-Exp verbs, it is the non-Experiencer argument—as the cause of the emotion—that outranks the Experiencer on the aspectual tier. The situation is actually more complicated however, as Grimshaw notes that there is a difference between agentive and non-agentive, or "psychological", uses of Obj-Exp verbs.

(1.12) a.   The clown (deliberately) frightened the children.

b.   The dog (*deliberately) frightened the children.

Grimshaw makes a number of empirical claims in support of this distinction, and I explore the issue of agentivity in detail in subsequent chapters. For now, the crucial point is that the troublesome behavior of Obj-Exp verbs applies only to non-agentive Obj-Exp verbs. The distinction is represented in the misalignment of the two hierarchies, as represented in (1.13b).

(1.13) a.   Agentive *frighten*:

Thematic hierarchy: Agent   Experiencer
                        | |
Aspectual hierarchy: 1   2

b.   Non-agentive *frighten*:

Thematic hierarchy: Experiencer   Theme

Aspectual hierarchy: 1   2

The difference ultimately boils down to the thematic role assignment of the non-experiencer argument, i.e. the subject in the active clause. If the subject is an Agent, then it is an external argument which is mapped to subject position, and we get a typical transitive causative verb.

Agentive Obj-Exp verbs are expected to behave like other causative verbs in (almost) all respects. However, if the subject is characterized as a Theme, then neither argument can be external, and so the Theme must get to the surface subject position via some sort of derivational process similar to that of Belletti and Rizzi (1988).

While Grimshaw's specific analysis is problematic in a number of respects (e.g. Bouchard 1995, DiDesidero 1999), her discussion does contain several insights that have proven quite useful. Perhaps her most enduring observation has been that Obj-Exp verbs form a heterogeneous class, and that the differences among verbs can be traced to the nature of the psychological event(s) they denote. For Grimshaw, it is the semantics of the subject that plays the key role in determining the difference between the (sub)classes of Obj-Exp verbs, however more recent authors have focused on a different—though not entirely unrelated—notion: stativity.

1.2.2.2 Non-movement approaches

Arad (1998) proposes that Obj-Exp verbs exhibit three distinct readings, and argues that these readings can be attributed to the fact that Obj-Exp verbs are compatible with different syntactic structures. She calls these readings the "agentive", the "eventive" and the "stative" readings. As with Grimshaw's analysis, the distinction between the agentive and eventive reading focuses primarily on properties of the subject. When the subject is understood as acting intentionally or volitionally to bring about a change of state in the experiencer, the agentive reading obtains.

(1.14)   Nina frightened Laura deliberately/to make her go away.

(Arad 1998: ex 2)

The eventive reading is essentially the same as the agentive, with the exception that the subject is not understood as acting intentionally. Naturally, when the subject is inanimate, or otherwise understood as lacking control/volition, the eventive reading arises.

(1.15) a.   Nina frightened Laura unintentionally/accidentally.

      b.   The explosion/the noise/the storm frightened Laura.

         (Arad 1998: ex 3)

Of course, this distinction between agentive and eventive readings is not particular to Obj-Exp verbs, as almost any causative verb (and many other verbs) exhibit just this kind of variation in their uses. Some uses involve intentional agents (1.16), others do not (1.17).

(1.16) a.   Crabtree deliberately broke a pool cue down at Bart's Saloon ...   (COCA)

      b.   She deliberately hit me on purpose.   (SOAP)

(1.17) a.   Rogen, by contrast, accidentally broke the nose of a stuntman on his next film.

         (COCA)

      b.   And a car came crashing through the window and hit us at our table.   (SOAP)

What makes Obj-Exp verbs interesting though is that they can have a third reading—a stative, or "psych" reading which, according to Arad, possesses several distinct characteristics. First, there is no agent. The triggering of the emotional state and/or the perception of the stimulus is outside the control of any party involved. Accordingly, the stimulus is not interpreted as doing anything to trigger the state, rather it is just something "about" it that causes the experiencer to feel a certain way. This lack of agentivity is naturally compatible with Grimshaw's proposal for psychological Obj-Exp verbs.

Second, there is no change of state in the experiencer with the stative reading. A stative Obj-Exp verb "only asserts that the experiencer is at a specific mental state as long as she perceives the stimulus (or has it on her mind)" (Arad 1998: 206). Most Obj-Exp verbs alternate between the agentive/eventive reading and this stative reading, but there are some verbs, e.g. *concern, depress,* and *worry*, that are obligatorily stative. Intriguingly, with the stative Obj-Exp reading, the stimulus is said to trigger a mental state but not trigger a

change of state. In other words, in a sentence like (1.18), there is no specific point at which there is a transition from being unconcerned to concerned; it only asserts that while Nina thinks of this problem, she is concerned.

(1.18)   This problem concerned Nina.

While this may seem an odd interpretation, it has been recently been investigated by different authors in several different languages (e.g. Biały 2005; Marín and McNally 2011; Pylkkänen 2000; Rozwadowska 2013). Arad builds off of an earlier idea proposed by Pylkkänen (1997, cited in Arad 1998) who argues that the essential trait of stative Obj-Exp verbs is that the stimulus must accompany the mental state constantly in order for the mental state to hold. In Arad's (and others') analysis, the event denoting the perception of the Stimulus and the event denoting the experience of the emotional state itself are argued to be co-extensive. This is the key difference between the stative and non-stative readings of Obj-Exp verbs. In the agentive and eventive readings, the stimulus only brings about the event of the mental state, but is crucially not part of it.

(1.19) a.   *Stative Obj-Exp verb*:

        perception of stimulus: _____stop

        mental state: _ _ _ _ _ _ _ _ _ _ _stop

    b.   *Non-stative Obj-Exp verb*:

        stimulus   mental state

    _ _ _ _ _ _ _ _→ _ _ _ _ _ _ _ _ _ _ _ _(indefinite)

For Arad, this semantic distinction is directly reflected in the syntactic projection of the verbs' arguments. The structure she proposes for the stative Obj-Exp verbs does not involve inversion or movement, but is instead modeled in terms of a Larsonian VP-shell style structure, in which the upper *v*P domain is associated with the subject/external argument, while the lower, lexical VP domain is associated with the object/internal argument. Arad argues that this lower VP domain is associated with the temporal path of the event

that is "criterial", i.e. that part that is asserted by the predicate (see also Pylkkänen 2000).
The internal argument(s) therefore form part of the temporal path of the event denoted by
the verb, while the external argument, being part of the upper *v*P, is external to that tem-
poral path. Furthermore, those arguments that are criterial of the event are projected within
the lexical VP. Since on the stative reading, the existence of the mental state depends on
the continued existence of the stimulus that triggers it, the stimulus arguments of stative
Obj-Exp verbs are projected internally.

(1.20)   Agentive Obj-Exp verb:
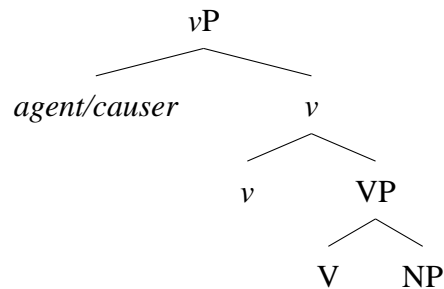
(1.21)   Stative Obj-Exp verb:
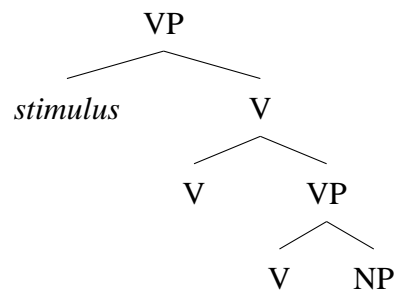
Following Pylkkänen (2000), Arad argues that stative Obj-Exp verbs are still genuine
causative verbs, albeit ones whose stimulus arguments are projected to a different position
than non-stative causative verbs. In essence, she argues that the upper spec VP "accommo-
dates arguments which are part of the temporal path of the event, but which are external

to the domain of change of state and affectedness (i.e. the object domain [lower VP])"
(1998: 217). In this way, stative causers/stimuli are "external internal arguments", which,
according to Arad, are the only arguments that can be generated in this position.

Unfortunately, this analysis strikes me as rather stipulative and ad hoc. In later work,
Arad (1999) revises her analysis to do away with the VP-shell structure and proposes that
spec *v*P is the locus of external arguments in both agentive/eventive *and* stative Obj-Exps
verbs. Under this analysis, the distinction lies entirely in the nature of the *v* head: one
involves an agentive *v* and the other a stative *v*. The unusual behavior of Obj-Exp verbs is
attributed to the presence of the stative functional head v_{ST}, which for some verbs (*concern,
depress*) is the only available structure. Both of these claims—that stative causers are the
only elements that can occupy spec v_{ST}P, and that some Obj-Exp roots are obligatorily
stative—would seem to contradict her claim that "psych verbs are neither lexically nor
syntactically unique" (Arad 1998: 204). As others have noted however (e.g. Landau 2010b),
this still does not explain why languages should employ functional heads with just these
features, nor does it offer any account of why some roots should be restricted to only the
stative uses (i.e. only attach to v_{ST} structures).

1.2.2.3 Experiencers as obliques

In recent work, Landau (2010b) has attempts to resolve some of the more troublesome
issues in the proposals of Arad and others. Like Arad and Grimshaw, he argues that the
differences in behavior among Obj-Exp verbs can be explained by their aspectual structure,
but his analysis departs considerably from those of others in his analysis of the syntactic
structure in which the Experiencer argument is projected. Landau's basic premise can be
summarized as (1.22), adapted from his examples (10) and (11) (2010b: 6).

(1.22) a.   Experiencers are mental locations

        b.   All experiencer objects are [universally] oblique, and therefore bear inherent case.

His proposed structure for non-agentive Obj-Exp verbs is shown in (1.23).

(1.23)
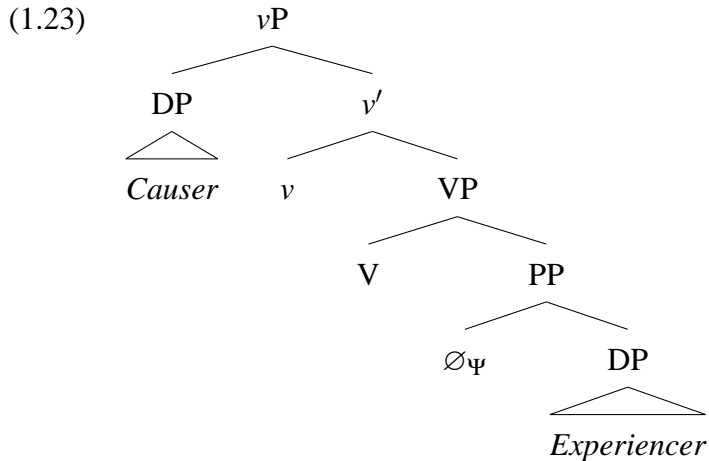
In a nutshell, Landau proposes a syntactic analysis of English Obj-Exp verbs in which they do not in fact take complement NPs (or DPs) as do canonical transitive verbs, but instead select for PP complements headed by a null preposition $\varnothing_\Psi$ (2010b: 7). For English (and many other languages) the inherent case assigned to Experiencer arguments of $\varnothing_\Psi$ happens to be the same case assigned to canonical direct objects: accusative.

    Empirically, his analysis of experiencer objects as obliques rests on the parallel between the syntactic behavior of experiencer objects and the behavior of prepositional objects and other oblique arguments (e.g. goals, locatives). He states this quite explicitly.

(1.24)   The experiencer [of an Obj-Exp verb] should display PP/dative behavior
        (Landau 2010b: ex 42a)

Furthermore, he asserts the generalization that inherent case is assigned only to internal arguments, and uses this to explain patterns of behavior in Obj-Exp passives. Like Arad, Landau also argues for a syntactic distinction between stative and non-stative Obj-Exp verbs, based on the observation that some Obj-Exp verb disallow verbal passives (e.g. Grimshaw 1990; Pesetsky 1995).

(1.25) a. The situation is depressing Mary.

      b. *Mary is being depressed by the situation.
         (Grimshaw 1990: 114)

Landau argues, similarly to Grimshaw, that stative verbs like *depress* disallow verbal passives because they do not project external arguments. Stative Obj-Exp verbs are therefore unaccusative in Landau's view. Landau assumes that syntactic mapping is governed by the hierarchy in (1.26) (from Pesetsky 1995), and proposes that stative Obj-Exp verbs select for an Experiencer and a Target/SubjectMatter, rather than a Causer, argument.

(1.26) Causer $>>$ Experiencer $>>$ Target/Subject Matter (T/SM)

Landau derives the unaccusativity of stative Obj-Exp verbs in the following way. First, the hierarchy in (1.26) requires that the T/SM argument project lower than the Experiencer argument. Additionally, by (1.22b), the Experiencer bears inherent case. Inherent case is taken to only be assigned to internal arguments, and therefore the Experiencer of a stative Obj-Exp verb must be internal. Finally, since the T/SM argument must project lower than the Experiencer, it must also be internal.

    Though Landau's analysis differs greatly in many respects from other syntactic analyses of Obj-Exp verbs, he relies on much the same evidence from extraction and compounding that Grimshaw and others do. As we will see in Chapter 2 though, a more careful examination of the data does not support his analysis for English.

1.2.3 Semantic accounts

In the previous section, I reviewed some of the more prominent analyses of psych-verbs, focusing on those accounts that propose distinctions in the syntactic structures associated with different classes of psych-verbs. While early accounts tended to focus on the broader distinction between Subj-Exp and Obj-Exp verbs (e.g. Belletti and Rizzi 1988; Grimshaw

1990; Postal 1970; Rogers 1974), later authors tended to set aside this distinction (indeed many see it as a non-issue) and focus on the more subtle behavioral patterns found within the Obj-Exp class (e.g. Arad 1998; Landau 2010b). Though they differ in their details, these accounts all converge on several basic points. First, they agree that Obj-Exp verbs are causative verbs. Second, they agree that Obj-Exp can exhibit different aspectual readings, and that the atypical behavior exhibited by these verbs is only found in some readings, specifically readings in which the verbs are interpreted as non-agentive states. With agentive readings however, Obj-Exp verbs are treated as typical causative verbs in most, if not all, analyses.

In this section I discuss two approaches to understanding psych-verbs that do not appeal to differences in syntactic structure, but rather maintain that the unique character of Obj-Exp verbs is better attributed to their semantics. One is the thematic proposal suggested by Pesetsky (1995), while the other is a general family of approaches that attributes the unusual behavior of Obj-Exp verbs to properties of their associated event structures. These latter approaches focus on the nature of causativity and event complexity in the representations of these verbs.

1.2.3.1 Thematic approaches

As mentioned above, Pesetsky (1995) characterizes the difference between Subj-Exp and Obj-Exp verbs in terms of the semantic roles that the emotional stimulus instantiates. He distinguishes three basic roles: Causer, Target, Subject Matter.

(1.27) a. <u>The article in the *Times*</u> angered Bill.   Causer

   b. Bill was very angry at <u>the article in the *Times*</u>.   Target

   c. Bill was very angry about <u>the article in the *Times*</u>.   Subject Matter

(1.28) a. <u>The new painting</u> delighted/disgusted/overjoyed the curator.   Causer

        b.   The curator loved/hated/adored <u>the new painting</u>.   Target

        c.   The curator was upset about <u>the new painting</u>.   Subject Matter

According to Pesetsky, the key difference between the (a) and (b) examples above is that the (a) examples involve the *evaluation* of the target object itself, while the (b) examples seem to imply only that the object was responsible for *causing* the emotion described. The contrast is fairly easy to see in (1.27), where the impression is that in (1.27b) Bill must have formed a negative attitude toward something in the article itself. On the other hand, in (1.27a), Bill does not necessarily hold a bad opinion of the article, rather it may be the facts reported in it that make him angry. He may find the article to be an exceptionally well-written exposé on corporate malfeasance, for example. This latter interpretation is parallel to interpretations of the (c) examples. Once these new roles are integrated into the thematic hierarchy, the linking of the non-experiencer arguments of the two major classes becomes completely predictable from the general linking conditions on argument realization (UTAH).

(1.29)   Causer >> Experiencer >> Target/Subject Matter (T/SM)

Arguments which are higher on the thematic hierarchy are mapped to higher structural positions. Thus, Causers are subjects of Obj-Exp verbs, while Experiencers are subjects of Subj-Exp verbs.

    A crucial problem that Pesetsky discusses at length is the question of why, if the two roles are distinct, do they never co-occur with the same verb. He puzzles over the fact that there are "no simplex predicates that simultaneously realize the Causer argument and the Target or Subject Matter argument" (61). He argues that facts like (1.30) suggest that the Causer and T/SM roles are conceptually distinguishable, and so the explanation cannot be semantic.

(1.30)   The article in the *Times* [Causer] made Bill angry at the government [T/SM].

To resolve this issue, he develops a complex analysis which relies on the presence of "zero" (null) causative morphemes to explain the behavior of Obj-Exp verbs. He proposes that verbs like *annoy* involve roots bound to a zero causative morpheme *CAUS*, which introduces the Causer argument inside the VP. T/SM arguments on the other hand, are introduced by a non-affix P head intervening between the root and *CAUS*. In Obj-Exp verbs, the causative morpheme raises to the root, but when there is a T/SM argument, the preposition introducing it blocks the raising of *CAUS* to the root, and the Causer argument is not expressed. His analysis in fact gets even more complex as the discussion moves on to other phenomena, but I will not discuss it here.

While some (including myself) might argue that Pesetsky's account is ultimately more syntactically than semantically nuanced, his exploration of the differences inherent to the non-experiencer arguments of Subj-Exp and Obj-Exp verbs led to a number of valuable insights, not the least of which is his emphasis on the causal nature of the latter class. Also influential have been his observations regarding the aspectual properties of different sub-types of Obj-Exp verbs: some verbs favor eventive readings (e.g. *startle, surprise*), some are neutral (e.g. *frighten, amuse*), and some are obligatorily stative (e.g. *depress, worry, concern*). In later chapters I explore in detail the relationship between the aspectual properties of these verbs, the syntactic constructions they occur in, and the arguments that different verbs tend to occur with. The picture of Obj-Exp verb variation that I will draw accords well with many of Pesetsky's observations; however, I suggest that the behavior of these verbs is better understood in terms of the roles various participants play in the situation denoted by the sentence.

1.2.3.2 Simple and complex events

As discussed in Section 1.1, the meaning of a verb can be represented in terms of its event structure, which consist of an idiosyncratic component (the root) and a skeletal "event schema", that is shared by other verbs in the language (e.g. Grimshaw 1990; Jackendoff

1990; Levin 1999; Levin and Rappaport Hovav 2011; Rappaport Hovav and Levin 1998). According to Rappaport Hovav and Levin (1998), the ontological type of a verb's root determines the event schema that it is associated with, which in turn influences the realization of its arguments, and these schemas can be used to define larger classes of verbs which share various argument realization behaviors. The event schemas are thus taken to be the expression of the grammatically relevant aspects of verb meaning.

A key factor in understanding the behavior of transitive verbs is the complexity of the event structure they represent. A major division is between complex causative events versus simple non-causative events (Levin 1999; Pustejovsky 1991; Van Valin and LaPolla 1997; Wunderlich 1997). Basic types are shown below.

(1.31)   Simple event schemas:

     a. [x ACT$_{<MANNER>}$] (activity)

     b. [x <STATE>] (state)

     c. [BECOME [y<STATE>]] (achievement)

(1.32)   Complex event schema:

     [[x ACT] CAUSE [BECOME [y<STATE>]]]

According to Levin (1999) the presence of two arguments in argument structure is not equivalent to having complex event structure. Variable positions in an event structure are of two kinds, structure positions and 'pure constant' positions, and participants that fill those positions are labeled structure and constant participants accordingly. Structural participants are those that are required by the event schema as well as the root, while constant participants are present due to the meaning of the root alone. For example, the activity verbs *run* and *hit* are both associated with simple event structures, and thus require at least a "runner" and a "hitter" participant, but only *hit* requires an additional participant, the "hittee".

Thus, arguments can be licensed both by a verb's event structure and by its root. Such is the case with transitive verbs that nevertheless have simple event structures, e.g. *hit, meet,* and most notably *fear, love, admire*, and so on. Typical causative verbs are always transitive by virtue of the fact they involve complex event structures. This is due to the way that event complexity is reflected in argument realization, which is captured in Rappapport Hovav and Levin's (1998) Structure Participant Condition.

(1.33) Structure Participant Condition:
        There must be an argument XP in the syntax for each structure participant in the event structure.

Transitive verbs denoting complex events like caused changes of state (*break*) necessarily require the realization of both participants, because these structures have two structure positions to be filled.

Levin and Rappaport Hovav (1999) further argue that simple event structures can encompass predicates which involve event composition, such as with resultative constructions like *Kelly wiggled free*. Cases like these are claimed to involve two subevents (the wiping and the becoming clean) which are understood as being spatio-temporally connected such that they form a conceptual unit and are therefore represented as a single event in event structure. The two 'coidentified' subevents are temporally dependent on each other, and this dependency is a prerequisite of event identity. They isolate the following conditions on event coidentification (Levin and Rappaport Hovav 1999: ex 30).

(1.34) a.   The subevents must have the same location and must necessarily be temporally dependent.

       b.   One subevent must have a property that serves to measure out that subevent in time; this property is predicated of an entity that is necessarily a participant in both subevents.

The main difference between truly complex and simple event structures then is that they involve different kinds of temporal relations. In the case of resultatives for instance, the temporal progress of the event described by the verb is necessarily dependent on the temporal progress towards the achievement of the state described by the result XP. in other words, the subevents are temporally coextensive and unfold at the same rate (Levin and Rappaport Hovav 1999). This relationship does not necessarily hold of complex causative events.

1.2.4   A special kind of causation

So, how does this fit into the discussion of Obj-Exp verbs? As it happens, a common theme that emerges in the literature on Obj-Exp verbs is that there is something unusual about the causal relation between these verbs' arguments (e.g. Arad 1999; Biały 2005; Croft 1993; DiDesidero 1999; Dowty 1991; Iwata 1995; Jackendoff 2007; Pustejovsky 1995; Pylkkänen 2000). We have already seen this in the discussion of syntactic accounts of these verbs, most notably in Arad's (1998, 1999) treatment of stative causative verbs. Recall that for Arad, the crucial difference between stative and non-stative Obj-Exp (uses of) verbs was that in the stative reading, the mental state is temporally contingent on the perception of the stimulus; the emotion only obtains as long as the experiencer perceives it or is thinking about it. The distinction is once more represented in (1.35), where the the event marked e_1 represents the causing (perception) subevent, and e_2 the resulting emotional state.

(1.35) a.   Stative Obj-Exp verb:

$$t_1\text{-----------}t_n \quad (e_1)$$
$$t_1\text{-----------}t_n \quad (e_2)$$

b.   Non-Stative Obj-Exp verb:

$$e_1 \qquad > \qquad e_2$$
$$t_1\text{-----------}t_n \quad > \quad t_1\text{-----------}t_n$$

Again, in the non-stative readings, the stimulus only brings about the event of the mental state, but is crucially not part of it.

Arad argues for encoding this distinction in the verbs' syntactic structure via a distinct functional head, but it could just as well be modeled with the kinds of event structures mentioned above. Following the previous discussion, one could propose that the non-stative Obj-Exp verb readings be represented as complex causal event structures in the spirit of (1.32), the sub-parts of which are temporally distinct. On the other hand, the subevents of the stative readings are coidentified parts of a single, simple event structure, in which the object of the emotion, or "trigger", constantly accompanies the mental state. Once the object is out of mind (i.e. no longer present), the concomitant emotion disappears.

This is exactly what Biały (2005) proposes in his analysis of Obj-Exp verbs in Polish. In Polish sentences like (1.36), it is argued that for Tom to be fascinated by jazz, he needs to hear it or at least be thinking about it.

(1.36)   Nowoczesny jazz fascynuje Tomka.

          'Modern jazz fascinates Tom.'

          Polish (Biały 2005: ex 256a)

Tom can of course stop and start listening to or thinking about modern jazz at various points in time, but when he does—and for as long as he's doing it—he is fascinated. Biały is clear to point out that the eventuality (1.36) denotes is not the same kind that other stative verbs, e.g. Subj-Exp verbs, refer to. Rather, (1.36) describes a causal relation where the emotion obtains whenever the causing event is present. He calls this relation "generic causation" (2005: 155).

Biały demonstrates fairly thoroughly that there is a clear distinction between stative and non-stative Obj-Exp verbs in Polish. He provides the event schemas for the two subclasses in (1.37).

(1.37) a.   *Non-stative*:

[*e* CAUSE [BECOME [y <*STATE*>]]]

b.   *Stative*:

[*e* CAUSE [y <*STATE*>]]

(Biały 2005: 160)

The inclusion of CAUSE in both schemas reflects the fact that causation is an essential part of the meaning of verbs in both classes. The difference between the two types of verbs is captured by the absence of the inchoative operator BECOME in (1.37b), which reflects the fact that stative Obj-Exp verbs do not involve a change of state (Arad 1998; Marín and McNally 2011; Rozwadowska 2013).

Biały follows Rozwadowska (cited as to appear) in proposing that the individual variable normally present with accomplishment event structures (Rappaport Hovav and Levin 1998) be replaced with an event variable *e*. It is not clear what motivates this, though from Biały's discussion it appears that the event variable *e* may be intended to reflect something like the event of the experiencer's perceiving, experiencing, or conceptualizing the stimulus in her mind. This is based on the observation that in Polish passives, the stimulus argument cannot refer to an individual, but must refer to some property or behavior of that individual.

Although Biały is focused solely on Polish verbs, he stands in good company with many others who have suggested similar analyses for English and other languages. Pustejovsky (1995: 210) for example, proposes a model of Obj-Exp verbs in which "experienced causation" is considered to be distinct from the more typical "direct causation" in verbs like *kill*. He notes that the causative act associated with Obj-Exp verbs "predicates a certain state of the person performing the act, hence, the experience", where "the surface subject is the logical object of an experiencing event" (210). Pustejovsky too argues that the temporal relations between the subevents of the verbs' event structures involve an overlap with the resultant state. In much the same way, Bouchard (1995) describes psychological events as the same as other non-psychological events, with the difference that they occur in mental

rather than physical space. "When a verb expresses physical contact between two objects, that contact induces a change of state in one or the other of these objects, hence one of them is affected. Similarly, I assume, in mental space, [a psychological state] is somehow put in contact with the argument it affects" (Bouchard 1995: 272).

In an analysis based upon Rappaport Hovav and Levin's (1998) event structure templates, DiDesidero (1999) also argues that English Obj-Exp verbs divide into two subclasses, only for her the distinguishing criterion is agentivity (like Grimshaw 1990). She proposes the following structures, where x_e is taken to be a variable over events.

(1.38) a. *Agentive*:

[[x ACT] CAUSE [BECOME [y<*STATE*>]]]

b. *Non-Agentive*:

[x_e CAUSE [BECOME [y<*STATE*>]]]

With regard to the event variable x_e, DiDesidero (1999) makes essentially the point as Biały in her analysis of English Obj-Exp verbs. She proposes the above structure for non-agentive Obj-Exp verbs in which the variable x_e represents what she calls the conceptualization event (DiDesidero 1999: 182). She argues that this is the event schema associated with the roots of non-agentive Obj-Exp verbs. Interestingly still, her analysis of agentive verbs is essentially identical to the "Agent shifted" variant of the non-stative Obj-Exp verb event structure attributed to Rozwadowska in Biały (2005: 160n9).

In a slightly different take, Iwata (1995) argues that Obj-Exp verbs differ from other prototypical causative verbs in that the causal relation "highlights the resultant state (i.e. the embedded core) and accords little weight to the causative process itself" [101]. He represents this as a modification of the CAUSE operator in the conceptual structure in (1.39). This analysis, inspired by Jackendoff (1990), represents the event structure in spatial terms, though entirely at the conceptual level (cf. Landau 2010b).

(1.39) [CAUSE$_R$([X], [INCH [BE([Y], [AT EMOTION([AT$_T$ Z])])]])]

This result-focused causal structure is claimed to have several grammatical consequences regarding adverbial modification. For example, the low saliency of the causative process (and hence the increased saliency of the resultant state) is claimed to be manifested in the kinds of adverbial modification available to Obj-Exp verbs. For example, Obj-Exp verbs can be modified by *rather*, which ordinarily can only modify adjectives or adverbs.

(1.40) a. I thought you said hip *herpes. o_O It rather frightened me.   (G)

   b. . . . and the incoherence of the above paragraph before I edited it rather worries me.   (G)

   c. But for her, she didn't feel much during the treatment, which rather amazed me and also made me kind of sad.   (G)

On the other hand, prototypical causative verbs cannot be modified by *rather*.

(1.41) *John rather broke the window.

     (Iwata 1995: 101)

Iwata notes, following Lee (1971), that sentences like *That rather annoyed Mary* entail *Mary was rather annoyed*, which suggests that in (1.40) *rather* is modifying the Experiencer's state, and not the process of bringing about that state. Being a degree modifier, *rather* cannot modify the process itself; therefore it must be interpreted as modifying the embedded state represented through the BE function. For Iwata, it is the low saliency of the causal process with Obj-Exp verbs (his CAUSE$_R$ function) that allows degree adverbials to "percolate through" to the embedded function.

   Iwata's analysis is unfortunately not very insightful in itself, as simply stipulating a new operator does not offer much explanation for *why* these verbs should have this operator in the first place. Still, his observation about Obj-Exp modification is compatible with the coidentification analysis suggested above, on the assumption that degree modifiers and

other adverbs (*horribly*) modify the resultant state, in much the same way as rate adverbs (Levin and Rappaport Hovav 1999).

Working within a cognitive rather than formal framework, Croft (1993) offers an analysis of psych-verbs that, while different in certain respects, shares many affinities with the event-based accounts above. He argues that we can better understand the variation in psych-verbs by appealing to a model in which semantic roles are defined in terms of the positions that participant(s) occupy in the cognitive conceptualization of an event. Events can be construed as causal chains composed of primitive aspectual (i.e. processes or states) and causal types which combine to form sequences within the chain. The causally initial end of the sequence is assigned to grammatical subject, while the endpoint is assigned to grammatical object. Which participants occupy the endpoints depends on the character of the verbal segment. The difference between Subj-Exp and Obj-Exp verbs therefore lies in their causal structure (Croft 1993: 61).

(1.42) a.   Obj-Exp verbs:
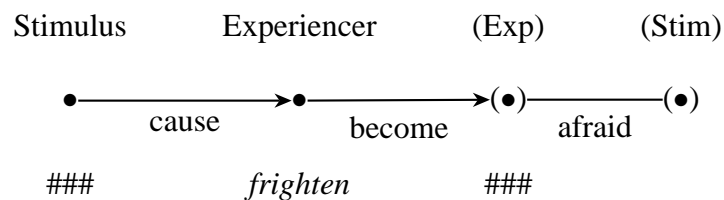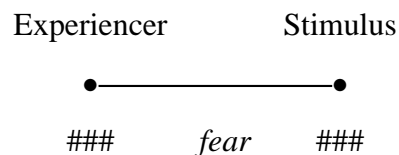
        Stimulus   Experiencer   (Exp)   (Stim)

$$\bullet\xrightarrow{\text{cause}}\bullet\xrightarrow{\text{become}}(\bullet)\underset{\text{afraid}}{\rule{2cm}{0.4pt}}(\bullet)$$

        ###   *frighten*   ###

  b.   Subj-Exp verbs:

        Experiencer   Stimulus

$$\bullet\rule{3cm}{0.4pt}\bullet$$

        ###   *fear*   ###

Causative emotion verbs like *frighten* lexicalize the cause of the mental state, and so the stimulus argument is realized as the subject similar to other verbs like *break*. These verbs present the prototypical event view of the transmission of force from one participant to another (Talmy 1976, 1988). In contrast, the stative relations denoted by Subj-Exp verbs like *love* do not involve any transmission of force—the stimulus/target is not affected by

the experiencer, nor is the experiencer necessarily in control of the state. Hence, both the experiencer and/or the stimulus arguments of stative psych-verbs are often marked with oblique case in many languages, as other 'unaffected' arguments such as goals, recipients and locatives are (Croft 1993; Haspelmath 2001; Landau 2010b; Tsunoda 1985).

Like Bouchard, Biały, Pustejovsky, and others, Croft too finds psychological causatives to be special. Unlike physical states however, emotions, like many other mental states, are inherently directed toward some object. That is, emotions possess the property of "object-directedness" (e.g. Kenny 1963; Nissenbaum 1985; Wilson 1972). In Croft's view, this is reflected in the two processes involved in possessing an emotional state. One is the process by which the stimulus causes the experiencer to be in a certain state, while the other process involves the experiencer attending to or directing her attention to the stimulus (1993: 64).

(1.43)   The dual nature of emotion relations:
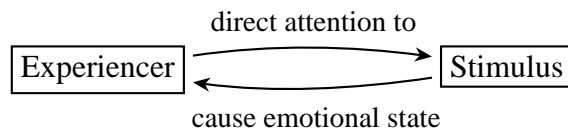
While Croft does not talk about psychological causation in such terms, I take his notion of a dual process to express essentially the same idea as the coextensive causal state approach suggested by Arad, Biały, Bouchard, and others (e.g. Pylkkänen 2000). In Chapter 4 I discuss how such an approach relates to the way emotion concepts are formed and expressed, and how understanding this relationship can provide insight to the syntactic behavior of Obj-Exp verbs in constructions like the passive (and to some extent the progressive).

1.3 The empirical scope of the dissertation

In the preceding sections, it was noted that one reason there has been little consensus regarding the best method for characterizing psych-verbs has been the theoretical assumptions embedded within different frameworks, which necessarily constrain the kinds of analyses theorists can propose. A more substantial reason for this disagreement, I believe, is that the kinds of data on which most explicit theoretical formulations of psych-verbs are based have been surprisingly limited in scope. As I will show, controversial facts can easily be uncovered through only a few minutes of searching using even the most basic tools available. Illuminating the empirical landscape of English psych-verbs thus forms one of the primary motivations of this dissertation.

In addition, once the underlying mechanisms of this mapping are properly understood, it should become clear that syntactic patterns in English psych-verbs are reflections—perhaps merely gradient ones—of the very same patterns of psych-verb markedness found cross-linguistically. In the words of Bresnan et al. (2001), the 'soft' (read 'gradient') patterns of psych-verbs in English mirror the 'hard' (read 'categorical') patterns of other languages. Looking beyond the dissertation then, it is hoped that the insights from the present study will be of use in typological studies of psych-verb phenomena in other languages.

I frame the discussion around an approach common in the study of psych-verbs, and Obj-Exp verbs in particular. In a nutshell, this approach assumes that the class of Obj-Exp verbs does not constitute a uniform class of verbs, but rather should be further subdivided according to syntactically relevant distinctions in their semantic properties. For the present discussion, the relevant semantic properties are stativity, and to a lesser extent agentivity, and their role in inhibiting the use of certain verbs in certain constructions claimed to require non-stative predicates, e.g. the progressive and the punctual uses of passive participles (Pesetsky 1995).

(1.44) a. a lot of the things that have been continually concerning me for ages... (G)

b. the thought of re-reading 'First among equals' suddenly depressed me. (G)

Stativity and agentivity play an important role in the analysis of Obj-Exp verb behavior in many other languages (e.g. Arad 1998; Biały 2005; Landau 2010b; Pylkkänen 1999). In such languages, unambiguous morphosyntactic features help to carve out sharp divisions between stative and non-stative verbs (see Landau 2010b for some review); however, I will argue against making a similarly sharp distinction between stative and non-stative verbs in English. I argue that despite the intuitive semantic similarities between Obj-Exp verb phenomena in English and other languages, the evidence suggest a gradient rather than categorical distinction for English (Bresnan et al. 2001).

I find such fine-grained classification of English Obj-Exp verbs problematic primarily for two reasons. For one, there has been a surprising lack of any serious attempt to clarify which of the dozens of Obj-Exp verbs[2] are inherently stative, and which are non-stative. Representative data, in the form of examples involving unacceptable uses of certain verbs, are frequently brought out (and repeated), but the extent of the empirical investigation rarely proceeds beyond a relatively small set of constructed sentences. There are some verbs that most agree fall decidedly on one or the other end of the stative–eventive spectrum (e.g. *concern* vs. *surprise*), but there are many more whose stativity is unclear (*amaze, amuse*). Tellingly, it is sometimes the case that different authors include the same verb in two different categories.

This leads to a second objection to drawing sharp distinctions among Obj-Exp verbs, which is that there exists plenty of evidence that all Obj-Exp verbs have the potential to exhibit the same range of interpretations available to any other Obj-Exp verbs. It's just that not all verbs are equally likely to have the same uses or interpretations. Consequently, there is little justification for drawing sharp distinctions among these verbs, at least when it

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[2]The true number is probably in the hundreds (see Levin 1993: 189-190). Moreover, there is a robust productive tendency for verbs denoting physical activities to be metaphorically extended to psychological uses (e.g. *strike, kill, wound, burn, tickle, slay, break*) (Amritavalli 1980; Bouchard 1995). Considering the highly complex nature of human emotion, Obj-Exp verbs are understandably one of the most open and dynamic of transitive verb classes.

comes to facts regarding passivization and other aspectual phenomena. There is simply not a strong case for rejecting what I take to be the null hypothesis: that in English, Obj-Exp verbs constitute a homogeneous class of verbs at the level of structure relevant to argument realization. All Obj-Exp verbs can form verbal passives for instance, though the frequency with which they do so will vary from verb to verb.

Fortunately, an exhaustive list of the behaviors of each and every verb isn't necessary to make this point. We need not even look beyond the verbs that are commonly cited as stative (e.g. *concern, depress, worry*) to challenge such categorical analyses. All we need do is to consider the use of these verbs in more naturalistic contexts. As I argue throughout this dissertation, there is a considerable discrepancy between the empirical claims found in the literature on psych-verbs and data from actual usage. This is a serious concern for anyone trying to understand the connections between the organization of Obj-Exp verbs in the lexicon and their syntactic behavior in English,[3] We therefore need a much better picture of how these verbs behave in actual contexts. This dissertation is one step on the road toward that goal.

1.4   Road map

In this chapter, I introduced the class of psych-verbs in English that will constitute the empirical domain of this dissertation. I briefly discussed the relationship between semantics and syntax from two widely held perspectives: the notion of semantic roles, and lexical conceptual structure (event structure). I discussed the so-called linking problem associated with the two major classes of psych-verbs, the Subj-Exp and Obj-Exp verbs. Two types of solutions to this problem were explored, with further distinctions among the Obj-Exp

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[3]Not to mention the sweeping cross-linguistic generalizations that often rely on some of these observations. For some recent empirically rigorous investigations of typological variation in psych-verbs, which question some recent claims about their cross-linguistic homogeneity (e.g. Landau 2010b), see Verhoeven (2008; 2010a; 2010b) and Żychliński (2011).

verb class emerging along the way. One approach attempts to explain the various psych-verb phenomena in syntactic terms, either via some mechanism movement or some special structural projection of the verbs. The second approach was semantic in nature, focusing on the role of causation in the semantic representation of Obj-Exp verbs. Within both perspectives it was noted that Obj-Exp verbs do not form a homogeneous class with respect to properties such as stativity and agentivity.

As the final section of this chapter makes clear, enriching the empirical landscape of English psych-verb behavior is a primary impetus behind this dissertation. To that end, in the next chapter I will explore the evidence motivating many of the analyses of psych-verbs I outlined here, focusing on the subclass of Obj-Exp verbs and their behavior with respect to a number of phenomena. In Chapters 3 and 4, I delve into the issue of Obj-Exp verb stativity, and its relation to the participation of different verbs in passive constructions. Chapter 3 presents a qualitative discussion of passivization and Obj-Exp verb aspect (with plenty of naturally occurring data), while in Chapter 4, I explore Obj-Exp verb behavior quantitatively in an attempt to ground our understanding of psych-verb semantics in recent cognitive theories of emotion conceptualization. Finally, Chapter 5 takes up the issue of agentivity in Obj-Exp verbs, presenting still more evidence that their behavior is more flexible than assumed—a finding that is entirely expected in light of the previous chapters. Chapter 6 concludes.

Chapter 2

The peculiar properties of Object-Experiencer verbs

In the previous chapter, I reviewed how English psych-verbs can be split into two major classes according to whether the Experiencer argument is realized in subject or in object position. These were referred to as Subject-Experiencer (Subj-Exp) and Object-Experiencer (Obj-Exp) verbs, respectively.

(2.1) a. Pat loves/fears Chris.   [Subj-Exp]

     b. Chris frightens/delights Pat.   [Obj-Exp]

Additionally, I discussed a number of different analyses of these verbs, focusing in particular on the syntactic and semantic nature of Obj-Exp verbs and the properties that serve to distinguish individual sub-classes within that group. Following many others (e.g. Arad 1998; Pesetsky 1995; Pustejovsky 1995; Reinhart 2001), I take causativity to be the defining characteristic of Obj-Exp verbs that differentiates them from Subj-Exp verbs and that determines the realization of their stimulus argument in subject position. I also noted that special interest in Obj-Exp verbs has been prompted by their behavior with respect to a

number of phenomena, including binding, compounding, extraction, passivization, among others.

In this chapter I explore a number of these peculiar behaviors of Obj-Exp verbs in English and clarify their empirical basis. I consider some of the aforementioned theoretical accounts of these verbs in light of this new data. Ultimately, I argue that the syntactic "unaccusative" style approaches to Obj-Exp verbs advocated by Belletti and Rizzi (1988), Grimshaw (1990), and Landau (2010b) cannot be supported. Additionally, I argue against proposals that Obj-Exp verbs constitute a heterogeneous class in English, whether one wants to distinguish them according to stativity, agentivity, or any other property. The evidence that I provide here suggests that all Obj-Exp verbs have both external and direct internal, affected arguments, just like ordinary causative verbs (Bouchard 1995; Iwata 1995), and moreover, I argue the phenomena examined here are not well-served to differentiate stative and non-stative uses of Obj-Exp verbs in English.

2.1 Binding phenomena

Postal (1971) noted that Obj-Exp verbs exhibit unusual behavior with respect to anaphora, and this behavior has been discussed in subsequent research by many others (e.g. Belletti and Rizzi 1988; Bouchard 1995; Grimshaw 1990; Landau 2010b). There are two different phenomena to be explained here: forward binding and backward binding.

2.1.1 Forward binding issues

Forward binding refers to the ability of subjects of psych-verbs to bind anaphors in object position, which is purported to only be possible for Subj-Exp verbs (Belletti and Rizzi 1988; Bouchard 1995; Grimshaw 1990; Postal 1971).

(2.2) a.   They fear/hate themselves.

b. ?*They frighten/worry themselves.

(Bouchard 1995: 285)

Explanations for this apparent restriction have tended to appeal to differences in the ontological (or conceptual) status of the enity denoted by the subject. To account for the resistance to forward binding in sentences like (2b), Grimshaw (1990), for example, proposes that subjects of non-agentive Obj-Exp verbs do not in fact denote individuals, but rather properties of individuals.[1] Crucially, anaphors always denote individuals, and binding requires type matching between an anaphor and its antecedent, hence the inability of non-agentive Obj-Exp verb subjects to bind their objects.

One problem with such an account is that the distinction between a property and an individual is not at all clear in specific examples of Obj-Exp verbs with forward binding. This is especially troublesome considering that many such examples can be found rather easily.

(2.3) a. During the darkest part of the night, she terrified herself by thinking about how the world was not precisely half male, half female (COCA)

b. He amazed himself by continuing to be effective at his work, negotiating contracts for comedians. (COCA)

c. I frightened myself with the possibility that I had ruined my chances for the competition. (COCA)

d. In hind sight i never should have worried myself about flying Christmas afternoon, (G)

This suggests, at the very least, that subjects of Obj-Exp verbs can vary between individial and property-denoting uses. This is the same variation we find with direct objects of Subj-Exp verbs, which do allow forward binding, and hence must allow individual-denoting

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[1]Note the similarity between Grimshaw's intuition here, and the *e* variable in the event structures proposed by Biały (2005) , DiDesidero (1999), and others (see Section 1.2.3.2).

objects, according to Grimshaw's logic. But we also know that Subj-Exp verb objects can denote properties of individuals (2.4).

(2.4) a.   we love their generosity and positive attitude!   (G)

     b.   I hate his arrogance. I hate his hypocrisy.   (G)

     c.   You know I adore his sense of humor—him showing off his mankini and his
           hot gut region, LOL   (G)

     d.   But I despise their heartless nature and cruelty.   (G)

The objects of the Subj-Exp verbs in (2.4) clearly describe properties of the individuals who the feelings of love, hate, admiration, and so on are directed at, and the sentences are perfectly acceptable. There are also clear cases of Obj-Exp verb subjects denoting properties of individuals, these are the easy cases to distinguish.

(2.5) a.   The darkness in your soul disgusts me.   (G)

     b.   But his appearance terrified them.   (G)

     c.   The perfect symmetry of lines, the geometry of angles, and their completeness
           fascinates us as artists.   (G)

It is much harder to tell however, when human denoting Obj-Exp verb subects refer not to individuals, but rather to properties of those individuals. As Landau (2010b) observes, it becomes difficult to determine when an argument involves a property or an individual, outside these purportedly unacceptable binding sentences. Thus Grimshaw's reasoning becomes circular, absent any indepentent evidence for the property-denoting status of subjects in sentences like (2.2b).

   Other semantic accounts suffer from similar problems of vagueness, as in Bouchard's (1995) distinction between a "Concept", an entity not viewed as a participant in the event

(i.e. external to the event), and a "Substantive", an entity that *is* viewed as a participant in the event (i.e. internal to the event). Like Grimshaw, Bouchard suggests that when the antecedent is a Concept referring to properties of an individual, binding is disallowed. I find however, that the same problem of circularity just discussed for Grimshaw's analysis also applies to Bouchard's ideas.

Landau (2010b: 112-115) takes a different tack, arguing for a structural account of forward binding in Obj-Exp verbs based on an analysis of inversion of Experiencer objects at LF. The details of his account are intricate, but the most relevant aspect to note here is that for Landau, the restriction on binding only applies to stative Obj-Exp verbs. Unfortunately, I find Landau's account also suffers from a similar problem of vagueness that others' accounts suffer from, though here it is vagueness with regard to the stativity of given uses of Obj-Exp verbs. Though he himself notes that stativity is a gradient property, he argues that some verbs like *concern* and *depress* never allow the non-stative reading. There is ample evidence to contradict this though.

(2.6) a. I concern myself sometimes with the time i spend online (G)

    b. I concern myself sometimes, and by sometimes I mean all the time. (G)

    c. I worried myself for a bit there. (G)

    d. I rather worry myself when I find myself agreeing with you, Master. (G)

    e. Sometimes I even depress myself (G)

    f. He also tends to depress himself so much that he gets a stomachache (G)

    g. "Oh, how we depressed ourselves that night," she says. (COCA)

    h. Weigh yourself in the morning one day and in the evening a few days later, and you'll only depress yourself for no reason. (COCA)

It could be argued that the Obj-Exp verbs in these sentences are in fact exhibiting eventive, not stative, uses, but then we're back to the same problem of circularity mentioned before.

One thing that has never been discussed to my knowledge, is how the nature of the subjects necessary for the use of a reflexive with Obj-Exp verbs might influence the admittedly subtle variability in judgments about such sentences. By this I mean that because the objects of Obj-Exp verbs are necessarily sentient individuals—almost always humans—any coreferential subjects must also be human. As I show in Chapter 4, analysis of a corpus of Obj-Exp verb sentences reveals that certain Obj-Exp verbs heavily disfavor human causers, and similar results were found in recent work using data from offline intuitions about individual emotion terms (Grafmiller 2012). Not surprisingly, these verbs tend to be verbs like *concern, worry,* and *depress*, all of which are generally said to disallow forward binding. Combined with the above data, this suggests that perhaps these verbs are considered less acceptable not because they are stative, but because they describe emotions that are typically not caused by human individuals. I see no reason to doubt that such knowledge has some influence on judgments of out-of-context examples, and it could very well explain Grimshaw's and Bouchard's intuitions about subjects of certain verbs tending to denote properties or concepts rather than individuals. As it turns out, verbs like *concern* and *depress* are indeed more commonly found with Stimulus arguments denoting abstract entities, e.g. properties, than are verbs such as *amuse, annoy,* and *frighten* which show a greater tendency to involve human causers.[2]

Overall, the argument that Obj-Exp verbs do not allow forward binding in English is rather weak. The negative judgment data that the claim rests on is highly suspect (I disagree with the judgments in (2.4b)), and is also contradicted by copious evidence from natural usage. The forward binding facts provide little evidence for treating Obj-Exp verbs

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[2]It is also possible that judgments about sentences such as *The patients concerned themselves* are affected by other, more common senses of the verb *concern*, as in 'to concern oneself with X'. Of course, this does not apply to other supposedly stative Obj-Exp verbs like *depress*, but *concern* is the verb for which the intuitions about unacceptability with binding phenomena appear to be the most robust.

as different—whether in syntactic or semantic event structure) from other causative verbs in English.

2.1.2 Backward binding issues

As was mentioned briefly in Chapter 1, one of the proclaimed advantages of the unaccusative analysis of Obj-Exp verbs is that it can explain so-called "backward binding" facts like in (2.7–2.9).

(2.7) a. Questi pettegolezzi su di sé$_i$ preoccupano Gianni$_i$ più di ogni altra cosa.

"These rumors about himself$_i$ worry Gianni$_i$ more than anything else."

b. *Questi pettegolezzi su di sé$_i$ descrivono Gianni$_i$ meglio di ogni biografia ufficiale.

"These rumors about himself$_i$ describe Gianni$_i$ better than any official biography."

(Italian; Belletti and Rizzi 1988: ex 57)

(2.8) Each other's remarks annoyed John and Mary.

(Pesetsky 1995: ex 122)

(2.9) a. That book about herself struck Mary as embarrassing.

b. *That book about herself struck Mary on the head.

(Bouchard 1995: ex 68)

Binding in these kinds of examples, again first noted in Postal (1970, 1971), is considered backward because anaphors in the subjects are somehow bound by the objects, which violates the c-command condition on bound anaphora (Principle A). Accounts like those of Belletti and Rizzi (1988) and Pesetsky (1995) explain these patterns in structural terms,

by proposing that the Experiencer does in fact bind the anaphor at some level of deeper syntactic structure. Much subsequent work however, has shown that backward binding cannot be reduced to a purely structural phenomenon (e.g. Bouchard 1995; Iwata 1995; Pollard and Sag 1992; Zribi-Hertz 1989). For one, there are cases in which the Experiencer is never in a position to c-command the anaphor, regardless of what level of structure one examines. Elements in the specifier position of the object DP for instance, can also bind subject anaphors (or anaphors inside the subject).

(2.10)   These nasty stories about himself$_i$ broke John$_i$'s resistance.

(Landau 2010b: ex 154b, attributed to D. Bouchard)

(2.11) a.   These rumors about himself$_i$ caught John$_i$'s attention.

b.   The jokes about herself$_i$ got Mary$_i$'s goat.

c.   Each other$_i$'s nasty remarks really ruffled John and Mary$_i$'s feathers.
(Iwata 1995: ex 67, attributed to D. Pesetsky)

(2.12) a.   The picture of himself$_i$ in *Newsweek* dominated John$_i$'s thoughts.

b.   The picture of himself$_i$ in *Newsweek* made John$_i$'s day.

c.   The picture of himself$_i$ in *Newsweek* shattered the peace of mind that John$_i$, had spent the last six months trying to restore.
(Pollard and Sag 1992: ex 62)

Notably, none of the above examples involve Obj-Exp verbs, suggesting that whatever the explanation behind this phenomenon is, it should not appeal to some special character of Obj-Exp verbs per se. Additional evidence for the broader extent of backward binding phenomena comes from sentences involving periphrastic causative constructions, which also allow backward binding.

(2.13) a. Each other's remarks made John and Mary angry.

b. Pictures of each other make us happy.

c. These stories about herself made Mary nervous.
(Pesetsky 1995: ex 124)

(2.14) a. The mere idea of talking about herself made her so jumpy that action was required. (COCA)

b. Never before has the amount of information about himself made him so insecure. (G)

c. In short, this false pride about himself made him challenge Sherlock to catch him. (G)

d. Every detail about herself made her hate her entire being that much more. (G)

e. Perhaps this anxiety about himself caused him to be very suspicious of others. (G)

The wide variety of syntactic contexts in which backwards binding occurs argues against explaining it in structural terms. As Pollard and Sag (1992: 278) observe, "it is difficult to imagine any principle involving a configurationally determined notion of binding domain, however formulated, that would account for such facts".

In response to these observations, a number of authors have appealed to the notion of logophoricity, where a logophor is understood as a representation of the thoughts or feelings of an experiencer or participant whose point of view is evaluated in the discourse (e.g. Bouchard 1995; Kuno 1987; Pollard and Sag 1992; Zribi-Hertz 1989). Bouchard (1995) refers to the Experiencer in these cases as the "Subject of Consciousness" which is an entity to which the speaker attributes consciousness. Under this account, a reflexive pronoun may

be non-locally bound—violating Principle A—if the pronoun is in the part of the sentence, "the meaning of which part is presented by the speaker as being in the consciousness of [the] Subject of Consciousness [Experiencer]" (Bouchard 1995: 299). This is essentially the line that recent structural analyses take as well (e.g. Landau 2010b), since the cluster of environments in which backward binding is allowed do not form a coherent class in any structural theory actively being pursued in the field today.

In any case, a complete theory of anaphoric binding will eventually have to account for these facts, whether in semantic, syntactic, or pragmatic terms (or most likely a combination of them all). Recent studies have shown subtle influences of information in all these domains on the interpretation of anaphora (e.g. Arnold 2001; Kaiser et al. 2009; Keller and Asudeh 2001; Rohde et al. 2006),[3] so it is clear that sorting out the relevant factors influencing coreference in Obj-Exp verb binding phenomena will require a much more careful and systematic investigation than has been done here (or in most studies of psych-verbs). But, since the issue does not bear on the larger discussion in this dissertation, I leave the topic for future research.

2.2 Experiencers as direct internal arguments

As discussed in the previous chapter, many syntactic analyses have proposed that the Experiencer objects of Obj-Exp verbs are not typical direct objects. The most recent, and provocative, approach is the one proposed by Landau (2010b) who argues that Experiencer objects are universally oblique arguments, headed by a null (in English) prepositional head. In this section, I provide data that cast doubt on such accounts by discussing a number of phenomena associated with "affected" objects, only some of which (e.g. synthetic compounds) have received much attention in the psych-verb literature.

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[3]Of course, many of the ideas explored in these recent studies have antecedents in the generative linguistics literature, e.g. Wasow (1972).

2.2.1 Secondary predicates

One problem for unaccusative analyses is the fact that Obj-Exp verbs readily take secondary predicates, or resultatives. Again, Landau (2010b) makes much of the parallel between Goal arguments and Experiencer objects, but as Simpson (1983) notes, resultative constructions cannot be predicated of Goal arguments. Under a syntactic approach, secondary predicates must therefore be predicated of direct object DPs (Simpson 1983; Landau 2010a). Unfortunately for the unaccusative/oblique accounts, resultatives can be predicated of the Experiencer arguments of English Obj-Exp verbs.[4]

(2.15) a. she knew that he did so have that much scratch and that she scared him pale

(COCA)

b. the kind you feel when you drift out of your lane onto the rumble strips, as the vibration and noise scare you awake (COCA)

c. Go back to the first time you fell fully in love, and made love, and lay beside each other for hoursJn sunlight and then shadows, and the pure sensation of cupping your hand lazily around the pelvic curve of a perfect hip stunned you immobile and nearly into tears. (COCA)

d. But the woman I saw before me—frail, pale, with glazed eyes, only patches of stubble where short sandy blonde hair had once been—scared me silent. (G)

(2.16) a. Facebook's apps have annoyed me into not using them. (G)

b. In her previous line of work, Elsie had come across men with different dialects, and Hale's accent amused her into wondering. (G)

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[4]I have tried to restrict the data here to examples involving true resultatives. Common examples like *bored me to death* or *scare me silly* are arguably better understood as grammaticalized intensifiers rather than true secondary predicates (Margerie 2011).

    c.   I was recently diagnosed with schizo-affective disorder (which is what depressed me into gaining most of my weight back). (G)

    d.   I hardly ever put a novel down, but this one bored me into it. (G)

    e.   The lines of the pose are what fascinated me into making the painting. (G)

    f.   and the roars of their approval obviously pleased him into joining in. (G)

    g.   My relation to these truths is not exhausted even when I have meditated upon them, and they have touched me into a rapture of devotion. (G)

    h.   it takes something very special to amaze me into giving them a 9 or 10... (G)

While it is argued that the special properties of Obj-Exp verbs only apply to the non-agentive, and in some cases stative, uses, an appeal to agentivity cannot save the day here. There are many more cases in which the subject cannot be interpreted agentively.

(2.17) a.   It frightened you out of my study for the rest of that summer (COCA)

    b.   I cannot explain to you why the trend of recent political society in the West depresses me to the point of introversion and withdrawal. (G)

    c.   Staff did not look happy. Almost depressed me out of buying a sandwich. (G)

    d.   Something about their expressions startled her into silence (COCA)

This contrasts sharply with the clear unacceptability of resultatives with goal and/or locative arguments.

(2.18) a.   *I gave the present to Robin happy.

    b.   *I gave Robin the present happy.

    c.   *I tracked mud on the rug filthy.

    d. *I put a cloth over the stain hidden.

(2.19) a. *The soft music appealed to me relaxed.

    b. *The soft music appealed to me into a state of complete relaxation.

These data contradict the predictions of oblique accounts, but fit perfectly with the treatment of Experiencer objects as direct affected arguments. As far as I know, such data has not been addressed by Landau (2010b) or other proponents of a syntactic analysis of Obj-Exp behavior.

2.2.2 Null object constructions

Another potential problem for oblique accounts of Obj-Exp verbs is that they undergo the null or "PRO-arb" object alternation (Levin 1993; Rizzi 1986) in which the object could be paraphrased as some generic notion of "people" or "one", as in (2.20b).

(2.20) a. The sign warned us against skating on the pond.

    b. The sign warned against skating on the pond.
        (Levin 1993: ex 68)

According to Rizzi (1986) this construction involves affected arguments that are typically direct internal arguments of the verb. Again, in the accounts of Belletti and Rizzi (1988) and Landau (2010b), Experiencers are not direct arguments and therefore should not undergo this alternation, yet natural usage data clearly show that this is not the case.

(2.21) a. Can a culture nourish if it doesn't have room to agitate, irritate and unsettle?[a]

    b. Oprah Winfrey continues to amaze.   (COCA)

    c. It astonished, it puzzled, it even aroused laughter, . . .   (COCA)

d. Should anyone see her, the sight would befuddle, astonish: a woman, entirely on fire. (COCA)

e. If beauty is what pleases upon being seen, then the poor see little beauty, … (COCA)

f. But with just one division title and six winning seasons out of 29, the team's on-the-field influence has mostly been to depress. (COCA)

This construction appears to be quite common with Obj-Exp verbs, bu it is not available to prepositional verbs.

(2.22) a. *My sister always confides (in).

b. *Sam never fails to rely (on).

Interestingly however, psych-verbs like *appeal to* (2.23) do allow null objects, and this may relate to the fact that ditransitives also allow null Goal arguments (2.24).

(2.23) a. There was just something about her that appealed. (G)

b. The idea of uniting families appealed. (G)

c. And crime was my drug. I was sworn to smell it out and obliterate it. No matter how much it sometimes appealed. (G)

(2.24) a. That awkward moment when you're that one friend who always gives relationship advice, but is still single. (G)

b. Alex always gives socks for Christmas.

As far as I can tell, the data in (2.23) are not incompatible with Landau's proposal that Experiencers are covert oblique arguments. To see this, note that in examples such as (2.23) and (2.24) the preposition must be omitted for the sentence to be acceptable, cf. (2.25) and (2.26).

(2.25) a.   *There was just something about her that appealed to

     b.   *The idea of uniting families appealed to.

(2.26) a.   *That awkward moment when you're that one friend who always gives relation-
          ship advice to, but is still single.

     b.   *Alex always gives socks to for Christmas .

If Experiencer arguments introduced by overt prepositional heads with verbs like *appeal (to)* can be omitted, I see no reason why Experiencer arguments of Obj-Exp verbs—introduced by covert prepositional heads under Landau's account—should not also participate in this alternation. In this respect at least, the Experiencer argument of *appeal* (*to*) and the Goal arguments of ditransitives pattern just like Experiencer arguments of genuine Obj-Exp verbs such as *amaze, astonish* and *depress*.

Still, there does seem to be an interesting parallel between the psych-verb examples, and what Levin (1993) calls the "characteristic property" alternation, found in cases like (2.27).

(2.27) a.   That dog bites.

     b.   Our bug spray kills on contact.

These cases seem different from the unspecified recipients in (2.26), and it's argued that the alternation is restricted to affected, hence direct internal, objects (Levin 1993: 38). Ultimately however, these data may provide little support either for or against oblique accounts of Obj-Exp verbs. For instance, recent work suggests that the omissability of direct objects with different verbs is contrained more by pragmatic and discourse factors than by any particular structural or lexical properties (Glass To appear). Under such an account, the class of verbs that allow implicit objects is in fact much larger than previously assumed, and may even be too broad for this phenomenon to be useful in distinguishing Obj-Exp verbs from other (sub)classes of verbs.

2.2.3 Synthetic compounds

Another supposed peculiarity of Obj-Exp verbs is their inability to form synthetic compounds involving a deverbal head and its object. According to Grimshaw (1990: 15), Experiencer arguments cannot be incorporated into deverbal adjectives of the type in (2.28b).

(2.28) a.   a god-fearing man, a fun-loving teenager, a cat-hating jerk

b.   *a man-frightening god, *a parent-appalling exploit, *a man-annoying cat

Grimshaw argues that this is due to a general constraint on compound formation which is that when a verb takes more than one internal argument (as she argues stative Obj-Exp verbs do) only the least prominent argument can be compounded. This explains the observation that Goal arguments of ditransitives cannot be the modifier in a compound whose head is derived from the verb (2.29).

(2.29) a.   gift-giving to children

b.   *child-giving of gifts

However, as Baker (1997) observes, the restriction extends to verbs such as *depend on* and *confide in* that involve only two arguments.

(2.30)   *charity-depending, *stranger-confiding

Baker suggests that the parallel between Experiencer objects and other obliques is due to the presence of a covert P head governing the Experiencer argument of verbs like *frighten, amuse,* etc. Landau (2010b) incorporates this suggestion into his analysis of Experiencer objects as universally oblique arguments.

Upon further examination though, the facts are not as cut-and-dried as has previously been assumed. First, it is simply not the case that Obj-Exp verbs cannot occur in such

compounds. They are somewhat rare, but searches turn up numerous examples of synthetic compounds containing Obj-Exp verbs on the Web.

(2.31) a.   McDonald's bravely speaks out against PETA's child-frightening tactics.   (G)

   b.   Peppy, the child-frightening clown.   (G)

   c.   By day a couch potato but by night a child scaring monster.   (G)

   d.   They both have child-amusing characters   (G)

   e.   For the God-bothering techie in your life.[b]

   f.   Pooman in child-scaring mode[c]

   g.   We're Not in the Child-Scaring Business.[d]

   h.   This girl comes from the child-scaring school of clownistry.   (G)

   i.   I am going to give you a picture show of all the child-amusing things I thought to pack   (G)

   j.   Martin Suter never quite deliver [sic] the high-voltage jolt of stomach-churning suspense that such a parent-scaring plot should realistically trigger.   (G)

   k.   the 1950s provided a particularly conservative backdrop for Richard Penniman's hollering, boogie-ing, piano-humping and parent-scaring path to global fame.   (G)

   l.   a colleague tells me that a recent study of the parent-terrifying phenomenon of "sexting" found...   (G)

   m.   Ah, the parent-terrifying 1950 Nash. Parent-terrifying because the front seat will recline to meet the back seat...   (G)

     n.   Find Teen Annoying Sounds for your BlackBerry Smartphone.

While few Obj-Exp verbs show up in these compounds in great numbers, some verbs are in fact quite common, *please* in particular.

(2.32) a.   Maple Mustard Man Pleasing Chicken [recipe]   (G)

        b.   A Husband Pleasing Dessert!   (G)

        c.   Find recipes for Kid-Pleasing Spaghetti and other Baked Pasta recipes.   (G)

        d.   crowd-pleasing comedies   (G)

        e.   'This Means War' an audience-pleasing mix of action, comedy[e]

Some examples of Obj-Exp synthetic compounds may be relatively fixed expressions (e.g. *crowd-pleasing*), but certainly not all of them can be dismissed in this way. There clearly seems to be some productive process at work. It has also been suggested that such examples involve agentive uses of Obj-Exp verbs, and so would be expected to be acceptable by some accounts (e.g. Arad 1998; Grimshaw 1990; Landau 2010b), but not all examples unambiguously involve (what could be) potential agents, e.g. (2.31l-m). Nonetheless, many examples do involve either humans or objects created by humans, and so it is possible that the arguments are understood as agentive through a kind of metonymic reconstruction (Pustejovsky 1995) by which the object is treated as an extension of the event denoting its deliberate creation by some agent. This assumes of course that every such use of a compound involves the intentional causing of the emotion on the part of some associated agent, but I doubt this holds of every case. For example, such an explanation would require that the clown puppet Peppy in (2.33) (repeated from 2.30b) was deliberately designed to frighten, rather than entertain, children.

(2.33)   Peppy, the child frightening clown[f]

There is still a great deal that we do not understand about the factors that condition the formation of these compounds. I suspect that the felicity of Obj-Exp verbs in synthetic compounds is mostly a matter of pragmatic inference, depending in large part on the nature of the direct object. Semantically, the modifying object plays a role in restricting the scope of the event denoted by the verb, such that it is understood to affect only individuals of the same type as the object. Pragmatically, this gives rise to an implicature that entities not denoted by the direct object are generally *not* affected by the situation denoted by the verb. In the case of Obj-Exp verbs, the range of object entities (Experiencers, usually human) which could be construed as more or less susceptible to certain emotions is fairly limited. For example, *a man-frightening god* sounds odd possibly because it is hard to think of a god that would frighten men and only men (and not also women, say). Of course, *a human-frightening god* is not much better, as it's hard to see how this would be different from just a plain old *frightening god*. Both compounds are judged to be odd based on general pragmatic principles rather than violations of syntactic or semantic constraints.

Furthermore, comparing the odd *man-frightening God* to the common expression *god-fearing man* is probably not the best example for illustrating the supposed distinction in acceptability between Obj-Exp and Subj-Exp synthetic compounds. The latter has become fairly conventionalized, and therefore its unquestionable acceptability is probably not representative of such Subj-Exp verb compounds in general. This is evident from its semantic drift from a fully compositional 'man who fears god' to a more general sense of 'religous man'. Novel compounds with *fear*, e.g. ?*shark-fearing surfer* or ?*scandal-fearing politician*, seem no better or worse than the Obj-Exp verb compounds presented above. Of course, like with Obj-Exp verb synthetic compounds, rare examples can be found.

(2.34) a. ... they are not the photo-derived or appropriated paintings of an urbane, bug-fearing loft dweller. (COCA)

b. Bunny-fearing readers, beware! (COCA)

    c. He advises keeping information to a minimum when it comes to preparing kids, since dentist-fearing parents could unintentionally impart their anxieties.

<div align="right">(COCA)</div>

Finally, the best evidence for the pragmatic account I am suggesting is the fact that almost all the examples of Obj-Exp verbs in synthetic compounds that I have found involve specific kinds of Experiencers, e.g. children, parents, teenagers, husbands. Synthetic compounding is acceptable with an Obj-Exp verb when the direct object (Experiencer) of the verb refers to a semantically and/or contextually coherent group of people who could reasonably be understood to be affected by the entity the compound modifies (the head noun) in the way described by the verb. I suggest that this is a sufficient, if not necessary, condition for synthetic compounding. What is clearly necessary however, is more empirical research on this phenomenon.

2.2.4 The middle construction

Lastly, evidence from middle constructions casts further doubt on the syntactic accounts of Experiencer objects as oblique arguments in English. Most Obj-Exp verbs have middle variants (2.35), while Subj-Exp verbs do not (2.36) (e.g. Davidse and Olivier 2008; Fellbaum 1986; Halliday 1967). Unlike with synthetic compounds though, examples of Obj-Exp middles are abundant and judgments about them are quite robust.

(2.35) a. 12-year olds. They scare easy. <div align="right">(COCA)</div>

    b. If you depress easily, don't read!!! <div align="right">(G)</div>

    c. Good thing I don't worry easily, eh, red sox? <div align="right">(G)</div>

    d. I don't please easily, but I was very happy with the Cheese Steak Shop. <div align="right">(G)</div>

(2.36) a. *Van Gogh's paintings admire easily. [cf. People admire Van Gogh's paintings]

b. *Sharks fear easily. [cf. Swimmers fear sharks]

c. *Kittens don't detest easily. [cf. People detest kittens]

The unacceptability of Subj-Exp verb middles as well as middles of other verbs (2.37) has been attributed to the fact that the verbs involved do not take affected objects.

(2.37) a. *Struggling swimmers don't save easily.

b. *Cooperative patients help without any trouble.

c. *Generous friends thank easily.

Assuming that Obj-Exp verbs have affected objects, the fact that they have middle forms is not surprising. Note also this affected-object requirement predicts that dative verbs as well as psych-verbs with overt oblique Experiencer objects, e.g. *appeal to*, should also be unacceptable.

(2.38) a. *Trusted charities donate (to) easily.

b. *My sister doesn't confide (in) easily enough.

c. *Terry relies on easily.

(2.39) ??Young children appeal to easily.

The (un)acceptability of (2.39) is perhaps questionable, but I note that I was unable to find any examples of middle constructions with *appeal to* in any corpora or on the Web. This suggests that overt oblique verbs like *appeal to* are constrained in a way that other Obj-Exp verbs are not. With respect to the middle construction, objects of Obj-Exp verbs pattern more like true affected objects than other oblique arguments in English.

2.2.5   Experiencers as affected objects

With the possible exception of the arbitrary object construction, the constructions reviewed in this section all present a picture of Experiencer objects as direct affected arguments of Obj-Exp verbs. To my knowledge, only the synthetic compounding data has been discussed much in the literature, and yet each of the phenomena discussed in this section bear directly on claims about the syntactic status of Obj-Exp verb objects. As I have argued throughout, these data constitute clear counterexamples to proposals of Experiencer objects as anything but direct objects. These data—excluding perhaps null objects—are especially damaging to accounts like those of Baker (1997) and Landau (2010b), who argue quite explicitly that Experiencer objects should pattern like dative/PP objects in English, and indeed all languages.

2.3   Nominalization

Yet another well-known observation about Obj-Exp verbs is that their associated nominals lack any causal force (Bouchard 1995; Chomsky 1970; Grimshaw 1990; Iwata 1995; Lakoff 1970; Pesetsky 1995).

(2.40)   a.   John amused the children with his stories.

   b.   *John's amusement of the children with his stories
        (Iwata 1995: ex 26)

(2.41)   a.   Bill's continual agitation about the exam was silly.

   b.   Mary's constant annoyance about/at/with us got on our nerves.
        (Pesetsky 1995: ex 199a-b)

(2.42)   a.   The exam's continual annoyance of Bill was silly.

      b.   Our constant annoyance of Mary got on our nerves.

          (Pesetsky 1995: ex 208a-b)

Grimshaw (1990) makes two important observations about uses of these nominals. First, there is a difference between nominals that refer to events, and nominals that refer to result states. The former are derived through the suppression of the external argument, while the latter do not project any argument structure (and hence are not derived via argument suppression). Second, there is a difference between agentive and non-agentive event psych-nominals in that non-agentive Obj-Exp verbs lack external arguments, and so cannot undergo the nominalization process. The end result is that we should only observe psych-nominals that denote either agentive events or resultant states.

One problem for this analysis is that there is good evidence that non-agentive Obj-Exp verbs do in fact have external arguments, just like their agentive counterparts. Another problem is that there are very few Obj-Exp nominals that take an event interpretation, even when they involve agents (Iwata 1995; Landau 2010b; Pesetsky 1995).

(2.43) *Chris' deliberate $\left\{ \begin{array}{l} \text{amazement} \\ \text{annoyance} \\ \text{boredom} \\ \text{depression} \\ \text{fascination} \\ \text{horror} \\ \text{pleasure} \\ \text{scare} \\ \text{surprise} \end{array} \right\}$ of Pat.

Pesetsky (1995) argues that all Obj-Exp verbs do have external arguments, and instead proposes a morphological explanation for the nominalization facts. For Pesetsky, causative Obj-Exp verbs are formed by the attachment of a phonologically null affix *CAUS* to the root of the verb (see Section 1.2.3.1).

(2.44) [[psych-root] *CAUS*]

The inability to form nominals from such roots is captured in Myers' Generalization (Myers 1984, cited in Pesetsky 1995: 73-81) which posits that zero-derived forms do not allow further derivational affixation. The problem, as Pesetsky notes, is that other suffixes like *-er* and *-able* do attach to Obj-Exp verbs.

(2.45) a. Chocolate was an infallible soother of nerves.[g]

   b. Your article on air-fare 'triangular' routes was an astonisher.   (G)

   c. I think that maybe just the cam sensor and it would work just fine, but the lobe with a chunk gone is a concerner.   (G)

   d. He was an astounder.[h]

   e. …and the fact that people didn't really ever think—a lot of people thought he was dead and others thought he never, ever would be caught. it was just an astounder.[i]

(2.46) a. She came across as a very annoyable and irritable person who is angry with everything.   (G)

   b. That depends on the susceptibility of people to fear, of course…some people might indeed be scarable with D&D and a good GM, …   (G)

   c. You haven't even had a near miss yet? Damn…If I was frightenable, I'd be scared.   (G)

   d. Then, just as we angerable folks sigh with relief on reading this, …[j]

Pesetsky ultimately argues that Myers' Generalization is epiphenomenal, and that the effect pertains to the kinds of affixes that can attach to *CAUS* rather than to the mere presence of

the *CAUS* morpheme in the structure. Pesetsky instead proposes a complicated, and rather stipulative analysis in which each nominalizing affix (*CAUS, -er, -able,* etc.) is subject to its own set of distributional restrictions.

However, as Pesetsky (1995: 79) also notes, the restriction on agentive nominals does not seem to be unique to psych verbs.

(2.47) a.   The thief returned the money.

    b.   the return of the money

    c.   *The thief's return of the money

(2.48) a.   Bill grows tomatoes.

    b.   the growth of tomatoes

    c.   *Bill's growth of tomatoes

(2.49) a.   Inflation diminished my salary.

    b.   the diminishment of my salary

    c.   *inflation's diminishment of my salary

(2.50) a.   Gravity is swinging the pendulum.

    b.   the swing of the pendulum

    c.   *gravity's swing of the pendulum

Clearly, something more is going on with such nominalizations than meets the eye. But as with binding phenomena, a full account of these facts must extend beyond the class of psych-verbs investigated here, therefore I set this topic aside for now.

2.4 Object islandhood

Yet another supposed syntactic distinction between Subj-Exp and Obj-Exp verbs is that extraction from the direct object is possible with members of the former class, but not possible with those of the latter. This observation can be traced back to Belletti and Rizzi (1988), who note this distinction with Subj-Exp verbs (their *temere* class) and Obj-Exp verbs (their *preoccupare* class) in Italian.

(2.51) a.   La compagnia di cui tutti ammirano il presidente

"the company of which$_i$ everybody admires the president t_i"

b.   *La compagnia di cui questo spaventa il presidente

"the company of which$_i$ this frightens the president t_i"
(p 325, ex 83; Italian)

They go on to imply that the blocking of extraction from Experiencer objects is similar to restrictions on extraction from other kinds of post-verbal NPs, most notably adverbials.

(2.52) a.   Gianni ha passato la prima settimana del mese a Milano.

"Gianni spent the first week of the month in Milan."

b.   Gianni è tornato la prima settimana del mese scorso.

"Gianni came back the first week of last month."
Italian (p 326, ex 90; Italian)

(2.53) a.   Il mese di cui Gianni ha passato la prima settimana a Milano

"the month of which$_i$ Gianni spent the first week t_i in Milan"

b.   *Il mese di cui Gianni è tornato la prima settimana

"the month of which$_i$ Gianni came back the first week t_i"
Italian (p 326, ex 91; Italian)

Belletti and Rizzi attribute these islandhood facts to differences in the structure of the Italian VP. They argue that Experiencer objects of *preoccupare* verbs are sisters of V′, and hence are not lexically θ-marked by the head verb.

These same restrictions on extraction have also been claimed to exist for English (Roberts 1991; Johnson 1992; Baker 1997; Landau 2010b).

(2.54) a. ?Which company does international unrest frighten the president of *t*?

b. Which company does the international community fear the president of *t*?
(Baker 1997: ex 67)

(2.55) a. ??Who did your behavior bother the sister of *t*?

b. Who did you tease the sister of *t*?
(Johnson 1992: ex 24)

As (2.55) suggests, the (non-)agency of the subject appears to play a significant role in generating these kinds of violations. As a result, it has been claimed that only sentences with agentive subjects seem to allow extraction from an Experiencer object (Johnson 1992; Landau 2010b). I believe however, that this conclusion is an oversimplification based upon a failure to explore the full range of possibilities regarding these kinds of sentences.[5] For example, Baker's (2.54a) does not involve an agentive subject (*international unrest*) and yet I actually find it better than Johnson's (2.55b), which does involve (potentially) an agentive subject.[6]

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[5]This is a common theme throughout this dissertation.

[6]I suspect that part of the reason is Johnson's poor choice of Experiencer DPs in his examples. Note that the non-extracted versions of (2.55) sound odd as well, and this has nothing to do with the position of the Experiencer DP inside the verb phrase.

(i) a. ?Your behavior bothered the sister of Chris.

b. ?You teased the sister of Robin.

In contemporary English, *of*-genitive constructions involving kinship relations and proper noun possessors are heavily disfavored (Grafmiller To appear), and it is certainly possible that this contributes to the overall

Johnson (1992) also notes that Experiencer objects are more sensitive to extraction out of islands than other types of objects.

(2.56) a. ??Who did you wonder whether Sam knew *t*?

     b. ?*Who did you wonder whether the book bothered *t*?

       (Johnson 1992: ex 25a and 26a)

He suggests that Experiencer objects behave like adjuncts with respect to their extraction-blocking effects.

Pursuing this line of evidence even further, Landau (2010b) argues for a still finer distinction between the acceptability of true adjunct island violations (2.57a) and extraction out of Experiencer objects (2.57b-c). Landau suggests that there is a reliable, though subtle, difference in the acceptability of sentences involving pied-piping extraction versus those involving preposition stranding. The former (2.57b) he claims are slightly less acceptable than the latter (2.57c).

(2.57) a. *Why did you wonder whether the book appealed to Sam *t*?

     b. ?*To whom did you wonder whether the book appealed *t*?

     c. ??Who did you wonder whether the book appealed to *t*?

       (Landau 2010b: ex 60)

He argues that the kind of violation exhibited in (2.57b) is as unacceptable as extraction out of genuine Experiencer direct objects, which he offers as evidence for his analysis of Experiencers as arguments of null prepositions. His analysis predicts a pattern of acceptability

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acceptability of the sentence. When the Experiencer DP involves a more likely *of*-phrase, the acceptability improves.

(ii) a. Which political party did the editorial insult supporters of *t*?

    b. Which teams do you think the new NCAA rankings will annoy fans of *t* the most?

like in (2.58), where extraction from the direct object of the Obj-Exp verb *please* (2.58c) is taken be of an equivalent level of (un)acceptability as the pied-piped extraction in (2.58a).

(2.58) a. ?*To whom did you wonder whether the book appealed *t*?

   b. ??Who did you wonder whether the book appealed to *t*?

   c. ?*Who did you wonder whether the book pleased *t*?

Landau proposes a syntactic analysis of English Obj-Exp verbs in which they do not in fact take complement NPs (or DPs) as do canonical transitive verbs, but instead select for PP complements headed by a null preposition $\varnothing_\Psi$ (see Section 1.2.2.3). The logic is that because objects of Obj-Exp verbs are actually arguments of null prepositions, extraction from within these null-headed PPs should exhibit the same degree of unacceptability as extraction from overt-headed PP complements found in other verbs. For complex reasons, it is an essential part of Landau's analysis that (null) P-stranding not be available for Obj-Exp verbs, unlike verbs with overt-headed PP complements (2.58b). Thus, the difference in acceptability between sentences like (2.58b) and those like (2.58a,c) is a crucial bit of evidence in support of his null preposition head. A similar analysis is suggested by Baker (1997), who notes that restrictions on extraction from Experiencer objects mirror those on extraction from the Goal arguments of double object verbs.

(2.59)   Which woman do you think I should ?give/*buy *t* perfume?
         (Baker 1997: ex 25)

Although these arguments have been repeated in various discussion of English Obj-Exp verbs, I find I do not share all the distinctions in acceptability made by these authors, nor am I convinced that the equivalence in unacceptability between certain types, as in (2.60), is well-established.

(2.60) a. ?*Who did you wonder whether the book bothered *t*?
            (Johnson 1992: ex 26a)

b. ?*To whom did you wonder whether the book appealed *t*?

(Landau 2010: ex 60b)

There is a considerable body of research showing that acceptability judgments about filler-gap dependencies are sensitive to a host of psycholinguistic factors, including the frequency, specificity, discourse accessibility, and other properties of both the filler and the intervening constituents (see Hofmeister and Sag (2010) for an overview). To my knowledge there exists no systematic demonstration of the judgment patterns adduced by Johnson, Landau or any others to support their analyses of the English Obj-Exp verb data.

To investigate these claims more systematically, I set up a pilot judgment survey through Amazon Mechanical Turk, eliciting judgments about sentences involving extraction from different kinds of arguments and extraction sites. The goal was to investigate the claim that extraction involving Experiencer objects is significantly worse than extraction involving non-Experiencer direct objects. Native English speaking Turkers ($N = 99$) rated 16 test items (along with 16 additional fillers) contrasting Obj-Exp verbs with non-psychological causative verbs in two conditions: extraction from within the direct object DP (2.61) and extraction of a direct object out of a CP island (2.62). Sentences were judged on 1-7 scale of acceptability. Example test items are shown in (2.61–2.62).

(2.61)   Extraction from Direct Object:

   a.   Which neighborhood did the construction annoy residents of _____ the most?
        [Pysch]

   b.   Which neighborhood did the construction benefit residents of _____ the most?
        [Non-psych]

(2.62)   Extraction from CP island:

   a.   Which students$_i$ did you wonder [$_{CP}$ whether the teacher upset _____$_i$]?
        [Pysch]

b. Which students$_i$ did you wonder [$_{CP}$ whether the teacher punished ____$_i$]? [Non-psych]

The results of the survey were not encouraging for the syntactic accounts previously discussed. The summary of the ratings obtained is shown in Figure 2.1. Mixed-effects regression analysis[7] revealed no significant main effect of verb type, $\beta = -0.25, SE = 0.21, t = -1.21, p = 0.11$, or condition type, $\beta = -0.03, SE = 0.22, t = -0.12, p = 0.45$. Interaction of the two also did not achieve significance, $\beta = -0.62, SE = 0.46, t = -1.35, p = 0.09$.[8] In all, subjects did not find extraction involving the objects of Obj-Exp verbs to be signif-

Figure 2.1: Ratings from the object extraction survey
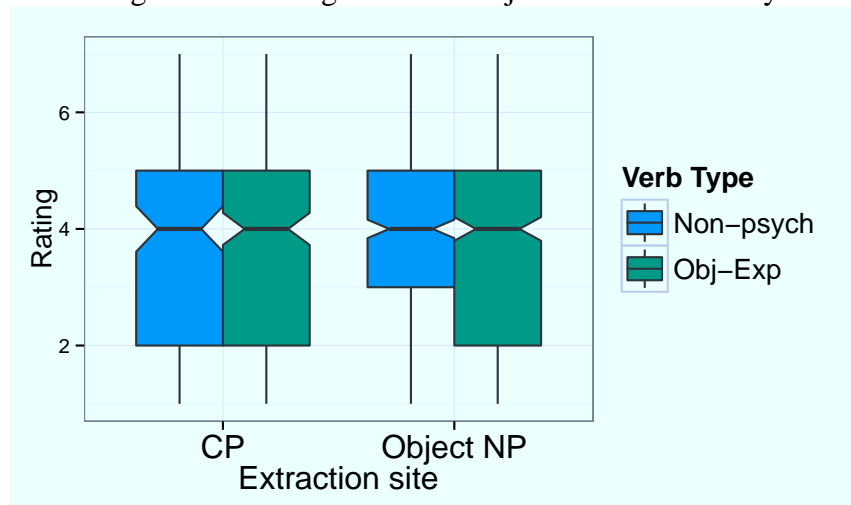
icantly worse than extraction involving objects of non-psychological verbs. A somewhat unexpected finding is that subjects' ratings were not consistently different across sentences involving extraction from direct objects (2.61) and sentences involving extraction from *wh*-islands (2.62), which are typically understood to incur much stronger violations (see

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[7]The model included random intercepts for subject and item, and fixed effect controls of subject age and gender. Likelihood ratio tests did not support the inclusion of random slopes ($\alpha = 0.05$).

[8]All statistical analyses in this dissertation were conducted using R statistical software (R Core Team 2013). Unless otherwise specified, graphics were generated with the `ggplot2` package (Wickham 2009). Analysis of the specific experimental results here used the `lme4` (Bates et al. 2013) and `rms` (Harrell 2013) packages.

Landau 2010b: 31). Why this should be is unclear, and we should be cautious in making too much of the results of this brief survey, given that they are null results obtained using only a small number of items. Nevertheless, the evidence is reliable enough across speakers ($N = 99$) to cast doubt on the claims made by some authors that there is a syntactically relevant distinction between Experiencer objects and other kinds of affected objects in English. All things considered, these facts point toward an analysis of English Experiencer objects as typical affected direct objects, and Obj-Exp verbs as true transitive verbs.

2.5   Heavy NP shift

A final minor fact about English Obj-Exp verbs noted by Landau (2010b: 30, credited to an anonymous reviewer) is that Experiencer objects resist heavy NP shift. For Landau this is especially relevant as it parallels the resistance to heavy NP shift found with recipients in double object constructions.

(2.63) a.   *These things bothered yesterday the man who visited Sally.

     b.   *We told t_i these things (yesterday) [the man who visited Sally]$_i$.

     c.   These things appealed yesterday to the man who visited Sally.
       (Landau 2010: 31)

It has been argued before in the generative literature that the inner object (recipient) of double object constructions is introduced by a null P head (e.g. Baker 1997), and naturally this meshes well with Landau's similar treatment of Experiencer objects. Moreover, he suggests that shifting is a PF rule that applies only to those phrases headed by a phonologically visible head. In this way, the facts he cites in (2.63) can be explained—since neither the inner recipient object nor Experiencer object phrases (2.63a-b) have visible heads, those phrases are invisible to heavy NP shift.

As evidence for the special structure of Obj-Exp verbs however, I find this argument to be pretty weak. First, I disagree with the judgments about the data in (2.63). I find (2.63c) no better (or worse) than (2.63a). Second, although none of them are very good, I do not find examples of shifted Experiencer objects (2.64) to be much worse than shifted examples of other kinds of affected objects (2.65).

(2.64) a.   The meteor shower amazed last night all the amateur astronomers who came out to see it.

     b.   The speaker's offensive remark stunned into silence everyone in the room.

     c.   The museum's dinosaur exhibit delighted for weeks children of all ages.

     d.   The eye-tracking equipment fascinated yesterday a little boy who came visit the lab.

     e.   The senator's comments unintentionally shocked today some of his more conservative political allies.

(2.65) a.   The hailstorm dented last night all the cars on my street.

     b.   The sudden wildfire burned to ashes several houses at the edge of the town.

     c.   The blowing sands eroded for years the many cliffs and rock formations in the canyon.

     d.   We devoured yesterday two entire quarts of ice cream.

Third, heavy NP shift of affected objects actually appears to be quite rare. Searches in COCA yielded only a few examples of shifted direct object NPs[9] and most of these did not

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[9]This is opposed to shifted sentential complements: *The president announced yesterday that...*

involve affected objects (2.66); searches in SOAP—a corpus of (arguably) more conversational style—yield no hits at all.[10] This is perhaps because heavy NP shift of this kind often smacks of a high register "reporter-ese" that is just not common to conversational speech.

(2.66) a. I received yesterday a large parcel which I suppose to be a score of 'Simone'.

(COCA)

    b. …Pionerskaya Pravda published today a resolution by school children in many parts of Russia…

(COCA)

    c. We showed today a Cadillac Escalade EXT, which is a crossover luxury sport utility…

(COCA)

    d. And they played yesterday a shocking audiotape of a seemingly drugged Jackson…

(COCA)

    e. Sally Quinn[…]wrote last week an editorial column raising questions for the new Homeland Security Office director.

(COCA)

    f. Pete Wilson formed last week an exploratory committee.

(COCA)

It is worth noting that the examples in (2.66) all involve subjects who are potential Agents, but the general scarcity of such examples suggests that the construction is not very common overall. The absence of an Agent is a crucial point for analyses like Landau's—since this restriction is claimed to only apply to non-agentive uses of Obj-Exp verbs—but I know of no evidence demonstrating a clear improvement in the acceptability of shifted Experiencer objects when the subject is an Agent. The claim is that sentences such as (2.67a) and (2.67b) should be judged significantly better than those such as (2.67c) because

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[10]The searches were for any past tense verb, followed immediately by a time adverbial (*yesterday, today, last week/night*, or a day of the week), followed immediately by an article (*a/an/the*): `[v*d] yesterday|today|[npd1] [at*]` and `[v*d] last week|night [at*]`.

the first two involve genuine cases of affected direct objects, whereas the Experiencer in (2.67c) is a covert oblique, like the inner objects of dative verbs.

(2.67) a.   The clown terrified yesterday every child at the picnic.

      b.   The thunderstorm drenched yesterday every child at the picnic.

      c.   The thunderstorm terrified yesterday every child at the picnic.

I find however, that whatever differences in the judgments of these sentences there may be, they are far too subtle to draw strong conclusions about (potentially covert) aspects of their syntactic structure. To make a convincing case one would need a much more systematic investigation of the judgment patterns, but I will not pursue such a study here. For now, I will leave the matter open, and until sufficient evidence is provided to the contrary, proceed from the null hypothesis that Experiencer objects are no less available to heavy NP shift than other affected objects.

2.6   The problem of stativity and agentivity

As I discussed in this and the previous chapter, it is commonly argued that the special behavior of Obj-Exp verbs obtains only in their stative and/or non-agentive readings. Authors disagree about which distinction is most relevant; some focus on stativity (e.g. Arad 1998; Bouchard 1995; Pesetsky 1995), others on agentivity (e.g. DiDesidero 1999; Grimshaw 1990; Landau 2010b), and some discuss both (e.g. Landau 2010b). Setting aside the possible conflation of agentivity with stativity, almost all analyses argue for some grammatically relevant distinction between stative and non-stative Obj-Exp verbs. As I pointed out in this chapter, a number of phenomena that have been the focus of psych-verb studies cannot serve to distinguish these subclasses of verbs (or verb uses). And this is especially true in light of some of the additional data I provided. If we wish to justify claims for differences

in stativity then, we must look to other phenomena, which is what many others have done. In the next chapter I explore the nature of Obj-Exp verb stativity in detail, focusing on the verbal and adjectival properties of Obj-Exp passives. I return to the topic of agentivity in Chapter 5.

Example sources

[a]*NYT*, 6/9/2002, p4.

[b]http://www.inquisitr.com/83857/for-the-god-bothering-techie-in-your-life/

[c]http://www.myspace.com/phonessportsmanband/photos/1759755

[d]http://abcnews.go.com/US/story?id=92799&page=1#.T395J6vy92A

[e]http://azdailysun.com/entertainment/movies/this-means-war-an-audience-pleasing-mix-of- action- comedy / article_ccc6e9a2-628b-5111-bd0b-4f6578cda4cd.html

[f]http://www.flickr.com/photos/26758067@N08/6151646783/

[g]T. Sutherland, *The Fifth Summer.* Black Swan, London, 1991: 278.

[h]A. Rice, *New Tales of the Vampires: includes Pandora and Vittorio the Vampire.* Random House, 2004: 175

[i]Scott LeHigh, on *The Rachel Maddow Show*, 6/24/2011, MSNBC

[j]Dick Cavett. *Talk Show, Enhanced Edition: Confrontations, Pointed Commentary, and Off-Screen Secrets.* Macmillan, 2011.

Chapter 3

Stativity and passivization

The aim of this chapter and the next is to examine the nature of passivization with Obj-Exp verbs, in the hope of clarifying some of the more controversial issues regarding the aspectual character of a subset of English Obj-Exp verbs. I focus on verbs such as *depress, concern, worry,* and *bore* that have been claimed to obligatorily denote states, since for many, the peculiar behavior of Obj-Exp verbs obtains only in the stative uses (Arad 1998; Biały 2005; Landau 2010b; Pylkkänen 1999). The unacceptability of Obj-Exp verb passives in certain environments has been one of the primary diagnostics for the stativity of these verbs (Bouchard 1995; Pesetsky 1995).

In this chapter, I provide a close empirical examination of Obj-Exp verb passives, relying heavily on data from natural usage—something rather novel in the literature on English psych-verbs. The present chapter focuses in part on the debate over whether (or which) Obj-Exp verbs can form verbal, as opposed to adjectival, passives. This debate is an old one, but as I will show, there is still much to be said about the passive behavior of Obj-Exp verbs in English. The present chapter explores these topics qualitatively, and I follow this with quantitative investigations of these phenomena in the following chapter.

Section 3.1 briefly considers some of the empirical claims about Obj-Exp passives that have been made over the years, focusing on the distinction between eventive (verbal) and

stative (adjectival) passives. Section 3.2 reviews how these facts have been incorporated into specific analyses of English psych-verbs, and re-examines some extant analyses in light of new evidence. In Section 3.3, I suggest a novel approach to understanding Obj-Exp verbs which attributes their variable behavior to the relation between the meaning of individual verbs and the functional role of passivization as a shift in conceptual perspective.

3.1 Verbal and adjectival passives

It is well-known that English passive participles, such as *frightened* in (3.1), display both adjectival and verbal behavior (e.g. Bresnan 1982; Emonds 2006; Fabb 1984; Freidin 1975; Levin and Rappaport 1986; Siegel 1973; Wasow 1977; Williams 1981).

(3.1)   Thorn was frightened by all the noise and confusion.   (COCA)

With Obj-Exp verb passive participles, the discussion has centered on the issue of their syntactic status as either event-denoting verbs or state-denoting adjectives (or both). Grimshaw (1990), for example, argues that non-agentive Obj-Exp verbs lack external arguments, and since passivization in her view necessarily involves the syntactic suppression of the external argument, Obj-Exp verbs cannot form verbal passives. To account for data such as in (3.1), she maintains that these Obj-Exp passives must be adjectival. Many others have disputed Grimshaw's claim, citing unambiguous evidence that Obj-Exp verbs can form verbal passives in some instances (Bouchard 1995; Chung 1999; Iwata 1993; Landau 2010b; Pesetsky 1995; Tenny 1998). No one to my knowledge has ever doubted that all Obj-Exp verbs readily form adjectival passives. However, those arguing for the unique stative or non-agentive status of (at least some) Obj-Exp verbs have nevertheless relied to varying degrees on evidence from Obj-Exp verb passivization (e.g. Arad 1998; Belletti and Rizzi 1988; Grimshaw 1990; Landau 2010b; Pesetsky 1995). In this section I review some of the evidence and arguments for both the adjectival and verbal status of Obj-Exp passive participles, followed by a discussion of how these two passive phenomena relate to the specific

realization of the passive agent in Section 3.1.3.

3.1.1 Adjectival passives of Obj-Exp verbs

While the semantic distinction between the stative (adjectival) and eventive (verbal) uses of the past participle is subtle, over the years various grammatical diagnostics have been proposed for distinguishing between them syntactically. Wasow (1977: 338-341) cites four criteria for identifying adjectival passives:

(3.2) a. Use as prenominal modifiers;

b. Use as the complement of verbs such as *seem, look, sound,* and *act*;

c. Prefixation with *un-*;

d. Modification with the degree adverb *very*

These environments are alike in that all share the property of selecting adjectives and not verbs. I examine the use of Obj-Exp verb passives in each of these environments below.[1]

3.1.1.1 Prenominal modification

Prenominal modification is characteristic of adjectives in English, allowing, for example, both *-ed* and *-ing* deverbal adjectives (*the delighted/smiling children*). This behavior is completely regular and productive with Obj-Exp verbs—any Obj-Exp passive can be found in this environment as in (3.3), even passives of quite rare verbs like *flabbergast, irk, rankle,* or *titillate* (3.3e-h).

(3.3) a. She looks at him like a concerned parent. (COCA)

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[1]It is well known that many verbs which do allow verbal passives nevertheless cannot also be used in these adjectival environments. Since my focus is only on English psych-verbs, I will not attempt to review the entire literature here. For some discussion of the various semantic and pragmatic factors affecting adjectival passive formation with specific verb types, see Ackerman and Goldberg (1996), Bresnan (2001), and Levin and Rappaport (1986).

> b. After something whacked Jupiter, surprised astronomers turned into sleuths to find out what happened. (COCA)
>
> c. ...she won court orders to search the attic accompanied by an annoyed clerk eager to return to his desk. (COCA)
>
> d. She laughed and clapped like a delighted child. (COCA)
>
> e. He turned out to be gracious and kind, patient with a flabbergasted fan's babbling of thanks.[a]
>
> f. The crowd parts ever so slightly as the irked townsfolk start to heat up. (COCA)
>
> g. Like a rankled parent, the National Institute for Occupational Safety and Health keeps warning that... (COCA)
>
> h. His condemnation removes him from his position as a titillated participant...[b]

Evidence for the adjectival status of prenominal Obj-Exp passives comes from the fact that they can be conjoined with other adjectives in this position.

> (3.4) a. ...and he didn't try to pretend he was anything but a [scared and lonely] kid. (COCA)
>
> b. His breath came in [angry and worried] snorts between clenched teeth. (COCA)
>
> c. There were some [bitter and upset] fans, and I was the point man for the fire sale. (COCA)

Also like other prenominal modifiers (3.5), Obj-Exp passive participles cannot take complements (3.6).

> (3.5) a. Your dog seems [$_{AP}$ happy to see us]!
>
> b. *Your [$_{AP}$ happy to see us] dog is wagging her tail!

(3.6) a.   The distant howls startled the campers, who were [_{AP} terrified of wolves].

     b.   The distant howls startled the [_{AP} terrified] campers.

     c. *The distant howls startled the [_{AP} terrified of wolves] campers.

This "Head-final filter" (Williams 1981) is a well-known general restriction against complex prenominal phrases in English (see also Bresnan 1982b, 2001; Hoekstra 1984; Levin and Rappaport 1986; Maling 1983). While the head-final restriction applies to nouns as well as adjectives, the fact that Obj-Exp passives obey it is consistent with their adjectival status.

3.1.1.2   Complements of *look, seem,* etc.

A second test for adjectival status is use as the complement of verbs like *look, seem,* and *act*. These verbs take adjectival (3.7), and sometimes nominal (3.8), complements, but none can take bare VP complements (3.9).

(3.7) a.   The clown acted silly, and the food was cold.   (COCA)

     b.   The harried officer looked happy to confront an easy issue...   (COCA)

(3.8) a.   Sometimes I got both wedges stuck and looked a fool...   (COCA)

     b.   I must have looked a mess...   (COCA)

     c.   He must have looked a fright, covered in dirt and dust and blood.   (COCA)

(3.9) a.   ...long glowing silvery bars that looked *(to be) hovering at an uncertain distance overhead...   (COCA)

     b.   They were drunk and seemed *(to be) enjoying the sensation...   (COCA)

Obj-Exp verb passive participles clearly fit this pattern, and unlike in the prenominal environment, verbs like *seem, look,* and *appear* readily allow complex AP complements (3.10a,d-h).[2]

(3.10) a. Coleen Rooney's son Kai looked terrified of Cinderella at the Disney On Ice launch. (G)

   b. David snorted, but he looked amused. (COCA)

   c. No wonder the men seemed bored and overfriendly. (COCA)

   d. Robert, in the throes of painting her portrait, seemed captivated by her. (COCA)

   e. . . . probably why Roxy didn't look scared of anybody. [c]

   f. He finds the humor in things, and he's never once acted frustrated or angry about what's happened to him. (COCA)

   g. The bunyips, for their part, seemed delighted to observe the zoo visitors who were observing them. (COCA)

   h. She is talking animatedly and he seems enchanted with her. (COCA)

Use of Obj-Exp passive participles in this environment provides still more evidence of their potential for adjectival use.

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[2]Those familiar with the literature on English passives may note that *by* phrases referring to external arguments have been claimed to only be acceptable with verbal passives (e.g. Emonds 2006; Wasow 1977), though Levin and Rappaport (1986: n 26) note that "sporadic" instances (*she remained surprised by their enthusiasm*) can be found. The use of a *by* phrase in (3.10d), and in other examples below, suggests that the realization of external arguments with adjectival passives is more complicated than sometimes assumed. I return to this issue in Section 3.2.

3.1.1.3   *Un-* prefixation

Prefixation with the negative affix *un-* offers a third diagnostic for adjectivehood. Negative *un-* attaches to adjectives and not verbs—*unhappy, unlikely, uncaring, unaware*, but **un-delight, *uncare, *unsee* (Levin and Rappaport 1986; Siegel 1973; Zimmer 1964).[3] The negative *un-* prefix is available with most Obj-Exp verbs (Bouchard 1995; Grimshaw 1990; Iwata 1993; Pesetsky 1995), though the acceptability seems to vary based on the individual verb.

(3.11)   a.   I looked away, unamused. I didn't want to do this.   (COCA)

   b.   Serena kept her tone mild and unconcerned.   (COCA)

   c.   She's wholly unbothered by the failure.   (COCA)

   d.   ...you can limit the damage by acting completely unfazed by anything he says[d]

Common examples include *unconcerned, unamused, unfazed,* and *unsurprised*, but *un-* passives of other verbs are somewhat odd. The adjectival passives *?unhorrified*, *?uncaptivated*, *?unscared*, and *?unpuzzled* for instance, are relatively rare and not very good in my judgment. Bouchard (1995: 306) makes a similar observation, citing questionable cases like **unbored* and **undisgusted*. Nevertheless, many examples of even these less acceptable *un-*passives can be found (3.12), so the pattern is a productive one.[4]

(3.12)   a.   Is she withdrawn or simply unannoyed? It's not like her to be calm.   (COCA)

---

[3]This prefix should be distinguished from the "privative" (Siegel 1973: fn. 3) or "reversative" (Levin and Rappaport 1986: fn. 6) *un-* which attaches to verbs as in *Chris unzipped her jacket*. The difference is that *to un-V* does not mean simply "to not V", but rather it means something like "to undo the action/state described by V". For example, someone could not say "It's not that cold, you can unzip your jacket", to mean "It's not that cold, you can leave your jacket unzipped". The former sentence is felicitous only if the addressee's jacket is already zipped (see also Horn 2001; Zimmer 1964).

[4]Notice again the use of *by* phrases in (3.12c-f,i-j).

b. Can we find you a new home? You have to be unscared first, though, and start shaking your tail. [speaking to a dog in a shelter] (COCA)

c. ... free from stereotypes, open to new experiences, and unfrightened by the unknown. (COCA)

d. It's like they are uncaptivated by the excitement of eternal life later and new life now. (G)

e. If there was one person unastonished by the boy's gifts, ...[e]

f. Both of Don's brothers appeared unpuzzled by their dad's comments accepting knowingly the advice to be right on.[f]

g. Even though right now I am the most unbored person on the face of the earth. I need your suggestions on things that are funny and hilarious... (G)

h. I started these weeks ago, got disgusted with them and set them aside, then came back to them when I was undisgusted. (G)

i. She loved Profondo Rosso, and like me was undisgusted by Salo ... (G)

j. Hunter was as genuinely undisgusted by other people's illnesses and unconcerned about the probability of catching them as he was worried about disgusting people with his own.[g]

It is still interesting to consider why some of these examples should seem better than others, as cases like this cut to the heart of the complex relationship between acceptability, grammaticality, and frequency. In general, I find very few *un-* passives actually seem very good (especially in isolation), and there seems to be a strong correlation between those

that are intuitively more acceptable (*uninterested, unsatisfied, unconcerned, unfazed, undaunted*) and their frequency relative to other less acceptable Obj-Exp *un-* passives (*undisgusted, undelighted, unpleased*). Consider the distribution of a few Obj-Exp verb *un-* passives in Table 3.1.

	N		*N*
uninterested	596	*undepressed*	3
unconcerned	567	*unamazed*	3
undaunted	551	*unscared*	2
unfazed	468	*undelighted*	2
unsatisfied	344	*unastonished*	1
unsurprised	104	*unannoyed*	1
unamused	48	*unastounded*	0
unbothered	42	*unbored*	0
unworried	42	*unconfused*	0
unoffended	9	*undisgusted*	0
unpleased	6	*unfascinated*	0
unstartled	3	*unshocked*	0
unfrightened	3	*unstunned*	0

Table 3.1: COCA frequencies (raw) of Obj-Exp *un-* passives

One possibility is that some of these adjectival *un-* forms are lexicalized to a much greater degree than others. For example, *daunt* and *faze* are rare (as Obj-Exp verbs go) in their use in transitive sentences, yet they are considerably more frequent as *un-* participles than verbs that are otherwise far more common (e.g. *surprise, frighten*). Additionally, their *un-* forms are more than twice as common as their positive adjectival *-ed* counterparts: *unfazed/fazed* (468/174 = 2.6), *undaunted/daunted* (551/225 = 2.4). Compare this to the ratios of *unconcerned/concerned* (567/38433 = 0.014), *uninterested/interested* (596/32876 = 0.018), and *unsatisfied/satisfied* (344/5235 = 0.065).

The semantics of the individual verbs themselves could also influence their use and acceptability as *un-* passives, as adjectives denoting negative properties have been argued to be less open to modification with the negative *un-* prefix than those adjectives denoting

positive properties (e.g. Horn 2001; Zimmer 1964). But this cannot be the only story, as it would not explain the high frequency/acceptability of *un-* passives with negative verbs such as *concern* and *worry*, or the low frequency/acceptability of *un-* passives with positive verbs like *amaze* and *delight*. Clearly, there is more to be learned about the semantics of negative *un-* and its distribution across different verbs and adjectives, but I leave this for another study.

3.1.1.4 Degree modification

Finally, many adjectives and adjectival passives may be modified with the degree modifier *very*.

(3.13) a.   I was very hurt to hear my dad died because he was like a part of me.   (COCA)

       b.   What we really need to focus on is the fact that we have a very broken immigration system that needs to be fixed.   (COCA)

       c.   ...you're going to wind up with a very damaged asset that won't be able to compete globally.   (COCA)

This kind of degree modification with *very* (and other adverbs) is not available to all adjectives, however (Fabb 1984; Freidin 1975).

(3.14) a.   *The cat was very asleep.

       b.   *Sam was very arrested.

       c.   *You are extremely next.
         (Freidin 1975: ex27)

Fabb (1984: 148) sets adjectival passives apart from other adjectives, based on the fact that adjectival passives imply "a resultant state, a state which arises as the result of an event

or act" (see also Bresnan 2001; Langacker 1991; among others). He further suggests that adjectival passives "may only marginally be intensified" (149), following Freidin's (1975: 399) observation that predicates referring to events will not take degree modifiers, since events are generally not conceived of in degrees.

Freidin's observation about the importance of conceiving of things in terms of degrees is key here. While it is true that one semantic condition on adjectival passive formation is that the verb imply a resultant state, the "marginal intensifiability" of some adjectival passives does not follow directly from their implication of an event. Instead, the ability to take a degree modifier is in fact related to the gradability of the property or state described by the adjective, regardless of whether that property/state is the result of an act or event. This should be clear from the fact that even some basic adjectives do not allow degree modifiers, even when they are not associated with an event at all (3.14c). Predicates such as *dead, arrested*, and *next* denote binary states which are either true with respect to an individual or not—one cannot be slightly or mostly dead—hence they cannot be modified with degree modifiers like *very*. This is also evident from the fact that adjectival passives of verbs describing non-gradable events actually become acceptable when modified with adverbs implying (coercing?) a gradable property interpretation (from Fabb 184: 154).

(3.15) a. a well-executed plan

 b. ??an executed plan

(3.16) a. the recently built museum

 b. ??the built museum

Additionally, modification with *very* applies even to stative Subj-Exp verbs, which are not result verbs themselves, but nevertheless describe attitudes that are gradable. In certain circumstances, usually when the attitude is directed toward a human target, we can talk about the target as experiencing the effects of that attitude to varying degrees.

(3.17) a. But I feel unimportant, not special, and not very loved. (COCA)

b. You're very admired and people like you a lot. (COCA)

c. I really felt very special and very adored on that day. (COCA)

d. Carhart is very, very disliked in Bellevue. (COCA)

It has also been suggested that the acceptability of adjectival passives of stative verbs (like Subj-Exp verbs) is related to pragmatic informativeness (Ackerman and Goldberg 1996; Bresnan 2001), and this too could be connected to gradablilty. The reasoning being that perhaps it is often more informative to characterize an entity as possessing a property when that property falls toward the end of some relevant continuum. Whether this is correct or not, I will not explore further here, however it is clear that degree modification is not a necessary condition for Subj-Exp adjectival passives.

(3.18) a. As to why the Jesuits, who seem admired if a bit mistrusted here, should be interested, ... (COCA)

b. Milwaukee, which had never won a World Series, was playing the hated Yankees, who dominated baseball then. (COCA)

c. Here, she shares cherished memories and recipes (COCA)

d. Demanding his empathy and getting none at all, the wife felt rejected and unloved. (COCA)

These adjectival passives describe gradable states regardless of whether they are modified.

Obj-Exp verbs naturally meet several of these conditions. First, emotions are uncontroversially gradable. No one would dispute that we can experience varying degrees of anger, joy, sadness, fear, love, and so on. Non-derived adjectives describing emotions, such as *afraid, happy*, and *angry*, readily allow degree modification with *very*.

(3.19) a. She also told cops that Casey was very afraid of Cindy.   (COCA)

b. Isaac is very happy with his relationship with Mill Pond Press. . .   (COCA)

c. But he is very angry at Thor.   (COCA)

Second, as they are based on verbs describing causative eventualities associated with resultant emotion states, adjectival Obj-Exp passives should be ideal candidates for degree modification. Not surprisingly, Obj-Exp passives of all kinds are frequently modified with *very*.

(3.20) a. Personally we were very delighted.   (COCA)

b. Mum was very upset when he said this.   (COCA)

c. We were very puzzled and surprised when this happened.   (COCA)

d. And we're all sitting here very baffled about how it is that love has gone so bad in these situations.   (COCA)

e. He said he was very astounded by this stunning result.   (COCA)

f. No one in my family is very tickled about having to meet her. . .   (COCA)

g. And I was very struck by how quietly she spoke   (COCA)

h. I was very charmed by his writings after we started exchanging poems.[h]

Taken together, the facts regarding the use of Obj-Exp passives in prenominal modification, use with *seem*, modification with *un-* prefix, and modification by degree adverbs all lead to the conclusion that Obj-Exp verbs, like many other causative verbs, readily form adjectival passives. The adjectival status of Obj-Exp passives has never seriously been challenged, however. In the next section I delve into the controversy over verbal passivization of Obj-Exp verbs.

3.1.2 Verbal passives of Obj-Exp verbs

Many who study the structure of English Obj-Exp verbs have wrestled with the question of whether Obj-Exp passive participles can ever be used in verbal environments. The facts mentioned in the previous section demonstrate that although Obj-Exp verbs can form adjectival passives, it does not necessarily follow that Obj-Exp verbs *cannot* form verbal passives (Bouchard 1995). One argument commonly put forth against the unavailability of verbal passives for Obj-Exp verbs is the supposed fact that the progressive is incompatible with Obj-Exp passives of certain verbs.

(3.21) a.   The situation was depressing Mary.

  b. *Mary was being depressed by the situation.
       (Grimshaw 1990:114)

The logic is that adjectival passives, like typical adjectives, only describe states, yet the progressive requires an event or process interpretation, hence it requires a verbal passive. Similar arguments have been made based on the supposed inability of Obj-Exp verbs to be used in the punctual past tense.

(3.22) ??Bill was sitting around happy as a lark, when suddenly he was depressed by an unexpected groan from the next room.
       (Pesetsky 1995: 30)

Because (non-agentive) Obj-Exp passives are unacceptable in the progressive and the punctual past, which require eventive interpretations, passive participles of Obj-Exp verbs must denote states, and are therefore grammatically adjectival.

In Section 3.1.2.1 I discuss the use of Obj-Exp passives in the progressive, followed by discussion of the punctual past tense in Section 3.1.2.2. Lastly, I examine the use of Obj-Exp verbs in a lesser known construction, the so-called *needs washed* construction found in a dialect of the midwestern United States (Tenny 1998). Evidence from each of these

constructions shows that passive participles of Obj-Exp verbs can, and quite frequently do, denote events.

3.1.2.1 Passives and the progressive

While Grimshaw's analysis of Obj-Exp passives highlights the role of agentivity in differentiating among Obj-Exp verbs, others attribute the variable behavior of Obj-Exp verbs in certain environments to differences in stativity (e.g. Arad 1998; Bouchard 1995; Landau 2010b; Pesetsky 1995). Some verbs are claimed to be essentially stative, while others allow either a stative and non-stative (eventive) reading. For example, some Obj-Exp verbs (e.g. *depress*) are claimed to be unacceptable in the progressive when modified by adverbs such as *continually* or *repeatedly*. These adverbs force a reading of the progressive predicate as denoting an iterated series of events. Therefore, only verbs/predicates capable of denoting events are acceptable in the "iterative progressive". Since certain Obj-Exp verbs are (supposedly) not acceptable in the iterative progressive, it is reasoned that those verbs must denote states, and not events.

It is sometimes claimed that the unavailability of an eventive interpretation applies to both passive *and* active uses of the progressive, and therefore stative Obj-Exp verbs should be unacceptable in either instance (e.g. Pesetsky 1995).

(3.23) a. ??Odd noises were continually depressing Sue.

b. ??Sue was continually being depressed by odd noises.
(Pesetsky 1995: 29-30)

Verbs such as *scare* on the other hand can describe events, and are entirely compatible with the iterative progressive and punctual past constructions.

(3.24) a. Odd noises were continually scaring Sue.

b.   Sue was continually being scared by odd noises.

(Pesetsky 1995: 30)

Since the iterative progressive requires eventive predicates, and the only passives that can make reference to events are verbal ones, use of a passive participle in such environments testifies to the participle's verbal status. Assuming this is true, verbs such as *scare* do indeed have verbal passive forms. On the other hand, adjectival passives, being stative, are the only passive forms available to verbs like *depress*.

But this raises a new question: why, if *depress* is stative, can it be used in the progressive in sentences like *The situation is depressing Mary*? Pesetsky suggests, following Baker (1989), that sentences such as (3.20a) actually involve an interpretation of the progressive slightly different from the 'iterated action' interpretation. This interpretation is one that also shows up with progressive uses of non-Obj-Exp stative verbs.

(3.25) a.   Karen is finally understanding the proof.

b.   Donald is finding your accusations ludicrous.

c.   Sue is truly hating the sea-urchin sushi.

d.   I think Robin is really enjoying this performance.

(Baker 1989: 489)

Unlike the iterated action progressive, the progressive in these cases "assert[s] the existence of a judgment of some sort. . . ," and, "implies that the judgment is an intermediate one based only on part of the available evidence" (Baker 1989: 489). That is, sentences of the kind in (3.25) are used when the speaker is understood as being still in the process of making some judgment about the eventuality expressed by the sentence. Thus, when a person says *The situation is depressing Mary*, "we naturally infer that this person is making a judgment. . . about some situation that has not played itself out at the time of

utterance" (Pesetsky 1995: 31). Crucially, verbs that take the special "judgment" reading in the progressive do not allow progressive passives.[5]

(3.26) a. The proof is finally (??being) understood by Karen.

b. Your accusations were (*being) found ludicrous by Donald.

c. The sea-urchin sushi is truly (*being) hated by Sue.

d. I think this performance is really (??being) enjoyed by Robin.

Pesetsky concludes that "for some reason" the judgment interpretation of stative progressives is incompatible with the passive (Pesetsky 1995: 31). This conclusion is in fact not quite correct however, but I leave further examination of it until Sections 3.2.1 and 3.3.1.

3.1.2.2 Obj-Exp passives and the punctual past tense

The stativity of certai nObj-Exp verbs is also claimed to be reflected in the inability of a verb to be used in the punctual past tense. Some verbs like *depress* are argued to be unacceptable when modified by adverbs like *suddenly* in the past tense, while other verbs, such as *scare*, sound perfectly fine used in this way.

(3.27) a. ??Bill was sitting around happy as a lark, when suddenly he was depressed by an unexpected groan from the next room.

(Pesetsky 1995:ex71b)

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[5]This claim too, is empirically questionable.

(i) a. Frank began to feel that some of his angry behavior and peculiarities were finally being understood by someone. (COCA)

b. The benefits of this type of program are finally being understood by the mainstream medical community... (G)

    b.   Bill was sitting around calm as could be, when suddenly he was scared by an unexpected groan from the next room.

        (Pesetsky 1995:ex73b)

According to Pesetsky (1995), this contrast also applies to active uses of the different Obj-Exp verbs.

(3.28) a. ??Bill was sitting around happy as a lark, when an unexpected groan from the next room suddenly depressed him.

        (Pesetsky 1995:ex70b)

    b.   Bill was sitting around calm as could be, when an unexpected groan from the next room suddenly scared him.

        (Pesetsky 1995:ex72b)

The implication is that these sentences describe a punctual change in the Experiencer, therefore they require that the predicate be interpreted as an event, and not a state. Only those verbs that are acceptable with such interpretations will allow verbal passives. This, together with the evidence from the passive progressive, suggests that certain Obj-Exp verbs cannot be used as verbal passives, and are therefore obligatorily stative. The corresponding unacceptability of their active uses in these constructions further supports their (supposed) unambiguously stative nature.

3.1.2.3   Another construction that needs studied

A final piece of evidence for the existence of verbal passives with (some) Obj-Exp verbs is their use in the *needs V-ed* construction predominantly found in dialects of western Pennsylvania, central Ohio, and other parts of the Great Lakes area of the U.S. (Murray et al. 1996; Pratt 2013; Tenny 1998; Ulrey 2009). This construction is exemplified in (3.29) and (3.30).

(3.29) a. The dishwasher needs emptied.

     b. Tabs need kept on the suspect.

     c. The trash needs taken out.

(3.30) a. Do you need picked up?[i]

     b. Have you guys ever opened your work email and saw[sic] over 1400 emails that needed addressed?[j]

     c. Just as your house needs cleaned and your car needs checked by the mechanic, your body needs a much deserved break[k]

     d. Whoever decided the double tap for the rolls was a good idea needs slapped.

                                                                           (G)

     e. How do you know when your tonsils need taken out? (G)

This construction unambiguously selects for verbal passives, which is evident from the fact that while true adjectives are found in all other adjectival passive environments, they are absolutely unacceptable in this construction (3.32).

(3.31) a. Your room needs cleaned.

     b. The tank needs filled.

(3.32) a. *Your room needs clean.

     b. *The tank needs full.

Patterns of usage with the *un-* prefix further support this. *Needs V-ed* is only compatible with the reversative *un-* which applies only to verbs (see note 3). It is not acceptable with the adjective-prefixing negative *un-*.

(3.33) a.   The door needs unlocked.

     b.   The door needs closed.

     c.   *The door needs unopen.

Users of this construction (including myself) find Obj-Exp verbs to be generally acceptable with it, provided the context makes their use appropriate. Tenny (1998) surveyed Pittsburgh, PA speakers about sentences like those in (3.34).

(3.34) a.   Some people need saddened by tragedy, in order to achieve wisdom.

     b.   Nobody needs angered/upset by the truth.

     c.   The teachers need pleased by the proposed contract, or the strike will not end.

     d.   Young people shouldn't need depressed by life.

     e.   The local farmers need concerned by the worsening drought

She found that speakers accepted many of these examples involving Obj-Exp verbs, though the degree to which they accepted specific examples varied by speaker and sentence.

As a native speaker of this dialect, I too find such examples to be generally acceptable, but with the caveat that there is considerable variability in exactly how acceptable. My intuition however, is that the low acceptability of some Obj-Exp verb examples has more to do with contextual infelicity than ungrammaticality. Variability in speakers' acceptance of certain examples is likely a reflection of how natural they feel it is for a person to need to be made to feel a certain emotion. Perhaps it is just difficult to imagine contexts in which it would make sense to talk of someone this way.[6] Unlike a car needing to be washed or a floor needing to be swept, it's rare that someone ever *needs* to be frightened, annoyed,

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[6]This is a frequently mentioned problem with relying solely on intuitions about "acceptability" or "naturalness" as the primary evidence for grammatical structure, even when those intuitions are aggregated across multiple survey subjects (e.g. Schütze 1996; Wasow and Arnold 2005). I return to this point below.

or amazed. But though such situations may be uncommon, when the situation fits, Obj-Exp verbs seem perfectly acceptable in the construction. For instance, some (relatively) common uses of the construction involve verbs describing an emotional change that people do occasionally require, or at least desire, such as being comforted or cheered up.

(3.35) a. Everybody needs cheered up now and then.

b. When I need comforted by someone close to me, I just want to hold them and have them tell me they understand or that it will be okay. (G)

c. . . . they comfort us when we need comforted by just being there beside us and not saying a word. (G)

d. He used to wake once a night and only need soothed maybe twice after that. (G)

e. They need scared, and a scared straight program does not exist anymore. (G)

Likewise, verbs describing certain negative feelings, which we generally don't want or need, are easier to find when negated.

(3.36) a. I don't need frightened by her fashion choices, I'm scared enough of her politics. (G)

b. This is your home now and you don't need bothered by something that is disrupting your life. (G)

c. You don't need confused by learning how to get any other information at this point.[1]

d. I'm feeling bad enough already, I don't need depressed further by hearing about how good you're life is right now. (G)

e.   City folks might think they don't need concerned with GM's or GMO's...^m

I suspect that the scarcity of felicitous circumstances—or more precisely the difficulty in imagining such circumstances—is what lies behind the relatively low rating of certain Obj-Exp verb examples among Tenny's subjects.[7]

Note also that (3.36d-e) involve two verbs that are frequently listed as stative Obj-Exp verbs, *concern* and *depress*, and yet both sentences are fine to me. This provides some evidence that the stativity distinction among Obj-Exp verbs is not as clear as claimed. Tenny hints at this when she observes that speaker's acceptance of certain examples is related to the degree of eventiveness of the verb.

> The Pittsburghese data show us that there is no prohibition on verbal passives of nonagentive psych verbs arising out of universal grammatical principles. But there is a felicity condition (at least in English) that verbal passives are more felicitous the more eventive the verb... *A loose gradient can be defined from the purely stative ascription of property to the most eventive verb type; I do not suppose this to be a strictly grammatical construct, but it is one that speakers make reference to. Individual speakers vary in how strict they are with this scale in making verbal passives*. [Emphasis added] (1998: 595)

Here, I think Tenny has zeroed in on exactly the right way to understand Obj-Exp verb behavior in English, not only with respect to this construction, but with other event-denoting constructions such as the progressive and punctual past. In later sections of this chapter and the next, I expand on the notion of gradient stativity, and explore how lexical and contextual factors are related to the variable conceptualization of Obj-Exp verb emotions as both states and events.

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[7]It is also possible that there is a register clash in the survey examples that Tenny used—formal lexical items with an informal construction. But I and other Ohioans I've talked to find no distinction in register. Many (including myself) in fact perceive *needs washed* to be completely standard. This may be different in Pennsylvania, however.

	Simple tense	Progressive	Punctual	*needs V-ed*
Grimshaw (1990)	All verbs	None	??	??
Pesetsky (1995), Arad (1998), Landau (2010b)	All verbs	Non-stative only	Non-stative only	??
Tenny (1998)	??	??	??	Most (all?) verbs
Present study	All verbs	Most (all?) verbs	Most (all?) verbs	Most (all?) verbs

Table 3.2: Summary of verbal passive uses among Obj-Exp verbs

3.1.2.4 Summary

The evidence presented here offers good reason to believe that at least some Obj-Exp verbs can form verbal passives. Use in the iterative progressive, the punctual past, and the *needs V-ed* construction all require supposedly eventive interpretations of the predicate, and therefore are diagnostic of verbal passives. According to a number of authors however (e.g. Arad 1998; Landau 2010b; Pesetsky 1995), the eventive interpretation of the passive is only available with some Obj-Exp verbs and not others. Many have argued that there exists a class of stative Obj-Exp verbs that are prohibited from being used in eventive contexts by virtue of their semantic incompatibility: verbal passive constructions require eventive interpretations, but these verbs can only be interpreted as states. The pattern of different researchers' claims are shown in Table 3.2.

On its face the argument seems reasonable, but does it correspond to the actual facts? Are these verbs categorically prohibited from eventive uses, and more interestingly, what are we to make of them if they are not? I take up these questions in the rest of this chapter.

3.1.3 Obj-Exp passives and preposition selection

Now I turn to a pattern of behavior unique to Obj-Exp verb passives. This is the contrast between Obj-Exp passive constructions in which the Stimulus argument is realized with a *by* phrase, and those in which the Stimulus is realized with an "idiosyncratic" preposition

(Langacker 1982). These prepositions are referred to as idiosyncratic because different verbs vary in which preposition(s) they allow, and the use of a particular preposition is conventionalized to varying degrees for different verbs. For example, *frightened* and *scared* select for *of*, *amazed* and *surprised* select *at*, and *fascinated* selects *with*.

(3.37) a.   She was frightened **by** what she heard from her granddaughter, Bethany.

     b.   She was frightened **of** what she heard from her granddaughter, Bethany.(COCA)

(3.38) a.   I was amazed **by** the conservative reaction to the speech.

     b.   I was amazed **at** the conservative reaction to the speech.   (COCA)

(3.39) a.   My father was fascinated **by** places like Uzbekistan. . .

     b.   My father was fascinated **with** places like Uzbekistan. . .   (COCA)

All verbs allow *by* phrases, though it is sometimes assumed that the variation between *by* and other prepositions is relatively free (e.g. Grimshaw 1990), many others have claimed that Obj-Exp passives with idiosyncratic prepositions exhibit behavior distinct from that of passives with *by* phrases (Fabb 1984; Postal 1971; Wasow 1977). Iwata (1993) for instance, notes that passives with *by* phrases can be construed as true verbal passives, as indicated by their ability to be used in the progressive. Passives with other prepositions cannot be used in the progressive, however. Pesetsky (1995: 32) makes the same observation, arguing that the distinction is "sharp and robust".

(3.40) a.   Sue was continually being scared **by** sudden noises.

     b.   *Sue was continually being scared **of** sudden noises.

(3.41) a.   Bill was often being enraged **by** totally innocent remarks.

     b.   *Bill was often being enraged **at** totally innocent remarks.

Though it is not discussed as often, the punctual past, which diagnoses eventivity, also seems to be incompatible with passives bearing idiosyncratic prepositions.

(3.42) a. Bill was sitting around calm as could be, when he was suddenly scared **by** an unexpected groan from the next room.
(Pesetsky 1995: 30)

b. ??Bill was sitting around calm as could be, when he was suddenly scared **of** an unexpected groan from the next room.

Assuming that the progressive and punctual past are valid tests for verbal passives, such evidence suggests that passives with prepositions other than *by* must be adjectival.

As for the third verbal passive diagnostic, the *needs V-ed* test, my intuition is that passives with *by* (3.43) are much better than those with idiosyncratic prepositions (3.44) in this construction.

(3.43) a. Some people need saddened **by** tragedy, in order to achieve wisdom.

b. Nobody needs angered/upset **by** the truth.

c. The teachers need pleased **by** the proposed contract, or the strike will not end.

d. Young people shouldn't need depressed **by** life.

e. The local farmers need concerned **by** the worsening drought

(3.44) a. ??Some people need saddened **at** tragedy, in order to achieve wisdom.

b. ??Nobody needs angered/upset **at** the truth.

c. ??The teachers need pleased **with** the proposed contract, or the strike will not end.

d. ??Young people shouldn't need depressed **with** life.

   e. ??The local farmers need concerned **with** the worsening drought

Again, these sentences are of varying acceptability to begin with, but there is a reliable distinction between passive participles with and without *by* in the *needs V-ed* construction; native speakers agree that those with *by* are almost always better. Furthermore I have been able to find only one relevant example of the construction with an idiosyncratic preposition in online searches: (3.36a), repeated in (3.45).

(3.45) City folks might think they don't need concerned with GM's or GMO's...

This test offers additional evidence for the adjectival status of Obj-Exp passives with idiosyncratic prepositions.

  The stative nature of idiosyncratic Obj-Exp passives is further supported by the fact that passives with idiosyncratic prepositions are much less acceptable when the Stimulus is construed agentively (Iwata 1993).

(3.46) a. John was intentionally frightened by Bill.

   b. *John was intentionally frightened of Bill.

    (Iwata 1993: 163).

The use of the agent-oriented adverb *intentionally* forces an interpretation of the sentence where the Agent (the argument of the PP) actively does something to cause the emotion in the Experiencer. That is to say, it forces an event interpretation where Bill intentionally did something to cause John to feel frightened, and so the verbal passive is required.[8] Since passives with idiosyncratic prepositions cannot be used with agent-oriented adverbs, they must lack the potential for eventive interpretations. Such passives only allow stative interpretations, and therefore must be adjectival.

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[8]In fact, there are two possible interpretations of (3.46b), depending on whose mental state the adverb is taken to modify. The more common reading is the one in which Bill is understood to act purposefully, but there is another reading in which it is John who intentionally wills himself into the state of being frightened. Of the two, only the latter interpretation is available for me (though still quite unusual).

Corpus data paint a more complex picture however. It turns out that while *by* passives tend to predominate in agentive sentences (3.47), idiosyncratic prepositions are not entirely prohibited with passives modified by agent-oriented adverbs (3.48).

(3.47) a. The public is either intentionally frightened **by** anti-GMO advocates or simply naive about the science involved... (G)

     b. People—the cat is being intentionally startled **by** some sort of remote controlled device beneath the rug. (G)

     c. ...a person trying to study and being intentionally annoyed **by** other students becomes frustrated. (G)

(3.48) a. I really liked all the shots of the very arlington-looking people, silly girls in little shirts and all, looking intentionally bored **with** life. (G)

     b. No longer will I be intentionally bored **with** my classes. I will take interest in them. (G)

     c. I would say someone scared enough to shoot someone in a wheelchair needs more training but they are intentionally frightened **of** every citizen[n]

However, sentences such as those in (3.48) are not truly agentive in the same way as those in (3.47). The difference seems to be that the adverb *intentionally* is actually modifying the mental state of the Experiencer in (3.48), and not that of the understood external agent, as it does in (3.47).

Consider for example, the interpretation of (3.48c), as it was meant in context. Sentence (3.48c) was written in a comment thread on an article about an unarmed man in a wheelchair who had been shot by the police. The discussion on the thread revolved around the state of mind of the officer who fired, and more generally, the perception that police officers tend to maintain a hostile attitude toward civilians. It seems clear that the commenter

who wrote (3.48c) was talking about the experiencer's, i.e. the officer's, deliberate effort to maintain a state of fear directed at civilians. The commenter is not at all saying that "every citizen" has purposefully done something with the express goal of causing the officer to become frightened, as the typical understanding of the use of *intentionally* would suggest. But when *of* is changed to *by*, the latter, intentional action interpretation becomes much more likely.

(3.49)   I would say someone scared enough to shoot someone in a wheelchair needs more training but they are intentionally frightened **by** every citizen.

Of course, this is not the interpretation the speaker wished to convey, hence the use of *of*.

The distinction between intentional action on the part of the Agent, and intentional attitude on the part of the Experiencer is even clearer in cases where the object of the preposition is inanimate (3.49a-b). The Causer/Agent of these sentences could not possibly be interpreted as having caused the emotion intentionally. In such instances, the passive clause is understood to describe an emotional attitude (state) deliberately held toward some target. Idiosyncratic passives, therefore, still refer to states, even when modified by adverbs like *intentionally*.

How exactly a person is understood to intentionally experience an emotion is not always clear, though it often seems to be associated with an outward display of an emotion, as in the girls in (3.49a), or in a willful insistence on holding (or not holding) a particular attitude (3.49b-c). The same pattern can be found with non-derived emotion adjectives. Actions are often treated as indicators of an actor's emotional state, and when those actions are seen to be deliberate or purposeful, the state itself is sometimes construed as intentional.

(3.50)   a person who is **deliberately unhappy** is possibly being manipulative to those around them, trying to ruin their good mood and steal their holiday spirit.[o]

Other times, the state is seen as being a means to an end, and so is described as intentional.

(3.51) a.   Some people become **deliberately angry** to control the listener.   (G)

     b.   You might feel that you become **deliberately angry** to always get your way or enjoy the rush of pleasure that comes with raging at the top of your lungs. (G)

     c.   The thing that has always [ticked] off critics about the Grateful Dead was that they were **deliberately happy**, despite the fact that they were wrestling individually with their own demons.

     d.   An Atheist who is **deliberately angry** at all religious people for no legitimate reason.[P]

I discuss the use of subject-oriented adverbs more in Chapter 5.

The evidence suggests that idiosyncratic passives are adjectival, and not verbal, but can *by* passives be adjectival as well as verbal? The answer seems to be "no", though researchers are not always in agreement about the facts. It has been suggested for example, that passives with *by* phrases are less acceptable in certain adjectival environments than passives with idiosyncratic prepositions (Wasow 1977: 350; see also Emonds 2006).

(3.52) a.   He acted $\begin{cases} \text{annoyed at} \\ \text{bored with} \\ \text{interested in} \\ \text{tired of} \end{cases}$ the news.

     b.   He acted $\begin{cases} \text{?annoyed} \\ \text{?bored} \\ \text{??interested} \\ \text{*tired} \end{cases}$ by the news.

	AP complement Verb				
Obj-Exp verb	*seem*	*look*	*appear*	*sound*	*act*
annoyed	37	87	1	50	13
bored	39	148	9	14	13
frightened	28	105	2	22	2
interested	239	55	26	14	9
tired	90	499	21	67	1

Table 3.3: COCA frequencies of selected Obj-Exp verbs with AP complement verbs

(3.53) a. I am very $\left\{\begin{array}{l} \text{annoyed at} \\ \text{bored with} \\ \text{interested in} \\ \text{tired of} \end{array}\right\}$ these developments.

  b. I am very $\left\{\begin{array}{l} \text{?annoyed} \\ \text{?bored} \\ \text{??interested} \\ *\text{tired} \end{array}\right\}$ by these developments.

Personally, I don't find many of these examples to be so bad, and different verbs vary widely in the strength of these judgments. Wasow himself notes that the judgments are "rather delicate" (1977: 349), and it is possible that subtle acceptability distinctions of this kind are better attributed to frequency effects than differences in grammaticality. For example, consider the pair that represents the clearest acceptability difference in (3.53): *tired of* vs *tired by*. The COCA frequency of *tired of* is 577 times greater than that of *tired by* (7502/13 = 577.08). Compare this to the COCA ratio of *annoyed at* vs *annoyed by* (238/276 = 0.86).

Looking at the distribution of a few Obj-Exp verbs across a few different AP comple-ment verbs in Table 3.2, it is clear that not all AP complement verbs are equally likely to be used with a given Obj-Exp verb. While low corpus frequency does not entail low

acceptability, extremely infrequent forms (relative to competitors) have been shown to correspond to low acceptability ratings (e.g. Bermel and Knittl 2012; Kempen and Harbusch 2005, 2008). Moreover, this holds even among items already at the extreme low end of the frequency spectrum (Bader and Häussler 2010; Kempen and Harbusch 2008). Not surprisingly, the acceptability of the examples in (3.52b) is much improved when the matrix verb is a more frequent one like *seem*.

(3.54) He seemed $\begin{Bmatrix} \text{annoyed} \\ \text{bored} \\ \text{interested} \\ \text{?tired} \end{Bmatrix}$ by the news.

The lone hold-out in this case is *tired*, whose low acceptability is likely due to the relatively low frequency of active transitive uses of *tire*, which is also overwhelmingly restricted to the physical sense of the word (*The effort of walking had no doubt tired him*). This use of the verb is closely related to two other common variants *tire out* and active *tire of* (*He tired of hoverball and moved on to astrosurfing*).

Corpus evidence further confirms these intuitions. Examples of these verbs used as complements of *seem, look, feel,* and *appear* (3.55), as well as examples modified by degree modifiers (3.56), can be easily found with *by* phrases.

(3.55) a. Columbus shakes his head, but looks increasingly interested by what he's hearing. (COCA)

b. He seemed interested by her voice.q

c. I have however one regret, that young female students do not seem interested by this type of job. (G)

d. . . . Barbara had begun to feel pretty tired by the continuous round of dish washing, . . . (COCA)

(3.56) a. Today, Ms. Kozoulina was particularly interested by the AmeriCorps Vista pro-
gram, ...   (COCA)

b. Odin was too much tired by his journey from Helheim ...   (G)

c. Coach Munch was very annoyed by his Galesville counterpart.   (COCA)

d. When I graduated I worked at a small firm and I was very bored by depositions.
(G)

e. Usually I am extremely bored by popular artists doing Christmas albums ... (G)

Indeed, adjectival passives with *by* phrases can be found for a great many Obj-Exp verbs
(e.g. *alarmed, baffled, confused, delighted, enraged, fascinated, galled, horrified, irritated,*
etc).

(3.57) a. No one seemed alarmed by the signs featuring cartoon characters flipping the
bird   (G)

b. It showed, as Minnesota looked baffled by the Wildcat's 1-3-1 zone, ...   (G)

c. I just yelled "run, its godzirra!" to an asian kid who looked confused by the
tornado alarm test ...   (G)

d. Samson seemed delighted by the idea of buying it in Liberia.   (COCA)

e. She fought the red demon who looked enraged by her attack.   (G)

f. Judge Maxwell was smiling and seemed fascinated by the display.   (COCA)

g. He would quickly return, and the more she seemed galled by his antics, the
more Hammer enjoyed his song.[r]

h. ... but Kacey seems horrified by their miniature size, ...   (COCA)

       i.   Peach acted irritated by this ...   (G)

Of course, frequency is not necessarily the only reason for the lower acceptability of some Obj-Exp verbs with *by* phrases. There are important semantic differences that are pertinent to the choice of the PP argument.[9] The complementarity in preposition selection reflects the distinction between the two basic types of situations that Obj-Exp verb passives can denote. Verbal passives describe more eventive situations, while adjectival passives describe more stative ones (Iwata 1993; Pesetsky 1995). According to (Osmond 1997: 112), the preposition *by* "suggests that some trace of verbal function is required; the experiencing of the emotion must be construed as an event or process". Given the semantic characteristics of certain constructions, *by* is the preposition strongly preferred with verbal passives.

Interestingly, the event-implying nature of *by* affects the interpretation and use of adjectival passives as well. Adjectival passives with *by* imply that an event has taken place, and because of this implication, such passives have a lower degree of stativity than those with idiosyncratic prepositions (Iwata 1993: 174). This is reflected in the tendency for objects of *by* in sentences like (3.55–3.57) to refer to events or processes rather than abstract properties or stative individual entities. Things like a tornado alarm (3.57c), an attack (3.57e), a display (3.57f), or a person's antics (3.57g) all describe specific activities or events capable of provoking specific emotions in a person—in other words, things capable of causing a change in someone's mental state. In these instances, the situation is construed as an externally caused change, and therefore they are linguistically encoded as events via a construction that is typically associated with events, the *by* passive.

This relates back to the observation about agent-oriented adverbs discussed above. In cases genuinely involving agents, as in *Chris was intentionally frightened by Robin*, the agent Robin is interpreted as metonymically representing some causing subevent (e.g. Lakoff and Johnson 1980; Nunberg 1978, 2004; Pustejovsky 1995; Talmy 1976; Van Valin

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[9]Consider in contrast the close synonymy between *look* and *appear*—this difference is a much stronger case for a frequency effect. In COCA, *look* is roughly five times more frequent than *appear* (568196/113551 = 5.003).

and Wilkins 1996), much like event denoting nouns such as *attack* or *antics*. The agent is deliberately doing something to cause a change of state in the experiencer, hence the emotion is unambiguously construed as a causal process, resulting in the use of the event-denoting *by* passive. These topics are discussed in more detail in Chapters 4 and 5.

3.2 Verbal Obj-Exp passives reconsidered

The data and discussion in the previous section show there is still a great deal we don't know about the behavior of Obj-Exp verb passives. Despite some apparent agreement in the literature, there is a worrisome amount of variability in the data used to support researchers' various analyses, especially given the relatively small sample(s) of data most studies rely on. A question that naturally arises then, is whether, or to what degree, claims about Obj-Exp verbs in the literature correspond to the way speakers actually use them. In this section I show that many claims about how Obj-Exp verbs can and cannot be used simply do not stand up to closer empirical scrutiny.

Considering the many potential problems with relying entirely on introspective judgments, we should be wary of relying entirely on linguists' intuitions about constructed examples. Instead, I shift the empirical focus onto collecting data from various sources. Data from natural usage, i.e. corpus data, is particularly informative for understanding the subtle differences in meaning that shape the way these verbs are used—and hence also shape our intuitions about specific examples.

In addition to re-evaluating the reliability of acceptability judgments, we can also question these judgments' interpretations, i.e. inferences about why something is unacceptable. This too seems reasonable, given the shakiness of the judgments themselves. Is the stativity of verbs like *depress* the only reason for their lower acceptability in verbal passive constructions? The relationship between grammaticality and acceptability is complex and still not

well understood, and it is prudent to be cautious in making broad claims based on subtle semantic and pragmatic distinctions of the kind operative in many Obj-Exp examples. Contrary to what is sometimes assumed, the intuitions about psych-verbs are not nearly as clear as those regarding other phenomena.[10] For instance, the sentences in (3.58) from Pesetsky (1995) may be considered somewhat bad, but they are certainly interpretable, and in my opinion, nowhere near as bad as sentences involving strong island violations (3.59) or center embedding (3.60).

(3.58) a. ??Odd noises were continually depressing Sue.

      b. ??Sue was continually being depressed by odd noises.

(3.59) *Who$_i$ did you hear Pat's joke about __$_i$?

(3.60) *The mouse the cat I just got chased escaped.

Examples like (3.59) and (3.60) are really quite difficult to even make sense of, unlike (3.58). In most theories, only (3.59) is considered to be unacceptable due to features of the grammar, while (3.60) is hypothesized to be bad by virtue of its high processing difficulty (Chomsky and Miller 1963).[11] Recent debates about the role of intuitions as evidence in linguistic theory have rightly pointed out that acceptability is sensitive to numerous influences (Cowart 1997; Gibson and Fedorenko 2010; Schütze 1996; Wasow and Arnold 2005; among many others). Absent independent evidence (e.g. examples of natural usage found in corpus data), it can be difficult to know what to make of authors' different, and sometimes contradictory, intuitions.

    Take for example the intuitions about progressive uses of *depress* provided by Grimshaw (1990) and Pesetsky (1995).

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[10]To be fair, the delicacy of judgments is in fact often mentioned in the literature, but just as often the implications of this are simply brushed aside. Researchers typically proceed forward with their analyses as if the distinctions were clear and robust (see, for instance, Landau 2010: 29-31).

[11]Though even this distinction is controversial (e.g. Hofmeister and Sag 2010; Sprouse et al. 2012).

(3.61) a.   The situation is depressing Mary.

             (Grimshaw 1990: 114)

       b. ??Odd noises were continually depressing Sue.

             (Pesetsky 1995: 29)

Grimshaw finds (3.61a) unproblematically acceptable, but Pesetsky finds its acceptability "surprising" (1995: 30). Pesetsky's surprise comes from the fact that according to him, *depress* is stative, and stative verbs are supposedly incompatible with the progressive (3.61b). But of course his diagnosis of *depress* as stative comes from his own intuitions about other examples involving the progressive with this verb. So sometimes progressive *depress* is acceptable, but other times it is not. What are we to make of these diverging intuitions?

   Pesetsky seems to treat the more basic, unmodified case as the exceptional one (3.61a), arguing that the factors rendering *depress* unacceptable when modified by *continually* (3.61b) must also apply in the broader context. One could just as easily argue the inverse however, that it is the *unacceptability* of (3.61b) that is odd, given (3.61a). This is standard for most approaches to variation in aspectual interpretation, which assume that the unacceptability of predicates (or sentences) with certain modifiers is due to the incompatibility of the meaning of the modifier with the meaning of the more basic predicate, not that the basic predicate must involve some special interpretation (e.g. Dowty 1979; Kearns 2000; Vendler 1967). Regardless of how one wishes to analyze these data however, the question remains as to what exactly lies behind the intuitions about them. For example, I find with a little context, and minor semantic changes to the arguments, iterative *depress* is not so bad.

(3.62)   Mary had to stop watching the news because she was continually being depressed by the situation in West Africa.

With such a small data set, it is difficult to unpack the various syntactic, semantic, or pragmatic factors that may lie behind these intuitions. What we need therefore is a more representative picture of how these verbs are used "in the wild".

Rather than rehash previous analyses based on the examples already discussed elsewhere, let us (re)consider some of these claims in light of evidence from naturally occurring English data. For the sake of clarity, I provide a tentative list of inherently stative DEPRESS verbs. In (3.63a) are a few stative Obj-Exp verbs that have been explicitly mentioned by various authors (Arad 1998; Bouchard 1995; Grimshaw 1990; Landau 2010b; Pesetsky 1995). In (3.63b) are more verbs that have been mentioned in the literature as being obligatorily non-agentive, i.e. non-volitional[12] (e.g. DiDesidero 1999; Grimshaw 1990; Martin 2013; Verhoeven 2010a).

(3.63)   (stative) DEPRESS verbs:

      a.   *bore, concern, depress, worry*

      b.   *alarm, amaze, astonish, captivate, delight, fascinate, horrify, please*

While agentivity and stativity are independent properties in many respects, the two are connected inasmuch as stative predicates are generally taken not be agentive (Cruse 1973; Dowty 1979; Gruber 1976; Lakoff 1966; Lee 1971).[13] This correlation is borne out by the tendency for all the purportedly stative verbs in (3.63a) to also be included in lists of purportedly non-agentive verbs (e.g. DiDesidero 1999; Grimshaw 1990). It stands to reason that non-agentive Obj-Exp verbs might also be exclusively stative, in which case their inability to be used agentively might follow from their stative nature (assuming that stative verbs are indeed non-agentive). My own intuitions fit this scenario; the non-agentive

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[12]Psych-verb agentivity is the topic of Chapter 5. A typical test for agentive uses is modification by *deliberately*, as in *The clown deliberately amused/*amazed the children.*

[13]The relation between stativity and agentivity is still not well understood. Part of the reason for this is that many of the diagnostics originally proposed for stativity, e.g. modification with adverbs like *deliberately* or use in the imperative and the *what X did was...* constructions, actually diagnose agentivity (Dowty 1979; Lakoff 1966; Lee 1971).

Obj-Exp verbs in (3.63b) are somewhat odd to varying degrees in the iterative progressive and punctual past (3.64).

(3.64) a.   Sue was continually being $\begin{cases} \text{?alarmed} \\ \text{?amazed} \\ \text{??captivated} \\ \text{??fascinated} \\ \text{??pleased} \end{cases}$ by unexpected noises.

   b.   Bill was suddenly $\begin{cases} \text{?alarmed} \\ \text{?amazed} \\ \text{??captivated} \\ \text{??fascinated} \\ \text{??pleased} \end{cases}$ by an unexpected noise.

Based on data such as (3.64), we could plausibly add the verbs in (3.63b) to the list of obligatorily stative DEPRESS verbs.

   In the following sections I examine the use of the verbs in (3.63) in the (iterative) progressive and the punctual past. The evidence will show that these verbs, like the rest of the Obj-Exp verbs, display both stative and non-stative behavior.

3.2.1   New progressive data

Despite my intuitions about examples like those in (3.64), data from natural usage show that any Obj-Exp verb can be used in the progressive passive with an iterative interpretation—even those that are most frequently claimed to denote states, e.g. *bore, concern, depress* and *worry*.

(3.65) a.   If you turn on the TV and are continually being bored by the programming, it's likely you have the wrong type of cable package.   (G)

b. I've been a big fan of Ghost Hunters, despite constantly being bored by the lack of real good evidence much of the time and general suckiness. (G)

c. Our boys are constantly being depressed by watching their elder sister go off to Disney, on cruises, to Europe this summer with family,... (G)

d. You are not being stupid, you are being concerned by an obvious change in your cat's normal behavior. (G)

e. ...because it will get you stressed a LOT if you are constantly being depressed by these fucking idiots. (G)

f. Most parents and professionals are being concerned by the uncertainty of the times that we live in. (G)

g. If you are continually being worried by what you are publishing, you'll miss out on every one of the good stuff. (G)

These examples sound fine to my ear, and it is hard to argue that they are not genuine examples of iterative and/or eventive progressives. For example, (3.65a-b) are referring to multiple instances of being bored by some TV program or programs, (3.65c) involves the speaker's boys being depressed on various occasions by their sister's adventures, and (3.65d) (arguably) refers to multiple instances of the addressee observing their cat's new behavior and becoming concerned because of it. Example (3.65e) comes from a YouTube comment thread, and the commenter is referring to the addressee's reaction (being depressed) to others' frequent and boorish comments.

Examples (3.65e-f) also fit this pattern, though they do not refer to repeated events in the actual world. In these cases, the progressive is used when the speaker is construing the situation as one in which the experiencer is repeatedly perceiving or thinking about some entity. In other words, these sentences refer to multiple events of an experiencer thinking

about something (usually abstract) and becoming depressed, worried, or concerned by it. This can involve a truly iterative interpretation where a single individual experiences repeated instances of being depressed by some thought, as in *I'm continually depressed by the possibility that I'll never finish this dissertation*. In such cases, the experiencer is not in a constant state of depression. Rather, the state is construed as an intermittent one that comes on whenever he thinks about the stimulus. Such "thinking events" play a crucial role in initiating a causal chain (Croft 1991, 1993; Langacker 1987; Talmy 1976) which culminates in the Experiencer feeling the emotion expressed by the verb. In sentences like these, it would seem that the situation in question is conceptualized less as an ongoing emotional state and more as a discrete process that can be iterated over time.

Likewise, passives of other DEPRESS verbs like *captivate, delight, horrify, fascinate*, and *please* are also found in similar contexts with the progressive. As these verbs are frequently claimed to resist agentive uses, they could by extension be considered stative as well.

(3.66) a. I was continually being astonished by the imagination used in creating these worlds and their workings.   (G)

b. I am constantly being delighted by the wide variety of flavors that vegetables provide, flavors that are lost when they are relegated to 'side' dishes.   (G)

c. I live with my garden, follow it and am constantly being fascinated by it.   (G)

d. She explained that she was constantly being pleased by Noldruk's advancements, ...   (G)

e. If I'm constantly being pleased by the graphics and things I'm seeing in the game, I'm probably going to be in a pretty positive mindset ...   (G)

Examples like these are not difficult to find, and show that the process interpretation is indeed available to a wide range of Obj-Exp verbs.

This is further confirmed by evidence of *depress* (3.67), *bore* (3.68), and *interest* (3.69) being used in the active progressive when modified by adverbs implying iterative processes.[14]

(3.67) a. I had a severe weight problem—one that was continually depressing me and affecting my health. (G)

b. Life is tough enough without people continually depressing me with racial bigottry[sic]. (G)

c. Mercy for Animals is always depressing me with their undercover investigations... (G)

d. The human race is constantly depressing me... (G)

e. Such comments are constantly depressing me. (G)

(3.68) a. ...school was always boring me to death... (G)

b. They were terrible actors, not dramatic enough and constantly boring us with all these facts. (G)

c. She was the woman with a fake smile on her face who wore too much makeup and perfume and was always boring her friends by talking about work gossip. (G)

d. Since he is often boring us with his knowledge about college sports,... (G)

(3.69) a. I say that the compliment is in fact quite often interesting me less than the fragrance that garnered it. (G)

b. Thanks to Brian Cole for continually interesting me in Fourier transforms.[s]

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[14]Searches for *concern* were unsuccessful due to the overwhelming number of hits for its competing sense of 'pertaining to'.

c. Yet some truly romantic or light or humorous thing is often interesting me, (G)

d. Most current young charvas take up Engineering in their GCSEs due to the subject often interesting them. (G)

Similarly, non-agentive verbs like *amaze, captivate, fascinate*, and *sadden,* are also found with active progressive uses.

(3.70) a. Technology is constantly amazing me. (G)

b. My son is constantly amazing me with all the things he knows. (G)

c. The ever-changing Montana landscape is yet another source of inspiration, continually captivating me with its timeless beauty and raw energy. (G)

d. Sunsets are constantly captivating me. (G)

e. Constantly fascinating me is the play of oil paints shifting under a slashing stroke, changing shape, mixing with an adjacent color. (G)

f. The transition of literary works to film is something that's constantly fascinating me, (G)

g. It keeps surprising me, often saddening me greatly, (G)

h. Not only is this a recurring problem that has been frequently saddening me, but life seems to be passing by quickly as well. (G)

While it may not be the most common way of using these verbs, the iterative progressive is clearly available to them when the situation makes it appropriate.

3.2.2   New punctual data

Assuming that use of a verb in the punctual past tense is also a reliable diagnostic for stativity (see Section 3.1.2), we can examine the use of supposedly stative DEPRESS Obj-Exp verbs in this context. The expectation is that these verbs should be substantially less acceptable than other Obj-Exp verbs in the punctual past. In this case, as with the progressive, the evidence is fairly incontrovertible: DEPRESS verbs are perfectly fine with the punctual past.

(3.71) a.   The nickname, which I'd once found funny, suddenly depressed me even more.[t]

b.   . . . the thought of re-reading 'First among equals' suddenly depressed me.[u]

c.   These pretensions to morality, though, suddenly bored me . . .   (G)

d.   Maybe, but Janice's love-hate relationship with Ray Soames suddenly bored her to tears.[v]

e.   The kumquat suddenly intrigued me. For years I had always walked by that little mysterious orange fruit and never paid it any attention.   (G)

f.   The idea suddenly intrigued me.   (G)

g.   This topic suddenly interested me for some reason.   (G)

h.   The mystery of the pyramid suddenly fascinated Landry and he even questioned Root.   (COCA)

i.   It suddenly concerned me to see Ervil patronizing my relatives.[w]

j.   Today I saw a post on Facebook that immediately concerned me.   (G)

k.   What immediately captivated me about this film was the spectacular lighting and cinematography   (G)

l.   This lack of infant weight gain immediately worried me, . . .   (G)

m.   It suddenly struck me that I could be the unknowing dupe of a load of contra-
band.   (COCA)

This extends to punctual past uses of passive verbs as well.

(3.72) a.   I was suddenly depressed by the thought that I may have seen the sun for the
last time, three days ago.   (G)

b.   Typed 'fantabulous' and was suddenly concerned by the red squiggle beneath
it.[x]

c.   It was as if the neighborhood bully had flattened the neighborhood wimp and
was suddenly horrified by what he'd done   (G)

d.   He was suddenly fascinated by the golden flux of the Black Sea and the gray
dotted line of huts by the shore   (G)

e.   It gets triggered when a partner holds eye contact with someone else for a
split second too long, or when a rival stands too close to your loved one or is
suddenly fascinated by the minutia of his or her life.   (COCA)

f.   Figgins is suddenly concerned by this because "American teens have come
down with a serious case of Twilight fever."   (G)

g.   . . . they are suddenly concerned by a drop in business . . .   (G)

h.   I was suddenly concerned by the urgency in Edward's voice.   (G)

One could argue—as Pesetsky does—that examples of progressive DEPRESS verbs involve
a special kind of interpretation (more on this below), but I find it hard to interpret the data
in (3.71) and (3.72) in any fashion other than the typical interpretation we would associate

with the punctual past. These examples refer to the sudden onset of some emotion in the same way that (3.73a) refers to the sudden appearance of a silhouette or (3.73b) the sudden dawning of some realization.

(3.73) a. . . . the golem's silhouette suddenly appeared to us on that misty horizon . . .

(COCA)

b. It suddenly dawned on Martin that the man had to be in his seventies. (COCA)

Unlike with the progressive examples, I see no reason to claim that DEPRESS verbs cannot have genuine punctual past tense uses. Assuming this environment reliably diagnoses non-stativity, and hence requires verbal passives as in (3.72), the evidence clearly contradicts claims that DEPRESS verbs are obligatorily barred from non-stative uses.

Of course, this rests on the assumption that the punctual past environment *does* in fact require non-stative predicates, but as I show, this assumption may not be viable. Interestingly, it appears that the punctual past environment is not restricted to verbal passives. Obj-Exp passives with idiosyncratic prepositions, which fail other verbal passive tests, do show up in the punctual past.

(3.74) a. Nevertheless, after the aforementioned bubble burst governments around the globe were suddenly scared of the coming apocalypse, . . . (G)

b. I was suddenly scared of where we were going. (G)

c. Clements said nothing, and Ulrich was suddenly concerned at how meekly the man was taking his licks. (COCA)

d. Robert was suddenly surprised at the words that had come out of his mouth.

(G)

e. My son was suddenly fascinated with rock climbing, . . . (G)

f. He was suddenly amused at how serious the two men in his office treated the demands of one old ranchero.   (G)

g. On his way home from a gig one night he looked up and was suddenly fascinated with the stars, especially the constellation Orion.   (G)

h. She was suddenly surprised at the familiar masculine scent of sandalwood that reached her nose.   (G)

i. After a few days he was suddenly bored with the doll and now he is into cars and trains.   (G)

Idiosyncratic passives of many Obj-Exp verbs are found in this construction. However, some verbs are more frequent than others, and these more frequent verbs tend to be those that describe emotions like fear, surprise, shock, and amazement or astonishment. Impressionistically, these are emotions that tend to be experienced as coming on abruptly, in contrast to other emotions like boredom and depression which are experienced as emerging more gradually (Pesetsky 1995; Hatori 1997). Considering the meaning of adverbs like *suddenly*, the likelihood of an Obj-Exp verb to be used in the punctual past tense is determined largely by the suddenness with which the verb's emotion is thought to prototypically arise (Pesetsky 1995). The explanation for the variable acceptability among Obj-Exp verbs in the punctual past then lies not in an ontological difference between stative vs. non-stative eventualities, but in the degree to which a speaker/listener is likely to construe an emotion as coming on suddenly. Importantly, it appears that all Obj-Exp verb emotions have the potential to be construed as arising suddenly, though the suddenness of the onset is more likely for some emotions than others. I explore the punctual past futher in Section 3.3.2 of this chapter, and I examine the temporal properties of Obj-Exp verbs more in Chapter 4. Ultimately, it will become clear that the punctual past does not unambiguously diagnose stativity, making it a suboptimal tool for investigating the aspectual properties of Obj-Exp verbs.

3.3 Lexical or grammatical aspect?

Before turning to the details of specific Obj-Exp verbs' meanings, I return to the issue of stative verbs and the progressive construction. Understanding what is going on with intuitions about (stative) Obj-Exp verbs in the progressive will provide a necessary piece of the larger Obj-Exp puzzle.

3.3.1 Stativity and the progressive

Consider again the distinction between the two progressive constructions in (3.75), repeated from (3.63).

(3.75) a.   The situation is depressing Mary.

b. ??Odd noises were continually depressing Sue.

Having established in Section 3.2 that speakers are willing to use *depress* in the progressive construction (active or passive), the intuitions in (3.75) require an explanation. Under other circumstances, we might simply attribute the relative unacceptability of (3.75b) to some semantic or pragmatic peculiarity and move on, however this discrepancy in acceptability features prominently in many analyses of Obj-Exp verbs, so it can't simply be ignored. Moreover, any adequate analysis of these verbs should have something to say about why and how such semantic or pragmatic peculiarities arise.

In this section I examine two alternative approaches to this apparent discrepancy. In Section 3.3.1.1, I consider Pesetsky's "judgment" interpretation analysis (see Section 3.1.2), and show how it fails to account for the available facts. In Section 3.3.1.2, I suggest an alternative which is at once traditional and radical: that there is nothing special about uses of Obj-Exp verbs in the progressive construction. Any theory of lexical and aspectual semantics must have an account for progressive (and passive) uses of verbs of all aspectual types, including stative verbs such as *understand*.

(3.76) a. So if I'm understanding the purpose of this forum correctly, … (G)

b. The agricultural industry also is increasing its usage of compost in a slow but steady fashion as the benefits of organic matter are being understood once again. (COCA)

The intuitions about any particular Obj-Exp verb in such a construction should simply follow from the same principles of interpretation governing uses of other stative verbs.

3.3.1.1 Pesetsky's "judgment" reading

As I discussed briefly in Section 3.1.2, Pesetsky (1995), following Baker (1989), accounts for the difference between (3.77a) and (3.77b) by appealing to a different kind of interpretation of the progressive, the "judgment" interpretation, which is only applicable in (3.77a).

(3.77) a. The situation is depressing Mary.

b. ??Odd noises were continually depressing Sue.

Again, under Pesetsky's analysis, this interpretation of the progressive involves the speaker making a judgment that the situation being referred to has not quite completed. Exploring the notion of a "judgment" interpretation in more detail, however, reveals some intriguing observations that don't quite jibe with his analysis of Obj-Exp verbs. Nevertheless, his analysis has been quite influential in other work on Obj-Exp verb passives (e.g. Bouchard 1995; Iwata 1993; Landau 2002,2010), and so I feel it merits some further exploration.

Examples of progressive uses of *depress* are shown in (3.78).

(3.78) a. The scene is depressing Ruby. (COCA)

b. Stop. You're depressing me. (COCA)

    c.   And if that flattening of the field of possibilities is precisely what's depressing

        you,... (COCA)

    d.   All this negativity is depressing me (G)

    e.   Tumblr is depressing me and weakening my self esteem!! (G)

    f.   See, I would just delete my FB account if it was depressing me. (G)

    g.   In your case, you Americans have become one of the most repressed, suppressed people on earth regarding what you can and can not say, and this is depressing you, I believe. (COCA)

What Pesetsky seems to be saying is that by using the progressive with the (supposedly) stative verb *depress*, the speaker is implicating that she is still in the process of evaluating whether that state holds. In other words, when I say *the scene is depressing Ruby*, I am implying that *I think* the scene depresses Ruby, but I'm not quite sure yet if this is true. This incomplete judgment is claimed to explain why such sentences are most felicitously uttered only while the situation is still unfolding: the judgment is an intermediate one, based only on available evidence (see also Bouchard 1995: 311-313).

    Although I agree with the latter conclusion regarding the conditions on felicitous use of stative progressives, the "judgment" characterization is somewhat problematic. First, it cannot explain why some stative verbs are better in the progressive than others. While many stative verbs can be used in the progressive (e.g. *love, hate, admire, understand, feel*), other stative verbs such as *contain, know, belong to,* and *owe* are much less felicitous in it (Dowty 1975; Lakoff 1966; Mufwene 1984). Consider again example (3.79), from Baker (1989: 582).

(3.79)   Karen is finally understanding the proof.

Baker suggests that the progressive use of *understand* in (3.79) is acceptable owing to the judgment that Karen is considered to be "only partly done going through the proof"

(1989: 489). Again, the speaker is using the progressive to imply that he is unsure whether Karen does in fact understand the proof. A natural question however, is why this same interpretation does not also render (3.80) acceptable.

(3.80)   *Karen is finally knowing the answer.

Suppose someone is in the process of giving an answer to Karen's question, yet has not finished explaining it. According to Pesetsky's analysis, I should be able to say (3.80), with the implication that I'm not sure whether Karen knows the full answer yet. The contexts and pragmatic function of the progressive seem to be (nearly) identical across (3.79–3.80), yet only (3.79) is felicitous. Something about the nature of the state described by *know* precludes its use in the progressive. There seems to be a key component missing from the "judgment" approach.

As a brief aside, I note that Web searches (with the appropriate caveats) confirm the relative unacceptability of *know* in the progressive. A Google search for the restricted "I|we|they|you finally know the" returned 901K hits, while a search for "am|are finally knowing the" yielded exactly 8540 hits, for a ratio of 0.009 progressive to non-progressive sentences. Identical searches replacing *know* with *understand* yielded a significantly higher proportion of progressives for *understand* (284K/2.08Mil = 0.136; $\chi^2(1) = 98989.66, p \approx 0$). Stefanowitsch and Gries (2003) find similar results in their investigation of the collocational strength of numerous verbs in the progressive. In their study, *know* exhibited the weakest association with the progressive by a wide margin, while *understand* fell somewhere in the middle of the range of verbs.[15] Considering the relative ease with which examples of progressive DEPRESS verbs can be found, it would seem they are closer to stative verbs like *understand* than to stative verbs like *know*.

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[15]Stefanowitsch and Gries (2003: 231) only report the 30 verbs with the strongest and weakest association with the progressive construction. *Understand* is on neither list, while *know* is the second weakest (after *be*). Similar collostructional measures are impossible to do with Web data due to the unreliability of Google's numbers. Additionally, comparative collostructional analyses of the two verbs in COCA were uninformative as the *p* values generated by Fisher Exact tests were indistinguishable from each other: both were 0.

A second problem is that by treating the meaning of stative progressives solely as a means of implicating the speaker's uncertainty, the "judgment" analysis would appear to conflict with situations in which the speaker is also the Experiencer of the emotion, as in (3.81) and (3.82).

(3.81) a. Stop. You're depressing me.   (COCA)

   b. All this negativity is depressing me   (G)

   c. Tumblr is depressing me and weakening my self esteem!!   (G)

   d. See, I would just delete my FB account if it was depressing me.   (G)

(3.82) a. I am mentally unstable and depressed, I might end up killing myself over this, that's how much I am being depressed by this whole thing.   (G)

   b. It helps to remember that when I am being depressed by the news!   (G)

   c. I am being depressed by the thought that I am being depressed!   (G)

When the speaker is the one being emotionally affected—and says so—it strikes me as quite odd to infer that she is making an intermediate judgment about her feelings. If I say *this movie is really depressing me* am I implying that I'm unsure whether I am actually feeling depressed while watching the movie? Following the logic of the "judgment" reading approach, this would seem to be the intended use, but again I find this interpretation very unlikely. Using the progressive in this way is indeed only felicitous while the situation is still unfolding, e.g. while the movie is playing, but this is not unique to these stative verbs.

This leads to a final objection, which is that the "judgment" analysis seems to confuse aspects of our interpretation of a sentence that are due to lexical and compositional semantics with those that arise from pragmatic inferences about the use of that sentence in a particular context. Both Baker and Pesetsky point out that stative progressives are only felicitous when the state being referred to obtains at the time of speaking, but neither seems to

take the logical step to unify this interpretation with the (essentially) identical interpretation of non-stative progressives, namely that the event they refer to is on-going.

(3.83)   I am typing on my laptop (right now).

The semantics of the progressive construction entails certain things about (a speaker's representation of) the temporal characteristics of a situation, and this may or may not imply something about the situation itself. In one view, saying a speaker is "making a judgment" about some situation in the world is *always* true, in the trivial sense that she must be constructing some mental representation of the situation. The conceptualization of a situation, and specifically its internal temporal structure, is surely sensitive to numerous contextual factors, but this applies to all situations, not just those we refer to with the progressive. Generally speaking, the progressive construction is typically assumed to encode an interpretation of on-going-ness or incompleteness, and importantly, lacks an entailment that the situation ever be completed (in the world of evaluation at least) (Bennett and Partee 1972; Dowty 1979; Smith 1991). This lack of an entailment has the force of the speaker making no commitment to the truth of the state/event beyond the time of utterance, and such a lack of commitment can potentially give rise to several possible implicatures depending on the context (Deo 2009). This is where I believe the judgment (inference) about the speaker's uncertainty ultimately comes from.

   All told, the "judgment" interpretation approach to progressive uses of purportedly stative Obj-Exp verbs like *bore, concern,* and *depress* is rather weak, both empirically and conceptually. Examples of these DEPRESS verbs in the progressive are too common (in the active and passive) to ignore. At the same time, the kind of interpretation he wants to assign to these (theoretically) special cases is not internally coherent, nor does it apply to all examples of progressive Obj-Exp verbs.

3.3.1.2 Impermanence in stative progressives

Instead of treating progressive uses of stative verbs as exceptional cases which involve qualitatively different kinds of interpretations, suppose we assume their interpretations follow from general mechanisms of semantic interpretation. That is, suppose that whatever processes render progressive uses of verbs denoting dynamic eventualities felicitous, also render progressive uses of (certain) stative predicates felicitous. Indeed, many analyses of progressive aspect have attempted to identify a unified meaning for the progressive that is compatible with stative and non-stative verbs (Bertinetto 1994; de Swart 1998; Mufwene 1984; Smith 1991; among others). Under such approaches, the fact that Obj-Exp verbs can *in principle* be used in constructions that typically require eventive (verbal) participles, such as the progressive, should not be too surprising, given that there are general mechanisms for arriving at interpretations of iterative progressive sentences.

Informally, the progressive in English is interpreted to mean that the speaker is talking about the situation as if it were still unfolding; it "[takes] us inside the duration of the reported event to where the event is in progress" (Kearns 2000: 156). This interpretation is most often applied to the progressive with eventive verbs, but it is also claimed to be the function of the progressive with states. The progressive presents the state as an on-going (perhaps dynamic) situation (Smith 1991). Stative progressives entail that the state holds at some specific time of reference, unlike statives in the simple past or present which are neutral regarding the temporal extent of the state they denote (Dowty 1979).

Formally, the meaning of the progressive has often been characterized in terms of interval semantics. This approach traces back to Bennett and Partee (1972) and Dowty (1977, 1979), and remains a common model for the meaning of the progressive (e.g. Deo 2009). The basic formulation, simplifying considerably, goes as follows: for any predicate ϕ that is true at some interval i, the progressive PROG(ϕ) is true at a subinterval i', if and only if i properly contains i', and i' is not a final interval of i.[16] On the face of it, this analysis

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[16]This characterization by no means captures the complexity of the semantics of the English progressive,

of the progressive does not seem as if it would be incompatible with states, since in formal terms, a stative predicate is taken to be true at an interval just in case it is true at all moments (subintervals) within that interval (Dowty 1979). So what is it about some stative verbs that they readily allow progressive uses (*Mary is finally understanding the problem*), while others generally do not (**Mary is finally knowing the problem*)?

In answer to this, Mufwene (1984) suggests that the very notion of a clear-cut stative/non-stative dichotomy is ill-conceived. He proposes instead that eventualities be redefined in terms of their potential for permanence (or conversely, transience). The stativity scale is recast as "nothing but a DURATION scale on which, theoretically, native speakers distribute the verbs/predicates they use" (Mufwene 1984: 37).[17] Under such an approach, the relevant determinant for the use of a predicate in the progressive essentially reduces to the duration of the situation it denotes. This builds off Leech and Svartvik's (1975: 65) idea that for stative verbs, "the effect of the progressive is to put emphasis on the limited duration of the state of affairs". Mufwene takes the progressive construction to be basically a "'stativizing' aspect", which assigns transient duration to the interpretation of a predicate (see also Dowty 1975; de Swart 1998; Michaelis 2004; Vlach 1981; among others). Predicates that cannot be construed as transient in any relevant sense are therefore least likely to be used in the progressive. Conversely, verbs that (prototypically) describe highly transient eventualities are most likely to be used in the progressive.

Focusing on stative predicates, the difference in interpretation between the progressive and the simple present can be most clearly seen in examples like (3.84–3.85).

(3.84) a.   Long lives in the village of Grogan's Mill.   (COCA)

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which has a long and varied literature (see also Bertinetto 1994; Higginbotham 2004; Landman 1992; Parsons 1990; Portner 1998; Vlach 1981; among others).

[17]Whether linguistic theory ultimately should do away with Vendler/Dowty/Bach style taxonomies of eventuality classes is a question well beyond the scope of the discussion here, but such a move does not seem to be a requirement for adopting Mufwene's general idea. For example, we could view duration or potential for permanence as one of several gradient orthogonal dimensions ranging over aspectual types. Various aspectual types (e.g. activities, accomplishments, achievements) could be characterized in terms of the relative degree of temporal permanence associated with prototypical members of each class.

b. Long is living in the village of Grogan's Mill.

(3.85) a. He then used rustic woods to construct furniture for almost every room, including ... a built-in bench that stands in the entry. (COCA)

b. ... including ... a built-in bench that is standing in the entry.

While both constructions describe states that presently hold of their subjects, the simple present examples imply that those states are somewhat permanent. They are presented as characteristic traits of their subjects.[18] The speaker in (3.84a), for instance, appears to treat it as a basic fact about Long that he lives in Grogan's Mill. The progressive in (3.84b) on the other hand, implies that the speaker views Long's living in Grogan Mill as a relatively new or temporary fact about his current state. A similar contrast regarding the location of the bench is found in (3.85).

Although lexical stativity is closely tied to (potential for) permanence, it does not guarantee it. The interpretation of temporariness is largely contingent on the nature of the state and the entity it is predicated of, as well as other contextual circumstances. This fact accounts for the variable frequency of progressive uses among different kinds of stative verbs, which on the whole, describe relatively permanent states. A nice example of this comes from Dowty (1975: 582), who observes that when the location of an entity is necessarily fixed, the progressive is much less acceptable with stative verbs denoting spatial configurations.

(3.86) New Orleans $\left\{\begin{array}{l}\text{lies} \\ *\text{is lying}\end{array}\right\}$ at the mouth of the Mississippi River.

In most circumstances, the geographical location of New Orleans is not seen as movable, and so its present location is treated as a characteristic property, expressed linguistically

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[18]This aspect of the simple present is part of what gives rise to so-called "characteristic property" uses of transitive verbs, as in *that dog bites* (Levin 1993: 39). The characteristic property interpretation is not available with the progressive (*that dog is biting*), which can only have the on-going process interpretation.

via the simple present construction (Deo 2009). Similarly, verbs describing certain kinds of motion (e.g. *flow, run, twist*) also imply permanent characteristics of their subjects, and are preferred in the simple present (Dowty 1975, 1979).

(3.87) The river $\left\{ \begin{array}{l} \text{flows} \\ \text{*is flowing} \end{array} \right\}$ through the center of town.

On the other hand, entities that are not typically construed as residing in a fixed location tend to be used with locative predicates in the progressive. When the subject refers to a human, the progressive is overwhelmingly preferred with these verbs, owing to the fact that humans are generally not construed as having fixed locations. The progressive in such cases highlights that the person is in the specified location only temporarily.

(3.88) a. Bill Wardlaw is standing in the world's largest apple pie.   (COCA)

       b. Bill Wardlaw stands in the world's largest apple pie.

When permanent residence in a location is deemed particularly odd or unlikely, as in the world's largest apple pie, the simple present sounds rather unusual.[19]

As a final illustrative example, consider the description of an immovable object (e.g. a tree) relative to some transient location. Consider an exchange like (3.89).

(3.89) A: Do you see the redwood tree?

       B: No.

       A: But $\left\{ \begin{array}{l} \text{*it stands} \\ \text{it's standing} \end{array} \right\}$ right in front of you!

Here, the transience of the tree's location (and hence the much preferred use of the progressive) arises because the location that is being mentioned in reference to it is not a permanent one. Unlike the exact geographical location of the tree, which does not change, the space

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[19]Certain discourse circumstances can render the simple present appropriate, as in the case of the historical present, the "sportscaster present" (*He shoots, he scores!*), or other narrative structures. For the discussion here, all examples of the simple present should be understood to exclude these interpretations.

"right in front of" the interlocutor is not a fixed one in the external world. It is defined relative to the position and orientation of the interlocutor, which we assume are not permanent, and quite easily and frequently changed. Again, inferences about the transience of the spatial configuration described by a predicate are based on our stored knowledge of the entities and relations involved. What is important in all these cases is the nature of the state expressed by the entire sentence: how permanent is the location of the figure (subject) to the ground (the argument of a locative PP, for example).

The permanent vs. transient state distiction has intuitive connections to the well-known individual-level vs. stage-level distinction (Carlson 1977), and one could appeal to formal semantic treatments of this distinction to capture the (in)compatibility of certain stative verbs with the progressive (see, e.g. Chierchia 1995; Diesing 1992; Dowty 1979; Kratzer 1995).[20] Alternatively, some have suggested that temporariness is more a matter of pragmatic inference, arising as a result of semantic underspecification (Deo 2009; Maienborn 2004). In a recent crosslinguistic analysis of imperfective and progressive aspect, Deo (2009) argues that verbs like *know* and *own* are not prohibited from the progressive by grammatical constraints, but are ruled out by a pragmatic blocking principle which prohibits progressive uses of these verbs in favor of simple present uses (see also Dowty 1986). Progressive sentences assert that the situation they describe holds at a specific interval i, while simple present sentences are neutral with respect to whether the situation holds at i or at some superinterval of i. The progressive is more informative, and so conversationally implicates, by the maxim of Quantity, that the situation does not hold beyond the interval i (Deo 2009: 512). So, when a speaker says (3.90a) for example, she implicates that Barney's

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[20]Kratzer (1995), for example, argues that the logical structure of stage-level predicates contains an additional Davidsonian argument, which individual-level predicates lack.

  (i) a. **tired:** $\lambda x \lambda e[\text{TIRED}(x, e)]$

  b. **blond:** $\lambda x[\text{BLOND}(x)]$

She uses this analysis to explain a number of phenomena, and it is not difficult to imagine how it could be incorporated into a semantic analysis of the progressive. One could argue the progressive requires the predicate it combines with to assert an event, perhaps (e.g. Parsons 1990).

living in Brooklyn is temporary because she could have used the less specific simple present construction (3.90b), which implies that Barney's living situation is more permanent.

(3.90) a.   Barney is living in Brooklyn with my trainer, Rob Cox.   (COCA)

   b.   Barney lives in Brooklyn with my trainer, Rob Cox.

In circumstances where the temporariness of the location coheres with what the hearer knows about the world—that some people frequently move around for instance (3.90)—the implicature goes through. When this is not the case though, as with the geographical location of a city (3.91), the inference fails, and the progressive sentence is infelicitous.

(3.91)   The city of Juneau sits [*is sitting] at the far end of the Inside Passage.   (COCA)

In sum, the evidence suggests that the "potential for permanence/expansion in time" (Mufwene 1984: 40) is a sufficient, if not necessary, condition for the use of a predicate in the progressive. Moreover, the approach outlined here treats the unacceptability of certain progressive sentences as a matter of pragmatic infelicity rather than semantic incompatibility. An essential component of this approach is that inferences about the duration of a situation are highly context dependent, and because of this, the interpretations (and acceptability) of different verbs in the progressive are quite flexible. The natures of the situations prototypically denoted by the verb (phrase) undoubtedly play a crucial role in the interpretive process, and it seems clear that the meaning of certain verb roots, e.g. *know, own, contain*, renders the progressive nearly impossible with them. Such verbs are taken to describe states that endure well beyond the reference time of the progressive. Other stative verbs (e.g. *understand*) describe properties or relations whose durations are neutral with respect to how long they must last.

This analysis of the progressive then suggests a way forward in our understanding of Obj-Exp verb behavior. Perhaps those verbs that are less likely or judged less acceptable in progressive uses—the DEPRESS verbs—tend to describe emotions with a higher degree of permanence than other emotions. Intuitively, this seems plausible, as depression,

boredom, concern, interest and fascination seem much more likely to persist over time, as opposed to emotions described by participles like *startled, stunned, surprised, scared,* and so on.[21] In the next chapter I test this hypothesis through a detailed usage-based semantic analysis, which reveals that those former emotions are more likely to be associated with abstract antecedents (causes) which tend to endure over time. This strong affinity for abstract antecedents in turn contributes to the common construal of these emotions as relatively persistent states.

3.3.2 Statives and the punctual past

The two environments that were suggested by Pesetsky as testing grounds for verbal passives are the iterative progressive and the punctual use of the simple past tense. We have already established that use of the progressive is sensitive to the duration of the eventuality the sentence describes, and not to stativity per se, but what about the punctual past? The assumption is that adverbs like *suddenly* must modify dynamic predicates, and therefore are incompatible with stative verbs.

The problem is that this prohibition on use in the punctual past only applies to some stative verbs. Many stative verbs are in fact perfectly acceptable with the punctual past tense uses. Verbs of cognition and mental states of all kinds are especially prone to being used in this manner.[22] For example, achievement cognition verbs like *recognize, notice,* or *remember* are perfectly acceptable with a punctual past interpretation. This is not surprising, as these verbs canonically denote momentary changes of state (hence their classification as achievements).

(3.92) a.   Kramer suddenly recognized the neighborhood and found the door.   (COCA)

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[21]Note also that many Obj-Exp verbs (e.g. *astound, faze, startle*) do not have corresponding nominal forms.

[22]I am distinguishing here between verbs describing emotions, i.e. the Obj-Exp verbs, verbs describing attitudes, e.g. Subj-Exp verbs, and verbs describing other cognitive states, e.g. *know, believe, understand, think, suppose, suspect, realize, remember,* etc.

     b.   I suddenly remembered the pizza box sitting on the passenger seat of my car. (COCA)

     c.   ... he suddenly noticed that the skulls were all facing toward the east. (COCA)

More interestingly, stative cognition verbs like *know, understand, want,* and *hope* are also quite commonly found with adverbs like *suddenly*.

(3.93) a.   Then, gazing at his favorite waterfall, he suddenly knew what to do. (COCA)

     b.   But I suddenly knew the truth she'd beat me to. (COCA)

     c.   I wanted to hurt this monster, and I suddenly knew how to go about it. (COCA)

     d.   I suddenly understood the true beauty of a program like My Weight Doctor. (COCA)

     e.   I suddenly understood why he was so worried. (COCA)

     f.   I flushed and suddenly wanted to get out of her apartment, fast. (COCA)

     g.   Peter wondered why now she suddenly wanted to play with no clothes on. (COCA)

     h.   I stared at the ceiling and suddenly hoped that Jack would tell her not to show me the letter. (COCA)

What all these examples of cognition verbs have in common is that they describe situations in which the Experiencer suddenly became aware of some fact about the world, or of some feeling or desire inside her. In most circumstances, this awareness is not under the control of the one experiencing it, nor is it often understood how it arises. The impression this leaves on the Experiencer is that the state came on suddenly. Mental states are therefore frequently conceptualized as involving some instantaneous realization, and this conceptualization is reflected in, and influenced by, the language used to describe that experience.

Thus, adverbs like *suddenly* are often used with verbs describing cognitive states to high-light the seemingly instantaneous nature of the state's onset—that moment when the light bulb goes on, so to speak.

The essential point about stative predicates with punctual adverbs then, is that the states they describe are readily conceived of as having a definite onset, and this onset should be defined in any formal model to be independent of any entities the state may be predicated of. For many stative predicates the punctual interpretation is generally quite hard to get (3.94), however under the appropriate contexts (3.95), such predicates can have initial change-of-state interpretations, as many have noted (Chierchia 1995; Fernald 1999; Moens and Steedman 1988).

(3.94) a. *Tomer was suddenly Israeli.

   b. *Suddenly, Jason was blond.

(3.95) a. The officer signed the papers and suddenly, Tomer was an American.

   b. My hair was suddenly BLONDE, and to my KNEES, my eyes were so BLUE, I had such a FIGURE . . . Oh, God, I've mutated into a Sue!   (G)

The frequent occurrence of certain stative cognition verbs makes complete sense in this respect. Verbs like *know* and *understand* describe relations between the Experiencer and some (mental) entity that are frequently conceptualized as having discrete onsets. And, though the punctual past construction asserts that the state began at the relevant time, it is agnostic with regard to the extent to which the state persists beyond that time. Different states of knowledge, understanding, belief, and the like may extend indefinitely, and hence have high potential for permanence following the reference time of the sentence, but they are only entailed by the punctual past not to have extended prior to the reference time.

Section 3.2 presented data showing that most Obj-Exp verbs are fairly unexceptional in the punctual past tense, including those verbs typically argued to be stative. This applies

to the active as well as the verbal passive. Nevertheless, when an Obj-Exp verb passive is used in the punctual past, *by* phrases are preferred. This preference stems in part from the semantic properties of the preposition *by*, as I briefly discussed in Section 2.3. Passives with *by* imply an event has taken place (Osmond 1997), and are taken to describe a situation with a much lower degree of stativity. Specifically, they imply a change in the mental state of the experiencer. On this interpretation, Obj-Exp verbs would be treated as achievement predicates, as Van Voorst (1992) has suggested.

Recent work on Obj-Exp verbs in other languages has suggested however that Obj-Exp verbs should not be characterized as telic predicates, but rather as a kind of "mirror image" of telic eventualities (Marín and McNally 2011; Rozwadowska 2013). Following Piñón (1997), these approaches treat Obj-Exp verbs as inchoative "initial boundary happenings" as opposed to telic culminations. In a nutshell, Obj-Exp verbs delimit the initial punctual onset event and the resultant state. Importantly though, Obj-Exp verbs do not denote changes of state, i.e. they are not telic (Filip 1996); they only make reference to the initial boundary of the emotional state (Marín and McNally 2011). Such "inceptive" eventualities contrast with the more familiar notion of inchoativity, as defined by Dowty's (1979) BECOME operator for example, in that the predicate does not assert the existence of an event or interval prior to the initial bound of the interval over which the predicate is true. In this analysis, the change in the experiencer's state is a pragmatic implicature, rather than an entailment of the verb.

> Imagine that a predicate is lexically specified to refer to the true initial interval of a state, but not to any interval prior to the onset of that state. If the predicate entails reference to this initial interval, it will have to be the case that prior to that interval, the state did not hold. From this fact, it will be possible to infer that a change has taken place immediately prior to the onset of the state being referred to. (Dowty 1979: 141)

This approach seems entirely compatible with the data presented above.

In this section we have seen that many mental processes/states can be construed as having rapid onsets, despite the fact that they are often otherwise treated linguistically as referring to non-dynamic, durative eventualities, i.e. states. As we might expect, emotions are ideal candidates for such construal. Section 3.2 showed that some verbs are found with adjectival passives in the punctual past environment. I noted that the verbs most likely to be used in the punctual past tend to be ones which refer to emotions typically construed as arising suddenly and abruptly, however this is only a probabilistic tendency. Actives and passives of so-called stative verbs like *concern* and *depress* also occur in this construction, albeit with less frequency. This should come as no surprise given the meaning of adverbs like *suddenly* and the data we have seen here regarding the use of such adverbs to modify stative predicates. As with the progressive construction, DEPRESS verbs exhibit the same potential to be used in the punctual past tense as any other Obj-Exp verb, and they all (Obj-Exp verbs, that is) display the same range of interpretations we would predict from the compositional make-up of these sentences.

3.4   Summary

In this chapter I brought forward several new observations about Obj-Exp passives and their relation to those made in previous work on English Obj-Exp verbs. The summary of previous work is schematized in Table 3.4, partially repeated from Table 3.2.

	Simple tense	Progressive	Punctual	*needs V-ed*
Grimshaw (1990)	All verbs	None	??	??
Pesetsky (1995), Arad (1998), Landau (2010b)	All verbs	Non-stative only	Non-stative only	??
Tenny (1998)	??	??	??	Most (all?) verbs

Table 3.4: Summary of verbal passive uses among Obj-Exp verbs

First, it is clear that Obj-Exp verbs can be used as adjectival passives. The adjectival environments discussed in Section 3.1.1 are open to any and all Obj-Exp verbs I have examined, and these facts are entirely compatible with all extant analyses of these verbs. Like other non-derived adjectives, adjectival Obj-Exp passives are taken to denote states.

Second, previous work has shown that, contra Belletti and Rizzi (1988) and Grimshaw (1990), some Obj-Exp verbs can be used as verbal passives, though verbal passives are claimed to be limited only to non-stative verbs such as *annoy, frighten, scare, surprise*. This distinction between stative and non-stative Obj-Exp verbs was suggested by Pesetsky (1990, 1995), and it has since featured prominently in many analyses of English and other languages (Arad 1998; Biały 2005; Iwata 1993; Jackendoff 2007; Landau 2010b; Pylkkänen 2000). The logic behind such analyses is that only verbal passives can be used in environments that select for event-denoting predicates, e.g. the iterative progressive and punctual past constructions; passives of verbs that do not denote events should therefore exhibit significantly reduced acceptability in such environments.

Natural usage data contradicts the claim, however. Section 3.2 provides extensive proof that all Obj-Exp verbs are compatible with verbal passives, and by Pesetsky's argument, non-stative interpretations. This runs counter to many author's claims, which were based primarily on intuitions about constructed examples (Arad 1998; Bouchard 1995; DiDesidero 1999; Jackendoff 2007; Landau 2010b; Pesetsky 1990, 1995; among many others). Speaking in categorical terms regarding their potential for use in verbal passive constructions, it appears that all Obj-Exp verbs can be used in constructions that require verbal passives, e.g. the iterative progressive, the punctual past tense, and the *needs V-ed* construction. If the question is whether any English Obj-Exp verb can form a verbal passive, the answer is clearly yes.

Still, one could object to this conclusion by arguing that these examples involve instances of coercion (de Swart 1998; Goldberg 1995; Jackendoff 1997; Michaelis 2004; Moens and Steedman 1988; Partee and Rooth 1983; Pustejovsky 1995), and that we need

not abandon the stative/non-stative distinction, especially in light of its cross-linguistic support (e.g. Arad 1998; Biały 2005; Landau 2010b; Pylkkänen 2000). Many theories treat coercion as a kind of pragmatic "corrective mechanism" (Lauwers and Willems 2011) to account for interpretations of acceptable sentences that are not predictable from the basic rules of the grammar, and one could argue that the eventive uses of purportedly stative Obj-Exp verbs provided here are just such examples of coerced interpretations.

However, while the notion of coercion in its various guises has been broadly accepted within the field, it is not without its critics (see, e.g. Lauwers and Willems 2011; Ziegeler 2007). For the present discussion, it is sufficient to note that a coercion analysis cannot resolve the issue of Obj-Exp verb stativity in English. Recall that the argument for treating DEPRESS verbs as stative was the supposed fact that they cannot be used in verbal passive constructions. It is claimed that these constructions only allow non-stative verbs, therefore DEPRESS verbs should not be found in such constructions. But we now have clear evidence that DEPRESS verbs can be used as verbal passives. Basically, the coercion argument must go as follows: (i) DEPRESS verbs are stative because they can't be used as verbal passives; (ii) but if (when) one of these verbs is used as a verbal passive, it must be via coercion; (iii) it must be via coercion, because we know DEPRESS verbs are stative; (iv) and we know DE-PRESS verbs are stative because. . . see (i). The argument for coercion is entirely circular in this case. The reasonable conclusion is that all Obj-Exp verbs behave as a unified class with respect to these particular phenomena. From the corpus data presented here, all Obj-Exp verbs participate in the full range of active-passive alternations available to the class. In this resepect, Obj-Exp verbs in English behave much like other causative verbs with affected direct objects, e.g. *break, bend, crush, flatten, kill, melt,* and so on (modulo differences in the gradability of their resultant states). Obj-Exp verbs in English can describe both eventive and stative eventualities, but what distinguishes them from Subj-Exp verbs—Subj-Exp verbs also describe states—is their causal nature.
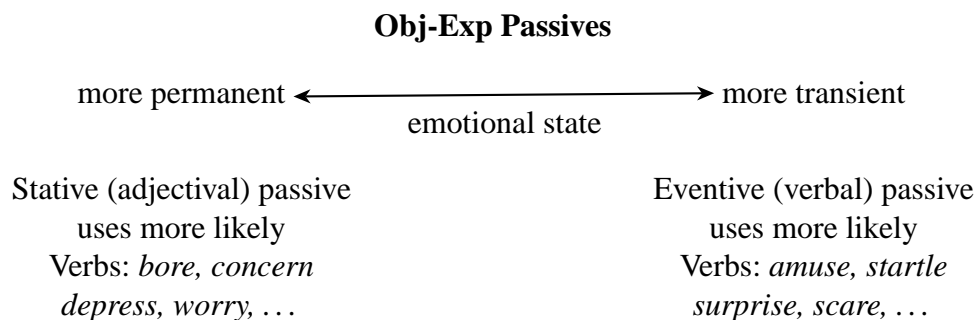
A remaining question though is why English DEPRESS verbs should be less frequent

in certain constructions than other members of their Obj-Exp verb cohort. Where does this variability in frequency, and by extension the gradability in intuitions, come from? In Section 3.3.1, I characterized the progressive as a construction that is semantically sensitive to the duration of the situation it describes. As the data showed, the transience of the situation a sentence describes is heavily influenced by semantic properties of the verb and its arguments, as well as context and other general knowledge. In other words, the use of the progressive with a given verb is related to the tendency for situations described with that verb to be conceptualized as having limited or transient duration. Generally, stative verbs describe situations with high degrees of permanence, and so are judged to be less acceptable than other verbs in the progressive construction. As I noted in Section 3.3.2, a similar kind of gradient tendency also applies to the punctual past tense construction, although the relevant semantic dimension is the potential for a state to be conceptualized as coming on suddenly. Both constructions have been argued to be diagnostic environments for verbal passives.

Not all stative verbs are created equal, however. Some situations, while they may typically be described as permanent states, are nevertheless more flexible with regard to their duration. Other situations are not so flexible in their temporal construal (these would include individual-level properties for example). This flexibility will naturally be linguistically reflected in the degree to which a predicate is acceptable in constructions that entail bounded temporal construals—constructions like the progressive or the verbal passive. Obj-Exp verbs exhibit just such variability, and it for this reason that they have been the focus of so much attention. Some verbs are more frequent/acceptable as verbal passives than others, though none of them seem to be prohibited outright. Apropos this variability, Pesetsky (1995) makes some intriguing observations about the nature of the stative Obj-Exp verbs themselves. He suggests that the variation in Obj-Exp stativity might ultimately be attributed to the nature of the emotions the verbs describe. Verbs such as *frighten, startle, surprise, terrify,* and so on describe emotions that come on rapidly and perhaps with

some degree of conscious awareness, while verbs such as *bore, concern,* and *depress* describe emotions that grow slowly and imperceptibly. In essence, Pesetsky is making a very similar claim to Mufwene (1984), that the varying acceptability among verbal passive (including progressive and punctual past) uses of Obj-Exp verbs has something to do with their tendency to describe temporary or enduring emotional episodes.

Figure 3.1: Relation of emotional state to passive uses among Obj-Exp verbs

Obj-Exp Passives

more permanent ←——————————→ more transient
emotional state

Stative (adjectival) passive   Eventive (verbal) passive
uses more likely   uses more likely
Verbs: *bore, concern*   Verbs: *amuse, startle*
depress, worry, . . .   *surprise, scare, . . .*

The gradient patterns in use of verbal and adjectival passives among Obj-Exp verbs is schematized in Figure 3.1. In the next chapter, I expand on this idea and develop an analysis of Obj-Exp verb usage in English based upon a quantitative analysis of the finer semantic details of the verbs' roots, i.e. the nature the emotions different Obj-Exp verbs describe.

Example sources

[a]http://thesaurus.com/browse/flabbergasted

[b]Ellen Bayuk Rosenman. *Unauthorized Pleasures: Accounts of Victorian Erotic Experience.* Cornell University Press, 2003: 78.

[c]Shelly Laurenston. *The Mane Attraction.* Kensington Books, 2008: 45.

[d]John Rosemond. *A Family of Value*. Andrews McMeel Publishing, 1995: 289.

[e]Michael Levey. *Sir Thomas Lawrence*. Yale University Press, 2005: 29.

[f]Don Read. *Emily.* Dorrance Publishing, 2009: 62.

[g]Tanya Egan Gibson. *How to Buy a Love of Reading: A Novel.* Penguin, 2009

[h]Jude K. Hill. *Select Undergraduate Papers: Real Term & Research Papers That Received Top Grades in College*. Decent Hill, 2009: 165.

[i]Text message from my sister (also Ohio native).

[j]Facebook post from Ohio friend.

[k]http://thegreciangarden.com/2011/01/05/detoxing-what-you-need-to-know/

[l]http://www.beginnertriathlete.com/discussion/forums/thread-view.asp?tid=142139&start=261

[m]http://www.examiner.com/article/organic-consumers-avoid-genetically-modified-crops

[n]http://www.dailykos.com/story/2012/09/22/1135361/-Houston-Police-Kill-Mentally-Ill-Double-Amputee-Who-Was-Waving-a-Pen-Around

[o]http://www.experienceproject.com/question-answer/Why-Would-Someone-Deliberately-Choose-To-Not-Be-Happy-On-The-Holidays/104571

[p]http://www.urbandictionary.com/define.php?term=Angry%20Atheist

[q]Susanna Kearsley. *The Winter Sea.* Sourcebooks, 2010: 139.

[r]George Baggett. *Youth in Asia.* AuthorHouse, 2006: 218.

[s]http://cs.brown.edu/research/pubs/pdfs/1992/Hughes-1992-SFV.pdf

[t]Carol Snow. *Snap.* HarperCollins, 2009: 164

[u]Stephen Murray. *Taking Liberty.* AuthorHouse, 2007: 133

[v]Richard Bachman [Stephen King]. *The Regulators.* Penguin, 1997: 276

[w]Susan Ray Schmidt. *Favorite Wife: Escape from Polygamy*. Globe Pequot, 2009: 106.

[x]http://twitter.com/player0/status/239151944462135297

Chapter 4

Transitivity and the conceptualization of emotion

In the preceding chapter, we saw evidence that when it comes to passivization, Obj-Exp verbs, as a class, display a much wider range of behaviors than has previously been assumed. We saw in the corpus data that any Obj-Exp verb has the potential to be used in a particular passive construction, though the relative likelihood of a specific verb being used in that construction can vary considerably. This observation runs counter to the claims of many, who have suggested—based mostly on intuitions about constructed data—that some verbs are obligatorily stative, and therefore barred from use in certain constructions, e.g. verbal passives. The corpus data simply does not accord with many of the intuition-based claims found in the literature. As the chapter concluded, we were left with an apparent puzzle: why do many researchers find (some) examples of Obj-Exp passives unacceptable, despite the fact that corpus searches show these verbs are commonly used in such constructions?

This chapter presents a solution to this puzzle by way of a detailed semantic analysis of Obj-Exp verb sentences, couched within a general cognitive functional model of voice and transitivity alternation(s) in English (e.g. Croft 1994b; Dik 1989; Givón 1981;

Hopper and Thompson 1980; Myhill 1997; Shibatani 1985). The question at hand in the previous chapter was whether a given Obj-Exp passive example could be classified as verbal or adjectival, which in turn led to considerations about the diversity of semantic properties characterizing the class of Obj-Exp verbs as a whole. I argue that the varying patterns of acceptability among Obj-Exp verbs examined in the previous chapter are reflected in the way 'real world' situations are construed in specific contexts.

4.1 Passivization, event construal and discourse

The question driving the corpus study in this chapter revolves around why speakers choose one linguistic expression over another. Addressing questions of this kind necessitates—or at least strongly suggests—that we consider construction usage from a functional point of view. That is, we must consider what communicative purpose a given construction serves in a given situation. This section focuses on the functional role(s) of passivization.

Functional approaches to passivization can be broadly divided into two camps. The first camp maintains that the primary role of the passive is to demote or de-focus the Agent argument.[1] Discussion of the "Agent-defocusing" (Shibatani 1985) function of the English passive goes back at least to Jespersen (1924), who identified several possible motivations for using a passive in English. Alternatively, some have emphasized the topicalization aspect of the passive (Hopper and Thompson 1980; Givón 1979, 1981; Perlmutter and Postal 1977), viewing passivization primarily as a "Patient-promoting" operation rather than an Agent-demoting one. These motivations can be stated heuristically as in (4.1).

(4.1)   The passive is most felicitous when:

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[1] The label "Agent" is used here to refer to the argument that would normally occur in subject position in the active clause, and should not be taken to connote any specific properties associated with agentivity, e.g. sentience or volition, nor does it imply that its referent instantiate a specific thematic or semantic role (Birner and Ward 1998: 194-95). Though labels such as "active subject" or "logical subject" may be less confusing in this context, I stick with "agent" simply because this is the label used most often in the literature on passivization (e.g. Svartvik 1966).

a. The agent is unknown, cannot easily be stated, or is evident from the context

b. For politeness or other reasons, mentioning the agent is inappropriate or undesired

c. The agent is to be mentioned, but the patient is more closely related to:

    i. The theme or topic of the discourse, or

    ii. A participant in the immediately preceding clause

Which of these two functions—agent demotion or patient promotion—should take center stage in a functional theory of passivization remains a topic of much debate (see for example Comrie 1977; Myhill 1997; Shibatani 1985, 2006), but it is enough to note that both functions undoubtedly play a role in motivating the choice of expression (Shibatani 1985). For instance, one could attribute (4.1a-b) to the agent demotion function, and assume that patient promotion drives (4.1c). In what follows I will make clear how both relate to the cognitive, semantic, and contextual, or discourse-related, factors influencing construction choice, but I remain agnostic about whether one should be privileged over the other in a theory of passivization.

4.1.1   Overt vs. implicit Agents

One reason these debates have been so hard to resolve is that the agent argument of an English passive verb need not be overtly expressed. It is worth considering then, what differences there are, if any, between so-called 'agentless' (4.2a) and 'agented' (4.2b) passives (Svartvik 1966).

(4.2) a. The next day I looked at the dailies, and I was amazed. (COCA)

    b. Lucy was amazed by the strength of the temptation to say yes. (COCA)

Looking at the distribution of passives in English, many have observed that although agented passives are rarely, if ever, grammatically prohibited in specific instances, there is a significant overall tendency toward agent omission. In corpus studies, the proportion of agented passives in English has been shown to range from as low as 1-2% to as high as 20% (e.g. Biber 1988; Givón 1979; Jespersen 1924; Svartvik 1966; Thompson and Hopper 2001; Weiner and Labov 1983), with the exact number varying according to the nature of the text examined (e.g. Roland et al. 2007; Yamamoto 1984, cited in Shibatani 1985: 831). These patterns suggest that the conditions on the omission or inclusion of the agent phrase in a passive clause are highly variable and context specific, such that in some instances the agented passive may be used quite naturally, while in others it is extremely unlikely (Marín-Arrese 1997a,b; Thompson 1987).

Understandably, this variability in passivization patterns follows from the incredible diversity of human experience, and the inherent variability in discourse contexts that comes with talking about that experience. For example, the first two conditions for an agentless passive (4.2a-b), obtain quite frequently in natural discourse. These are when the agent phrase refers to an individual who is either inferrable from the context, or whose specific identity is unknown (4.3), or when the speaker is attempting to be tactful, evasive, or deceptive (4.4).[2]

(4.3) a. Today, in a radio interview, Rick Perry *was asked* if elected, which government
           agencies he'd close...   (COCA)

       b. Mass murder Charles Manson *was denied* parole again today in California,
           possibly for the last time.   (COCA)

       c. Kendall: ...I picked up a fire poker, and I swung it
           Greenlee: But no one *was hurt*.   (SOAP)

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[2]This latter use is probably a major reason for the passive being so strongly (and unjustly) proscribed in certain influential prescriptive texts (e.g. Orwell 1946).

(4.4)   I just regret that the moral mistakes *were made* and the consequences are se-
vere[sic] associated with those.   (COCA)

Under certain conditions then, agent omission is highly preferable, but in many cases these
conditions seem to have more to do with the speaker's intentions and assessment of the ad-
dressee's inferential capabilities than the structure of the discourse itself (Thompson 1987:
501).

However, the agentless passive is not always the preferred option. In a minority of situa-
tions, it appears the expression of the agent is in fact preferable to its omission (Marín-Arrese
1997a, 2009; Thompson 1987). As I am interested in speaker choices regarding their use
of Obj-Exp verbs and the expression of both the experiencer and the stimulus argument,
the agented passive provides firmer ground on which to stand, analytically speaking. This
is mostly because Obj-Exp verbs rarely occur with the non-specific pronominal subjects
(*you, they*) that were used by Weiner and Labov (1983: 38) to diagnose those agentless
passives that have possible active alternates.

(4.5) a.   John got [was] arrested to test the law.

       b.   They arrested John to test the law.

In Weiner and Labov's study of the agent*less* passive, the unavailability of the non-specific
active alternate was a diagnostic for a participle's adjectival status, and these examples were
excluded from their dataset. Weiner and Labov would seem to assume then that almost all
instances of agentless Obj-Exp passives are adjectival, though this may not be the most
reliable criterion (see Section 3.1). In any case, an examination of agentless uses of Obj-Exp
passives faces the problem of determining what the appropriate active alternative would be
for a given token. The examples below illustrate this difficulty.

(4.6) a.   For the first time in her life, Dandy was depressed.   (COCA)

       b.   For the first time in her life, ??you/??they depressed Dandy.

(4.7) a.   Look, I was worried. I thought that I was being followed, . . .   (SOAP)

    b.   Look, ??you/??they worried me. I thought that I was being followed, . . .

In my judgment, examples of Obj-Exp passive participles like those above fail Weiner and Labov's non-specific pronominal test, leaving us to ponder what, if anything, could be the agent of a possible alternative active clause. In this study then, I will focus on the alternation between active and agented passive (verbal and adjectival) uses of Obj-Exp verbs.

    In the next sections I discuss the notion of prototypical transitivity, and explore how it relates to the choice of active-passive construction from two seemingly different, but ultimately overlapping perspectives: the discourse-functional and cognitive semantic approaches.

4.1.2   Prototypical transitivity

In their influential work, Hopper and Thompson (1980) argued that transitivity should be characterized as a scalar notion derived from numerous parameters associated with the degree to which an activity or event is 'carried-over' or 'transferred' from one participant to another.[3] Hopper and Thompson provide a list of what they take to be the "component parts of the Transitivity notion" (252).

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[3]While these ideas are often traced back to Hopper and Thompson, they are quite similar to ideas proposed by Lakoff (1977).

(4.8)   Transitivity components (Hopper and Thompson 1980)

		HIGH	LOW
A.	Participants	2 or more, A(gent) & O(bject)	1
B.	Kinesis	Action	Non-action
C.	Aspect	Telic	Atelic
D.	Punctuality	Punctual	Non-punctual
E.	Volition	Volitional	Non-volitional
F.	Affirmation	Affirmative	Negative
G.	Mode	Realis	Irrealis
H.	Agency	A high in potency	A low in potency
I.	Affectedness	O totally affected	O not affected
J.	Individuation	O highly individuated	O not individuated

Importantly 0n this view, transitivity is not treated solely as a property of the verb, but is instead understood as a global property of an entire clause or sentence, with each of the individual components focusing on a particular facet of the "carrying-over" in various parts of the clause. Together, these properties characterize a clause as more or less transitive. A clause with HIGH values for all the components is taken to be the instantiation of prototypical transitivity.

Isolating the core features of the transitive prototype has been a popular topic over the years (e.g. DeLancey 1987; Kemmer 1994; Givón 1990, 1995; Kittilä 2002; Lakoff 1977; Malchukov 2008; Næss 2007; Tsunoda 1985). Researchers have proposed numerous variations on the precise set of components that make up this prototype, but almost all of them tend to converge on the same basic idea. To take a particular example, Givón (1995) groups many of Hopper and Thompson's features into three broad semantic components of a prototypical transitive event. Each of these components correspond to one of the three main facets of a transitive event: the two participants, and the verb.

(4.9)   The prototypical transitive event involves:

1. An agent who is a volitional, controlling participant who actively initiates the event and is responsible for it, thus its cause;

2. A patient who is a non-volitional, inactive, non-controlling participant who registers the effect of the event (undergoes some change);

3. A verbal coding of the event that is non-durative (i.e. punctual), perfective, and realis. The prototypical transitive event is thus **fast-paced**, **completed**, **real**, and **perceptually-cognitively** salient.

(from Givón 1995: 76)

Grammatical coding reflects different ways of conceptualizing an event, and so variations in transitivity will have morphosyntactic exponents in the language. Events lacking any of these features (or being lower on the relevant scales associated with them) are deviations from this prototype, and so will be linguistically encoded in constructions involving fewer participants than the basic transitive schema. The passive represents a paradigm case of what could be called a "detransitivized" construction in English.

4.1.3 Discourse-functional approaches

Discourse-based analyses of the passive generally hold that passivization involves a choice of perspective: one entity is chosen as the "starting point" of the situation expressed by the sentence, and placed in a syntactically most prominent position, while other participants are relegated to less prominent positions (Chafe 1976; DeLancey 1981, 1987; Givón 1983, 1990, 1992; Hopper and Thompson 1980; Langacker 2006; Marín-Arrese 2009; Thompson 1987; among others). This notion of a starting point is intended to capture the idea that a speaker can attend to or focus on the role of specific individuals in his or her description of a situation, with the most prominent individuals being the ones who will be mentioned first (in English, this is most often the subject position). In other words, different individuals

will be afforded different degrees of prominence in the speaker's conceptualization of the situation, and this is reflected in the order in which individuals are mentioned.

> Coding ... events [or individuals] as salient amounts to telling the hearer that if he had seen the action he too would have found these the most salient events, and that he should so consider them in building his own mental representation which the speaker's narrative is intended to help him create. (DeLancey 1987: 65-66)

DeLancey (1981) characterizes this process in terms of the speaker's manipulation of "attention flow". In choosing a particular grammatical expression to describe a situation (active or passive, for instance), the speaker is communicating to the hearer not only "the facts" of the situation (who did what to whom), but also the conceptual importance she places on different individuals within the situation, and their relation to each other and to other (sub)components of that situation. In the prototypical active transitive sentence, the agent is usually chosen as the natural starting point of the situation, as the agent is the "first mover in a transitive event, i.e. the starting point of natural [Attention Flow]" (DeLancey 1981: 650). DeLancey's notion of natural attention flow bears many similarities to other semantic and cognitive approaches to argument realization, which view the initiation or instigation of an event as a characteristic determinant of agenthood (e.g. Croft 1991; Dowty 1991; Fillmore 1968; Schlesinger 1995; Talmy 1976, 1988). It is also intimately linked to a key aspect of the natural transitive prototype (Hopper and Thompson 1980; Tsunoda 1985), as I explore below.

For DeLancey, the natural direction of attention flow is from agent to patient, and transitivity alternations such as the passive reverse this natural pattern. This reversal of the natural order is used to explain the relative predominance of agentless passives—agented passives involve an unnatural patient-to-agent attention flow, and so are highly dispreferred. The passive construction involves a focus on the patient and de-emphasizes the role of the agent,

and so it is the patient-related aspects of the situation, most often the stative-resultative aspect of the event, that are thematically salient, and not those aspects associated with the agent (Givón 1990). From the passive perspective the event is construed as more prototypically intransitive, and the agent tends to be unexpressed, especially in those cases when it can be easily recovered based on the preceding discourse. Since they mention only the patient, agentless passives do not disrupt the natural flow. As we saw, agentless passives are by far the most common types.

Attention flow is also related by the speaker's point of view regarding a situation, either as a participant directly involved in the event, or as an external observer. This notion of "viewpoint" (DeLancey 1981) is closely tied to other notions of "empathy" (Kuno 2006; Kuno and Kaburaki 1977). As elaborated by Kuno and Kaburaki (1977: 628), "[empathy] is the speaker's identification, with varying degrees[...], with a person who participates in the event that he describes in a sentence". Speakers are naturally more likely to empathize with—or take the viewpoint of—themselves or their interlocutors in a speech event; thus, individuals who are not speech act participants are less eligible for viewpoint status (DeLancey 1981). All things being equal, speech act participants are the most natural choice for the starting point of attention flow, and so we find that (agented) passives are more likely when the patient refers to a speech act participant, most often with a 1st or 2nd person pronoun (e.g. Bresnan et al. 2001; Estival and Myhill 1988; Marín-Arrese 1997a).

The linguistic encoding of perspective is also related to the tendency of speakers to maintain what might be called "thematic unity" (Thompson 1987) or "topic continuity" (Givón 1983). Again, the idea is that the same situation can be described from several discourse perspectives, and the choice of perspective is sensitive to the relative topicality of the agent and patient (Givón 1990), but here we are mostly interested in cases of agented passives (Marín-Arrese 1997a; Thompson 1987). Thematic unity and topicality subsume a number of related dimensions, including (but not limited to) referential predictability, information status, thematic importance, and topic persistence or thematic coherence, all of

which emphasize the crucial role of a referent's cognitive saliency in shaping the way events are linguistically encoded in the context of an ongoing discourse (e.g. Birner and Ward 1998; Chafe 1987; DeLancey 1981; Givón 1992; Siewierska 1984). In essence, "discourses are more cohesive (and presumably easier to process) the more their sentences have topics [subjects] which relate to the overall theme of the [discourse] or to the material in the immediately preceding clause" (Thompson 1987: 501).

Psychologically, topicality is tied to referential acceptability and thematic continuity, which are involved in the search for a given referent in the mental storage space (Givón 1992). Many factors influence this search process, but from a discourse-based perspective, the factors of interest pertain to 1) the recency of a referent being mentioned in the pre-ceding discourse, and 2) the relevance of the referent to the the 'theme' of the surrounding context, i.e. what the text is 'about' (Thompson 1987).

The former can be seen in (4.10), where the subject of the passive clause in the second sentence *Giffords* was also (part of) the subject of the immediately preceding clause.

(4.10)   At least that was the tone both *Giffords* and Kelly tried to set in public. Privately, according to some news reports, *Giffords was frightened* by the over-heated polit-ical climate in Arizona,...   (COCA)

The latter is illustrated in (4.11), where we see the beginning of a new paragraph in which the larger theme is the actions of the Gore camp and their reaction to Bradley's non-response. Thematic continuity is evident in the fact that the same referent is the subject of several successive clauses, including the opening passive one. Considered within the full context, the initial passive sentence foregrounding *the Gore camp* sounds more natural than its active alternative (*Bradley's refusal to hit back amazed the Gore camp*).

(4.11)   *The Gore camp* was amazed by Bradley's refusal to hit back. It seemed that *they* could say anything or do anything and Bradley would just sit there. At a can-didates' forum before the Iowa caucuses in January, *the Gore campaign* planted

a farmer in the audience to ask why, as a U.S. senator, Bill Bradley had voted against flood relief for farmers after a series of floods had devastated Iowa. (COCA)

It should be stressed of course, that these patterns reflect gradient tendencies in the shaping of discourse perspective and event construal rather than categorical distinctions in grammaticality.

Referential accessibility then, is a component of topicality that links the construction of the immediate clause to aspects of the preceding ("anaphoric") discourse context. This is naturally related to the well-known idea that linguistic units conveying old or 'given' information tend to precede those encoding new information, and the information status of the patient has indeed been shown to affect the choice of active or passive (Birner and Ward 1998; Chafe 1976, 1987). Conversely, thematic continuity can be viewed as a kind of "cataphoric" component of topicality linking the construction of the clause to aspects of the following, or rather global, context (Givón 1992).[4]

Both of these aspects are tied to transitivity. When the agent is topical and thematically important, that is, cognitively salient and accessible, agent-related properties of the situation such as control, initiation, and volition are themselves more salient. This leads to a tendency to view the situation as one involving the prototypical agentive construal—a situation as a real, dynamic, temporally bounded event (Givón 1990). The active perspective then corresponds to the prototypical transitive event type (e.g. Hopper and Thompson 1980). On the other hand, the passive construction involves a focus on the patient and de-emphasizes the role of the agent. It is the patient-related aspects of the situation, most often the stative-resultative aspect of the event, that are thematically salient, and not those aspects associated with the agent (Givón 1990). From the passive perspective the event is construed as more prototypically intransitive. In the next section I examine how this notion of construal—and its role in the active-passive alternation—is developed within the

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[4]The discourse thematic status of referents has also been shown to play a role other constructional alternations in English, e.g. the choice of genitive (Osselton 1988).

framework of cognitive semantics.

4.1.4 The cognitive semantic perspective

For cognitive approaches the notion of the concept is taken to be the basic theoretical unit of mental representation, and the meaning of a linguistic expression is equivalent to the concept it expresses (Croft 1991; Clausner and Croft 1999; Lakoff 1987; Lakoff and Johnson 1980; Langacker 1987, 1999; Jackendoff 1989, 1990; among others). Importantly, concepts are not understood in isolation as atomic, abstract units in the mind, but are interpreted in relation to pre-existing background knowledge structures. These knowledge structures, frequently referred to as 'domains' (Lakoff 1987; Langacker 1987) or 'frames' (Fillmore 1982), provide the context against which the meaning of an expression can be understood and used in communication. The frame is the base against which a concept is 'profiled', in Langacker's (1987) terms. The label 'frame' emphasizes the supporting role of domains for concepts, along with the hypothesis that domains have a structure that is more than a list of experientially associated concepts. A domain can therefore be thought of as a "system of concepts that is structured in such a way that to understand any one of them, you have to understand the whole structure in which it fits" (Fillmore 1982: 111).[5]

At their core, cognitive approaches to semantics are concerned with the way language is used to express relations between objects and events in the 'real world', and speakers' internal subjective representations of those objects/events. The guiding principle is that the minds of the speaker and hearer actively create semantic structures through the conceptualization or *construal* (Langacker 1987) of their experiences in the world. One of the primary working hypotheses of cognitive semantics can be summarized in the slogan 'grammar is conceptualization' (e.g. Croft and Cruse 2004). Not surprisingly, a great deal of work in

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[5]Following the general trend in the cognitive linguistics literature, I use the terms 'frame', 'domain' and 'base' interchangeably (see, for example Croft and Cruse 2004).

the field has been devoted to uncovering and understanding the nature of these conceptualization processes. Researchers have variously characterized such processes as imaging systems (Talmy 1988), focal adjustments (Langacker 1987, 1991), or construal operations (Croft and Cruse 2004), but there is general agreement that these processes all represent examples of the same basic notion of construal.
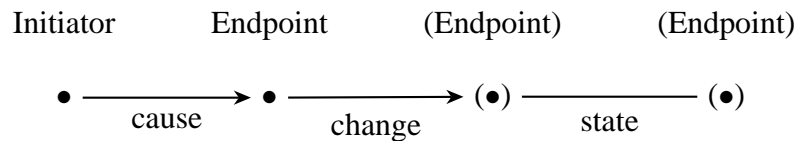
Although there is a great deal of flexibility with regard to how an event can be profiled by a given verb, verbs are nevertheless associated with 'natural' or prototypical construals, and it is argued that these construals follow from general (universal?) patterns in human experience (DeLancey 1984, 1987; Lakoff and Johnson 1980). Linguistically, these prototypical event views are represented by grammatically unmarked forms. For instance, unmarked stative verbs are associated with situations most often construed as inherent properties, while unmarked causatives denote events that in our experience almost always occur with an external cause, in particular a human agent (Croft 1994b).

From this perspective, event construal is closely intertwined with transitivity and transitivity alternations. Croft (1991) for example, proposes an 'Idealized Cognitive Model' (Lakoff 1987) of events, which resembles in important ways the transitive prototype suggested by many others, and indeed builds off many others' ideas (DeLancey 1984, 1987; Lakoff 1987; Langacker 1987; Talmy 1976, 1988). Croft's event based theory of argument realization posits that the fundamental semantic property governing the ranking and assignment of semantic roles is an event's causal structure, primarily characterized by the transmission of force between participants Talmy (1976, 1988). Schematically, events are represented as causal chains which consist of a series of segments relating individual participants in the event.[6] The Idealized Cognitive Model of events is therefore one in which the prototypical event type involves one participant volitionally causing a change in another participant. This model is schematized in (4.12).

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[6]More recent formulations of this model have been revised to incorporate aspectual and spatio-temporal information (e.g. Croft 2009, 2012). For the sake of clarity I present only the causal dimension developed in his earlier work.

(4.12)   Idealized Cognitive Model of events:

Initiator   Endpoint   (Endpoint)   (Endpoint)

$$\bullet \xrightarrow{\text{cause}} \bullet \xrightarrow{\text{change}} (\bullet) \underline{\quad\text{state}\quad} (\bullet)$$

According to Croft, the basic causal chain can be though of as only the first level of conceptualization of events for linguistic encoding. It is assumed that there is some component of the meaning of a verb (root) that remains constant across uses, and it is this component that forms the frame or base against which a specific use of a verb is profiled (e.g. see also Langacker 1987, 1991). In this way, different uses of a verb represent different segments of the causal chain that underlies the meaning of the verb; different segments of the chain may be profiled across different contexts. Linguistic verbal structure, in Croft's view, represents a kind of second-order level of conceptualization.

> [Verbs] represent self-contained events, that is, events which are conceptualized as isolated from the causal network and individuated for various purposes. Subjects and objects represent the *starting point* and the *endpoint* respectively of the segment denoted by the verb... [Emphasis in original] (Croft 1994b: 92).

These segments profiled by a given use of a verb can be referred to as 'event views'.

Each event view focuses on a different segment of the causal network, be it the entire causal event, the change of state and/or the resultant state. So, for example, with a sentence like *Jamie broke the VCR*, the event view represents the entire causal chain associated with the verb *break*, whereas the sentence *The VCR broke* profiles the final two segments of the chain, and the passive *The VCR was broken* either the final two segments or just the final segment, depending on whether it is construed as a process or stative passive.

(4.13) a.   Jamie broke the VCR.

Jamie   VCR   (VCR)   (VCR)

• ——————→ • ——————→ (•) ———— (•)
    cause   become   broken

   ###   *broke*   ###

b.   The VCR broke.

VCR   (VCR)   (VCR)

• ——————→ • ———————— •
   become   broken
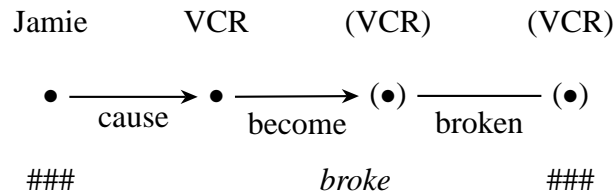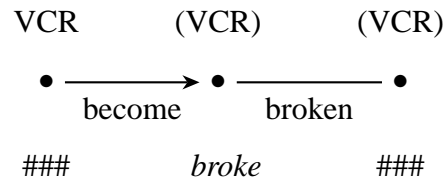
   ###   *broke*   ###

c.   The VCR was broken (by Jamie). [process/verbal passive]

(Jamie)   VCR   (VCR)   (VCR)

• – – – – – – – • ——————→ (•) ———— (•)
          become   broken
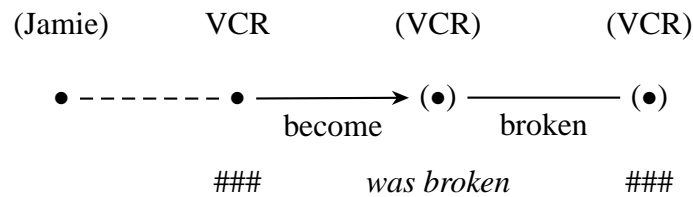
      ###   *was broken*   ###

d.   The VCR was broken (for weeks). [stative passive]

VCR   (VCR)

• ———— (•)
  broken

   ###   ###
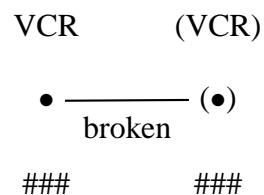
The hash marks (###) in the representations in (4.13) mark the distinct event views associated with each construal. The essential idea is that passivization involves a change in the verbal profile of the causal chain. Focusing on the two passive constructions, we see that the difference is in the inclusion of the second link in the chain: the inchoative "become" segment in the verbal passive.

It is this idea of unmarked causal profiling that Croft uses to account for the different argument realization patterns among Obj-Exp and Subj-Exp verbs (Croft 1993: 61).

(4.14)   a.   Obj-Exp verbs:
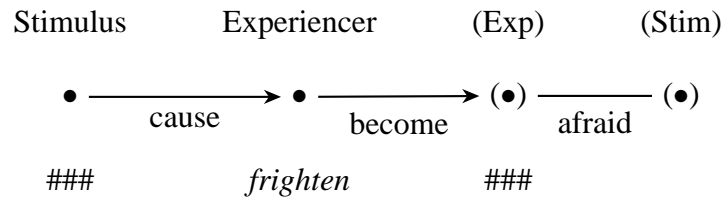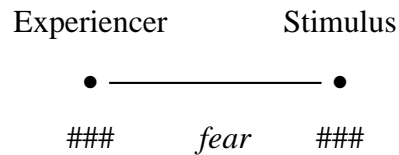
Stimulus   Experiencer   (Exp)   (Stim)

$$\bullet \xrightarrow{\text{cause}} \bullet \xrightarrow{\text{become}} (\bullet) \underline{\quad\text{afraid}\quad} (\bullet)$$

frighten

   b.   Subj-Exp verbs:

      Experiencer   Stimulus

$$\bullet \underline{\quad\quad\quad\quad} \bullet$$

fear

Causative emotion verbs like *frighten* lexicalize the cause of the mental state, and so the Stimulus argument is realized as the subject similar to other verbs like *break*. These verbs present the prototypical event view of the transmission of force from one participant to another. Alternatively, the stative relations denoted by Subj-Exp verbs like *love* do not involve any transmission of force—the Stimulus/Target is not affected by the experiencer, nor is the Experiencer necessarily in control of the state. Hence, both the Experiencer and/or the Stimulus arguments of stative psych-verbs are often marked with oblique case in many languages, as other "unaffected" arguments such as Goals, Recipients, or Locatives are (Croft 1993; Haspelmath 2001; Landau 2010b; Tsunoda 1985).

Connecting these two threads, we can model the different uses of Obj-Exp verb passives discussed in the previous chapter in terms of the distinct event views associated with different construals of the emotion event. The key difference is between those examples of Obj-Exp verb passives that involve viewing the situation as a punctual or iterated process, and those examples in which the situation is viewed more as a long-lasting state than as a bounded event. The former set of examples requires that one construe the situation as a dynamic event, and use of a given participle in such a manner was taken as a testimonial to its verbal status. Stative uses on the other hand, are expressed through adjectival passives. Building off (4.13) and (4.14), the two event views can be represented as follows.

(4.15) a.   Verbal Obj-Exp passives:

(Stimulus)   Experiencer   (Exp)   (Stim)

•– – – – – – – •———————→ (•) —————— (•)
       cause   become   afraid

        ###   *frightened (by)*   ###

b.   Stative Obj-Exp Passives:

      Experiencer   (Stimulus)

        •————————————— (•)

        ###   *frightened (of)*   ###
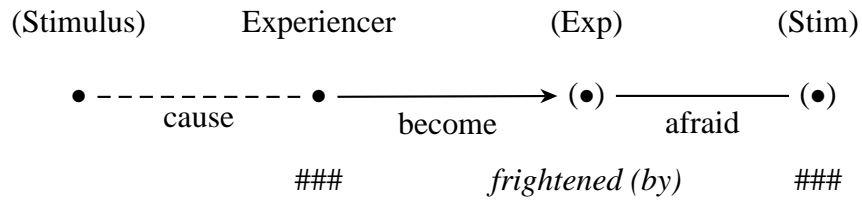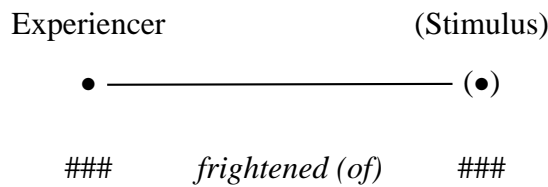
In passive sentences the causal segment of the chain is not profiled by the verb, and so the the verb is often used without the Agent argument. When the agent is realized, it appears as an oblique argument, introduced with *by*.

Adjectival passive uses of Obj-Exp verbs represent the same verbal construal of the situation as adjectival passive uses of other causative verbs (4.13d), but with one key difference. Unlike physical states, emotions, like many other mental states, are inherently directed toward some entity. That is, emotions possess the property of "object-directedness" (e.g. Kenny 1963; Nissenbaum 1985; Wilson 1972). In Croft's view, there are therefore two contrual processes involved in possessing an emotional state. One is the process by which the Stimulus causes the Experiencer to be in a certain state, while the other process involves the Experiencer attending to or directing her attention to the Stimulus (1993: 64).

(4.16)   The dual nature of emotion relations:

                        direct attention to
      | Experiencer | ⇌ | Stimulus |
                     cause emotional state
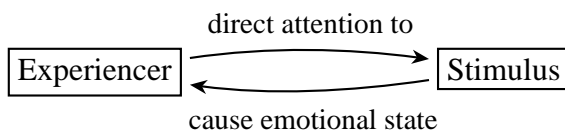
Bringing the discussion back to the main focus of this chapter, we can now use this idea to help understand the variation among different Obj-Exp verbs. Not surprisingly, the

stative construal of Obj-Exp passives bears a striking similarity to the profiling of the stative Subj-Exp verbs. In both cases the Stimulus argument is construed as not having much causal effect at all. Instead these verbs present the mental relation between the Experiencer and Stimulus as a dispositional rather than causal relation. With respect to their underlying conceptual frames, all Obj-Exp verbs involve the ICM of events represented in (4.14a). However, not all Obj-Exp verbs are associated with the same verbal profile to the same degree—different verbs tend to isolate specific event views from the basic causal network with varying likelihood. That is, some verbs tend to be construed more often as active causal events, while others are construed more often as directed attitudes or states. This is linguistically reflected in their relative likelihood of being used in constructions that entail eventive interpretations, such as the verbal and adjectival passive. The cognitive 'function' of the (stative) passive then is to mark the construal of the situation as more like a dispositional relation between the Experiencer and some emotional target. This is accomplished through the disassociation of the causal link between the Stimulus and the state in the construal of the event.

Finally, it is important to note that from the cognitive viewpoint, the influence of discourse-related factors on linguistic structure is to be expected. The demands of a specific communicative setting naturally shape the construal of the scene, which in turn influences the choice of linguistic form used to describe (the construal of) that scene. As Croft (1994a: 32) puts it,

> Language use—communicative and interactive intentions in particular contexts of discourse—largely determines what semantic conceptualization of the experience is to be encoded. The conceptualization largely determines its encoding in the system of signs (words and constructions) of the language... Both of these processes—from context to conceptualization and from conceptualization to grammatical construction—have cognitive and interpersonal elements. Communicative and interactional intentions are ultimately formed in the mind,

and the conventions of symbolizations are socially established, maintained and altered across time and space.

A similar point is made by DeLancey (1987) who argues that the semantic and discourse-functional facts are merely reflections of the same underlying cognitive schema (see also Lakoff 1977). "The various transitivity parameters cohere in the way they do because they code aspects of a coherent semantic prototype," such that "the semantics of both clause-and discourse-level constructions are rooted in a level of cognitive representations prior to either" (1987: 54-55). This view echoes Croft's observation that cognitive semantic and discourse functional approaches are examining "two sides of the same coin" (1994b: 91). The transitive prototype exhibits the features it does precisely because it derives from a natural and perhaps universal human understanding that events have causes (e.g. DeLancey 1984; Lakoff and Johnson 1980). "The basis of the transitivity prototype is a simple CAUSE $\longrightarrow$ EFFECT schema which owes its universality to its universal utility in dealing with the real world" (DeLancey 1987: 60).

Ultimately, usage-based semantic and functional approaches assume that linguistic meaning is a social construct that is dynamically negotiated within and across particular communication settings (Barsalou 2003; Clark 1983; Croft 2000; Evans 2006; Kecskes 2008). Regarding lexical meaning, when a word is used in a given situation, specific aspects of that situation (where it took place, how long lasted, who/what was involved, how the speaker felt, etc) are attended to and encoded in memory. Recently, it has been argued that it is the memory of and the mental simulation of these situated exemplars—and not abstract amodal representations (e.g. Fodor 1975)—that constitutes an individual's conceptual knowledge (Barsalou 2003, 2005, 2009). In the next Section 4.2, I discuss how this relates to the formation and propagation of emotion concepts, and ultimately the way we use specific terms to denote those concepts.

4.2   What is an emotion, that a person may talk about it?

To paraphrase Jackendoff (1989: 68), asking a psychologist or philosopher what an emotion is is much like asking a linguist what a language is. Different researchers will tend to give different answers depending on which aspect of emotional phenomena they focus on, as well as their particular theoretical stance regarding the nature of emotion concepts. At present, there is still no commonly agreed-upon definition of the range of phenomena we label 'emotion' (e.g. Frijda 2007; Gross and Barrett 2011; Mulligan and Scherer 2012; Russell and Barrett 1999; Scherer 2005), and a major contributing factor to this disagreement has been the imprecision of the language used to discuss the numerous varieties of psychological phenomena. In everyday language, terms like *emotion, affect, mood, feeling, attitude,* and *disposition* are often used interchangeably, which leads to a great deal of confusion when we try to understand the various aspects of these phenomena, and to differentiate them scientifically.

Nevertheless, the meaning of the term *emotion* as used in ordinary language does capture much of what researchers have come to view as essential facets of emotion in a technical sense (e.g. Mulligan and Scherer 2012). Consider the following definition of emotion, taken from the Merriam-Webster's online dictionary.[7]

(4.17)   A conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body.

There are several ways in which this ordinary language definition of emotion aligns with attempts to define emotion more technically. Perhaps the most important point of agreement between the everyday and technical senses is that *emotion* is typically applied to phenomena that are relatively short-lived. For most theories, it is assumed that the things we refer to as emotions involve discrete, temporary episodes in the life of an individual (e.g. Arnold

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[7]Retrieved 4/19/2013 from http://www.merriam-webster.com/dictionary/emotion

1974; Davidson 1994; Ekman 1992; Frijda 1986, 2007; Izard 1992; Mulligan and Scherer 2012; Russell and Barrett 1999; Scherer 2001; Wilson 1972). These episodes involve some change in the functioning of an individual that is brought about by some triggering event, and persist, with decreasing intensity, for a certain duration before fading away (Scherer 2000). I follow Scherer (2005) in reserving the term *emotion* for short-lived affective episodes, while we might use the label *affective phenomena* to refer to affects, moods, feelings, attitudes and so on (Mulligan and Scherer 2012; Scherer 2005: 347). Particular instances of an emotion can be referred to as "prototypical emotional episodes" (Russell and Barrett 1999), or simply *emotional episodes*.

A second crucial aspect of emotions is that they are directed toward some object (Arnold 1960; Kenny 1963; Nissenbaum 1985; Wilson 1972). This object can be a concrete entity (e.g. a person, a painting, a landscape), an event (e.g. an explosion, a sudden noise), the behavior of oneself or others, a proposition or fact about the world, or the sudden memory or recall of any of these things. It is important here to distinguish between an emotion's object and its cause; the two need not be the same. For example, if I say *The article about corruption in congress really angered me*, it is understood that although my anger was caused by the article, it is the corruption that constitutes the object of my anger. In this view, emotions involve specific episodes of feeling, perceiving, or remembering some object which may be real or imagined, external or internal, concrete of abstract. The importance of object directedness for linguistic structure has been noted by some (e.g. Biały 2005; Jackendoff 2007; Nissenbaum 1985), and the idea of an emotional object separate from the cause is essentially what Pesetsky (1995) is trying to capture with his T/SM role.

4.2.1 Features of emotion and emotion categories

Scherer (2000, 2005) suggests that emotions and related affective phenomena can be distinguished from each other according to several elementary "design features" that collectively

characterize the different phenomena. As a working definition, he proposes that "emotions are episodes of coordinated changes in several components (including at least neurophysiological activation, motor expression, and subjective feeling...) in response to external or internal events of major significance to the organism" (Scherer 2000: 138-139). This working definition is shared by many others, for instance, Russell and Barrett (1999) who characterize a "prototypical emotional episode" as a complex set of subevents directed toward a particular object, which is the "the person, condition, event, or thing (real or imagined; past, present, or future) that the emotional episode is about" (806). Scherer (2005) further identifies and distinguishes emotion from several other affective phenomena, including moods, dispositions, and attitudes (see also Ekman and Davidson 1994).

According to Scherer (2005: 700-702), different affective phenomena can be characterized according to the relative importance they place on several gradient dimensions or design features. The 'event focus' dimension involves the need for an emotion to be anchored to a specific external or internal event, rather than existing as a permanent feature of an individual, or the result of an intentional decision or evaluation. The relevance of an event to the concerns of the experiencer represents the degree to which an emotion is 'appraisal driven', where appraisal is thought to involve rapid evaluation at several levels of conscious and unconscious processing. 'Rapidity' and 'duration' comprise the temporal characteristics of affective phenomena. Some phenomena involve more or less rapid (series of) changes in appraisal and subjective feeling, and the corresponding states may endure for relatively longer or shorter periods of time.

From the perspective of lexical semantics however, we are not interested in the status of emotions as cognitive or psychological entities *per se*, rather our interest lies in the way speakers' conceptualizations of different affective phenomena are encoded in a particular language. That is to say, we are interested in the folk concepts of emotion that are encapsulated in a speech community's emotion lexicon. By concepts, I am referring to the internal mental representations of categories of entities, situations, events, and experiences

(e.g. Jackendoff 1990; Lakoff and Johnson 1980; Langacker 1999; Niedenthal 2008), and by 'folk' concepts, I am talking about the commonsense notions that speakers intuit and appeal to, sometimes consciously, in everyday life—similar to what Lewis (1970, 1972) calls "platitudes" (see also Malle 2004; Nichols 2004; Stich and Ravenscroft 1994). When it comes to emotions, it is these folk concepts that are encoded in a language's words and constructions, and consciously or unconsciously, different facets of these concepts are accessed when we use or make judgments about specific emotion terms (Wierzbicka 1992, 1995, 2009).

It is an interesting question to what extent a culture's set of emotion categories, and by extension its language's emotion lexicon, directly maps to the unconscious (and perhaps universal) "psychophysiological processes" (Scherer 2000: 148) that make up emotions. Scarantino (2012) argues that these are really two different questions, which she dubs the Scientific Emotion Project and the Folk Emotion Project. Whereas the Folk Emotion Project has the accurate reconstruction of the boundaries of traditional emotion categories as its primary objective, the Scientific Emotion Project has the transformation of such categories into useful scientific tools as its primary objective. I suspect these are essentially two sides of the same coin, and I follow Wierzbicka (2009) in the belief that the exploration of linguistic meaning can lead to valuable insight into the relation between language and our understanding of the social world.

> [While] the meaning of emotion words may not neatly map "psychophysiological processes," they do reveal facts of social cognition, that is, shared construals of individual experience. The fact that these construals are largely unconscious does not prevent them from being clearly reflected in the semantic structure of the lexicon. (Wierzbicka 2009: 12)

I argue we can take this even further, however. The aim of this chapter, and indeed the entire work, is to show that the reflection of these construals can be detected not only in the

lexicon, but also in patterns of grammatical variation found in language use. As I discussed in section 4.1.4, conceptual construal is not limited to the lexicon, and focusing solely on variation among isolated terms unnecessarily handicaps our attempts to understand the the conceptualization processes that shape, and are shaped by, linguistic meaning.

To be clear, I assume that language plays a causal role in the development of emotion knowledge (Barrett 2009). If this is true, we should expect several things. One, we should be able to identify specific linguistic patterns common to particular emotion terms. If a community's shared conceptual understanding of the concept 'scare' is constructed from a loose collection of experiential exemplars to which the label *scare* has been applied, it stands to reason that we might be able to detect regular linguistic patterns associated with the term *scare*. From these patterns we may be able to divine information about the shared construal of that emotion concept which can aid in making predictions about synchronic and diachronic variation in the use of the emotion term. Additionally, concepts which over-lap considerably in their situational knowledge should exhibit similar linguistic behavior, partly because the language itself has worked to shape those concepts. Finally, we should expect a non-trivial amount of variation in the conceptualization of lexical items across individual speakers and, more importantly, across the various language-related tasks that they engage in. This last point suggests that we should ideally be applying various linguistic and other methodologies to the investigation of lexical meaning that extends beyond meta-linguistic judgments about isolated sentences. The studies described in the rest of this chapter represent a beginning step in this direction.

4.3 Corpus study

In this section I present an investigation of Obj-Exp verb meaning though a close analysis of the semantic properties of the verbs' arguments, which reveals a striking correlation between the stative/non-stative verb classes discussed previously, and the associations of

those verbs with specific kinds of causes.

4.3.1   The data

The data for this study were sampled from the written and spoken sections of COCA as of autumn 2012. The initial data set constituted 400 tokens of the 16 Obj-Exp verbs listed in (4.18); these tokens were randomly extracted from COCA using a Python script.

(4.18)   *amaze, amuse, anger, annoy, astonish, captivate, concern, depress, fascinate, frighten, horrify, please, scare, startle, surprise, upset*

The specific verbs were chosen for several reasons. One was their prevalence in the literature on Obj-Exp verbs. Verbs like *amaze, concern, depress, frighten,* and *surprise* are often cited in examples of one kind or another, and so it is only natural that a corpus study of this kind might begin with these verbs. A second consideration was the interaction of polysemy and the ease of automated extraction from COCA. While many Obj-Exp verbs potentially involve many different senses, some of those senses are more frequent than others, and some are easier to search for and eliminate than others.[8] Finally, given that quantitative analyses require sufficient amounts of data to be meaningful, I chose verbs on the higher end of the Obj-Exp verb frequency distribution for which I could be assured to find enough tokens.

After the initial automated collection, tokens were further manually filtered to remove tokens involving non-psychological senses (e.g. *Before he depressed the button...*) as well as other non-verbal uses. Since the goal of the study was to explore the role of the stimulus argument in shaping the usage of these verbs, the dataset retained only those tokens

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[8]For example, *bore* has the psychological sense as well as two other common senses: the physical sense 'to drill into' as in *bore the holes for the shelf pins*, and the 'carry, wear, convey' sense of the past tense of *bear*, as in *The man bore the dazed grin of a lottery winner.* Other verbs like *bother* and *worry* are similarly diverse in their usage. For this study, these various uses were too common for me to sift through efficiently by hand, and so I left them aside for further investigation (see, e.g. Glynn 2010 for a more comprehensive study of *bother*).

Verb	Tokens	Verb	Tokens
amaze	268	*fascinate*	285
amuse	283	*frighten*	202
anger	207	*horrify*	159
annoy	366	*please*	130
astonish	169	*scare*	272
captivate	313	*startle*	133
concern	137	*surprise*	389
depress	210	*upset*	121

Table 4.1: Number of tokens by verb after filtering

in which both the stimulus and the experiencer arguments were overtly realized in the sentence. This meant that agentless passive sentences (4.19a), active sentences with null objects (4.19b), and middle constructions (4.19c) were also omitted from the dataset.

(4.19) a.   . . . my mother found the scrapbook, and she was just horrified.

b.   More than 20 years and some restoration later, the necklace still astonishes with the bold assurance of its design, . . .

c.   But the Padres are Alfred Hitchcock. They don't scare easily.

Other fixed patterns involving certain verbs, such as frequent particle uses (e.g. *frighten away/off*), were also excluded.

The initial sampling procedure was done randomly in the hope of achieving something close to a representative distribution of forms and uses in COCA as a whole. However, because tokens of each verb were randomly and automatically sampled from the corpus, a fair number of tokens were eliminated during the post-filtering process. The resulting tally of tokens amounted to 3644 total sentences, with no single verb occurring in fewer than 120 sentences. The exact counts are provided in Table 4.1.

4.3.2 Annotations

Each token was manually annotated for a range of semantic, syntactic, and discourse-level features. These variables included properties of the verb such as active or passive voice, tense, and mood, as well as numerous morphosyntactic features of both the stimulus and experiencer arguments. These included person, number, pronominality, definiteness, givenness, phrase length and syntactic status. This last variable encoded differences between stimulus arguments of varying syntactic types, e.g. CPs, VPs, and proper or common NPs.

(4.20) a. **That I spent the money on an Oriental stripper deck with its own enamel case** only further annoyed the dean of discipline. . . [CP]

    b. You'll be amazed at **how much easier these filters make sorting your mail**. [CP]

    c. **Being late** irritated the hell out of her. [VP]

    d. Young children will be captivated by **the turtles that inhabit the shallow pools**. [common N]

    e. **Mayor Bloomberg in New York** is angering smokers. [proper N]

Additional sentential level variables were coded, such as the presence of resultative modifiers and/or the use of prepositional phrases to express the cause of the emotion. These phrases include the use of *by*-phrases (4.21), as well as "property-factoring" (van Oosten 1980) uses of *with* (4.22).

(4.21) a. Chikane astonished the ex-cop by forgiving him.

    b. And he captivates students by sharing jawdropping stories from his past. . .

    c. Then there were those who annoyed her by asking if she'd killed anyone.

(4.22) a. They fascinate us with their on-the-court finesse...

b. Exaggerated in size, color, and form, the "Venetians" surprise and astonish us—and even amuse us with their excessive splendor.

c. He frightened me with his big voice and fierce ways, and I couldn't sleep right...

Annotation for properties such as givenness and definiteness, which are challenging to verify objectively, followed methods laid out in previous work. Definiteness was coded according to the guidelines established in Garretson et al. (2004), while the givenness of both arguments was coded based on whether the referent had been referred to anywhere in the preceding material available in the expanded context of the COCA corpus (see, e.g. Grafmiller To appear; Shih et al. To appear).

Semantic coding of the stimulus type proved to be the the biggest challenge, and therefore required careful consideration. From the outset, the focus was on the ontological type of the stimulus argument, and the relevant distinctions made here roughly parallel those found in familiar animacy hierarchies (e.g. Silverstein 1976). The list of semantic types are provided below. These were determined partly based on established annotation systems (Glynn 2010; Zaenen et al. 2004) and partly from patterns unique to the Obj-Exp verb data. Stimulus arguments were grouped into one of the ten ontological categories listed in Table 22.

Categories like Human, Concrete Object, and Abstract Object are fairly common in the corpus annotation literature and require little elaboration (see Garretson et al. 2004; Glynn 2009; Gries 2006; Zaenen et al. 2004; among others), however other categories used in this study like Aesthetic Object and Sensation are novel ones, to my knowledge. These independent categories were used in large part because they seem to occur quite frequently in the psych-verb data (esp. the aesthetic objects), and also because they are otherwise difficult to fit into the any of the other more familiar categories.

Human:	Specific and non-specific human individuals
Organization:	Human collectives functioning with a single purpose
Other Animate:	Non-human living thing or entity endowed with sentience and/or agency (e.g. God)
Concrete Obj:	Physical entity at which one could point
Event:	Specific, spatially and temporally bounded activity or event
Aesthetic Obj:	Human created artwork, artifact, or abstract entity that typically evokes some evaluation and/or relates some story or information about the world
Location:	Geographical or other position in space
Sensation:	Entity referring to a basic sensual perception (e.g. a scent)
Abstract Obj:	Entity that is not prototypically concrete but clearly inanimate
Abstract SoA: (State of Affairs)	Information, fact, or proposition about the world

Table 4.2: Categories of Stimulus types

Many semantic classification systems usually include one category that functions (intentionally or not) as a waste-bin category to which controversial or otherwise difficult-to-classify examples are typically relegated. Sometimes this is because the focus is on the upper (human) end of the animacy spectrum, and inanimate referents that are clearly not humans, animals, concrete objects, or any of the other easily identified types are simply grouped into some broad "non-concrete" category by process of elimination. Unfortunately, this results in a loss of information which is particularly troublesome for analyses of psych-verbs, since non-Experiencer arguments of these verbs can, and very frequently do, refer to abstract, inanimate entities, which are indeed difficult to classify. But this difficulty should not stop us from at least attempting to make sense of the range of entities that commonly show up with different verbs, especially given the discussion of "property" and "individual" referring stimuli mentioned in Chapter 2 (see also Grimshaw 1990; Bouchard 1995). As the results here show, employing a more fine-grained taxonomy of entities can capture some interesting patterns that might otherwise be overlooked.

The Aesthetic Object category illustrates this point nicely. The denotations of stimuli coded as aesthetic objects can comprise things that are prototypically either concrete (a book, a statue, a toy), abstract (a story, a rumor), or something in between (a movie, a piece of music). These entities form a natural class in that they all are designed with some aesthetic purpose—they are intended to evoke some emotional or psychological response. Again, this group consists of physical artifacts as well as more abstract entities that are associated with some informational 'content', and this content is imbued with some degree of psychological reality. It is this feature of being deliberately designed that distinguishes aesthetic objects from other types of objects. This accords with the frequent occurrence of stimuli like *book* used metonymically to refer not to a physical object, but to its contents (e.g. Cruse 1992; Nunberg 1995; Pustejovsky 1995). It is often the case that the aesthetic or informational content of the object, not the object itself, is the focus of the emotion described by the verb.[9] For illustration, some examples of Aesthetic Object and Concrete Object stimuli are provided in (4.23) and (4.24).

(4.23)   **Aesthetic Objects:**

     a.   And we begin with a report we believe will surprise the medical world, . . .

     b.   Preston hopes his book will do more than simply scare readers.

     c.   Those statues of Poe fascinated me. . .

     d.   I was fascinated by these stories of hope and faith.

     e.   The photographs of the women please her.

(4.24)   **Concrete Objects:**

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[9]We could still further distinguish between physical artifacts (paintings, statues, crafts, etc.) and abstract narrative objects (e.g. stories, jokes, news, etc.). Such a distinction might be informative for exploring finer-grained usage patterns of individual verbs or even subsets of conceptually related verbs such as verbs of surprise or wonderment (*amaze, astonish, astound, awe, captivate, fascinate, wow,* . . .). This is one area I intend to explore further in future work.

    a.   Wooster wants you to be amused by amaranths five and a half feet high with crimson stalks. . .

    b.   We've got two long walls in our mine and they amaze me.

    c.   You understand why people are—are frightened of knives, scared of them, right?

    d.   Why do we develop scars, and why are we so captivated by them?

    e.   The blackened kitchen walls depressed us throughout the day.

Aesthetic objects turn out to be common stimulus arguments with many Obj-Exp verbs, and so the current coding schema maintained a distinction between treating an entity as either a Concrete Object or as an Aesthetic Object. Including a coarser-grained concrete vs. abstract classification would lose this potentially informative distinction in usage.

In corpus studies involving annotations for animacy or other ontological classifications of entities, the decision to leave the category of 'abstract things' as broadly defined as possible is motivated not (just) by the uncertainty about what the sub-categories should be, but also by concerns about the reliability of accurate classification. To address this, the present study employed an inter-annotator agreement method commonly used in quantitative analysis of semantic features: the calculation of the κ correlation coefficient (Brennan and Prediger 1981; Szmrecsányi 2003). For an initial pass at inter-annotator agreement, after the initial annotation, a second linguist coded 100 randomly sampled tokens from the dataset based on detailed instructions from the initial annotation. The two

codings were then compared, generating a κ coefficient of 0.74.[10] Values above 0.7 suggest a promising degree of inter-rater agreement (Brennan and Prediger 1981).[11] Not surprisingly, the cases in which raters showed the most disagreement tended to involve distinguishing between subtypes of abstract entities. For example, determining whether a given stimulus should be treated as referring to an event or an object sometimes proved to be a challenge. Should, for example, "trials" in (4.25a) be treated as referring to a set of specific events, or to the content of the various trials? Should the infinitval phrase "to see your pudenda" in (4.25b) be treated as referring to the activity/event of seeing something, or to the thing itself; which is a better assessment of the cause of the speaker's amusement?

(4.25)   a.   **Countless trials** have captivated the American public in the last 99 years.

     b.   Do you think **it** amuses me **to see your pudenda**?

     c.   He smiled at her. She was as startled by **that smile** as if it had focused a floodlight on his face, . . .

For those cases in which raters disagreed, the initial codings were used.

Finally, four stimulus types (Non-human animate, Organization, Location, and Sensation) were quite rare in the data, and so to eliminate problems due to data sparseness, all but Non-human animate were incorporated into other categories. Location, and Sensation became part of the Abstract Object class, while Organization tokens were incorporated into the human category, on the reasoning that these entities often pattern like animate, volitional agents with respect to other grammatical phenomena (e.g. Hinrichs and Szmrecsanyi 2007).

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[10]Calculated using the `irr` package (Gamer et al. 2012).

[11]Common methods in the literature also involve a second annotation process (and κ calculation) in which the annotators discuss the results of the initial classification and then recode additional data (e.g. Zeschel 2010). As of this writing, this follow-up annotation has yet to be completed, but researchers generally find that results approach perfect correlation, i.e. $\kappa \geq 0.95$ (Glynn 2010; Zeschel 2010).

4.3.3 Analysis and discussion

4.3.3.1 Exploratory methods

To examine the associations between individual verbs and their arguments, several statistical techniques were employed. The first method was (binary) correspondence analysis (CA), which is a dimension-reduction technique useful for representing associations between features of two variables (e.g. verb and stimulus type) in a visually intuitive way (Glynn 2012; Greenacre 2007; Murtagh 2005). The basic idea behind CA is simple: it takes the frequency of co-occurring values of two variables and converts them into distances which can be plotted on a 2 or 3 dimensional map. In this instance, the variables are "verb" and "stimulus type", whose possible values are individual verbs (*amaze, amuse,* etc.) and stimulus types (Human, Event, etc.). The resultant map, known as a "biplot", reveals how closely related the individual levels of each variable are, based on how far from each other the levels are on the map.

	Human	Non-H Animate	Event	Concrete Object	Aesthetic Object	Abstract Object	Abstract SoA	Sum
amaze	42	0	13	11	10	82	110	268
amuse	99	1	39	17	34	61	32	283
anger	61	0	34	1	23	62	26	207
annoy	140	5	62	26	16	81	36	366
astonish	31	1	15	12	14	55	41	169
captivate	77	4	31	43	63	93	2	313
concern	5	0	10	4	8	82	28	137
depress	22	0	21	20	13	92	42	210
fascinate	42	10	19	51	31	115	17	285
frighten	69	10	16	17	11	52	27	202
horrify	15	0	29	7	15	64	29	159
please	52	2	12	14	5	29	16	130
scare	108	5	29	16	11	49	54	272
startle	31	1	47	3	6	34	11	133
surprise	136	1	54	15	14	89	80	389
upset	28	0	26	3	14	34	16	121
Sum	958	40	457	260	288	1074	567	3644

Table 4.3: Distribution of stimulus types by verb

Table 4.3 shows the co-coccurrence frequencies (counts) of individual verbs and stimulus types observed in the corpus. The correspondence map is constructed from this table in two steps. First, from this table of 16 rows and 7 columns, CA constructs two dissimilarity matrices, a 16 by 16 matrix specifying distances between individual rows, i.e. verbs, and a 7 by 7 matrix specifying distances between columns, i.e. stimulus types. These are symmetrical square matrices representing the relative dissimilarities, or "distances", between elements, similar to the way geographical road maps sometimes provide a matrix of distances between cities. For illustration, part of the distance matrix for verbs is shown in (4.26).[12]

(4.26)   Subsection of the distance matrix for verbs in the corpus.

	amaze	*amuse*	*anger*	*annoy*	...
amaze	0.00				
amuse	0.95	0.00			
anger	0.88	0.29	0.00		
annoy	1.00	0.31	0.44	0.00	
⋮					

In correspondence analysis, distances are calculated using the chi-squared distance measure to assess the dissimilarity between two rows (or columns) in the contingency table based on the "profiles" of those individual rows. The profile of a row is simply the counts in each cell in that row converted to proportions of the total count for that row. For instance, the number of Human Stimulus arguments with the verb *amaze* reported in Table 4.3 is divided by the total number of instances of the verb *amaze* to give the proportion of Human Stimulus arguments for that verb as reported in the first cell of Table 4.4: $42/268 = 0.16$. The same method is also used to create column profiles. However, not all category cooccurrences (verb-stimulus pairings) are of equal importance, as some categories are quite

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[12]The distance between a verb and itself is always 0, and so the values along the main diagonal will always be 0. The matrix is also symmetrical along the main diagonal; thus, one half of the distance matrix is usually omitted for readability (as with geographic maps).

infrequent overall. If all categories were treated equally, these infrequent categories, e.g. Non-human animate stimulus, would have a disproportionate effect on the analysis. The chi-square distance measure takes into account differences in the "amounts" of individual categories by weighting the distance calculations. These weights are referred as "mass" in CA. The mass of a given row/column is the proportion of the total number of counts for that row/column out of the total number of data points. For example, from Table 4.3, we can calculate the mass of Human stimulus types by dividing the total for that column, 958, by the grand total of observations 3644: $958/3644 = 0.26$. This is the number given in the first entry of the row labeled "Mass" in the table of verb profiles, Table 4.4. The profile matrices for both verbs and stimulus types are shown in Tables 4.4 and 4.5 respectively.

	Human	Non-H Animate	Event	Concrete Object	Aesthetic Object	Abstract Object	Abstract SoA	Sum
amaze	0.16	0.00	0.05	0.04	0.04	0.31	0.41	1.0
amuse	0.35	0.00	0.14	0.06	0.12	0.22	0.11	1.0
anger	0.29	0.00	0.16	0.00	0.11	0.30	0.13	1.0
annoy	0.38	0.01	0.17	0.07	0.04	0.22	0.10	1.0
astonish	0.18	0.01	0.09	0.07	0.08	0.33	0.24	1.0
captivate	0.25	0.01	0.10	0.14	0.20	0.30	0.01	1.0
concern	0.04	0.00	0.07	0.03	0.06	0.60	0.20	1.0
depress	0.10	0.00	0.10	0.10	0.06	0.44	0.20	1.0
fascinate	0.15	0.04	0.07	0.18	0.11	0.40	0.06	1.0
frighten	0.34	0.05	0.08	0.08	0.05	0.26	0.13	1.0
horrify	0.09	0.00	0.18	0.04	0.09	0.40	0.18	1.0
please	0.40	0.02	0.09	0.11	0.04	0.22	0.12	1.0
scare	0.40	0.02	0.11	0.06	0.04	0.18	0.20	1.0
startle	0.23	0.01	0.35	0.02	0.05	0.26	0.08	1.0
surprise	0.35	0.00	0.14	0.04	0.04	0.23	0.21	1.0
upset	0.23	0.00	0.21	0.02	0.12	0.28	0.13	1.0
Mass	0.26	0.01	0.13	0.07	0.08	0.29	0.16	1.0

Table 4.4: Verb profiles for CA analysis derived from Table 4.3

The distance matrix takes the form of a cloud of profile points with masses adding up to 1. These points have a centroid (i.e. the average profile) and a distance between profile points. The degree of variation of points within the cloud is referred to as 'inertia'. Each

	Human	Non-H Animate	Event	Concrete Object	Aesthetic Object	Abstract Object	Abstract SoA	Mass
amaze	0.04	0.00	0.03	0.04	0.03	0.08	0.19	0.07
amuse	0.10	0.02	0.09	0.07	0.12	0.06	0.06	0.08
anger	0.06	0.00	0.07	0.00	0.08	0.06	0.05	0.06
annoy	0.15	0.12	0.14	0.10	0.06	0.08	0.06	0.10
astonish	0.03	0.02	0.03	0.05	0.05	0.05	0.07	0.05
captivate	0.08	0.10	0.07	0.17	0.22	0.09	0.00	0.09
concern	0.01	0.00	0.02	0.02	0.03	0.08	0.05	0.04
depress	0.02	0.00	0.05	0.08	0.05	0.09	0.07	0.06
fascinate	0.04	0.25	0.04	0.20	0.11	0.11	0.03	0.08
frighten	0.07	0.25	0.04	0.07	0.04	0.05	0.05	0.06
horrify	0.02	0.00	0.06	0.03	0.05	0.06	0.05	0.04
please	0.05	0.05	0.03	0.05	0.02	0.03	0.03	0.04
scare	0.11	0.12	0.06	0.06	0.04	0.05	0.10	0.07
startle	0.03	0.02	0.10	0.01	0.02	0.03	0.02	0.04
surprise	0.14	0.02	0.12	0.06	0.05	0.08	0.14	0.11
upset	0.03	0.00	0.06	0.01	0.05	0.03	0.03	0.03
Sum	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Table 4.5: Stimulus type profiles for CA analysis derived from Table 4.3

profile point contributes to the inertia of the whole cloud. Inertia is higher when profiles deviate widely from their expected values (averages). CA is simply a method for decomposing the overall inertia by identifying a small number of orthogonal dimensions in which deviations from the expected values can be represented.[13] These dimensions are referred to as the principal axes, or sometimes just 'inertias'. Using the distance matrices of rows and columns, correspondence analysis determines the principal axes of variance, or inertias, and for each axis the corresponding eigenvalue, which is the same as the inertia of the 'cloud' of profile points in the direction of that axis. The first factorial axis is the line in the direction of which the inertia of the cloud is a maximum. The second factorial axis is, among all the lines that are perpendicular to the first factorial axis, the one in whose direction the inertia of the cloud is a maximum. The third factorial axis is, among all the lines that are perpendicular to both the first and second factorial axes, the line in whose direction

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[13]For those familiar with principal components analysis, correspondence analysis is a very similar method, but adapted to count data. The outputs of PCA and CA are interpreted in very much the same ways.

Dimension	Inertia	% variance	Cumulative %
1	0.090	37.9	37.9
2	0.081	33.7	71.6
3	0.041	16.5	88.1
4	0.017	7.3	95.5
5	0.006	2.6	98.0
6	0.004	2.0	100.0

Table 4.6: Principal inertias (eigenvalues) of CA analysis

the inertia of the cloud is a maximum, and so on. The sum of these eigenvalues is the 'total inertia', and is a measure of the total variance in the data.[14] CA uses these eigenvalues to create a map of row and column points in Euclidean space (natural perceptual space).

In addition to the biplot, the eigenvalue summary table is usually included in the description of CA, to provide a clear picture of how the variance in the data is distributed across the derived dimensions. This is shown in Table 4.6. Since the purpose of CA is to represent associations between elements visually, only the first two (or sometimes three) dimensions are typically used in plotting. Ideally, the first two eigenvalues (inertias) will account for a substantial proportion of the cumulative variance ($> 75\%$), but this is not always the case, especially with naturally occuring corpus data (e.g. Glynn 2010). Informally, the sum of the percentages on the two axes can be thought of as a measure of how well the plot represents the true associations between the individual levels of the variables in the data. In other words, the sum of the percentages gives us some idea of how much of the variance in the data can be "explained" by just those two dimensions. In the present study, the first two axes have a cumulative percentage of 71.6%, which, though not as high as we might like, nevertheless results in a plot that can be interpreted with some degree of confidence. Still, it must be kept in mind that a fair amount of variance is left unexplained.

Figure 4.1 shows the CA biplot derived from the counts in Table 4.3 (the dotted circle

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[14]The total inertia is also equivalent to the χ^2 statistic for independence calculated over the original contingency table (Table 4.3.3.1), divided by the total number of data points: inertia $= \chi^2/N$.
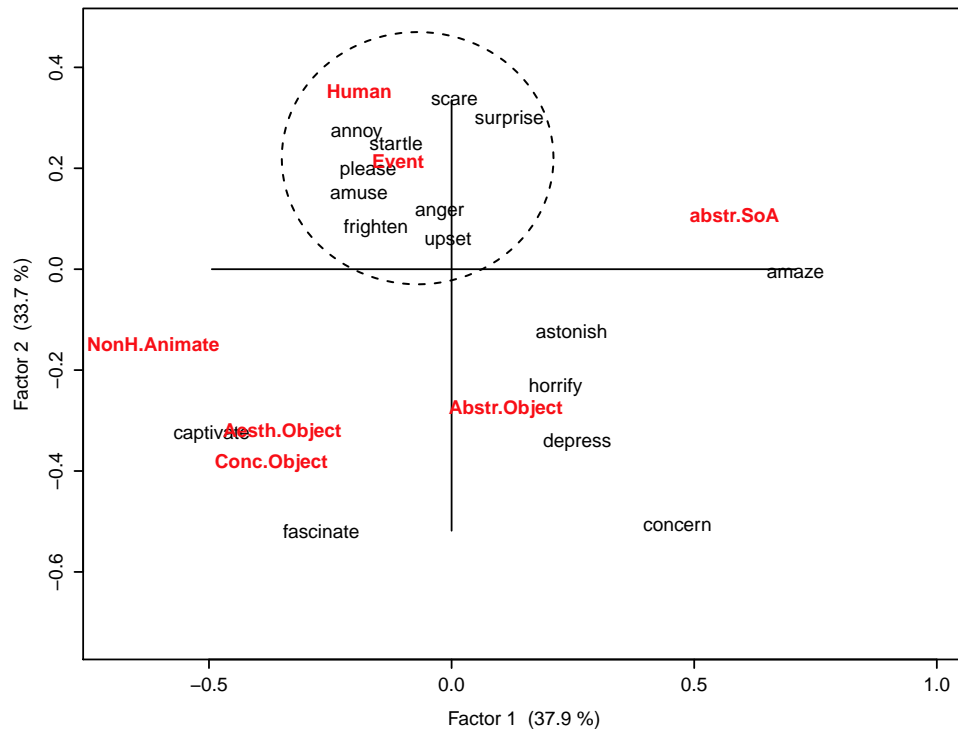
Figure 4.1: Correspondence analysis of stimulus type and verb.

is explained below).[15] The two axes accounting for the greatest proportion of total variance are labeled "Factor 1" and "Factor 2" in the plot, along with the percentage of variance explained by each. The interpretation of the axes themselves can also be tricky, but generally in CA we are not as concerned about the axes, as much as the relative positions of the individual points. Still, they can sometimes provide a rough guide. For instance, the vertical axis in Figure 4.1 could be interpreted as representing an approximate dimension of animacy, humanness, or concreteness, as the Human category occupies the upper region, while the more abstract categories all tend to fall in the lower regions, but this is not a perfect correlation (and the axis seems somewhat skewed). What the horizontal dimension could represent is much less clear, however. Lastly, the scales along the two axes are not interpretable on their own, but do provide a way of gauging relative distances between points in the plot.

Turning now to the results in detail, I focus first on the area of Figure 4.1 circled with the dotted line. This area contains a number of verbs such as *amuse, annoy, scare, please,* and *startle*, which the correspondence analysis suggests are much more similar to each other than to other verbs (e.g. *concern, depress, amaze, fascinate*, etc.), as evidenced by their relative positions on the biplot. These verbs cluster with the two stimulus types Human and Event. We can interpret this straightforwardly: verbs in this cluster are closely associated with human and/or event related stimuli. To a lesser extent, it would appear that the verbs *anger, upset, frighten,* and *surprise* are also associated with human or event stimuli; however their interpretation must be treated more cautiously (I return to this below). Examples of uses with stimulus arguments referring to humans and events or activities are provided in (4.27) and (4.28) respectively.

(4.27) a. It was his second time, and a kid doesn't get called back to sing a stadium anthem unless he pleases the crowd.

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[15]CA biplots were generated with the `languageR` package (Baayen 2011). Values for Table 4.6 were obtained using the `ca` package (Greenacre and Nenadic 2010; Nenadic and Greenacre 2007).

b. Again the Don was amused by the boy and wondered what would come next.

c. Another worker was deeply annoyed by a cubicle-mate who made "disgusting food noises" when she ate at her desk.

d. Okay, her pound cake was sinfully good, but this woman was starting to frighten me a little.

(4.28) a. Mr. Waturi comes in as Joe moves forward and, with great effort, rotates the wheel to its opposite extreme. This scares Waturi.

b. She was willing to do anything that might please Mary, …

c. Cuervo Jones gives her a slap on the butt, which startles Utopia.

d. House leaders are annoyed by the Senate's actions.

The close association of Human and Event type stimuli is clear from the graph, and examining the specific data suggests why. In many cases, such as in (4.28), an **Event** stimulus refers to some human related action, e.g. sitting at a bar (4.29a), participating (4.29b), whistling (4.29c), and so on.

(4.29) a. But it pleased me anyway to sit in a bar with her, smoking, nursing an English ale on draft…

b. The teacher's participation especially pleased the students.

c. …whistling only annoys people, …

d. Or do you just like to hang around the library censoring phrases, sentences, paragraphs, whole pages because it amuses you?

e. He attempts a leer but can't quite pull it off, which does amuse her.

At the same time, entire events are often referred to metonymically via reference to the human actor(s) involved in them (Talmy 1988; Van Valin and Wilkins 1996). That is, a Human stimulus argument often functions as an indirect reference to *actions* that the given person is understood to have performed. Conceptually, it is the action or event that is understood as the direct cause of the emotion, but this is expressed linguistically through the use of a human stimulus argument, typically accompanied by some additional element describing the means by which the person caused the emotional state. These elements typically consist of *with* phrases (4.30), *by* phrases (4.31), or other constituents (4.32) that describe the activity the person is engaged in (van Oosten 1980). As the examples in (4.30–4.34) show, the use of such elements is common with most (all?) the verbs circled in Figure 4.1.

(4.30) a. When my father was in a good mood, he'd amuse us with stories about the hospital back in the' 20s.

b. Sally amused her with a highly colored account of Miles kissing their horse, ...

c. When autumn comes to Anderson, Radio leads calisthenics at practice, takes the field as the Hanna High quarterback and amuses players with his nonsensical game-film narration.

d. Donovan angered President Nixon when he wrote about the first withdrawal of U.S. troops from Vietnam ...

e. And so Netanyahu angers his hard-liners with that symbolic handshake, ...

f. Pierce Hawthorne, a lecherous old windbag who hangs around the local community college and annoys his fellow students with pompous speeches, racial slurs and inappropriate groping.

g. ... so Crumb clearly is not aiming to please Jews with his artistic efforts.

(4.31) a. She even angered Republicans by claiming the party supported only rich white men for office.

   b. ...believed that the only way for her to get my attention back or please me was by changing her ways.

(4.32) a. I was somewhat annoyed by the woman in front of us who insisted on putting her arm around the back of her companion's chair, ...

   b. Vivian spoke so quickly that she startled me.

In other examples, the immediate context makes the metonymic connection between the human argument and the emotion-causing activity clear.

(4.33) a. Narr 2: Mr. Collins spends several days at the house, complimenting the sisters at every opportunity. Narr 3: He annoys the middle girl, Mary so much that she nearly stabs him with a fork.

   b. Mike and Kevin wake and stumble along on numb feet. They startle a fisherman meandering toward his secret trout hole;

It is not surprising that verbs such as *amuse, surprise, startle,* etc., that are strongly associated with such human and/or event denoting stimuli are also those that are most often cited in eventive and/or agentive uses.

The clearest distinction in Figure 4.1 is between those verbs most associated with human and event denoting stimuli and those more associated with stimuli denoting other types of entities. The biplot shows however, that these latter verbs do not all pattern alike. Now I briefly examine these other clusters that emerge from the correspondence analysis. Figure 4.2 shows the same plot as in Figure 4.1 but with three other groupings circled in addition to the cluster circled initially in Figure 4.1 (shown here in the circle labeled 'a'). Impressionistically, we can identify these additional clusters by grouping verbs with their
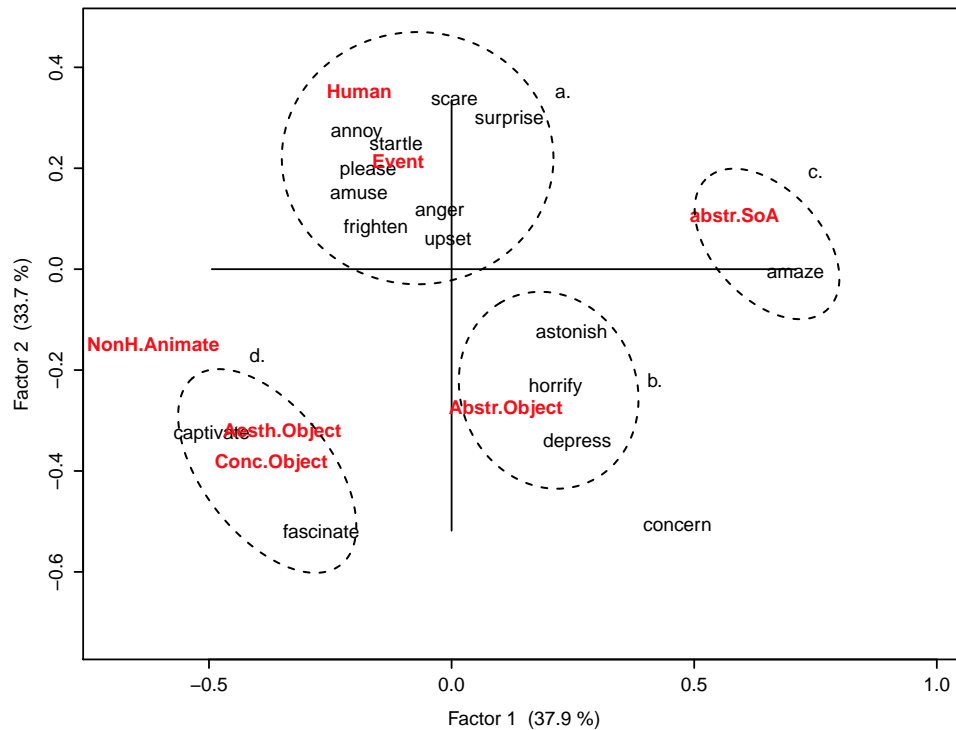
Figure 4.2: Correspondence Analysis of Stimulus Type and Verb

closest associated stimulus type on the plot. The one possible outlier is *concern*, which does not fall very close to any single stimulus type, but is nevertheless positioned along the same axis as the verbs *depress, astonish,* and *horrify*, which also aligns with the stimulus type Abstract Obj(ect). *Concern* represents the extreme case of this subset of Obj-Exp verbs—perhaps the most stative of stative Obj-Exp verbs. This is an important point, as the patterns revealed in the biplot are derived from the strength of associations between verbs and stimulus types. No temporal or aspectual information was included in the CA.

As I mentioned above, these clusters represent subclasses of verbs that belong to the broader class of abstraction-focused emotion verbs that contrast with those verbs circled in Figure 4.1. I discuss each of these in turn.

Turning first to cluster (b.), the verbs *astonish, concern, depress,* and *horrify* are most

closely associated with abstract entities coded as Abstract Obj. As an ontological class, this is a fairly hard-to-define group, at least technically, if not intuitively. Abstract Stimulus arguments comprise a considerably heterogeneous mix of things: feelings, attitudes, quantities, properties, and various other concepts of incorporeal entities. Examples of several common types abstract Stimulus arguments are shown below. In general, such entities are common Stimulus arguments of verbs such as *astonish, concern, depress, horrify,* and likely many others.

One of type of abstract object constitutes properties of individuals. Linguistically, these are denoted by nouns often ending in *-ness*, *-ity*, or other nominalizing suffixes, as illustrated in (4.34).

(4.34) a. The aimlessness of tourism is starting to depress her;

b. The vitality of activity in centers such as Frankfurt and Paris does not depress Andrew Hugh Smith, chairman of the London Stock Exchange.

c. I worried about his drinking, worried that the intensity of my grief would depress him.

d. I am horrified by my inability to concentrate on this matter.

e. It astonished him, her capacity to think ahead.

f. She is astonished at his lack of bitterness,. . .

g. Farmer says the youthful troops at CNN [. . .] were astonished at his calmness.

Another type involves nouns referring to locations, which, though they could be construed as physical entities, as *the cemetery* in (4.34a) could be, they are commonly used in a more abstract sense to talk about the state of being at or in some places.[16]

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[16]This is related to the well-known use in British dialects of phrases like *at university* and *in hospital* to refer to being enrolled in a university or admitted to a hospital, uses that sound distinctly odd to American ears. British English speakers just seem to have embraced this sense extension more broadly (Americans do say *in school*, for instance).

(4.35) a.   Rebecca never went to the cemetery because it depressed her.

      b.   The Alps inevitably astonish Americans because they are so un-American, so suddenly steep and vaguely ominous.

      c.   Casagemas was as depressed by Paris as Picasso was invigorated by it.

      d.   The place depressed her somehow. Silly that a grocery should depress one...

Then of course, there are a great many cases where the stimulus refers to something that does not obviously fall into a coherent subtype of abstract entity (4.36). This includes nouns referring to emotions or psychological themselves as stimulus arguments (4.37).

(4.36) a.   ...I am horrified by the new fad of rude, disrespectful and unkind messages on T-shirts for children and adults being sold in stores throughout our community.

      b.   Their philosophy would astonish you.

      c.   The concentration of women's labor in the public sector also concerns some feminists.

      d.   Gordon recalls loggers who were horrified at the vast amount of forest they had cut down, ...

      e.   He did not want to move at first, although the night horrified him.

      f.   That very same utopian vision was precisely what horrified the young writer Fyodor Dostoevsky.

      g.   Even though there are significant groups in the Arab World which are horrified by certain aspects of Western cultures, ...

      h.   Many Israelis are depressed by the long history of false starts and phony hopes, ...

(4.37) a. In fact, their love$_i$ is so complete and endearing and sickeningly idyllic, it$_i$ depresses everyone in its soupy green wake.

b. The emotion I feel as I approach Chilean territory always astonishes, disturbs, and pleases me.

c. The increased feeling of responsibility depressed me.

Though *concern* did not appear very close to the other verbs circled in (b.) in Figure 4.2, it nevertheless shows up with abstract stimuli quite frequently, and it turns out to be by far the most over-represented verb with this stimulus type (see Figure 4.3 below). Indeed, *concern* appears to have a particular affinity for certain abstract terms, such as *issues* for instance (4.38d-f).

(4.38) a. It's the interactive nature that concerns me.

b. The only handicap that concerns him is the one listed on the computer he oversees

c. wherever he was going had nothing to do with the enigma that concerned her.

d. Gertrude Bonnin urged delegates to speak out confidently on issues that concerned them...

e. the three patriarchs and heads of other churches periodically published joint statements on issues that concerned them in the Holy Land.

f. However, the issue that probably concerns mother the most...

Interestingly, the few instances of concern that do have human stimulus arguments seem to involve reference to the individual as an abstract idea or concept, rather than to a specific concrete agent that acts directly on the experiencer. In these cases the stimulus arguments

are often generics or bare plurals, suggesting that what is really "concerning" is some general property of the (type of) individuals involved rather than a specific action or event instigated by the individual(s).

(4.39) a. That's the Barack Obama that concerns me,...

 b. It's the local peasants that concern me.

 c. What concerns me is the conservatives...

 d. Rice told Berri that she was "deeply concerned" about the Lebanese and "what they are enduring."

 e. A dozen of them, dirtier and rougher than many, but still just men burned by sun and wind and erratic fortune. The one man who concerned them most sat at a large table in the corner,...

Even in the case of (4.39e), the context makes clear the cause of concern is more like the man's mere presence, and not something he has done specifically (at least in the immediate sense). As I suggested back in Section 2.1.1, the relatively low frequency of *concern* with human stimuli that actually denote individuals (rather than abstract properties or conceptualizations of them) may have something to do with the lower acceptability of forward binding with *concern*.

Turning to the cluster circled in (c.) in Figure 4.2, we see the verb *amaze* is markedly distinct from the others in the corpus, and its position far to the right of the plot is due to its close association with stimuli describing what I have called abstract states-of-affairs. These are words, and more often entire clauses, that refer to propositions or facts about the world. Very often these are realized grammatically as either demonstratives (4.40), pronouns (4.41) or complementizer phrases introduced by *that, how,* or *what* (4.42).

(4.40) a. I mean, for him to complain, that totally amazes me.

      b.   The world had not changed, and this amazed me.

(4.41)   Yeah, it's almost—there are so many parallels to today that it amazes me.

(4.42) a.   But you'd be amazed at how many guys come in here and don't know.

      b.   What amazes me is that the drive hits so hard.

      c.   Hooton is amazed every day at how difficult young pitchers make the game.

      d.   . . . and you would be amazed at how his ideas flow.

But why should *amaze* pattern so differently from other verbs like *astonish* and *surprise*—and possibly *fascinate* and *captivate*—which all intuitively seem to denote emotions involving some degree of unexpectedness and/or wonder? In a corpus study of English and Polish emotion terms, Lewandowska-Tomaszczyk and Wilson (2010) also showed that the terms used to describe these emotions (*amazement, astonishment,* and *surprise*) do not in fact pattern together in all respects. They found that although all three emotion concepts involve elements of unexpectedness and disbelief, *amazement* also involves a much higher degree of appreciation and 'positive wonder' than the other two terms do. It is possible that this sense of wonder or appreciation consists of the extended evaluation of some stimulus, and so *amaze* is therefore used more frequently with stimulus antecedents that are relatively persistent or enduring, both in the external world and in the mind of the experiencer. Propositions, beliefs, and facts would naturally be the kinds of entities that we would expect to find as the target and/or cause of amazement. Hence the greater tendency for *amaze* to be used with Abstract SoA stimuli.

This idea is supported by the fact that most examples of *astonish* with abstract stimuli do not appear to reflect this kind of long-term evaluation or appreciation as much as such stimuli do with *amaze*. Instead, *astonish* really seems to highlight unexpectedness, and this emerges in the way the verb is often used to describe situations where the experiencer has

suddenly come to some realization, or has suddenly recognized or perceived something about the stimulus.

(4.43) a. Because the French are famously chauvinistic, I am astonished by Lassus' frank admiration of American ways.

  b. "Do you miss her, Dad?" Paula said through the door. "No." He was astonished by the truth of it.

  c. Both of them blond, willowy, always in motion. It always astonished me how much they looked alike, ...

  d. The emotion I feel as I approach Chilean territory always astonishes, disturbs, and pleases me.

  e. GSU music professor Ruth McDonald, the festival's organizer, hadn't thought much about women composers until 1981, when at the age of 60 she attended her first festival of music by women, in New York. She was astonished by the quantity and quality of what she heard.

A similar pattern emerges with *surprise*.

(4.44) a. The seriousness of Bruenor's grim tone surprised everyone in the room, ...

  b. His anger surprised him; or rather, the force of it did.

  c. Even paleontologists prepared for finding small dinosaurs might have been surprised by the tiny size of Eoraptor says Sues.

Compared to *amaze*, the emotions described by *astonish* and *surprise* do not appear to involve the long-term evaluation of abstract states of affairs as much as the more short term reaction to recent experience.

The difference between the (relatively) long-lasting evaluation of some stimulus, and the short-lived reaction to a stimulus, is perhaps best exemplified in the way the verbs *fascinate* and *captivate*, circled as (d.) in Figure 4.2, pattern so differently from the verbs *surprise, astonish,* and especially *amaze*. More than any other verbs, *fascinate* and *captivate* show a particular affinity for Aesthetic Obj (4.45) and Concrete Obj (4.46) stimuli.

(4.45) a.   But Ira's lyrics captivated me at an early age, . . .

        b.   . . . much of black scholars' work captivates AUC students because the information is so fresh.

        c.   I was captivated by "Five and a Half Utopias," . . .

        d.   I'm fascinated by the photo of two identical-looking beef dinners on the wall.

        e.   He had found a tattered old copy of a novel by Franoise Sagan, and it fascinated him.

        f.   When the Bible was read to me, I was fascinated by the stories of demonic possession . . .

(4.46) a.   Adults also are captivated by buckeyes, probably feeling—as I do—that something so delightful must have human use.

        b.   Venus, currently a dazzling beacon in the western sky after sunset, will captivate you with its half-Moon appearance.

        c.   . . . it was the snowflakes that fascinated me most.

        d.   Coconuts fascinated me.

        e.   Bram was fascinated by her large ears.

Similar to the way human-denoting stimuli of verbs like *astonish* tended to refer to more abstract conceptualizations of humans or human types, the concrete object stimuli found with the verbs *fascinate* and *captivate* tend to involve reference to such objects as concepts, rather than any kind of metonymic reference to an event or activity involving them, as with human-denoting stimuli of verbs like *amuse*. In other words, it is not that the object has done something (in an immediate sense) to cause the emotion, rather it is something about the object's nature—some intrinsic quality it possesses—that evokes the feeling of fascination or captivation for the experiencer. This is exactly what we would expect for stimuli referring to aesthetic objects as I discussed above, and it would explain the fact that Aesthetic Obj and Concerete Obj types pattern so closely in CA biplot.

An important property of all the abstract stimulus arguments discussed above (concepts, states-of-affairs, aesthetic properties) is that they describe entities that are generally not conceptualized as having temporal, and in most cases physical, bounds. That is, unlike specific events or activities (and the human actors associated with them), abstract entities exhibit a much greater potential to endure beyond the immediate emotional situation. If the continued existence of the stimulus is taken to be a necessary condition for an Obj-Exp verb to be construed as stative (e.g. Arad 1998; Biały 2005; Pylkkänen 1999), it is not surprising that the verbs most strongly associated with abstract stimuli are those that are most commonly taken to be stative. The continued existence of a stimulus also provides greater opportunity for an experiencer to focus (deliberately or not) his or her attention on the stimulus, thus it might be expected that verbs associated with more abstract Stimulus arguments describe emotions involving some significant degree of appraisal or evaluation of the Stimulus. Such 'evaluative' emotions would stand in contrast to more 'reactive' emotions, which are perhaps more rapid and automatic, and therefore more likely to be construed as externally caused changes-of-state.[17] Differences in the way these evaluative

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[17]Scherer (2005) makes a similar distinction between "utilitarian" emotions and "aesthetic" emotions, noting that utilitarian emotions facilitate "our adaptation to events that have important consequences for our wellbeing" (706). Such a distinction may be useful in understanding the difference between other seemingly

or reactive emotions are construed gives rise to differences in the tendencies to which verbs are used in prototypically transtive or intransitive, i.e. passive, constructions. Thus, Obj-Exp verbs associated with abstract stimuli are more likely to be used in stative and passive constructions, all things being equal.

In addition to the CA biplots, another useful way to represent correlations between variables is through an association plot (Cohen 1980; Friendly 1992) which is sometimes used in corpus studies to visualize count data displayed in contingency tables (e.g. Gries and David 2007). Pearson's χ^2 is a standard test for independence across the rows and columns in a contingency table, and the association plot is a graphical representation of the contribution of an individual cell to the χ^2 statistic (Cohen 1980). Normally, an association plot consists of a series of bar graphs representing these associations, where the width of the bars corresponds to the size of the expected frequency E_{ij} of row i column j, derived from the total proportion of stimulus types in the data, and the height of the bars represents the relative contribution of the observed frequency to the χ^2 statistic. This is expressed by the normalized observed-over-expected value: $(O_{ij} - E_{ij})/\sqrt{E_{ij}}$. Since the size of the table in this case is quite large, I present a simplified version of an association plot for all 16 verbs in the study, with the verbs collapsed into a single plot (Figure 4.3). Since the expected frequency of given cell is not of vital importance, I have plotted only the contribution size of the individual verb-stimulus type pairings (cells). It should be kept in mind that some stimulus types, **Non-human animate** in particular, are generally quite rare in the data, and therefore the patterns observed among verbs with these stimulus types should be interpreted with caution.

In association plots, a contribution value of 2 or greater is considered to represent a statistically significant contribution to the total χ^2 measure of independence. Positive values indicate the degree of over-representation of a given cell, and negative values indicate the degree of under-representation. For example, we can see that the observed number of *amaze*

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closely related emotion terms, e.g. *fear* and *horror* (or *frighten* and *horrify*).
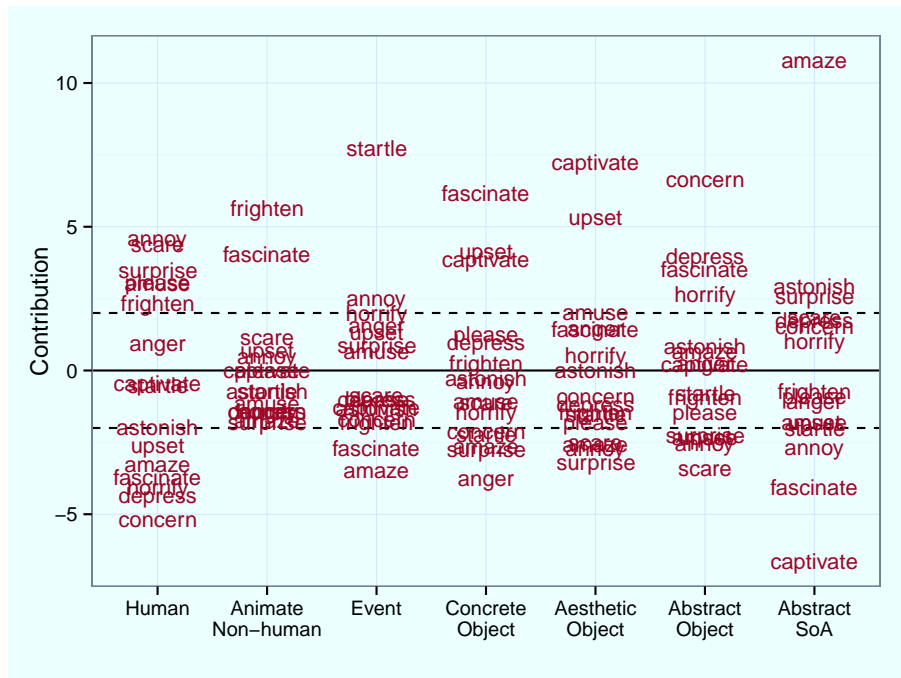
Figure 4.3: Adapted association plot for 16 verbs and 7 stimulus types
Dotted lines mark significant contribution thresholds.

tokens with Abstract SoA stimuli is much greater than the expected number based on the total distribution of these stimuli in the corpus. Conversely, *captivate* shows an unexpectedly low number of uses with these stimuli. Roughly speaking, we can view the association plot as a representation of the significant associations in the data, providing a nice complement to the correspondence analysis. The patterns in Figure 4.3 for the most part reveal the same trends as the CA. For instance, we see that the verbs *annoy, scare, please, surprise*, and *amuse* are all over-represented with Human stimuli, while *concern, depress, fascinate, amaze,* and *horrify* are significantly underrepresented. It is surely not a coincidence that these latter verbs are those that are most often cited as stative and/or non-agentive.

4.3.3.2 Confirmatory methods

The previous section presented a detailed description of the associations between a set of Obj-Exp verbs and the semantic properties of the stimulus arguments they tend to occur with. I argue that the associations between verbs and their stimulus arguments can tell us something about the nature of the emotion concepts that the verbs come to denote, and that understanding this conceptual knowledge is especially important for understanding the behavior of passive forms of different verbs in stative or non-stative constructions. These constructions provide the primary evidence for treating English Obj-Exps as a heterogeneous class composed of stative and non-stative verbs for the purposes of understanding their supposedly peculiar syntactic behavior, an approach that I have been arguing against throughout this dissertation.

The question I turn to now is whether the semantic properties of a verb's stimulus argument actually do influence the verb's use in the passive construction. The exploratory methods applied above merely reveal the patterns of association of different verbs with different types of stimuli, but this does not tell us whether the semantic type of the stimulus has an actual causal relation with passivization. Nevertheless, these techniques provide a clear and reasonable hypothesis: that the semantic properties of an emotion's cause influence

the linguistic construal of the emotion event as reflected in the choice of active or passive construction. Looking just at the distribution of passive Obj-Exp verbs in the corpus, it is clear that many of the verbs associated strongly with human stimulus arguments, such as *please, amuse,* and *anger* are far more frequent in the active, while those verbs associated with abstract stimuli, e.g. *fascinate, concern, astonish, . . .* , are much more common in their passive forms. To test the hypothesis directly though, we need a different analytical tool.

Figure 4.4: Frequency of active and passive forms by verb
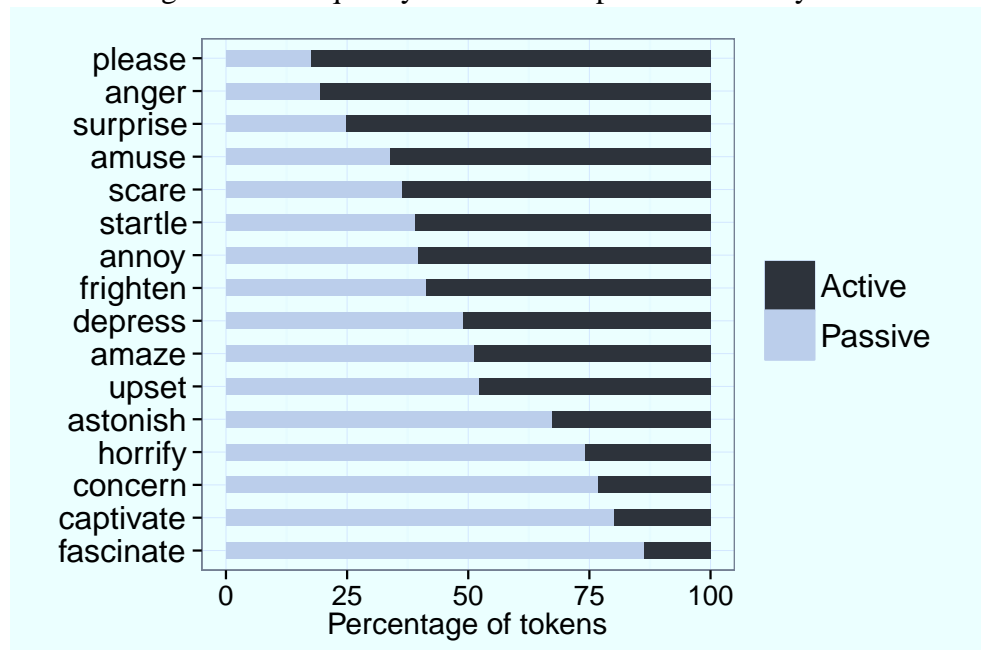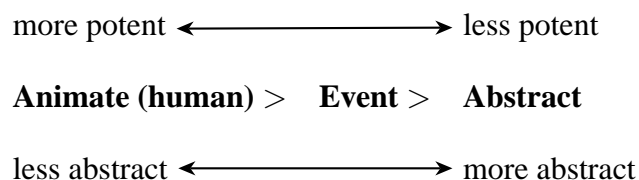

Mixed-effects logistic regression modeling provide just such a method to test the hypothesis. In the case of binary logistic regression, the outcome is the probability of observing one of two discrete alternatives—in this study the likelihood of the passive form of the verb being used. Regression analysis estimates the effect size and direction of each individual predictor, and provides a measure of the variability in the data explained by the predictors. Importantly, it not only allows us to control for systematic variation along known parameters in ways that significance tests over univariate data cannot, but it also enables the partial pooling of data across specific groups of interest to adjust for idiosyncratic

variation within those groups (the so-called 'random' effects).

In Section 4.1 I discussed a number of factors that have been shown to influence the choice between active and passive construction in English. With this in mind, it is necessary to take these into consideration when testing the effect of any additional predictor. Following work in this arena, I included numerous control predictors in addition to stimulus type in my mixed-effects model of Obj-Exp verb passivization (e.g. Birner 1994; Estival and Myhill 1988; Ferreira 1994; Snider 2008; Weiner and Labov 1983). These included the pronominality (noun vs. pronoun), givenness (given vs. new), definiteness (definite vs. indefinite), and relative length of both the Stimulus and Experiencer arguments, as well as a 3 level factor of Experiencer person (1p/2p/3p). The model also included a bias factor for each verb, calculated from the proportion of total passive to active forms found in COCA.

In order to simplify the model and avoid problems due to data sparseness, the categories of stimulus types were simplified to a three-way distinction in causal force or 'potency': animate individuals (human and non-human), events and activities, and abstract entities. I define potency here as the relative (in)ability of an entity to bring about some change in the world, physical or otherwise (see also Asher 2000; Hale 1973). Potency is closely related to, though distinct from other properties such as animacy or concreteness, however, like these other properties, it forms a graded scale onto which we can situate different types of entities based on the relative degree of causal force they instantiate. In this case, the three stimulus types form a hierarchy of increasing abstractness and decreasing potency, as we move from Animate to Event to Abstract stimulus types.

(4.47)

more potent $\longleftrightarrow$ less potent

Animate (human) > **Event** > **Abstract**

less abstract $\longleftrightarrow$ more abstract

Results of the regression analysis are shown in Table 4.7. Overall, the model provides a

	Estimate	Std. Error	t	p-value
Intercept	**-0.920**	**0.129**	**-7.14**	**<0.001**
Passive freq	**2.568**	**0.222**	**11.55**	**<0.001**
Stim. Animate	**-1.335**	**0.125**	**-10.67**	**<0.001**
Stim. Event	**-1.076**	**0.139**	**-3.66**	**0.001**
Stim. Given	**-1.000**	**0.496**	**-2.02**	**0.044**
Stim. Pronoun	**-0.369**	**0.139**	**-2.66**	**0.008**
Stim. Indef	0.422	0.456	0.93	0.353
Exp. Given	0.176	0 .323	0.55	0.585
Exp Pronoun	**-2.714**	**0.334**	**-8.14**	**<0.001**
Exp. Indef	-0.703	0.851	-0.83	0.409
Exp. 1p	**1.077**	**0.258**	**4.17**	**<0.001**
Exp. 2p	**1.885**	**0.272**	**4.50**	**<0.001**
Random effects	Variance	Std. Dev.		
Verb	0.012	0.111		
Residual	0.131	0.362		
Model Summary				
$C = 0.84$	log Likelihood $= -1067$			
$D_{xy} = 0.68$	$\kappa = 17.29$			

Table 4.7: Coefficient estimates and summary statistics for mixed-effects logistic regression model predicting use of passive construction. Significant predictors are shown in bold.

reasonably good fit to the data as indicated by the *C* statistic (values above 0.8 are indicative of a good fit). Since the main focus of interest here is in the effects of stimulus type, I will not discuss the other control predictors in detail, though I note that the significance and direction of the effects largely conform to what has been found in other recent work (e.g. Snider 2008).

The model reveals a significant negative effect of both the Animate stimuli, and Event stimuli. This means that when the stimulus refers to an animate entity—most likely a human—or an event, the likelihood of a passive form decreases significantly. In other words, with an animate stimulus, the odds of the passive decrease by a factor of about 3.8, while with an event stimulus, the odds decrease by about 2.9.

So far, we have seen that different verbs are unquestionably associated with different kinds of stimulus arguments, and that these patterns of associations clearly align with stative/non-stative distinctions that have been noted in the literature. Non-stative verbs (e.g. *amuse, annoy, scare*) are closely associated with stimulus arguments that denote concrete and/or human individuals, as well as stimuli denoting specific spatio-temporally bounded events or activities. These types of stimuli are generally assumed to have a greater degree of causal force or efficacy (Asher 2000; Hegarty 2003; Talmy 1976), and therefore are found with verbs typically construed as involving externally caused changes-of-state. In other words, "everyday concrete objects…have spatiotemporal boundaries and interact causally with other objects. Events have a status in semantic ontology akin to that of everyday objects, while propositions have a status of low [causal force]" (Hegarty 2003: 893). Like propositions, abstract concepts such as *aimlessness, vitality, philosophy, issues,* or other immaterial properties associated with aesthetic evaluations are similarly weak in their ability to causally affect entities in the world, and this is directly reflected in the strong correlation between these types of Stimulus arguments and purportedly "stative" Obj-Exp verbs such as *concern* and *depress*.

As I discussed earlier in the chapter, transitivity is intimately tied to many of the properties related to this notion of causal force. Prototypically transitive events are those that involve a volitional agent acting upon and causally affecting some other individual. Naturally then, we expect Obj-Exp verbs describing emotions that are more closely associated with concrete, and especially human, antecedents to be used more frequency in prototypically transitive constructions, which denote punctual, dynamic events. Again, these prototypically transitive uses reflect construals of the emotional situation as an externally caused change-of-state, brought on by the perception/encounter with some stimulus. On the other hand, we expect verbs describing emotions commonly associated with the evaluation of abstract properties, propositions, or state-of-affairs to be used more frequently in constructions denoting durative and atelic eventualities, in other words, intransitive or "detransitivized" constructions like the passive. This expectation is confirmed by the logistic regression model which revealed a significant influence of the semantic type of the Stimulus on the likelihood of a speaker using the passive.

But, as I noted in Chapter 3, the temporal characteristics of the emotion denoted by a given Obj-Exp verb also perhaps have a role to play in the construal of the emotional episode, and hence the likelihood of the verb occurring in non-stative constructions. Some verbs are more frequent/acceptable in non-stative contexts than others, though none of them seem to be prohibited outright. Again, Pesetsky (1995) observes that the variation in Obj-Exp stativity could be attributed to the nature of the emotions the verbs describe. Verbs such as *frighten, startle, surprise, terrify,* and so on describe emotions that come on rapidly and perhaps with some degree of conscious awareness, while verbs such as *bore, concern,* and *depress* describe emotions that grow slowly and imperceptibly. These latter emotions might naturally be more likely to persist for longer durations, while the former may be more short-lived.

Unfortunately, the corpus evidence here only provides indirect evidence for these temporal characteristics, in terms of the passivization frequency, as well as the trends in use of

different stimulus types. As we saw, many verbs are associated with abstract stimuli that lack much causal force, yet are not temporally bound in the same way that specific activities and events are, and so constitute things about which people tend to direct longer-lasting attitudes or evaluations. Not coincidentally, these are the same verbs that are often said to resist non-stative constructions like the progressive passive or punctual past.

But again, this constitutes only indirect evidence. To test this more directly, it necessary to turn to other methods.

4.4 Emotion survey

In order to assess speakers' intuitions about emotions directly, I employed a simple survey in which subjects were prompted with an emotion term and asked to provide ratings of the emotion along several conceptual dimensions, including duration, suddenness, intensity, and so on. Some of the results of these surveys are discussed here, while other aspects are discussed in Chapter 5. In the rest of this chapter I focus on findings relating to the temporal characteristics under discussion, i.e. duration and suddenness.

4.4.1 Materials and procedure

For this study, 60 subjects were recruited through Amazon Mechanical Turk and asked to provide information 15 on different emotions. Subjects were randomly assigned to one of three groups, such that each group saw only 5 verbs. Verbs were randomly assigned into the groups. The verbs and their groups are listed in (4.48).

(4.48) a. Group 1: *amazed, annoyed, bored, depressed, horrified*

b. Group 2: *astonished, captivated, pleased, scared, upset*

c. Group 3: *amused, concerned, fascinated, frightened, startled*

Subjects were given the following instructions.

> In this questionnaire, we ask you to imagine a person whose emotional experience at a particular time could be described by observers in a certain way. For example, people might describe a person as "frustrated", "happy", "jealous", "excited", and so on.
>
> In this survey, you will be presented with five different emotion terms. We ask you to try to imagine a specific instance or episode where a person might feel the emotion described by each term. Please respond to the questions on the following pages by marking the appropriate point on the respective scales. If a particular question does not make sense in a specific situation, please mark the circle "Does not apply".
>
> Feel free to rely on whatever past experiences you may have had, using either your own feelings or those of others to help you answer the questions. We are interested only in your own intuitions. There are no right or wrong answers to these questions.

Subjects were then asked for each verb to "Imagine a typical situation in which a person could be described as... [VERB]", where the past participle of an Obj-Exp verb was inserted into the slot marked "[VERB]". This was followed by a series of 5 randomized questions about aspects of the emotional "situation". These questions were intended to probe subjects' intuitions about the degree to which different properties tend to be associated with particular emotions.

(4.49)   Emotion Questions

    a.   **Suddenness:** "At the time of experiencing the emotion, do you think that the emotion came on very *suddenly* and *abruptly*?"

b. **Verifiability:** "At the time of experiencing the emotion, do you think that the emotion would be easy to *objectively verify* in another person?"

c. **Duration:** "At the time of experiencing the emotion, do you think that the emotion is likely to *last a long time*?"

d. **Imageability:** "How easy is it to imagine a specific activity or event in which the emotion came about, or in which someone felt the emotion?"

e. **Intensity:** "At the time of experiencing the emotion, how intense do you think the feeling was?"

Following these questions, subjects were then asked about likely causes of the emotional situation, prompted with the question "How likely do you think it is that one or more of the following factors caused the emotion event?". The possible answers were (again, in random order):

(4.50) a. Special circumstances beyond (or prior to) the immediate emotional situation

b. Chance (no discernible cause)

c. Natural phenomenon or other event

d. General trait, or characteristic of one or more other persons

e. The behavior of one or more other persons

f. The behavior of the person experiencing the emotion

Finally, subjects were asked about the intentionality of the causer.

(4.51) **Intentionality**: "If you think it was caused by one or more persons (including the person experiencing the emotion), how likely do you think it was that the person or persons caused the emotion event *intentionally*?"
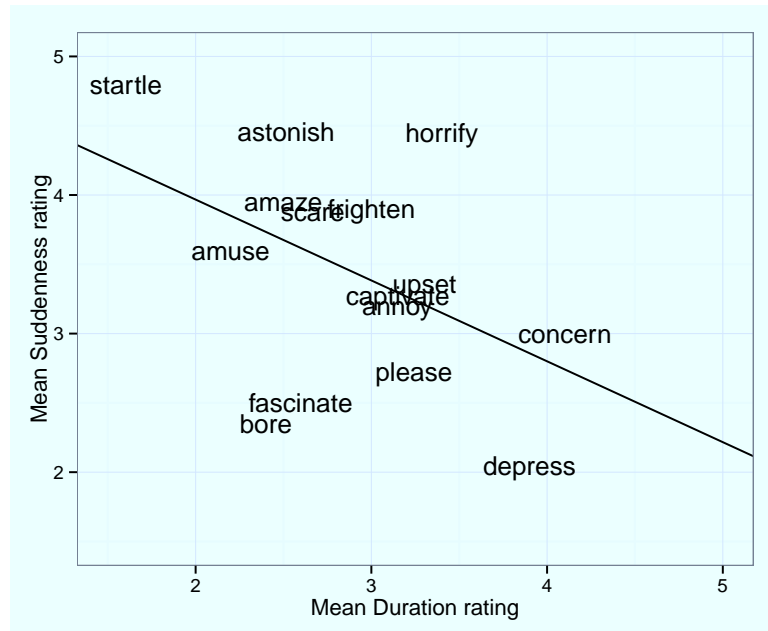
Figure 4.5: Correlation of Suddenness and Duration across verbs,
Spearman's $\rho(N=60) = -0.27, p < 0.001$

Ratings were given on a five-point scale, 1 being not at all likely (or easy), and 5 being very likely, easy, etc.

4.4.2 Results and discussion

Although a number of emotion properties were examined in the survey, this section focuses on only two of them, duration and suddenness, as these are the ones pertaining most directly to the discussion of stativity and passivization in this chapter and the preceding one. First, there is a moderate negative correlation between duration and suddenness, such that the more suddenly an emotion is judged to emerge, the less likely it is to last a long time (Figure 4.5). This correlation fits with my own intuitions about the emotions involved, and has important linguistic ramifications in that it provides some confirmation for the alignment of transitivity features discussed above. According to Hopper and Thompson (1980), and others following them, prototypical transitive clauses describe situations/events that are both

short-lived and punctual, while prototypical intransitive clauses describe situations that are long-lasting and gradual. It is still unknown at this point whether the correlation between durativity and punctuality is part of some innate component of linguistic knowledge, or merely the reflection of the way events tend to unfold in the world, but my money is on the latter. What is important here though, is that while specific details of a situation may alter the way an emotion is conceptualized in context, the default construal of the emotions described by some Obj-Exp verbs as both gradual and long-lasting correlates strongly with the likelihood of that verb being used in a more prototypically intranstive construction, e.g. as a stative and/or passivized verb. Verbs toward the lower right section of Figure 4.5, *depress* and *concern* for example, happen to be the verbs most likely to appear in the passive, while verbs in the upper left section, e.g. *startle*, tend to be used most often in the active.

Figure 4.6 presents a closer look at the patterns among individual verbs with respect to each of the two dimensions. The average ratings for Duration (a), $M = 2.92, SD = 0.23$, and Suddenness (b), $M = 3.43, SD = 0.24$, across all verbs are represented by the dotted lines, and the dots for each verb indicate the deviation of the mean for that verb from the grand mean. Positive values indicate greater duration and more sudden onset of the emotion, whereas negative values indicate shorter duration and more gradual onset. Verbs whose ratings differ significantly ($p < 0.05$) from the grand mean are marked with solid red dots. Significance was assessed by way of linear mixed effects models which included a by-subject random intercept and a 15-level fixed effect of verb. Independent models predicting suddenness and duration were run, both of which employed deviation coding for the single fixed effect of verb. Deviation coding (also called 'effect coding') of a categorial variable is used to compare the mean of each individual level of the variable to the grand mean across all levels of the variable (Wendorf 2004). That is, in the model, the mean rating for each verb was compared to the mean across all verbs together.

The results show a clear parallel with the passivization frequencies and associations with certain stimulus types observed in the corpus data. Emotions described by verbs such
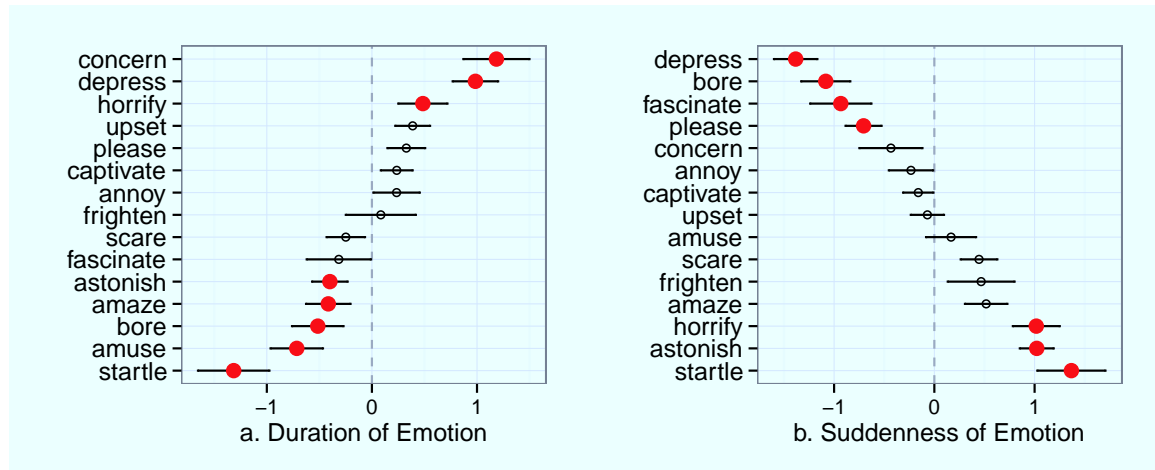
Figure 4.6: Mean ratings of Duration (a) and Suddenness (b) by verb. Means are centered around the grand mean for comparison. Positive values indicate greater duration and suddenness, negative values indicate shorter duration and more gradual onset. Verbs whose ratings differ significantly ($p < 0.05$) from the grand mean are marked with solid red dots.

as *amaze, amuse, astonish,* and *startle* are rated significantly more likely to come on suddenly and to last a relatively brief time. These verbs are exactly those same ones that are most often used in eventive and agentive contexts, and are most strongly associated with Stimulus arguments denoting humans and/or events. This is all reflected in speakers' bias toward using these verbs in active, eventive sentences.

The opposite holds true for verbs such as *concern, depress,* and perhaps a few others (e.g. *fascinate*), which describe emotions that are both long-lasting and gradual. These verbs are rarely found with human Stimulus arguments in the corpus data, are used far less frequently in eventive contexts, and are more frequently used as passive participles denoting states. Again, *concern* and *depress* are quite frequently listed among the obligatorily stative Obj-Exp verbs (e.g. Arad 1998; Bouchard 1995; Landau 2010b; Pesetsky 1995).

Finally, it should be mentioned that there are verbs that do not conform to the general correlational pattern, which appear to describe emotions that are prototypically either gradual but somewhat short-lived (*fascinate*), or sudden but enduring (*horrify*). This is not surprising given the complex nature of emotions and emotion concepts, and such variation

is entirely expected under the approach I take here. Debates continue over the most appropriate way to characterize the operative features in humans' representation of emotions (for brief overview, see Niedenthal 2008; Scarantino 2012), so it is perhaps unreasonable to expect a tidy picture to emerge from an admittedly coarse investigation of these few dimensions.

What we see among Obj-Exp verbs then, is a tendency to be pulled strongly toward or away from the prototypical end of the transitivity spectrum. Puctuality, brief duration, and association with human agents are all factors characterizing a high degree of transitivity (see Section 4.1.2), and verbs that are highly likely to be used in active or verbal passive constructions tend to describe emotions that bear these properties. These are verbs such as *startle, amuse, annoy, frighten*, and so on. At the same time, verbs like *concern, depress, amaze, fascinate,* etc., are much less frequent in these (more) prototypically transitive constructions, due to their tendency to describe long-lasting states that come on gradually and are caused/directed at more abstract entities.

4.5 Summary

This chapter began with a puzzle: how do we reconcile the apparent contradiction between previous authors' claims about Obj-Exp verb stativity, namely that some verbs obligatorily denote states, and data from natural usage, which show that any Obj-Exp verb can be used to describe a situation as a dynamic event? I presented a solution to this puzzle by way of a detailed exploration of Obj-Exp verb usage, focusing on the associations between individual verbs and the types of Stimulus arguments they tend to occur with in a large corpus of modern American English. My investigation revealed a strong statistical correlation between prototypically 'eventive' Obj-Exp verbs (*amuse, annoy, frighten, surprise,* etc.) and human- and event-denoting, i.e. 'potent', Stimulus arguments, as well as a consistent

tendency for 'stative' verbs (*amaze, concern, depress, fascinate,* etc.) to be used with Stimulus arguments denoting abstract entities. Logistic regression analysis further established a causal connection between the relative potency of the Stimulus argument and passivization in Obj-Exp verbs, adding considerable support to my argument that the choice of syntactic expression in describing an emotional situation is significantly influenced by the ability of the Stimulus argument to causally affect the experiencer.

The strength of the association between a verb and potent Stimulus arguments is closely tied therefore to the increased likelihood of an emotional situation described by that verb to be conceptualized as a (change in) mental state caused by an external force, rather than an attitude directed toward an object, as with stative Subj-Exp verbs. These two ways of conceptualizing an emotional situation have consequences for grammatical expression, as the former is associated with features of prototypical transitive clauses, e.g. volition and change in a Patient, while the latter is not associated with features of prototypical intransitive clauses, e.g. non-volition and unaffected Patient. As passivization is one of the primary "detransitivizing" operations in English, I argue that it offers speakers a convenient means of linguistically representing the contrual of the emotional scene they wish to convey. Moreover, converging evidence from both corpus data and offline evaluations support the notion that speakers' linguistic knowledge contains information about fine-grained collocational probabilities, which in turn shape their representations of emotion concepts. Building upon the discussion of stative and eventive uses in Chapter 3, this chapter presented evidence that although the construal of a specific verb is potentially quite flexible, it is nonetheless sensitive to the speaker's knowledge of the emotion concept denoted by the verb, such that various aspects of that knowledge will render some construals more likely than others in a specific context. Such an approach meshes well with usage-based approaches to linguistic meaning advocated by many working within the realm of cognitive semantics and corpus linguistics (see e.g. Bybee 2010; Glynn and Fischer 2010; Gries and Stefanowitsch 2007; Tummers et al. 2005). In the next chapter, I argue that this approach can help shed light on

debates surrounding agentive uses of Obj-Exp verbs in English.

Chapter 5

Agentivity in Object-Experiencer verbs

In Chapter 2, I briefly discussed the common claim that most, if not all, of the peculiar behaviors of Obj-Exp verbs involve only the non-agentive, or 'psychological' (Grimshaw 1990) uses of those verbs. The syntactic phenomena described in Chapter 2 have also been claimed to be sensitive to stativity rather than agentivity per se, and in the intervening chapters, I explored the evidence for distinctions in stativity more closely. In this chapter, the role of agentivity in English Obj-Exp verbs takes center stage, however it should be noted that distinguishing between effects of the two properties (stativity and agentivity) is a tricky business, as many have long observed (Cruse 1973; Dowty 1979; Lakoff 1966; Lee 1971; among others). Many stative verbs are also known to resist being used in agentive, i.e. intentional, contexts, and this relative resistence to agentive uses also applies to some Obj-Exp verbs, as we will see. Following the discussion in Chapters 3 and 4, I argue that the acceptability of a given verb in an agentive context is more a matter of inferential biases based on contextual and world knowledge, and not determined by lexicalized differences in event structure (cf. Bialy 2005; DiDesidero 1999).

This chapter presents the results of judgment surveys designed to test certain claims

about Obj-Exp verb agentivity. Results of the first study show that despite significant dif-
ferences in acceptability across supposed Obj-Exp verb classes, acceptability among indi-
vidual verbs in agentive contexts is quite variable, and the broader pattern across individual
verbs does not fit well with a binary categorical distinction. The second study investigates
the contribution of contextual information to subjects' acceptance of these sentences, show-
ing that agentive uses of certain Obj-Exp verbs significantly improves with the addition of
an optional constituent, such a prepositional pharase expressing the means by which the
agent caused the emotion.

(5.1) a.   Karen depressed me with this pic yo[a]

b.   . . . Crystal had amazed him by claiming he was her lover on a tryst.   (COCA)

The implications of these findings are taken up and explored further in the final section.

5.1   The nature of agentive events

Few semantic roles have played a more central part in theories of argument structure than
that of 'Agent', but there has been a fair amount of disagreement over how best to model
the connection between morphosyntactic patterns and the constellation of semantic prop-
erties that comprise our notion of agency (e.g. Bresnan and Kanerva 1989; Cruse 1973;
Chvany 1997; Davidson 1971; DeLancey 1984; Dowty 1991; Fauconnier 2011; Fillmore
1968; Gruber 1976; Kittilä 2005; Lakoff 1977; Nishimura 1997; Schlesinger 1995; Talmy
1985; van Oosten 1986; Van Valin and Wilkins 1996; Yamamoto 2006). Agentivity fea-
tures prominently in the theories of argument realization developed by many, but a com-
plete understanding of the nature of agency, and its relevance to lexical meaning has proven
to be rather elusive.

It has become the consensus opinion over the years that 'agentivity' is best charac-
terized as a cluster concept comprising a number of primitive conceptual properties (Croft

1991; Gruber 1967; Givón 1993; Cruse 1973; Lakoff 1977; Fillmore 1968; DeLancey 1984, 1985; Dowty 1979, 1991; Schlesinger 1995; Van Valin and Wilkins 1996; Primus 1999; Siewierska 1991; Talmy 1985; Yamamoto 2006). Properties such as animacy, sentience, intention, volition, control, responsibility, being self-energized, and instigating/causing a change, have all been associated with the notion of Agent in linguistics. In order to be considered an Agent therefore, an individual must possess some necessary (sub)set of these properties, however theories differ with regard to which of these properties are necessary or sufficient for an entity to be considered an Agent. Nevertheless, we can make a useful, and important, distinction between subsets of these properties. The distinction is that properties such as animacy and sentience are intrinsic features of our concept of an entity, while intention, instigation, and control characterize an entity according to its role in a given situation, i.e. what it is 'doing' (Schlesinger 1995; Hundt 2004; Yamamoto 2006). This cuts right to the heart of research into the nature of semantic roles, which from the outset were intended to capture linguistically relevant patterns in our conceptual representation of events in the world (Fillmore 1968).

5.1.1 Distinguishing agentivity in Obj-Exp verbs

The focus of this last chapter is the distinction between agentive, i.e. volitional or controlling, readings (5.2a) and non-agentive readings (5.2b) of Obj-Exp verbs.

(5.2) a. Pat (deliberately) amused/frightened/surprised Robin.

   b. Pat's attitude amused/frightened/surprised Robin.

It has been widely noted that Obj-Exp verbs exhibit variable acceptability with regard to whether the subject argument, which I have been referring to as the 'stimulus', can be interpreted as acting volitionally (Arad 1998; Belletti and Rizzi 1988; DiDesidero 1999; Grimshaw 1990; Iwata 1995; Klein and Kutscher 2002; Verhoeven 2010a; Zaenen 1993).

Verbs such as *amuse, annoy, bother, frighten*, and *surprise*, are compatible with both agentive and non-agentive interpretations. In contrast, there are many other Obj-Exp verbs in English that are claimed to prohibit, or at least heavily disfavor, agentive interpretations. These include verbs such as *amaze, bore, concern, depress, fascinate,* and *horrify* (DiDesidero 1999). The agentivity of a verb is brought out by assessing the acceptability of the verb in a number of "agentive" diagnostic contexts.

(5.3) a. Pat (deliberately) amused/frightened/surprised Robin.

b. Pat (#deliberately) amazed/fascinated/horrified Robin.

Like all Obj-Exp verbs, verbs such as *amaze, fascinate,* and *horrify* describe situations in which the subject causes an emotional state in the experiencer, but with the additional entailment that the subject does not have intentional control over the situation, and therefore cannot have intended to cause the emotional state in question. Thus, the stimulus argument of such verbs is argued not to be a true Agent, but something like a more general Causer (Pesetsky 1995) of the emotional change—a role akin to Van Valin and Wilkin's (1996) Effector. Although they are compatible with either an agentive or non-agentive use, I will refer to Obj-Exp verbs like those in (5.3a) as (potentially) AGENTIVE-OE verbs. Obj-Exp verbs like those in (5.3b) I will refer to as NON-AGENTIVE-OE verbs.

This distinction in agentivity has consequences for the grammar of Obj-Exp verbs in many languages. Various phenomena involving Obj-Exp verbs have been shown to be sensitive to agentivity, including clitic doubling in Modern Greek (Anagnostopolou 1999; Verhoeven 2009), auxiliary selection in Dutch (Zaenen 1993), reflexivization and object extraction in Italian (Arad 1998; Belletti and Rizzi 1988), blocking of genitive case under negation in Russian (Landau 2010b), and the optionality of resumptive object pronouns in Hebrew (Landau 2010b). As I discussed in Chapter 2, it has been argued that agentivity shapes the syntactic behavior of English Obj-Exp verbs as well (e.g. Arad 1998; DiDesidero 1999; Grimshaw 1990; Landau 2010b), though this claim is based primarily on semantic

intuitions, as English does not have clitics, variable case-marking or auxiliary selection, or any other clear grammatical reflexes of this property.

However, recent typological work suggests that not all languages exhibit such a sensitivity to agentivity. Verhoeven (2008, 2010a,b) demonstrates that the unavailability of agentive interpretations with certain Obj-Exp verbs found in Greek and German do not hold for Turkish, Yucatec Maya, and Mandarin. Speakers of these latter three languages do not appear to distinguish between Agentive-OE and Non-agentive-OE verbs, unlike speakers of Italian, Dutch, German, Greek, and (arguably) English.

Corpus data presented in this chapter suggest that it is worth revisiting the claims that English Obj-Exp verbs can be distinguished by their agentivity. The larger question is how to model the lexical meaning of psych-verbs in a principled way that can account for the necessary facts that have be attributed to "agentivity". But to answer this question, we must first have a clear picture of what the facts are. As I will show, the data are not nearly as straightforward as previously assumed, even for a language as thoroughly examined as English. While I share with many other researchers the intuitions that some Obj-Exp verbs are less acceptable in agentive contexts than others, data from actual usage suggests a more complex picture. Before getting tangled up in theorizing about the appropriate model of Obj-Exp verb meaning, it is worth taking time to more robustly substantiate the basic claim that a distinction in agentivity among English Obj-Exp verbs truly exists. More to the point, even if we can find differences in agentivity across these verbs, we must consider carefully whether this distinction is best captured in terms of the verbs' lexical semantic structure, or in some other domain of interpretation, e.g. pragmatic inferences about the likelihood of events in the world (cf. the discussion of stativity in Chapters 3 and 4).

I follow Holisky (1987), Van Valin and Wilkins (1996), and others in proposing an analysis of Obj-Exp verb agentivity that assumes the contrasting acceptability of different Obj-Exp verbs in agentive constructions is not solely attributable to differences in the semantic roles or event structures associated with individual verbs. I assume agentive interpretations

of Obj-Exp verbs arise as the result of a combination of semantic and pragmatic factors. Specifically, a person's general knowledge about the emotion described by a verb, along with the antecedents (causes) typically associated with that emotion, combine with the semantic properties of the verb's arguments, as well as information in the immediate discourse context, to determine the inferences available to her about the intention and volition of an event participant. In other words, the use and/or acceptability of a psych-verb in an agentive context is dependent on how easily a person can imagine a scenario in which an agent might purposely act to evoke the emotion in question.

5.1.2 Folk concepts of intentionality

Before moving on, it is necessary to tease apart some conceptual issues. Throughout this discussion I use the term "agency" to refer to a pre-theoretic concept associated with our conceptualization of individuals and their participation in events in the world. Intuitively, the notion of agency hinges on the concept of intentional action, articulated in (5.4), from Davidson (1971: 46).

(5.4) …a person is the agent of an event if and only if there is a description of what he did [or didn't do] that makes true a sentence that says he did it intentionally.

Put another way, an agent is an individual who "intentionally and responsibly uses its own force, or energy, to bring about an event or to initiate a process" (Lyons 1977: 483). Crucially, this property holds of an individual *independently of how that individual or event is described* (more on this below). An individual is or is not an agent regardless of how a language chooses to describe her. In contrast, I use capitalized "Agent" to denote a theoretical construct, usually the upper bound on some scale of prominence underpinning the mapping between syntax and semantics. Prominence hierarchies have variously been defined in terms of primitive thematic roles (e.g. Fillmore 1968; Grimshaw 1990; Levin and Rappaport Hovav 1995; Pesetsky 1995), sets of semantic features or entailments

(e.g. Dowty 1991; Reinhart 2001; Schlesinger 1995), relations over predicate event structure or conceptual structure (e.g. DiDesidero 1999; Jackendoff 1990; Van Valin and LaPolla 1997), or positions within causal chains (e.g. Croft 1991; DeLancey 1987; Talmy 1988).

Defining agency in this way has intuitive appeal, yet it merely raises the further question of what it means to act intentionally. Philosophical and psychological debates over the nature of intention reach back to antiquity, and these debates have raised many fascinating and thorny issues (e.g. Adams 1986; Austin 1956; Bratman 1987; Davidson 1963; Dennett 1987; Malle and Knobe 1997; Mele 1992; Searle 1983). In my opinion though, such high-level discussions of intention and agency often extend to matters far beyond the level of everyday experience. We make distinctions between intentional and unintentional actions on a daily basis, and yet it is doubtful that most of us ever stop to question the intuitions that allow us to make these distinctions. Throughout this discussion, I assume something very close to Dennett's (1987) notion of the 'intentional stance'. That is, I assume that in any situation, an individual will conceptualize that situation as having been carried out either intentionally or unintentionally by one or more participants, for whatever reason. Dennett and others (including myself) take for granted that we can make inferences about others' will to act (or not act) and unless presented with evidence to the contrary, we will assume an action engaged in by a human is intentional. Provided the necessary conditions are met, the intentional stance maintains the agentive construal of an individual/event is the default one, and recent experimental work on folk intuitions supports this (e.g. Carpenter et al. 1998; Kelemen and Rosset 2009; Knobe 2003; Rosset 2008). Naturally, our inferences about the intention behind another's actions draw upon our general knowledge about the world, our awareness of the immediate context in which an act is situated, and facts following from our knowledge of the grammatical constraints on the language used to describe the act itself. What is of primary concern to the present discussion is what aspects of the speaker's conceptualization of an event she chooses to convey through language.

This is an important and subtle point, but it has been a source of some confusion. It must be kept in mind that the full interpretation of a sentence derives from information at multiple levels of linguistic structure to which the lexical semantics of the verb (predicate) contributes but a part. Theories of semantic roles are intended only to capture that aspect of meaning contributed by the verb, and not what is manifested in a fully interpreted sentence. That is to say, semantic roles are intended to capture generalizations about the restrictions a verb places on its arguments, but these restrictions may only be a subset of the semantic properties of the sentence as a whole. Consider (5.5), for example.

(5.5)   Jason cut the ribbon.

The natural interpretation of (5.5) seems to be one in which Jason intentionally cuts the ribbon, i.e. one in which Jason is an agent in the intuitive pre-theoretical sense. This interpretation is not the only one available, however. It is entirely possible that he had no intention of cutting the ribbon; it was an accident. Nothing about the meaning of the verb *cut* precludes either the intentional or accidental interpretation. There is perhaps a bias for the intentional one (the intentional stance), but it is by no means the only possible reading of (5.5). This becomes even more apparent with a sentence like (5.6), where the bias seems go in the other direction, toward an accidental reading.

(5.6)   Jason cut his finger.

Surely this bias for the unintentional reading stems from the fact that most people don't injure themselves on purpose. These different biases have nothing to do with the subject or the verb, as the only difference between the sentences is their direct objects. This suggests that inferences about intention really are highly attuned to our general knowledge about the world, and this observation raises questions about our ability to isolate truly lexical components of meaning from other sources of knowledge when assessing the naturalness of a particular verb used in an atypical, decontextualized sentence. Distinguishing between

agency as an inherent versus circumstantial property of our conceptualization of (a participant in) an event turns out to be a delicate matter, and one that I believe has led researchers to erroneous generalizations.

When a situation does involve an agent, that event is said to instantiate the property of "agentivity". Agentivity in this sense is a property of events (or states); an agentive event involves the willful control of the event by some participant. This is similar, for example, to Cruse's (1973) feature 'volitive', which he posits as a feature present whenever an act of will is stated or implied.[1] Such a property would hold of events involving human agents as well as entities seen as being self-energized, such as natural forces, machines, and in some instances, even objects/projectiles in motion. These latter entities are *not* considered agents under the characterization of agency laid out here, since they are not capable of acting with purpose or intent.

The issue that all this raises, is how to identify whether a given lexical item—and specifically an Obj-Exp verb—truly lexicalizes agentivity (or non-agentivity). This is the topic of the next section, in which I discuss in detail various diagnostics that have been used to assess Obj-Exp verb agentivity.

5.2 Agentivity diagnostics

Over the years, a number of tests have been devised for diagnosing agenthood. For some, these tests were originally intended to serve as tests of aspectual properties such as stativity (e.g. Lakoff 1966), under the assumption that stative (and achievement) verbs cannot be agentive. It is clear however, that most of these tests target conscious and volitional action on the part of the subject and not aspectual properties of the predicate per se. For example, sentences with inanimate subjects possessing their own inherent energy fail most of these

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[1]Confusingly, my notion of agentivity is distinct from Cruse's feature 'agentive', which is present in sentences involving "an object which is regarded as using its own energy in carrying out the action" (1973:21).

tests, yet embody most of the core properties associated with prototypical Agents. Machines, projectiles, weather and other natural phenomena, are seen as acting independently, yet they are also non-sentient, and hence are incapable of intentional action.

(5.7) a. The safety failed, and the press automatically repeated the operation and the press (#purposefully) smashed down with a roof pressure of one hundred tons,[b]

    b. The hailstorm severely/#deliberately dented countless vehicles and damaged homes and businesses. (G)

    c. An earlier report said the landslide (#enthusiastically) buried at least four houses (G)

Intention and volitional control (at some level) are therefore necessary conditions for almost all agentivity tests (Cruse 1973; Gruber 1965, 1976; Kearns 2000; Lakoff 1966; Lee 1971; among others). Following recent work on agentivity in Obj-Exp verbs (DiDesidero 1999; Martin 2013; Verhoeven 2010a), I will focus on three well-known diagnostics for agentivity: modification by agent-oriented adverbs, embedding under control verbs, and use in the imperative. These are exemplified below.

(5.8) Modification by agent-oriented adverbs

    a. The children deliberately/carefully/reluctantly brushed their teeth.

    b. #The students deliberately/carefully/reluctantly knew the answer.

    c. #George deliberately/carefully/reluctantly noticed the dinosaur tracks in the riverbed.

    d. #The storm deliberately/carefully/reluctantly destroyed the family's new house.

    e. #The building deliberately/carefully/reluctantly collapsed.

(5.9) Embedding under control verbs

  a.   I persuaded/asked the children to brush their teeth.

  b.   #I persuaded/asked the students to know the answer.

  c.   #I persuaded/asked George to notice the dinosaur tracks in the riverbed.

  d.   #I persuaded/asked the storm to destroy the family's new house.

  e.   #I persuaded/ask the building to collapse.

  f.   The children decided/chose to brush their teeth.

  g.   #The students decided/chose to know the answer.

  h.   #George decided/chose to notice the dinosaur tracks in the riverbed.

  i.   #The storm decided/chose to destroy the family's new house.

  j.   #The building decided/chose to collapse.

(5.10)   Use as control imperatives

  a.   Brush your teeth!

  b.   #Know the answer!

  c.   Notice the tracks in the riverbed!

  d.   #Break the window! (to a storm)

  e.   #Collapse! (to a building)

Acceptable use in any of these constructions shows that a verb is compatible with an
agentive reading, however use in such constructions does not imply that a verb must be
interpreted as agentive in all contexts. To my knowledge, no Obj-Exp verbs have ever
been claimed to be necessarily agentive in this manner—as very few verbs are, in gen-
eral (Van Valin and Wilkins 1996). In the following sections, I examine each test in turn,
and present ample evidence from natural usage refuting the conventional notion that there
exists an easily distinguishable subclass of 'non-agentive' English Obj-Exp verbs. What

the corpus data suggests is that intuitions about agency are highly flexible and heavily influenced by a combination of factors related to discourse context, world knowledge, and their interaction with the meaning of the verb and its arguments (both subject and object).

5.2.1 Agent-oriented adverbs

Agent-oriented adverbs ascribe intention and control to the subject of the predicate they modify, and therefore provide natural tests of agentivity.

(5.11)   Agent-oriented Adverbs:
          enthusiastically, carefully, deliberately, intentionally, reluctantly, on purpose, patiently, cautiously, attentively, studiously, etc.

Stative and achievement predicates are generally, though not necessarily, incompatible with these adverbs (5.12a-b), as are predicates with inanimate subjects (5.12c).

(5.12) a. #The children were happy deliberately.

        b. #Terry intentionally recognized the woman in the photograph.

        c. #The hail carefully dented the roof.

Martin (To appear; see also Geuder 2000) also notes that use of many of these adverbs must obey another constraint, namely that the event they modify must unfold incrementally. Adverbs like *patiently, studiously,* and *attentively* are generally quite odd with events lacking duration, although they can sometimes coerce iterative interpretations with achievement predicates.

(5.13) a. ?#Chris did it patiently, and all in one stroke!

        b.   Robin jumped/snapped her fingers (#just once) studiously.

This incrementality requirement applies in addition to the requirement that the subject act intentionally.

(5.14) a.   Jamie patiently filled the barrel.

b.   #The rain patiently filled the barrel.

Other agent-oriented adverbs do not impose such an incrementality requirement however: adverbs such as *enthusiastically, carefully, reluctantly,* and *intentionally* quite readily modify punctual events.

(5.15) a.   Chris did it enthusiastically, and all in one stroke!

b.   Robin jumped/snapped her fingers (just once) reluctantly.

Adverbs like *carefully, attentively* and *patiently* in fact seem to behave much like other manner adverbs in this respect. They modify processes, and therefore are incompatible with predicates lacking any duration, i.e. achievements. Only by implication do they modify the degree of control a participant has over an event. On the other hand, the adverbs *deliberately, intentionally, purposely*, and *reluctantly* relate solely to the degree of intent on the part of the subject, modifying the internal mental state of the subject rather than any process of the event itself. This is apparent from the fact that these adverbs can sometimes modify stative predicates.

(5.16) a.   An unexcused absence/truancy is when a student is deliberately absent from school and/or class without the knowledge or consent of their parents or the school.   (G)

b.   I had a friend who used to be alone deliberately.   (COCA)

In cases like these, there is no activity directly reported, however it is understood that the subject has willfully participated in (or abstained from participating in) some activity

leading to the relevant state. The adverb highlights the desire of the subject for that state to hold, and therefore implicates that the subject has acted willfully to bring the state about. In other words, the adverb implies that the subject had control over some prior activity resulting in the state obtaining.

When it comes to the use of the subjective adverbs in (5.13) strictly as tests for agentivity then, I will focus on those adverbs that impose only minimal restrictions on agency. Including adverbs such as *patiently* will potentially muddy the water. For this reason, I examine only those adverbs that impose no additional requirements beyond the intention of the subject.

It is commonly argued that some psych-verbs, e.g. *frighten, amuse, confuse*, are compatible with agent-oriented adverbs while others, such as *amaze, horrify,* and *fascinate*, are not (DiDesidero 1999: 103-04).

(5.17) a. The man deliberately frightened the children.

b. The librarian reluctantly amused the children.

c. The psychologist deliberately confused the patient.

(5.18) a. #The magician reluctantly amazed the children.

b. #The teenager intentionally horrified his parents.

c. #The boy deliberately fascinated his sister.

While I agree with the intuitions in (5.18), the degree to which a specific verb is judged unacceptable seems to vary greatly by verb and even individual sentence. Moreover, naturally occurring examples are in fact quite easy to find. The following representative examples from Google all sound perfectly acceptable to me.

(5.19) a. I think it's about time we had a thread discussing the things you do to deliberately horrify and torment your wife.   (G)

b. Slick male foreigners talk funny to deliberately fascinate older women who don't know any better. (G)

c. I'm going to purposely bore you with this tip, but it TOTALLY WORKS. (G)

d. Josephus records that King Agrippa intentionally amazed the crowd in the theatre when he entered attired in a garment woven completely of silver so that its texture was indeed wondrous. (G)

e. It is unthinkable that Penelope should deliberately fascinate a hall full of men whom she despises and wishes in their graves. (G)

f. Sandler To Intentionally Horrify Us With New Film (G)

g. A high school friend, Justin Densmore, said he also finds Smith's disappearance very surprising. He said Smith is a jokester, but he's unlikely to purposely worry his family. (G)

h. The old prince said that if he was ill it was only because of Princess Mary: that she purposely worried and irritated him, and that by indulgence and silly talk she was spoiling little Prince Nicholas. (G)

i. The politicians and health police deliberately depress us, so we'll pay the outrageous taxes on smoking products to cheer ourselves up. (G)

j. I feel like someone ran the animation style I like from The Boondocks through a shit-grinder to intentionally sadden me. (G)

k. F. O'Connor, you must be equally sadistic to deliberately sadden your "sensitive child." (G)

l. One way to challenge the prevailing cultural standards and values of bourgeois culture is to intentionally shock and provoke the audience. (G)

m. I often will intentionally shock the person by telling them I handle access to my website the same way as I do my PayPal account. (G)

The difference between the above examples and examples such as those in (5.18) is that naturally occurring examples are situated within a much richer discourse context. The corpus evidence suggests that speakers have little difficulty using most Obj-Exp verbs with agent-oriented adverbs, provided such uses make sense within the discourse, and I find nothing wrong with such sentences as a reader/listener. If subject agency is often a contextually determined aspect of a sentence's interpretation, then these facts are not at all surprising.

Agent-oriented adverbs can also modify verbs with certain kinds of inanimate subjects. Nouns referring to artworks, music, or other creations are frequent subjects in such sentences, by virtue of the fact that these artifacts are often explicitly designed to provoke some reaction.

(5.20) a. Some campaigns seek to deliberately horrify or titilate [sic], depending on your point of view. (G)

b. Gericault's works shock and intentionally horrify the viewer. (G)

c. These songs of hopelessness intentionally horrify listeners. (G)

In such cases, it is the artist's intent in the creation of the work that is implicitly being described. Artists create their works with certain effects in mind, and so it is only natural that we talk about the results of their efforts as being intentionally designed to bring out these reactions or emotions. Speakers exploit the relationship between the artist and her artwork in order to express something about the emotion the work evokes and the intention of the artist to evoke that emotion.

The examples of psych-verbs and agent-oriented adverbs provided above are but a sample of the full range of sentences that can be found, as well as the contexts they occur in. Those contexts are important; they play a major role in shaping judgments about uses of

certain kinds of constructions. The ability to imagine possible scenarios in which a person might deliberately horrify, depress, or concern another surely influences our judgments of simple decontextualized examples This evidence casts doubt on the claim that there is a class of easily identifiable Obj-Exp verbs which are never acceptable when modified by agent-oriented adverbs like *deliberately, purposefully,* or *intentionally.* As I will show, this is equally true of the other agentivity tests.

5.2.2 Complements of control verbs

Semantically, control verbs such as *persuade*, *convince*, *ask* and *order*, require that the matrix object exert control over the situation described by the embedded infinitival clause. Similarly, it is the matrix subject of the verbs *decide* and *choose* that controls the implicit subject of the embedded infinitive. In both cases, the implicit subject of the complement must be interpreted as volitional, and therefore the acceptability of a verb in such clauses can be taken as evidence that the verb allows agentive subjects.[2] I divide these verbs into three broad classes: verbs of persuading, verbs of requesting, and verbs of deciding.

(5.21) a. Verbs of persuading:

persuade, convince, force, compel, coerce, get, etc.

b. Verbs of requesting, ordering, or influencing:

ask, order, urge, advise, dare, counsel, beg, challenge etc.

c. Verbs of choosing:

decide, choose, opt, agree, determine, resolve, set out, etc.

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[2]I am not making any claims about the syntactic status of the implied subject of the embedded VP. What is important here is that this implicit subject must be interpreted as coreferential with either the overt object (in the case of *persuade*) or the overt subject (in the case of *decide*) of the matrix verb, regardless of how one wishes to formally represent the construction.

5.2.2.1 Verbs of persuading

Use with verbs of persuading is a well known test for predicate agentivity (Cruse 1973; Gruber 1976; Kearns 2000).

(5.22) a.   I persuaded/convinced the children to brush their teeth.

     b.   #I persuaded/convinced the students to know the answer.

     c.   #I persuaded/convinced the storm to destroy the house.

     d.   #I persuaded/convinced the building to collapse.

(5.23) a.   #I persuaded/convinced Jamie to accidentally break the window.

     b.   #I persuaded/convinced Kim to unintentionally drop the glass.

Only sentences that involve matrix objects capable of acting volitionally, and embedded clauses headed by verbs allowing volitional subjects are acceptable. Sentences that involve non-volitional embedded verbs (5.22b,d), inanimate matrix objects (5.22c-d), or explicitly negate the volitionality of the embedded clause (5.23) are all unacceptable with verbs of persuading.

Like with the adverbial test, Obj-Exp verbs display varying degrees of acceptability as complements of persuading verbs, with the weakly agentive verbs like *fascinate, amaze, depress, horrify, sadden,* etc., falling on the lower end of the acceptability spectrum.

(5.24) a.   Pat persuaded Robin (not) to frighten/annoy/amuse/bother/surprise the children.

     b.   #Michael persuaded Alice to horrify/amaze/fascinate the children. (DiDesidero 1999: 103)

As one would expect, examples of non-agentive Obj-Exp verbs in this construction do in fact appear to be quite rare in natural corpora, though examples can be found.

(5.25) a. He wanted to play another one but we convinced him to amaze us with his "hand trick" (G)

b. With no intention at all of becoming the owners of a stallion, the Magic of Maa'zooz, and the look on Michael's face, as he admired this entrancing young colt, convinced Terry to astonish his family by proudly procuring Maa'zooz as the future sire for The Palms Arabian Stud. (G)

While they are uncommon, I find such examples sound perfectly fine, even taken out of their natural discourse context. Yet, though such examples are quite rare, their scarcity should not automatically be taken as evidence for ungrammaticality. It is worth noting that many agentive verbs, including agentive Obj-Exp verbs, also appear to be quite rare as complements of persuading verbs. One likely reason for this may have to do with general facts about the world. In most situations there are actions that it would seem quite odd to (have to) ask or persuade another person to do, and the low frequency of certain verbs in this construction could be due to basic facts about normal human interaction: people rarely have occasion to persuade or convince others to do those things the verbs describe.

We can explore this possibility by looking at the frequency of other verbs as complements of verbs of persuading. Consider *frighten* for example, a card-carrying agentive Obj-Exp verb. *Frighten* is a relatively frequent Obj-Exp verb, yet my impression is that one seldom finds cause to persuade someone to frighten someone else. That is to say, people might use *frighten* fairly often in general, but they may not find many opportunities to use it as a complement of *convince* or *persuade*. This intuition is supported by a Google search of *frighten* in the phrases "{convinced * to frighten}" and "{persuaded * to frighten}", which yielded only a single example.

(5.26) In high school, Daniels encouraged a bully to sell him his soul for 50 cents, and then convinced classmates to frighten the bully into buying his soul back . . . for an inflated price.[c]

Searches of verbs of similar frequency (e.g. *renew, omit, hop*) yielded orders of magnitude more Google hits, even when those searches were restricted to just personal pronoun objects.[3] Table 26 shows these results.

	Total frequency in COCA	Google hits in construction
omit	4,590	101
grade	4,542	11
frighten	4,451	1
hop	4,430	19,790
lobby	4,411	972
renew	4,402	26,800
weep	4,397	1
gasp	4,372	0
defy	4,246	4,980
amplify	1,735	4
amuse	1,711	1
mow	1,695	3,970
demolish	1,665	4
annoy	1,650	1

Table 5.1: Comparison of Google frequencies for various verbs in "persuaded/convinced [pronoun] to V".

The numbers in Table 26 should be treated with caution, as raw numbers from any Web search engine can be highly misleading for many reasons (see Schütze 2009), but I believe they are meaningful. Many examples of these other verbs are surely duplicates, but the size of the discrepancy between verbs makes it unlikely that the numbers are merely the result of repeated hits. Unfortunately, while methods for exploring the kind of constructional frequency patterns of interest here do exist, e.g. collostructional analysis (Stefanowitsch and Gries 2003), the necessary Google frequency figures are simply too

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[3]Google does not allow regular expression searches, so the variable * in "convinced * to summarize" cannot be restricted in length. This returns true hits (*convinced the executive board to summarize*), but also lots of false positives (*convinced? We'll try to summarize*). Restricting the searches of these other non-psych-verbs to pronominal objects still produced thousands more examples than the broader searches with *frighten*.

unreliable to be of any use. It is possible that the discrepancies in the Google numbers merely reflect different overall frequencies from COCA, but I believe the differences are large enough to allow us to at least consider alternative explanations.

One reasonable explanation is that these corpus patterns emerge for reasons that have more to do with facts about events in the actual world, and less to do with the properties of the verbs used to describe those events. The likelihood of a circumstance in which one might persuade or convince another to do something is going to vary considerably depending on what that something is, and by extension, the likelihood of different verbs being used as complements of *persuade* and *convince* will vary concomitantly. This is most apparent with unergative verbs like *weep* and *gasp*. Even if we accept that they can have intentional readings (which is arguable), they are unusual activities to be persuading or convincing someone else to do. Similarly, the transitive verbs *grade* and *demolish* clearly have intentional uses, however these do not seem to be activities that often require persuasion, and so we don't find many uses of the verb as a complement of persuading verbs. It would seem that most psych-verbs fit this pattern: they are just unusual things to ask a person to do. Even with agentive Obj-Exp verbs this should not be too surprising, since many of them denote negatively valued emotions (e.g. *anger, annoy, bother, frighten, irritate, scare, upset*). Under most circumstances these are not things we typically do (or have someone do) willingly to another. A notable exception to this is the verb *surprise*, for which it is very easy to find examples.[4]

(5.27) a.   Gabrielle convinced me to surprise Noah after work with a small gift.   (G)

 b.   My best friend convinced me to surprise Kaila right away, so we would have
        the whole time together.   (G)

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[4]The COCA frequency of the verb *surprise* is 10,907. Google searches for "{convinced|persuaded [pronoun] to surprise}" returned $> 130,000$ hits.

    c.   I'm really glad Tim convinced me to surprise the [sic] Lillian and Vivian at the airport tonight. (G)

    d.   It was the year after Neema and I were dating and my older brother Amaan, convinced her to surprise me in Delhi. (G)

While *surprise* can refer to a negative reaction, most examples involve descriptions of a positive event, such as surprising someone with a gift, or with a welcome visit. However, differences in verbs' positive or negative connotations cannot be the whole explanation, since other positive verbs, e.g. *amuse*, are in fact very rare with this construction. (5.28) is the only example I found of *amuse* with a non-reflexive object.

(5.28)   Or perhaps we could convince him to amuse us. (G)

This also does not explain the fact that many supposedly non-agentive Obj-Exp verbs do not appear in this construction, even though many of them do describe positively valued emotions, e.g. *amaze, astonish, delight, captivate, fascinate, please*. In the following section I examine a related class of verbs that differ from persuading verbs in a crucial way, and I suggest this difference can help us to understand some of what may be going on with these verbs.

5.2.2.2   Verbs of requesting, ordering, and influencing

Beyond verbs of persuading, there are object control verbs of ordering, requesting, or challenging (henceforth simply requesting verbs), which also take volitional direct objects. These include *ask, beg, order, dare, challenge,* and *urge*.

(5.29) a.   The two exchanged words and security eventually intervened and asked Stonestreet to leave. (G)

    b.   I dared them to throw back three shots of crown without hesitating. (G)

     c.   I begged her to forgive me.

Requesting verbs are seldom mentioned in the literature on psych-verbs, or agentivity in general, but they have the same constraints with respect to the agentivity of their complements as verbs of persuading do, thus they seem like natural candidates for diagnosing agency.

(5.30) a.   I asked/ordered/dared the children to brush their teeth.

        b. #I asked/ordered/dared the children to know the answer.

        c. #I asked/ordered/dared the storm to break the window.

        d. #I asked/ordered/dared the building to collapse.

(5.31) a. #I asked/ordered/dared Jamie to accidentally break the window.

        b. #I asked/ordered/dared Kim to unintentionally drop the glass.

In contrast to verbs of persuading, Obj-Exp verbs are relatively quite common with verbs of requesting.

(5.32) a.   They were delighted, and begged me to frighten them every night.   (G)

        b.   Mr. Ellershaw praised me for my masterful handling of the low fellow and then begged me to amuse him with some stories from my time in the ring.   (G)

        c.   you asked me to annoy you, so I will.   (G)

        d.   My doctor ordered me to scare the dog...[d]

        e.   Alright, maybe that is just my situation but my 5 year old son has triple dared me to frighten him!   (G)

f.   Jorito ordered me to amaze you and hopefully I managed to do that somehow.

(G)

g.   This was made for the company Vocaloid since they asked me to amaze them with something that had Hatsune Miku in it and so I did.   (G)

One possible reason for this disparity in frequency between Obj-Exp verbs with verbs of persuading and verbs of requesting is that the latter do not entail that the event/action was accomplished.

(5.33) a.   I persuaded the children to brush their teeth. . . #but they couldn't do it.

b.   I asked the children to brush their teeth. . . but they couldn't do it.

(5.34) a.   I asked you to amaze me, you failed.   (G)

b.   I persuaded you to amaze me (#you failed).

This accomplishment entailment seems to be the key element, and this is where the semantic notion of 'control' (as opposed to the syntactic one) takes center stage. In some frameworks, control over a situation is defined to include both the power over one's participation in an event, in addition to the intention to bring the event about. Schlesinger (1995) treats control as one of three basic features comprising agenthood. For him, an entity in control "steers the activity in the event and may be able to terminate or obviate it," and, "[t]he notion of control bears some affinities with those of intention and volition" (1995:33). This view of control is shared by many others (e.g. Dik 1989; Primus 2002; Siewierska 1991; Yamamoto 2006).

Possessing the ability or skill necessary for carrying out an act is an essential criterion for an individual to be said to act intentionally. The fact that Obj-Exp verbs are unusual with verbs of persuading but not verbs of requesting suggests that there is a difference in terms of the claims [presuppositions?, implicatures?] the verbs make about the matrix object's

ability to carry out the action of the complement. By entailing that their complement event is accomplished, verbs of persuading implicate that the subject of the complement had the ability to bring the event about. Verbs of requesting involve no such entailments, and so imply nothing about the subject's abilities.

If it is true that we conceptualize emotional states as not being directly accessible to external actors or forces, it would follow that in most cases, we do not view human agents as direct causes of mental changes-of-state—the very things Obj-Exp verbs are claimed denote. In other words, human agents are not seen as having the ability to directly affect psychological states. It is only through some intermediary action that we can affect the emotions of another, and it is these intermediate events that we may or may not control. What this means is when an Obj-Exp verb is used with a verb of persuading, the listener must make an additional inference about the possible secondary activity the subject must have engaged in to ultimately cause the emotional state in the experiencer. This extra interpretive effort, which will be heavily influenced by the meaning of the verb and other contextual information, could give rise to the lower acceptability ratings associated with different verbs.

This actually would follow from the event structure of causative verbs more generally, since it's widely assumed that causative events are composed of several component subevents, including the 'causing' event (e.g. Croft 1998; Levin and Rappaport Hovav 1994; Pustejovsky 1988; Talmy 1976; Wolff and Song 2003; Wunderlich 1997). The lower acceptability that some Obj-Exp verbs exhibit with verbs of persuading also connects well with the results of the results in Chapter 4. Obj-Exp verbs that are associated with abstract stimuli tend to be less acceptable than other Obj-Exp verbs with verbs of persuading. These abstract stimuli are things, properties, or states that people are not seen as having much control over. In addition, the predictability of an activity's effect is also surely influence the degree to which an intentional use might be accepted. If many of these verbs describe more "aesthetic" emotions (see Section 4.3.3.1), they are involved with a potentially more

idiosyncratic evaluation component.

5.2.2.3 Verbs of choosing

Like verbs of persuading and requesting, verbs of choosing are odd with complements that are non-volitional.

(5.35) a. The children decided/chose to brush their teeth.

b. #The children decided/chose to know the answer.

c. #The storm decided/chose to break the window.

d. #The building decided/chose to collapse.

(5.36) a. #I decided to accidentally break the window.

b. #I chose to unintentionally drop the glass.

The activities of deciding or choosing to do something are volitional by definition, since intuitively someone can only choose to engage (or not engage) in activities over which she also has control. Therefore these verbs make ideal tests for agentivity. That said, Obj-Exp verbs as complements of choosing verbs can be easily found on the Web.

(5.37) a. We were chatting about our relationships and decided to amaze our men by wearing a black leather bra, stiletto heels and a mask . . .   (G)

b. Brooke Fraser really decided to amaze us this year, she is spreading her music almost everywhere especially in Europe . . .   (G)

c. This might have been an extraordinary flash of the electric fluid, accompanied with thunder, with which God chose to astonish and confound Saul and his company.   (G)

d. I choose to astonish my co-workers by staying happy. (G)

e. This time he has decided to captivate us all with some soothing deep progressive sounds. (G)

f. Giving it another go, I decided to captivate the reader with a film analysis of Blade Runner. (G)

g. So I've decided to depress everyone else and let you all know about the flu epidemic that's set to hit Britain this year. (G)

h. In fact - I am still under [sic] impression - that moviemakers of that flick sort of decided to depress the viewers on purpose. (G)

i. Baden Haus has decided to fascinate and astonish its customers with new bathroom Gemma. (G)

j. I got bored and decided to fascinate everyone with this thrilling article. (G)

k. Why was my hair straight this morning? Well, because last night I decided to fascinate my man and temporarily disarm him . . . (G)

l. I've decided to horrify you straight away by putting up this pic of me and my poor friend spuff who had to suffer by being shot next to me. (G)

m. I decided to please the family and study business and law. (G)

n. Instead of looking to please God, her Creator, Eve decided to please the serpent, believing his lies. (G)

o. We have decided to sadden the one person's family because of another person's action. (G)

What is still unknown is why Obj-Exp verbs should be so much more common with subject control verbs (verbs of choosing) than verbs of persuading? The explanation may lie in the way we make inferences about the ability of the agent to accomplish the task denoted by the embedded clause. For instance, there seems to be a much stronger implication that the controller, i.e. agent, knows how to amaze someone when the "amazer" is the one making the decision to amaze. This is definitely tied to the way various aspects of folk intentionality interact: how people think about the factors of desire, knowledge, and ability in intentional action clearly seems to be shaping the acceptability judgments they make vis à vis the use of particular Obj-Exp verbs as complements of verbs of persuading or choosing. One thing that is clear however, is that intuitions about agency are tapping into a deep well of linguistic and conceptual information. All the diagnostics outlined in Section 5.2 assume that inferences about the plausible agency of an individual influence the acceptability of the relevant diagnostic sentences, yet the data presented here show that isolating the source of those inferences is incredibly difficult.

Overall, the evidence (or lack thereof) suggests that the rarity of Obj-Exp verb uses in control constructions, combined with the general strangeness of the situations such uses might describe, likely contributes to speakers' low evaluation of such sentences, especially in the absence of any context. Nevertheless, Non-agentive-OE verbs do seem to be acceptable when the circumstances permit, contrary to most extant analyses, and the same can be also said for Agentive-OE verbs, as expected. They too are rare in these constructions, but acceptable in the proper context. In this regard, the corpus data does not offer any positive evidence for treating the two classes of verbs differently. The lack of corpus examples of Non-agentive-OE verbs as complements of *persuade* is not sufficient evidence to conclude that they cannot be used agentively; however, closer examination of the corpus data—from psych-verbs and non-psych-verbs—suggests that we must be especially careful in drawing conclusions about grammatical structure from judgments of out-of-context examples.

5.2.3   Imperatives

The ability to be used in an imperative has often been used as a diagnostic for agentivity. Imperative constructions are frequently used to issue commands, and naturally it makes little sense to command someone to perform an action over which he has no control.

(5.38) a.   Brush your teeth!

      b. #Know the answer!

      c. #Break the window! (to a storm)

      d. #Collapse! (to a building)

(5.39) a. #Accidentally break the window!

      b. #Unintentionally drop the glass!

Taking the test at face value, the data suggests that most Obj-Exp verbs can be used agentively, even many purportedly non-agentive ones.

(5.40) a.   Please amaze us with something stylish and original! (G)

      b.   Go ahead, amaze me. . . I dare you (G)

      c.   Please astound us with the "brilliance" of the NON existent economic "solution" of the tea party. (G)

      d.   Go ahead, astound & amaze me w/ your fundie logic![e]

      e.   So please fascinate us with the amazing time you guys had while the rest of us slaved over math books. (G)

      f.   Hmph! If you wanna winge go ahead. Depress me with it! (G)

g. NASA, please astonish me once more in my lifetime with a space craft as inspiring as the Space Shuttle. (G)

h. Please astonish me with your knowledge of the book and creative ability. (G)

i. Please captivate us with your story, enlighten us with your experience, and astonish us with your allure. (G)

j. Could a Muslim please shock me by not acting holier than thou and taking some responsibility? (G)

It is often noted that it is easier to find examples of verbs denoting negatively valued emotions when the imperative is negated.

(5.41) a. Unless you have some kind of crazy news, then don't concern me with it. (G)

b. Server admins have enough on their hands, don't concern them with updates (G)

c. Don't bore us with your puritanical facts. (G)

d. Don't bore me with the details. (G)

e. And don't depress me with that adorable love crap. (G)

f. Seriously Jeff don't depress me with this first thing in the morning (G)

g. Don't horrify me with your music choices ok? (G)

(5.42) a. Please don't alarm everyone like that, Will. (G)

b. Like I said, please don't depress me on Christmas! (G)

When it comes to agentivity though, the imperative test is not foolproof. The imperative construction has many functions, and it is important to distinguish between true orders or commands, and the construction's many other uses. Huddleston and Pullum (2002: 929-931) list seven distinct subtypes of direct uses of the imperative that vary with respect to the degree to which they involve willful direction or compliance. All of these uses attribute agency to the addressee, though the two most relevant here are orders (*Don't move!*) and requests (*Open the door, will you?*). Huddleston and Pullum contrast these direct imperatives with other kinds of imperatives involving indirect speech acts—what Lakoff (1966) refers to as the 'pseudo-imperative'—most notably expressions of wishes and desires (*Sleep well. Have a good weekend.*).

The distinction between the order and request types of direct imperatives (5.41a-b) is gradient rather than categorical, as Huddleston and Pullum note, but both types assign agency to the subject. In contrast, wish imperatives involve predicates denoting uncontrollable situations, hence they inhibit a direct agentive interpretation. In practice however, it is often difficult to clearly distinguish between the request or plea type of direct imperative and the wish type of indirect imperative. When using imperatives as a test for Obj-Exp verb agentivity, we are often faced with a problem of circularity. It is argued that Non-agentive-OE verbs are non-agentive because they can only be used in indirect imperatives, and yet we know they are instances of indirect imperatives primarily because Non-agentive-OE verbs are non-agentive. Of course, an alternate conclusion is that they are indeed being used in direct imperatives, and are therefore agentive, but we cannot know this for sure. This is a well-known problem with using imperatives as a test for control/agentivity: the use of a predicate in an imperative is not necessarily evidence of an agentive use. Yet it has been suggested that while we cannot use the availability of imperative formation as a positive test for agentivity, we can assume that the non-availability of imperative formation is evidence for a lack of agency or control (Verhoeven 2010a: 223). This means then, that

the data presented here is inconclusive. While many of the examples above could be interpreted as direct commands, they are also compatible with the indirect imperative reading, which is not restricted to agentive predicates. It is difficult to determine whether we are dealing with a direct or indirect imperative in these situations, so to truly resolve the issue of Obj-Exp verb agentivity, we need to look to other diagnostics.

5.3 Experimental studies

The preceding sections discussed three linguistic environments which are argued to entail volitional and/or intentional action on behalf of at least one participant in the situation they describe. This participant can be explicit, as in the case of modification by adverbs like *deliberately* and with embedding under control verbs like *persuade*, or it can be implicit, as with control imperatives. In these environments, the attribution of agency to the subject is semantic, rather than pragmatic. The subject in these constructions must be capable of volition because some element of the sentence explicitly declares that the activity was deliberate. Nevertheless, even when the subject is human—under most circumstances a capable agent—some Obj-Exp verbs are noticeably less acceptable in these environments. The reasonable inference is that these verbs must not allow agentive subjects (DiDesidero 1999). Modification of such verbs by *deliberately*, and the use of them in imperatives or as complements of *persuade* all result in a semantic mismatch. *Persuade*, *deliberately*, and the imperative require a particular volitional participant, but the Obj-Exp verb entails a non-volitional one; thus, such sentences are infelicitous .

The data from natural usage presented above paint a different picture however. Many of the (supposedly) Non-agentive-OE verbs do seem to be acceptable with intentional subjects, though it may not be the way that they are most typically used. The evidence suggests that when the context renders agentive uses of these verbs appropriate, speakers generally do not find them problematic. Furthermore, looking more closely at the ways in which

Obj-Exp verbs are actually used in agentive constructions reveals a fact that is rarely ever discussed: their overwhelming tendency to be used with optional arguments expressing the means by which the agent causes the emotional state (see also section 4.3.2). These are *by* phrases (5.43), and more commonly, the instrumental *with* phrases (5.44),.

(5.43) a. With no intention at all of becoming the owners of a stallion, the Magic of Maa'zooz, and the look on Michael's face, as he admired this entrancing young colt, convinced Terry to astonish his family by proudly procuring Maa'zooz as the future sire for The Palms Arabian Stud. (G)

b. I often will intentionally shock the person by telling them I handle access to my website the same way as I do my PayPal account. (G)

(5.44) a. He wanted to play another one but we convinced him to amaze us with his "hand trick" (G)

b. I'm going to purposely bore you with this tip, but it TOTALLY WORKS. (G)

In this section I attempt to establish a more reliable empirical basis upon which to make claims about Obj-Exp verb agentivity through two judgment studies of Obj-Exp verbs in agentive constructions.

5.3.1 Judgment Study 1

5.3.1.1 Materials and procedure

The purpose of this first study was to investigate the acceptability of Obj-Exp verbs in agentive constructions. The focus is on two classes of Obj-Exp verbs: Agentive-OE verbs, which allow agentive interpretations; and Non-agentive-OE verbs, which are claimed to disallow agentive interpretations. In the spirit of Verhoeven (2010a), two control groups were also included in the study: physical transitive verbs (henceforth simply "transitive

verbs") and transitive Subj-Exp verbs. Each of the transitive verbs are unambiguously dynamic and compatible with agentive interpretations, while the Subj-Exp verbs are typically regarded as stative and inherently non-volitional. The verbs used in the stimuli are given in (5.45).

(5.45) a. **Agentive-OE verbs:**

amuse, anger, annoy, bother, disturb, frighten, irritate, scare, surprise, upset

b. **Non-agentive-OE verbs:**

amaze, astonish, bore, captivate, concern, depress, fascinate, horrify, offend, please

c. **Subj-Exp verbs:**

admire, adore, despise, detest, enjoy, fear, hate, like, love, loathe

d. **Transitive verbs:**

help, hug, kick, pinch, shove

It should be noted here that the decision regarding whether a particular Obj-Exp verb allows or does not allow an agentive interpretation can often be rather delicate. Furthermore, individual verbs vary with respect to speakers' intuitions about their use in agentive contexts. Per my own intuitions, some Non-agentive-OE verbs, such as *concern*, are quite odd when used in agentive constructions, while others are not nearly so bad, and this is supported by corpus searches. The question at hand then, is what criteria to use in classifying an Obj-Exp verb as Agentive or NonAgentive. In a similar study of Obj-Exp verb agentivity in several languages, Verhoeven (2010a: 226) selected four verbs of each class which showed the clearest contrast in their acceptability based on consultations with native speakers. Given the goals of the present study however, such a method is problematic. Selecting verbs in this way assumes that these verbs are representative of the class of Obj-Exp verbs as a whole, and more important, it assumes that the distribution of acceptability in

agentive contexts across the verbs is bimodal. The problem is that for *any* such distribution of acceptability judgments across verbs there will necessarily be a few verbs occupying positions in the opposite tails. So selecting only those verbs at the extreme ends of the distribution ultimately tells us little about the pattern across the class as a whole.

The present study attempted to skirt this problem by expanding the number of verbs under investigation, while at the same time imposing less biased criteria for classification. The 20 Obj-Exp verbs used were chosen for similar reasons as in the corpus study of Chapter 4: i) prevalence in the literature, and ii) overall frequency. In addition to those verbs mentioned in the literature, several other high frequency Obj-Exp verbs were included, in order to balance the sample as well as expand the coverage of verbs.[5] The experiencer subject verbs were also chosen based on their prevalence in the literature, while the transitive verbs were selected primarily on their natural compatibility with human patients. As noted before, Obj-Exp verbs are similar in many was to other causative verbs describing physical changes of state, such as *break, bend, melt*, but these verbs are generally less felicitous with human patients (except when used metaphorically, i.e. as psychological verbs).

Each verb was presented in four different sentence types, all containing only human subjects and objects. Three of the sentences types comprised diagnostic environments for intentional action, i.e. agentivity: modification by an agent-oriented adverb, use as a complement of control verbs *persuade* and *convince*, and use as an imperative. Following Verhoeven (2010b), a fourth sentence type was included, the present progressive construction. Sentences were constructed so as to make the intentional interpretations as reasonable as possible.

The combination of the four verb classes and four sentence types yielded a total of 16 possible item types, exemplified in (5.46)–(5.49).

(5.46)   Transitive:

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[5]Verb frequency was also included as factor in the multivariate analysis (see below).

- Adverb

  The boy intentionally hugged his grandmother.

- Control verb complement

  The girl persuaded the boy to hug his grandmother.

- Imperative

  Hug your grandmother!

- Progressive

  The boy is hugging his grandmother.

(5.47)   Agentive-OE:

- Adverb

  The girl intentionally surprised her friend.

- Control verb complement

  The children persuaded the girl to surprise her friend.

- Imperative

  Surprise your friend!

- Progressive

  The girl is surprising her friend.

(5.48)   Non-agentive-OE:

- Adverb

  The gymnast intentionally astonished the judges.

- Control verbcomplement

  The coach persuaded the gymnast to astonish the judges.

- Imperative

  Astonish the judges!

- Progressive

  The gymnast is astonishing the judges.

(5.49) Subj-Exp:

- Adverb

  The student deliberately loved the teacher.

- Control verb complement

  The lecture persuaded the student to love the teacher.

- Imperative

  Love the teacher!

- Progressive

  The student is loving the teacher.

In order to keep the task to a reasonable size, only five verbs of each category were included in the test items per subject. Thus, each subject saw a total of 80 items: 5 verbs × 4 verb classes × 4 sentence types. Two survey templates of 80 items were constructed with complementary sets of five verbs of each of the psych-verb classes. For example, survey A contained the five Agentive-OE verbs *surprise, annoy, scare, disturb, upset*, while survey B contained the verbs *amuse, irritate, frighten, bother, anger*.

Surveys were administered to 40 subjects via Amazon Mechanical Turk (AMT), where subjects were asked to rate each sentence on a 7-point scale of naturalness, with specific instructions to:

rate each sentence on how likely you think it is that someone might say that sentence. A rating of 7 means that the sentence is a perfectly natural sentence of everyday English, while a rating of 1 means that the sentence is not at all something that someone might say. Ratings in the middle indicate that you feel the sentence is somewhere between. You will likely find variation among these

> sentences, but there are no right or wrong answers, so please use your own
> intuition in making your judgments.

Ratings were indicated on a discrete 7-point multiple choice scale.

5.3.1.2 Results

Results were analyzed using a linear mixed effects model with random intercepts for subject, item (sentence), and verb, and with by-subject random slope for verb class. Fixed effects included the verb class, sentence type, and the interaction of the two. Control factors included subject age and gender, as well as verb frequency (log transformed). The results and statistics for the fixed effects are presented in the appendix (A.1).

Surveys were administered to 40 subjects, for a total of 3200 (40×80) judgments. Due to the remote administration of AMT, a minimum cut-off time of 5 minutes was used to screen for those workers who completed the survey too quickly, and hence likely did not perform the task as required. In all, 5 subjects had working times below this cut-off, and therefore were eliminated. Additional data trimming for missing judgments and other issues left a dataset of 2739 usable ratings.

The contrast of interest was between the ratings for Agentive-OE and Non-agentive-OE verbs, and so the results presented here are for only those two classes of verbs. As predicted, Agentive-OE verbs ($M = 5.46, SD = 1.75$) were judged significantly more acceptable than Non-agentive-OE verbs ($M = 4.42, SD = 1.94$) in intentional contexts (Figure 5.1). Controlling for other factors, Agentive-OE verbs were on average rated 0.92 points higher than Non-agentive-OE verbs in intentional contexts, $\beta = -0.92, t = -2.34, p < 0.05$. The model employed deviation coding for the four level factor of sentence type, where the mean for each sentence type was compared to the grand mean across all types. Of the three intentional sentence types, only the Control ($M = 4.66, SD = 1.80$) and Imperative ($M = 4.30, SD = 2.03$) sentences differed significantly from the grand mean ($M = 4.93, SD = 0.59$): Control, $\beta = -1.15, t = -2.37, p = 0.036$; Imperative, $\beta = -1.60, t =$

$-3.96, p = 0.001$ (Figure 5.2). There were no significant interactions of verb class and sentence type however; the significant effect of Verb Class was consistent across all sentence types (Figure 5.3).

Figure 5.1: Study 1 ratings of Obj-Exp verbs by Verb class
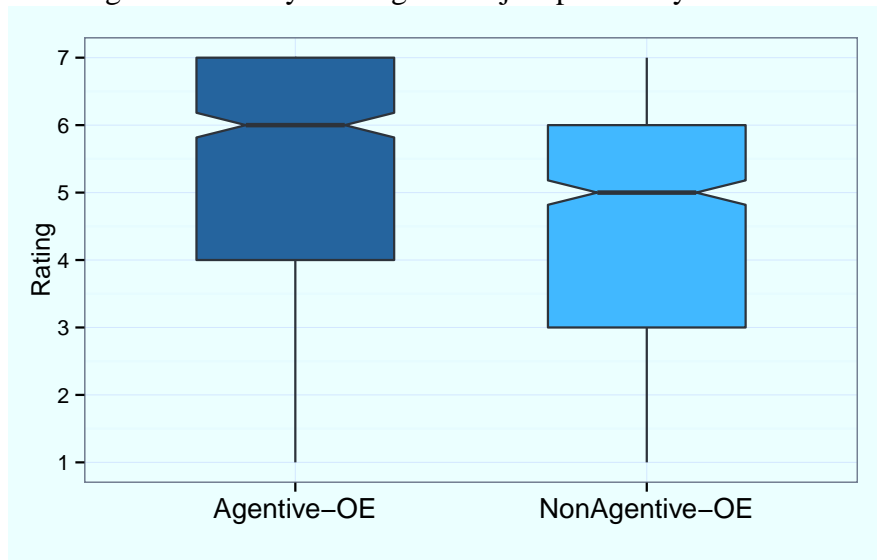
While variation across the sentence types was not the focus here, it's worth considering why certain types, namely the Control and Imperative sentences, would be rated lower than the others (the Adverbial and Progressive). One likely explanation is that the kinds of situations in which the former two sentence types are most often used, tend to be most common with verbs denoting positive emotions. Sections 5.2.2 and 5.2.3 discussed the relation between the use of these constructions in real world contexts as indicated in the patterns found in corpus data. Again, people simply tend not to cause negative feelings on purpose, and this tendency seems to extend particularly strongly to cases where one individual persuades, orders, or otherwise compels another to do negatively affect someone. Thus, the use of negative Obj-Exp verbs in control and imperative constructions sounds odd. Many Obj-Exp verbs, both Agentive-OE (*annoy, bother, frighten, scare, . . .*) and Non-agentive-OE ones (*bore, concern, depress, horrify, . . .*), describe negative emotions, and

Figure 5.2: Study 1 ratings of Obj-Exp verbs by Sentence type
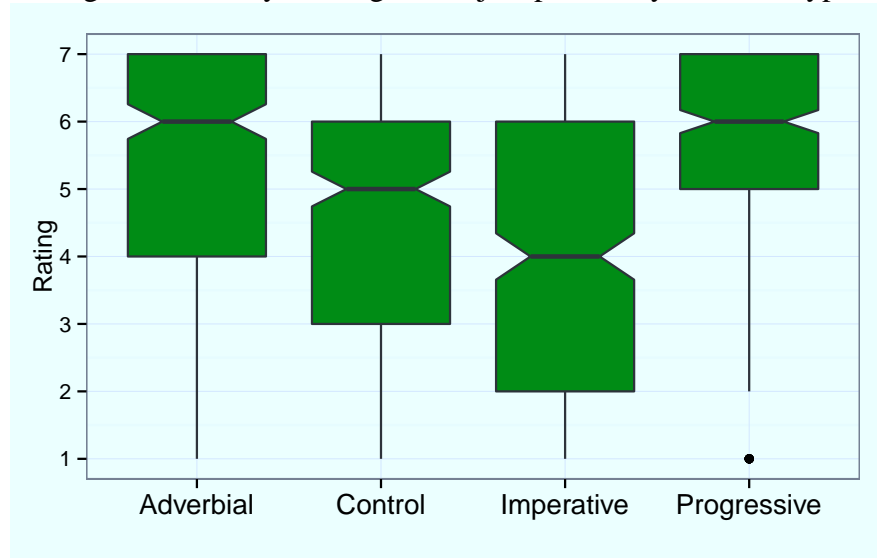
this fact likely drove down the overall ratings for these constructions.[6]

At first blush, the results of Study 1 appear to confirm the intuitions reported in the literature on English Obj-Exp verbs (DiDesidero 1999). They also parallel results of similar experimental studies of psych-verb agentivity in German and Greek, though similar patterns did not emerge in studies of Turkish, Yucatec, and Mandarin (Verhoeven 2010a). Assuming the classification of Obj-Exp verbs was accurate and meaningful, the present study shows that it is indeed possible to distinguish two classes of English Obj-Exp verbs according to their acceptability in intentional contexts. But of course this study was intended to test the claim that such a distinction truly exists, not merely to confirm it. The verbs in this study were assigned to each class beforehand, based on observations in the literature (which my own intuitions largely agree with). Much of the previous work on Obj-Exp verb agentivity

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[6]It is worth noting that the lower acceptability of negative terms in these environments applies to adjectives as well (DiDesidero 1999).

((i))   a.   Be happy!

         b.   #Be sad!

         c.   Don't be sad!

Figure 5.3: Study 1 ratings of Obj-Exp verbs by Verb class and Sentence type
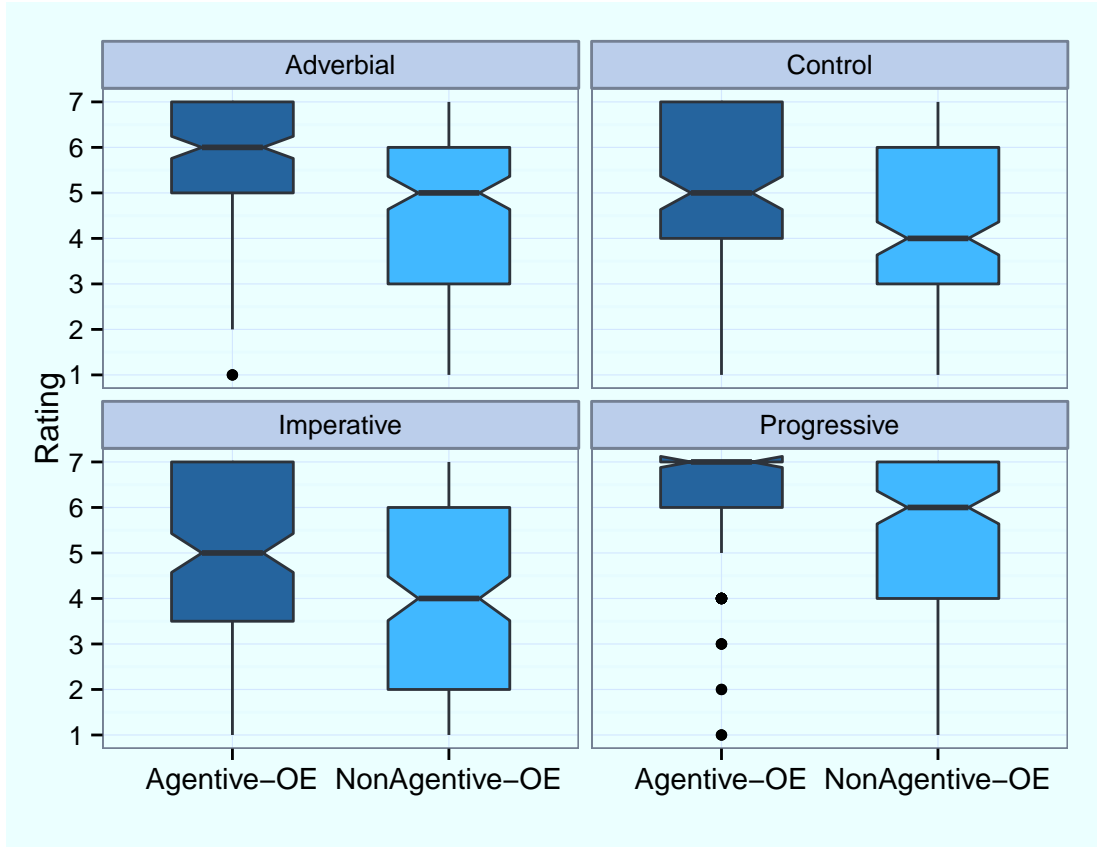
has assumed that it is a simple matter to determine the appropriate class for a given Obj-Exp verb, and moreover, has at least implied that the distinction between the two classes is a clear one.

What we find when we look at the distribution of ratings by individual Obj-Exp verbs is a considerable amount of variability among members of the two classes, but also a much more gradual scale of acceptability across all Obj-Exp verbs in general. The mean rating for each verb can be seen in Figure 5.4. This is not exactly the kind of pattern that we might have expected if there were a clean distinction between agentive and non-agentive verbs. The distribution in Figure 5.4 shows that intuitions about agentivity, and the acceptability judgments that follow with them, are much more subtle and variable than the standard

Figure 5.4: Mean ratings for individual Obj-Exp verbs by condition
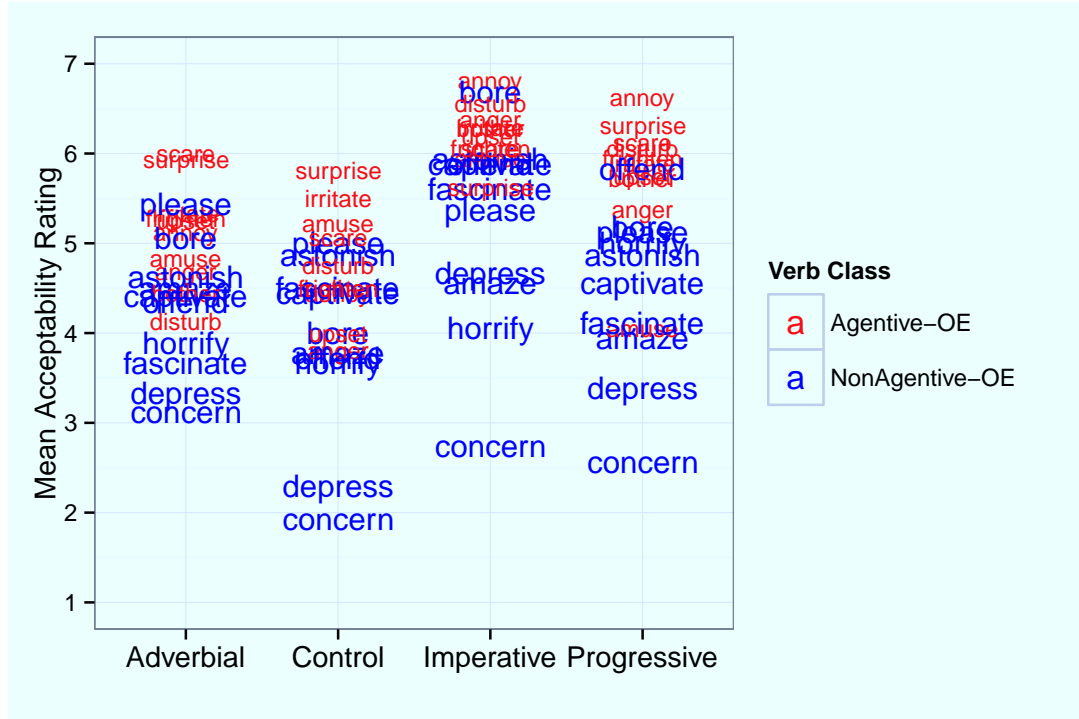
binary classification would lead us to believe. Some verbs are clearly more acceptable in agentive contexts than others, e.g. *surprise* vs. *concern*, but the twenty Obj-Exp verbs examined here don't obviously line up into two clearly distinguishable groups. The Non-agentive-OE verbs do indeed lean toward the lower end of the acceptability distribution, and likewise, Agentive-OE verbs cluster toward the upper end (and some are almost at ceiling). But there is considerable overlap among the two classes (e.g. *horrify* and *amuse*), and there is no point where the two groups clearly diverge from each other. The overlap in the distributions is also evident from the histograms in Figure 5.5. If the two classes were clearly distinct in their relative acceptability, we would theoretically expect to see a bimodal distribution in the ratings across all verbs, but this is not borne out in the results.

Hartigan dip tests (Hartigan and Hartigan 1985; Maechler 2012) did in fact significantly

Figure 5.5: Distribution of Obj-Exp verb ratings across Sentence type
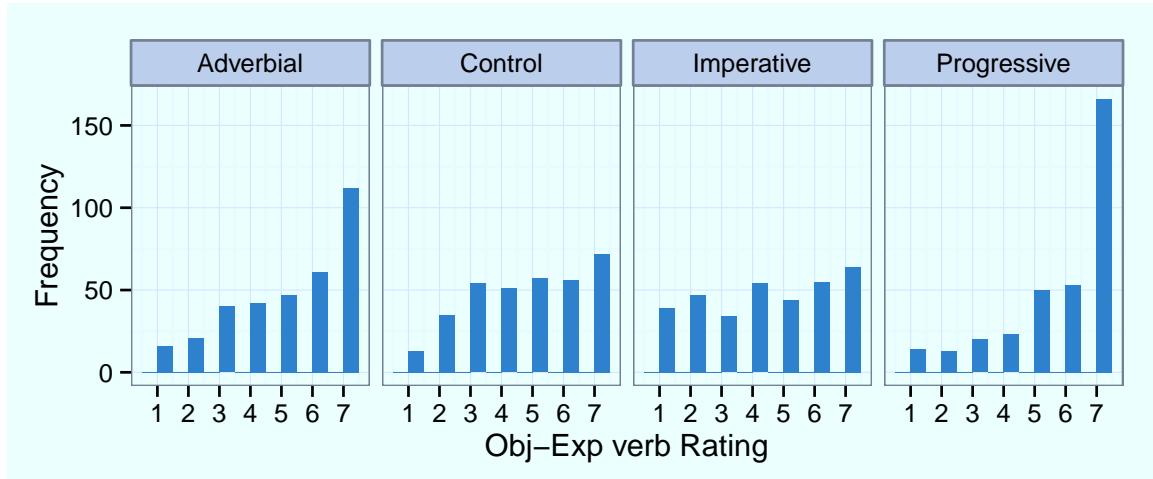
reject the likelihood of unimodal distributions ($p < 0.001$), however this was true of distributions for all sentence types and verb classes investigated. This included Transitive and Subj-Exp verbs which theoretically should be relatively uniform in their ratings. In other words, the Obj-Exp, Subj-Exp, and Transitive verb classes all exhibited at least a bimodal distribution in ratings across their individual members in each of the four Sentence types. Therefore, we have no reason to interpret the multimodal distribution among Obj-Exp verbs as anything other than a reflection of the natural variability across verb classes of all stripes.

For these data then, the dip test appears to be anti-conservative (overly likely to reject a true null hypothesis), and so is of little use in helping us to understand the true nature of the ratings obtained here. Still, it is worth noting that the test can determine significant deviation from unimodality, but cannot distinguish bi- from multi-modality. What we may be seeing is a pattern of judgments that reflects more than two subgroups of verbs, suggesting a gradual continuum of acceptability in intentional contexts. Such a result is entirely expected under the approach to Obj-Exp verb agentivity I am advocating. The verbs used in this study are only a small subset of English Obj-Exp verbs, and it remains to be seen to what extent other verbs actually vary with respect to agentivity. My suspicion is that

further testing with new verbs would simply reinforce the results presented here. That is, adding judgments about more Obj-Exp verbs in the environments examined here would not result in a more robustly bimodal distribution of agentive and non-agentive verbs. Rather, it would merely result in a denser cluster of verbs along the rating spectrum.

Taken together with the corpus data presented above, these results militate against analyses which attempt to explain differences in Obj-Exp verb acceptability via lexicalized properties of specific verbs related to volitionality (or non-volitionality as the case may be). On the other hand, the data are compatible with approaches that view interpretations of agentivity as inferences arising from a variety of factors. This inferential process naturally takes into account verb meaning, but it is also highly sensitive to other information as well. Judgment Study 2 was designed to investigate this sensitivity to additional information more directly.

5.3.2 Judgment Study 2

The purpose of the second study was to investigate whether the inclusion of additional context (in the form of instrument phrases) would improve the acceptability ratings of Obj-Exp verbs. As discussed above, the acceptability of agentive sentences is determined by a combination of semantic and pragmatic factors. I argue that the reduced acceptability of certain Obj-Exp verbs in agentive contexts does not in fact arise from a semantic constraint on these verbs, but rather from the difficulty of imagining a situation in which the emotion denoted by the verb could be deliberately caused by another. This predicts that when certain information makes inferences about a participant's intentions easier, acceptability of agentive sentences should improve. The second judgment study was designed to test this prediction.

5.3.2.1 Materials and procedure

Test materials for this study were constructed in a 2 by 2 design crossing verb class (agentive vs. non-agentive) with the presence or absence of an instrumental PP. The same twenty Obj-Exp verbs from Study 1 were used in Study 2, and the sentence types were restricted to only the adverbial and control complement environments. Each of the 20 verbs was presented in both sentence types, yielding a total of 40 test sentences.

	Other PP condition
Agentive	"The magician deliberately *amused* the little girl with the bow in her hair."
Non-Agentive	"The magician deliberately **amazed** the little girl with the bow in her hair."
	Instrument PP condition
Agentive	"The magician deliberately **amused** the little girl with his disappearing trick."
Non-Agentive	"The magician deliberately **amazed** the little girl with his disappearing trick."

Table 5.2: Test items in Study 2 (Verb Agency $\times$ PP)

As with Study 1, Study 2 was run over Amazon Mechanical Turk, with the difference that each test sentence was presented in its own individual Turk hit. This was done to control for any effect of item order in the presentation, as AMT does not currently have a procedure for randomizing items in a hit for each user. Additionally, it precludes the need for complex fillers and presentation design. Since a subject only sees one test item, there is less likelihood of them 'figuring out' the intentions of the researcher and potentially biasing the results. Nevertheless, some respondents did participate in multiple hits, and this was controlled for in the analysis.

Along with the test sentence, each hit contained two additional filler sentences. Two sets of filler sentences were constructed for this purpose, one set containing acceptable sentences and another containing clearly unacceptable sentences (see appendix A.2). Fillers

were designed to match the test items in length and syntactic structure as closely as possible. They served as distractor items as well as baselines for the rating (and analysis) of the test sentences.

Each hit included one test item and one filler of each type, randomly ordered. Subjects were instructed to rate each of the three sentences for naturalness on a scale of 1 to 7, 7 being 'most natural', and 1 being 'most unnatural'. Each hit was assigned 40 times for a total of 1600 data points.

5.3.2.2 Results

Results of Judgment Study 2 confirm the prediction that the weak bias against Non-agentive-OE verbs in intentional contexts can be mitigated through the addition of facilitative information. As with the previous study, Agentive-OE verbs were rated significantly higher than Non-agentive-OE verbs as a whole ($\beta = -0.65, t = -2.84, p = 0.038$). However, there was a significant interaction of verb class and PP, such that Non-agentive-OE verbs significantly improved in acceptability when the sentence contained an instrumental PP ($\beta = 0.48, t = 2.72, p = 0.006$). Overall, sentences with instrumental PPs ($M = 5.51$, $SD = 1.48$) were rated significantly lower than those without ($M = 5.50$, $SD = 1.56$), though this was a very small effect ($\beta = -0.25, t = -2.07, p = 0.04$). Finally, there was no significant main effect of sentence type, nor were there significant interactions of sentence type and PP type, nor sentence type and verb class. The full results of the model are shown in Appendix A.2.

The summary of the ratings for the interaction between verb class and the inclusion of an instrumental PP (collapsed across sentence types) is shown in the graphs below. Figure 5.6 shows the pattern across verb classes, and Figure 5.7 shows the pattern across individual verbs. The results clearly fit with my predictions. By manipulating the contextual information in such a way as to make explicit the connection between an agent's actions and the emotional state of the experiencer, it is possible to eliminate differences in acceptability among the classes of Agentive-OE verbs and Non-agentive-OE verbs.

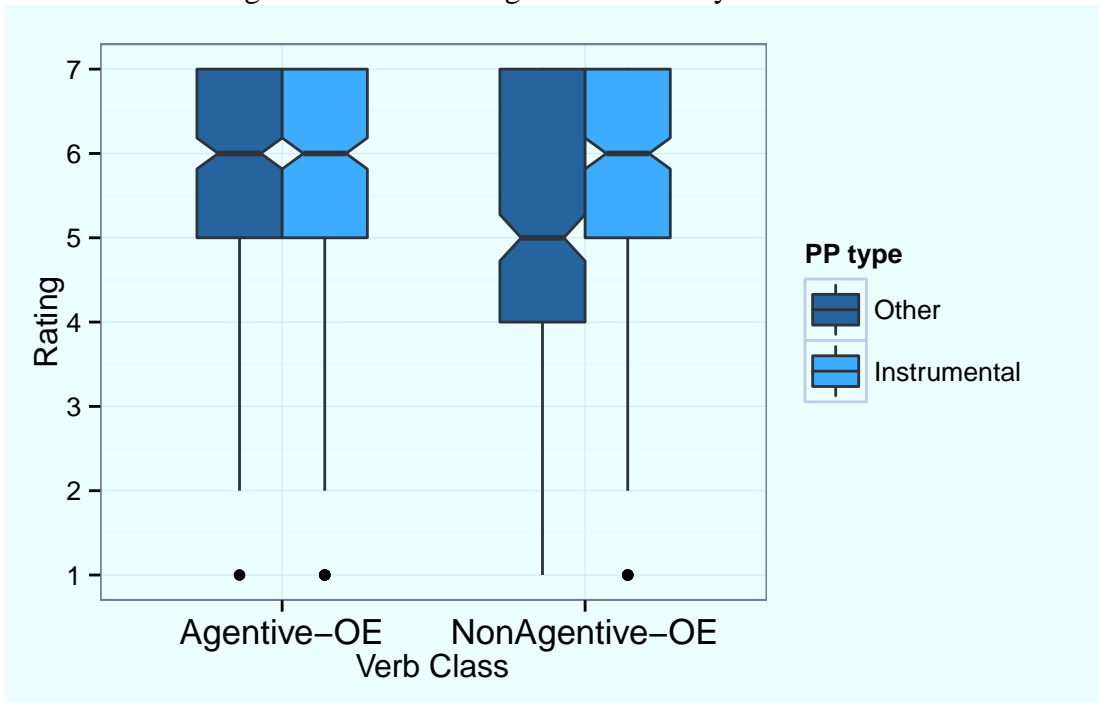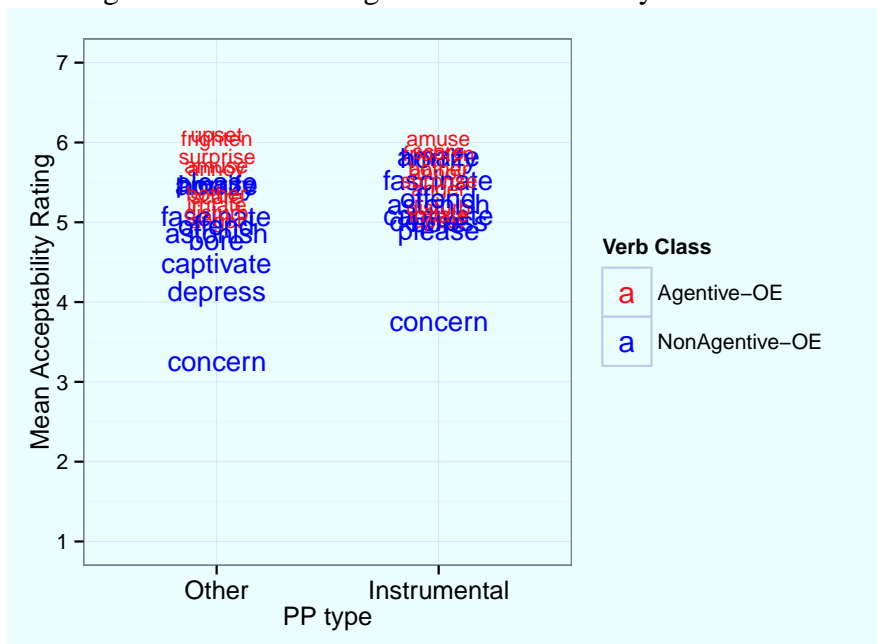Figure 5.6: Mean rating of verb class by PP condition

Figure 5.7: Mean rating of individual verb by PP condition

The results of both judgment studies cast serious doubt on models of English Obj-Exp verbs that propose a lexicalized distinction between verbs that are categorically non-agentive, e.g. *amaze, concern, depress*, and those that are more flexible in their use with either agentive or non-agentive subjects, e.g. *amuse, frighten, surprise*.

5.3.3   Emotion survey

In Chapter 4 I described in detail the emotional feature survey used for obtaining speaker intuitions about a number of properties associated with the emotions denoted by 15 different Obj-Exp verbs. In addition to the temporal properties of suddenness and duration discussed previously, this survey also asked subjects to rate how likely they thought the emotion situation was to be intentionally caused, provided it was caused by another person. Thus, this survey asked subjects directly about the degree to which they believe different emotions tend to be intentionally caused. The results of the ratings are shown in Figure 5.8.

Figure 5.8: Mean rating of intentionality by verb (values centered around global mean)
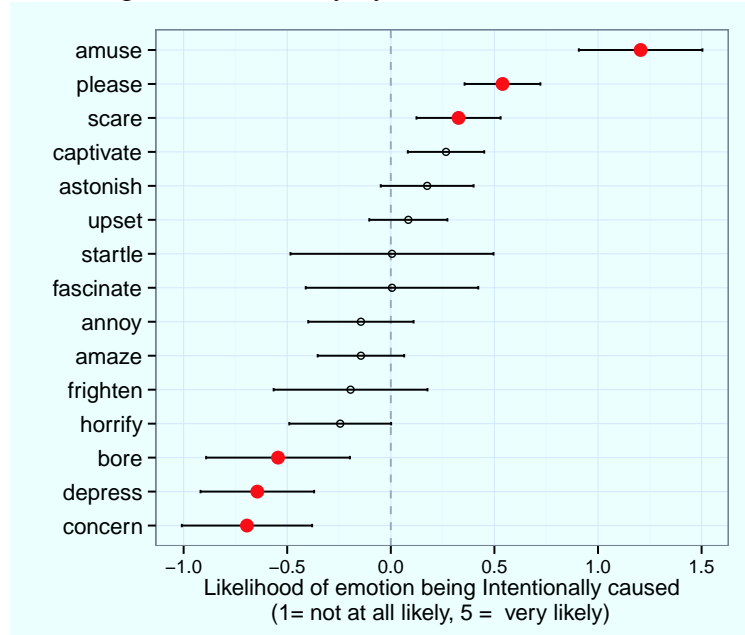
Again, the larger solid dots indicate verbs whose mean rating deviated significantly

from the grand mean across all verbs (the dotted line), based on results of a linear mixed effects model (see 4.4). Emotions rated as having a greater likelihood of being intentionally caused fall on the right of the line, while emotions rated as having lesser likelihood of being intentionally caused fall on the left. These ratings align beautifully with the judgment data, as well as trends in the corpus data discussed in Section 5.2. In the results of the acceptability judgment surveys, *depress* and *concern* were the two verbs which clearly stood out for their persistent unacceptability in agentive contexts. These are exactly the two verbs receiving the lowest intentionality rating in the emotion survey. On the other hand, *amuse* clearly stands out from the others in its tendency to be viewed as a deliberately caused emotion. The rest of the verbs show no strong bias one way or the other, with some (*fascinate, frighten* and *startle*) showing considerable variability in subjects' assessment. Considering the result from the corpus data and the judgment studies, this is not at all unexpected given that a) most verbs do readily appear in at least some agentive contexts, e.g. used as imperatives, or modified by *deliberately, intentionally,* etc., b) Study 1 failed to reveal consistent acceptability judgment patterns across many of these verbs, and c) Study 2 showed that additional information can significantly alter a verb's acceptability in intentional contexts.

5.4 Summary

The degree to which the stimulus argument is seen as playing a causal role in the emotion event, i.e. its 'potency', is directly tied to inferences about the agentivity of an event, as the ability to control the unfolding of an event is taken to be a prerequisite for intentional action. Though agentivity in Obj-Exp verbs has been a feature of some importance in previous analyses, this chapter provided further evidence that, once again, distinctions among supposed Obj-Exp verb subclasses are not as sharp as sometimes assumed. Results from Judgment Study 1 replicated recent experimental findings from several other languages

(Verhoeven 2010a), however the replication was based entirely on an a priori classification of Obj-Exp verbs that was itself suspect, given the corpus data discussed in Section 5.2. Extending the investigation to more English Obj-Exp verbs revealed that although one *can* draw a distiction between subsets of more and less agentive Obj-Exp verbs, the allotment of an individual verb to one or the other subclass is not at all an obvious choice. Furthermore, Judgment Study 2 demonstrated that inferences about Obj-Exp verb agency (in the form of acceptability judgments) can be significantly improved through the addition of only a small bit of contextual information supporting an intentional reading. Finally, the results from the emotion survey showed that some individual verbs exhibit clear intentionality bias, even when presented in isolation. This suggests that detailed event-based knowledge is associated with and activated by verb meaning, and psycholinguistic research suggests that such knowledge is immediately available in processing (e.g. Altmann and Kamide 1999, 2007; Ferretti et al. 2001; McRae and Matsuki 2009).

The findings presented in this chapter shed light on the inferential processes underlying interpretations about agency, as well as the role of conceptual knowledge in influencing meta-linguistic tasks such as making acceptability judgments. Relying on experimental and corpus data, I argued instead that the variability among Obj-Exp verbs in agentive sentences is in part a reflection of the probabilities of the eventualities those sentences denote. That is, the likelihood of a verb being used agentively is internalized as part of speakers' knowledge about emotion concepts, and human interactions more generally, and crucially, this knowledge shapes the way speakers—including linguists—interpret and evaluate language.

Example sources

[a]https://twitter.com/adeeyis/status/327122991953612801

[b]*Slippage: Previously Uncollected, Precariously Poised Stories*. Harlan Ellison. 2011:396, E-Reads.com.

[c]http://en.wikipedia.org/wiki/Bart__Sells__His__Soul [last checked 08/01/2013]

[d]http://twitter.com/ItAllChanges/status/8243932916

[e]http://twitter.com/Fisheswithfeet/status/209524019861536771

Chapter 6

Conclusion

In this dissertation I have argued that the widely-discussed grammatical peculiarities of English Object-Experiencer verbs should be explained not in terms of lexically specified syntactic or semantic structures, but rather in terms of the way the emotional situations the verbs describe are conceptualized in given contexts. My contention is that the gradient variability in the use of active, passive, and/or agentive constructions across different Obj-Exp verbs reflects differences in the tendency for a given verb to be construed as a mental state caused by an external stimulus, or as an attitude directed toward some object. Furthermore, I have argued that while the construal of a specific verb is potentially quite flexible, it is nonetheless sensitive to the speaker's knowledge of the emotion concept denoted by the verb, such that various aspects of that knowledge will render some construals more likely than others in a specific context.

One of the hallmarks of this research is its emphasis on a combination of methodological approaches. Sentences taken from natural corpora provided numerous counter-examples to several recent theoretical analyses. Indeed, the glaring inconsistencies between researchers' claims and my own intuitions are what sparked my interest in the topic to begin

with. And I am not talking here about quantitative tendencies or "gradience" in acceptability over populations (see Newmeyer 2003), but merely existence claims about the possibility of a verb being used in a particular way (Chapters 2, 3, and 5.2). That said, I also showed that corpus data can provide valuable evidence not only about what is possible with Obj-Exp verbs, but also about what is probable (Chapters 4 and 5.3). Moreover, I argued that the two cannot truly be separated: meta-linguistic tasks—like acceptability judgments—are always influenced by fine-grained knowledge relating to all aspects of information relevant to the use and interpretation of a word, construction, or sentence. This includes things such as pragmatic inferences about the likelihood of real world events, which are seemingly divorced from "pure" syntactic knowledge (see also Matsuki et al. 2011; McRae and Matsuki 2009).

In Chapter 2, I provided a number of empirical rebuttals to the syntactic analyses of English Obj-Exp verbs proffered by Belletti and Rizzi (1988), Grimshaw (1990), and others. Relying primarily on evidence from naturally occurring data involving a wide variety of phenomena, I made the case that English Obj-Exp verbs, whether stative or non-stative, agentive or non-agentive, have external Stimulus arguments (see also Chung 1999; Iwata 1995; Pesetsky 1995) as well as internal Experiencer arguments that behave syntactically much more like canonical affected direct objects than oblique arguments, contra Landau (2010b). I also argued that much of the unusual behavior attributed to Obj-Exp verbs, e.g. backward binding, constraints on nominalization and compounding, is either not unique to these verbs, or is due to contextual and pragmatic factors. Taken together, the evidence suggests that Obj-Exp verbs (in English at least) are not as syntactically peculiar as often claimed.

Chapter 3 tackled the recurrent issue of Obj-Exp verb stativity, focusing particularly on the role of passivization facts in diagnosing the aspectual nature of individual verbs. Building on ideas of Dowty (1979), Mufwene (1984), and others, I argued that differences in

acceptability among passive Obj-Exp verbs in constructions like the progressive and punctual past are intimately tied to speakers' general knowledge about the temporal nature of the emotions the verbs describe. Some emotions are construed as being sudden and ephemeral (e.g. surprise), while others are construed as gradual and long-lasting (e.g. depression, concern). Naturally, the relative transience of the emotion a verb describes directly influences the likelihood of that verb being used in constructions that implicate suddenness and/or impermanence. Speaker judgments about the temporal properties of emotion verbs, presented in Chapter 4, provided support for this idea. Emotions denoted by purportedly 'stative' Obj-Exp verbs like *concern* and *depress* were rated as significantly less transient and sudden than other emotions. Conversely, emotions associated with Obj-Exp verbs found more often in the active (e.g. *amuse, please, startle*) were rated as significantly more punctual and transient.

Such facts call into question the structural approaches that assume categorical distinctions among (subclasses of) verbs, whether at the level of syntactic structure (e.g. Belletti and Rizzi 1988; Pylkkänen 2000; Landau 2010b) or lexical semantic representation (e.g. Biały 2005; Bouchard 1995; Iwata 1993; Pesetsky 1995). The evidence from actual usage suggests that the tendency for any given Obj-Exp verb to be used in a construction like the iterative progressive is gradient and probabilistic, and not the result of categorical differences in specific lexical features or grammatical structures. As I argued in Chapter 4, the conceptual knowledge speakers possess about the emotion a verb describes is shaped by, among other things, the nature of the arguments the verb tends to occur with. Furthermore, this conceptual knowledge about a particular emotion influences the syntactic expression of a verb and its arguments, resulting in the tendency for different verbs to be used to varying degrees in certain constructions like the progressive or punctual past.

This hypothesis was explored through a close examination of the kinds of Stimulus arguments that are commonly used with different Obj-Exp verbs in a large corpus of English. The corpus investigation revealed clear and robust trends in the use of certain verbs with

arguments denoting human and event-denoting, i.e. "potent", causes, along with a strong tendency for other verbs to be used with Stimulus arguments denoting abstract entities. A regression analysis established the causal connection between the relative potency of the stimulus and passivizability of Obj-Exp verbs, adding considerable support to the idea that the choice of syntactic expression to describe an emotional situation is partially determined by the ability of the Stimulus argument to causally affect the experiencer.

The degree to which the Stimulus argument is seen as playing a causal role in the emotion event is directly tied to inferences about the agentivity of a given sentence, as the ability to control the unfolding of an event is taken as a prerequisite for intentional action. Though agentivity in Obj-Exp verbs has been a feature of some importance in previous analyses, I argued in Chapter 5 that, once again, distinctions among supposed Obj-Exp verb subclasses are not as sharp as sometimes assumed, regardless of whether the distinctions are taken to reflect differences in verbs' syntactic structure (e.g. Arad 1998; Landau 2010b) or event structure representations (e.g. DiDesidero 1999).

The evidence amassed here demonstrates that the use of a given Obj-Exp verb in a prototypically stative, eventive, or agentive construction can either contradict or reinforce pre-existing conceptual knowledge about the emotional situation(s) that verb tends to describe, with the result that a given use may seem more or less acceptable/natural in a particular context. This implies that judgments and interpretations about sentences in isolation are likely to converge merely on something like a default construal, but it also suggests that such judgments and interpretations are quite delicate and highly sensitive to effects of unknown and unintended factors. We must be particularly cautious therefore in attempting to extrapolate sweeping generalizations from such a limited and troublesome range of data.

Because psych-verbs, and Obj-Exp verbs in particular, are taken to be exceptional in various ways, analyses of their behavior has often been used to make larger theoretical points, and this work is no different. Theories of lexical meaning take for granted that semantic representations are structured in terms of the conceptual information they denote,

but linguists, psychologists, and philosophers (to name a few relevant fields) vary considerably in their opinions as to what the nature of mental concepts are. One particular point of contention involves the extent to which lexical representations are seen as being composed of purely fixed semantic content, from which meanings of larger clauses are computed according to general rules of compositionality. Many researchers from otherwise quite different theoretical perspectives, have tended to assume that word meanings can be treated as relatively stable, circumscribed knowledge structures that can be identified in a relatively straightforward way (e.g. Baker 1988; Dowty 1991; Grimshaw 1990; Jackendoff 1990; Lakoff 1987; Pesetsky 1995; Pustejovsky 1995; Rappaport Hovav and Levin 1998; Van Valin and LaPolla 1997).

The stability of lexical meaning has been criticized by others who maintain that word meanings do not constitute discrete (sets of) knowledge structures, but rather serve merely as potential access points to much larger domains of encyclopedic knowledge (e.g. Croft 2000; Elman 2009; Evans 2006; Fauconnier 1997; Fillmore 1982; Fillmore and Atkins 1992; Goldberg 2006; Langacker 1987; Tomasello 2003). Some recent approaches emphasize the protean nature of word meaning, arguing somewhat controversially that the semantic contribution of a word is solely the function of the utterance context in which it is embedded (e.g. Evans 2006, 2009). What a word means, in other words, is always a function of how it is used in a specific setting:

> [Meaning] arises as a function of the way in which words (and language) are deployed by language users in socio-culturally, temporally, and physically contextualized communicative events, which is to say utterances, due to a complex battery of linguistic and non-linguistic processes, in service of the expression of situated communicative intentions. (Evans 2009: 22)

Such approaches constitute 'usage-based' accounts of word meaning in that they emphasize the importance of grounding their claims in the use of words in natural communicative contexts. A desirable feature of such approaches to linguistic meaning is that they accord well with recent work in cognitive psychology—and the psychological nature of emotion concepts in particular—which proposes that concepts are not processed in isolation but are situated in background settings, events, and introspections (e.g. Barrett 2006; Barsalou 2005; Lindquist and Gendron 2013; Tomasello 2003; Yeh and Barsalou 2006; Zwaan 2004). These "situated conceptualizations" are implemented/activated online through the multi-modal simulation of various types of information including perceptions of relevant actors and objects, actions, introspections and settings (e.g. Barrett and Lindquist 2008; Barsalou 2003, 2009; Bergen and Chang 2005). Thus, the use and interpretation of language *in any setting* necessarily involves the processing of linguistic and non-linguistic information garnered from stored experience, including contextual and encyclopedic knowledge of all kinds.

The findings I have presented here lend considerable support to usage-based accounts of lexical meaning, however I am not convinced that fully abandoning the notion of (relatively) stable, context-independent word meaning is justified. The present findings are entirely compatible with the view that interpretation is a function of both contextual inference and word-specific (or word-class specific) semantic properties (e.g. Hartshorne 2011), which are acquired through the recurrent use of words in prior contexts (e.g. Kecskes 2008). In the view of many (Ambridge et al. 2008; Braine and Brooks 1995; Brooks and Tomasello 1999, but cf. Goldberg 2009), lexicalized meaning represents the 'entrenchment' of situated conceptualizations (Barsalou 2005) or event schemas (Elman 2009) which, over time, "become so well established that [they become] active automatically and immediately when the situation arises" (Barsalou 2009: 1284). In this way, encyclopedic knowledge is built up from generalizations across multiple individual episodes, and aspect of this knowledge may become lexicalized as part of linguistic knowledge specific to individual lexical items.

Recent psycholinguistic work on sentence processing suggests that language users possess detailed thematic- and event-based knowledge of the events denoted by different verbs, and this knowledge is immediately active in comprehension (Bicknell et al. 2010; Ferretti et al. 2001; Hare et al. 2009a,b; McRae et al. 1997, 2005; McRae and Matsuki 2009). The lexicalization of finer-grained aspects of event knowledge in turn gives rise to variable patterns in linguistic behavior across words and word senses (Ambridge et al. 2008; Bermel and Knittl 2012; Hare et al. 2009a).

The results presented in my investigation of Obj-Exp verbs are fully consistent with these psycholinguistic findings. Obj-Exp verbs do indeed exhibit statistical variability in the types of arguments they take, as well as the frequency with which they are used in stative, eventive, and agentive constructions. Additionally, the statistical patterns observed in the corpus data mirror patterns in speakers' offline acceptability judgments and assessments of verb emotions. These facts all point to a model of linguistic knowledge that is quantitative in nature, and built up from experience.

Variability is an inherent feature of any such model, as individual speakers' knowledge of specific words, constructions, etc., will depend on the nature of the specific words, sentences, and discourses speakers are exposed to. Broadly speaking, the data presented here are compatible with a number of quantitative approaches to grammar, including probabilistic grammars as well as exemplar-based approaches. In the former approach, linguistic knowledge characterized by the association of probabilities over grammatical rules or constraints, which converge on patterns in speakers' inputs via domain-general statistical learning algorithms (e.g. Boersma and Hayes 2001; Bresnan and Hay 2008; Bresnan et al. 2007; Chang et al. 2000; Chater and Manning 2006; Manning 2003). The latter approach models grammar as a set of generalizations over stored instances of previously encountered bits of language, and new expressions are created by analogy (e.g. Bod 2006; Walsh et al. 2010). Different but similar situations can, by analogy, activate entrenched conceptualizations or schemas at various levels of abstractness on subsequent occasions, providing the

mechanism through which similar words (concepts) come to align in semantically coherent, and therefore grammatically relevant, ways.

In this dissertation, I have argued for just such a model of the relation between syntax and semantics of psych-verbs in English. To be sure, there remains a great deal left to discover about psych-verbs in English and in other languages. My hope is that the work presented here will provide an influential model, both methodologically and theoretically, for future investigations into the fascinating and complex relation between emotion and language.

Appendix A

Experimental results

A.1 Judgment Study 1

Full statistics for the results of Judgment Study 1 are shown in Table A.1. Significance was determined using likelihood ratio tests comparing identical models with and without the relevant predictor. Baayen (2008: 247-8) discusses an alternative method using MCMC sampling, however current R packages have not yet implemented such methods for models containing random slopes, as is the case here.

A.2 Judgment Study 2

Judgment Study 2 used two sets of fillers as good and bad benchmarks for acceptability ratings. Each test sentence was presented with one acceptable filler, and one unacceptable filler.

Full statistics for the results of Judgment Study 2 are shown in Table A.3. Again, significance was determined using likelihood ratio tests comparing identical models with and without the relevant predictor.

	Estimate	Std. Error	*t*	*p* value
Intercept	6.085	0.329	18.50	
Verb Class = NonAgentive	**–0.918**	**0.392**	**–2.34**	**0.043**
Sentence				
= Adverbial	–0.506	0.191	1.34	0.113
= Control	**–1.152**	**0.191**	**–2.37**	**0.036**
= Imperative	**–1.598**	**0.176**	**–3.96**	**0.001**
Gender = Male	0.106	0.324	0.32	0.518
Age	0.306	0.317	0.97	0.251
Freq	0.226	0.182	1.32	0.095
NonAg × Adv	–0.279	0.166	–1.44	0.490
NonAg × Control	0.090	0.254	0.36	0.490
NonAg × Imp	–0.024	0.250	–0.10	0.490
Random Effects:	Variance	Std. Dev.		
Sentence	0.125	0.355		
Verb	0.368	0.607		
Subject (intercept)	0.664	0.815		
Subject by Verb Class	0.400	0.632		
Residual	2.129	1.459		

Table A.1: Model statistics from Judgment Study 1.
Bold-faced factors significant at $p < 0.05$.

Acceptable fillers:
  The chef intentionally melted the chocolate in the stainless steel pan.
  The custodian dutifully swept the floor with the new broom.
  The instructor carefully wrote the instructions to the problem on the board.

Unacceptable fillers:
  The movie star deliberately blushed the young fan at her autograph signing.
  The marathon eventually swooned the exhausted runner with its extreme length.
  The dog angrily cringed the terrified cat with its barking.

Table A.2: Judgment Study 2 filler stimuli

	Estimate	Std. Err.	t	p-value
(Intercept)	-0.022	0.089	-0.246	< 0.001
Male subject	0.059	0.136	0.437	0.329
Instrument PP	**-0.254**	**0.122**	**-2.072**	**0.038**
persuade sentence	-0.087	0.640	-0.137	0.891
Age	**0.378**	**0.163**	**2.313**	**0.021**
NonAgentive verb	**-0.653**	**0.230**	**-2.844**	**0.004**
Verb class × PP	**0.486**	**0.179**	**2.717**	**0.007**
Sent. Type × PP	0.118	0.388	0.304	0.676
Sent. Type × Verb Class	-0.023	0.392	-0.058	0.913
Random Effects:	Variance	Std. Dev.		
Sentence	0.641	0.801		
Verb	0.084	0.289		
Subject	0.03	0.777		
Residual	1.404	1.185		

Table A.3: Model statistics from Judgment Study 2.
Bold factors significant at $p < 0.05$. All other factors are not significant.

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