

**BUILDING AN L2 LEXICON: THE ACQUISITION OF VERB
CLASSES RELEVANT TO CAUSATIVIZATION IN ENGLISH
BY SPEAKERS OF HINDI-URDU AND VIETNAMESE**

by

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Abstract

This study examines the L2 acquisition of constraints on English causativization in order to gain insight into the organization of the L2 lexicon, the route of L2 lexical acquisition, and the possible interaction between the L1 and L2 lexicons. Lexical organization is investigated via an analysis of the syntactic production and judgments of learners on the premise that verbs displaying similar grammatical behaviour generally do so because they share meaning components.

It was hypothesized that (i) the ability to generalize beyond the input would improve with lexical proficiency, and (ii) the learner's L1 would influence the acquisition of verbs in those L2 semantic classes where there were translation equivalents of existent L2 items in the L1. In order to investigate lexical transfer, the performance of Hindi-Urdu speakers at three levels of lexical proficiency was compared with that of Vietnamese speakers at corresponding proficiency levels since there are marked differences between these languages in terms of causativization. The hypotheses were tested through four tests in English: a picture-based production task, a picture-based multiple-choice task, a grammaticality judgment test involving high-frequency verbs, and a grammaticality judgment test involving low-frequency, previously unknown verbs.

Results indicated that on the second judgment task, the advanced learners in each language group had significantly higher overall scores than the elementary learners, suggesting that advanced learners make better connections than elementary learners between newly encountered L2 verbs and previously known verbs that are semantically related to them. Significant increases between the elementary and advanced levels were also witnessed on the picture-based tests: since these two tests centred on known verbs, these increases were seen as indications of growing accuracy across semantic classes with increasing proficiency.

The validation of many of the transfer-related sub-hypotheses suggests that there is at least some sharing of semantic information between the L1 and L2 verb lexicons. Specifically, the findings highlight the existence of varying degrees of “transferability” across verb sub-classes and suggest that transfer plays a role in the ease or difficulty involved in shedding overgeneralized features of the L2.

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TO MY PARENTS, ERIC AND TARA
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Chapter 1

INTRODUCTION

1.1 STATEMENT OF PURPOSE

The aim of this study is to examine the second language (L2) acquisition of verb classes relevant to the causative alternation in English in order to gain some insight into the nature of the developing L2 lexicon, the route of L2 lexical acquisition, and the role of the first language (L1) lexicon in this acquisition process. The causative alternation involves morphologically related verbs that appear in both intransitive non-causative constructions and transitive causative constructions, as exemplified by "melt" in the following sentences from English and Hindi-Urdu:¹

1. *makkhan* *pighlaa*
 butter melted
 "The butter melted."

2. *indraa-ne* *makkhan-ko* *pighlaayaa*
 Indra-ERG butter-ACC melted
 "Indra melted the butter."

¹ Since the differences between Hindi and Urdu are minor, and there too only in terms of the sound system and vocabulary, Hindi leaning towards Sanskrit and Urdu towards Persian (Masica, 1976, 1991), in recent times the two languages have been treated by many linguists and grammarians as being essentially the same, as is indicated by their use of the umbrella term "Hindi-Urdu" (for example, Kachru, 1976; Khan, 1987; Southworth, 1971). For the purposes of this study, Hindi and Urdu will be considered the same language.

In the sentences that follow, ERG represents the Hindi-Urdu ergative (agentive) marker and ACC the accusative marker.

The intransitive version typically represents an autonomous change of state or location: its transitive counterpart represents the bringing about of this event by an agent.

Of central importance to this study is the issue of how the L2 verb lexicon is organized and the extent to which this organization is influenced by prior L1 lexical knowledge. The rationale for examining lexical organization via an analysis of the *syntactic* production and judgments of learners is provided by the view that syntax is driven by the lexicon, with verbs playing a central role in the acquisition of a grammar (see Chapter 3). It has been proposed that the grammatical behaviour of a verb is intimately connected with its meaning and that verbs which share a certain behaviour also share meaning components (Brousseau & Ritter, 1990; Grimshaw, 1990; Guerssel et al., 1985; Jackendoff, 1983, 1990; Hale & Keyser, 1986; Levin, 1993; Levin & Rappaport Hovav, 1991, 1992; Massam, 1990; Pinker, 1989a; Talmy, 1985; *inter alia*). That verbs cohere together in grammatically relevant semantic classes is compatible with the findings of psycholinguistic research, which suggest that there are tight links between words in the same class, for example verbs or nouns, in particular those which are semantically related (Aitchison, 1994). Furthermore, these findings suggest that there is at least some interaction between the L1 and L2 lexicons and that this interaction is in part semantic, involving L1 and L2 words that correspond in meaning and word class (Aitchison, 1994; Schreuder & Weltens, 1993).

The hypotheses to be tested have been formulated on the basis of psycholinguistic research on the mental lexicon, current views in linguistic theory on the role

of the lexicon in the acquisition of a grammar, as well as second language acquisition research on learnability issues and transfer-related phenomena. It is hypothesized that at an elementary level of lexical proficiency adult learners of different L1 backgrounds (Hindi-Urdu and Vietnamese) will show signs of acquiring verbs in an item-by-item fashion, but once acquisition is well underway (i.e., at an intermediate level), learners will begin to place verbs in semantic classes, thereby paving the way for generalizing beyond what is actually encountered in the input. In other words, the L2 learner will not apply an alternation pattern to a variety of verbs without examining their grammatically relevant properties; nor will the L2 learner be completely conservative, determining that a verb alternates only upon taking note of it in each of its syntactic frames in actual input, i.e., monotonically. It is supposed that evidence of semantic categorization will be reflected in an increasing accuracy in the responses within a semantic class (e.g., physical change-of-state verbs or verbs of directional motion) as learners become more proficient. However, unambiguous evidence of semantic categorization can be demonstrated only through tests involving previously unknown verbs that are introduced to the learners at the time of testing.

A complicating factor in L2 lexical acquisition is the fact that the adult L2 learner's knowledge base also includes a knowledge of the L1 lexicon with its individual entries, classifications, and lexical rules. This gives rise to the possibility of various types of interaction between the established L1 lexicon and the emerging L2 one. Thus, this study also addresses the issue of whether L1 semantic verb classes and semantic

representations of individual verbs influence the acquisition of the L2 verb lexicon, and if so, what conditions favour positive or negative transfer from the L1 lexicon to the L2. It is hypothesized that during the process of learning new L2 lexical items and their grammatical properties, the learner will search for possible L1 equivalents, for instance, similar lexical rules or translation equivalents of individual verbs (Adjemian, 1983; Blum-Kulka & Levenston, 1983; Harley, 1992), or similar classes of verbs. It is anticipated that after the early data-driven stage of lexical acquisition, the learner will begin to formulate lexical rules and verb classes and will thus be in a position to determine whether L1 classes (including individual verbs and their semantic representations) are transferable to the L2 or not. At this point, differences in performance could emerge between an L1 group where interlingual and intralingual conditions for transfer are met and a comparison group where transfer is not predicted.

It is hypothesized that there will indeed be transfer from the L1 to the L2, but only when there are signals in the L2 input itself which give the learner reason to believe that the L1 and L2 overlap significantly in some respect (Andersen, 1983; Wode, 1976, 1978). In short, the mere existence of a feature in the L1 (for example, a class of verbs that display a certain syntactic behaviour) will not provide sufficient motivation for transferring this feature to the L2. Where the overlap is very close to being complete, transfer will be positive, resulting in an accelerated acquisition of the grammatical properties of the verbs in question and of the entire class containing

them.² However, in those cases where the overlap between the L1 and the L2 is great but not complete, it is expected that the learner might mistakenly consider what is similar to be identical, failing to perceive subtle differences that might exist between the two languages in that area. In this case, therefore, transfer is expected to be partly negative.

1.2 OUTLINE OF THE STUDY

Two groups of ESL learners were tested. The main group were speakers of Hindi-Urdu as L1, with speakers of Vietnamese as L1 constituting a comparison group. There were 45 learners in each L1 group; each group was further divided into three proficiency levels: elementary, intermediate, and advanced.

Hindi-Urdu has a broad class of verbs that appear as stem-sharing direct causatives (see examples 1 and 2 above).³ Vietnamese has only a handful of these, the rest being suppletive (as in the English “kill,” which is phonologically unrelated to “die”) or periphrastic (as in “Balthazar *made* the baby *cry*”). Thus, in terms of causativization, verb classes in Vietnamese contrast markedly with Hindi-Urdu classes. Since one of the aims of this current study is to investigate lexical transfer,

² It is being assumed that in any given area, languages can be near-identical, but not identical in the strict sense of the word.

³ “Stem-sharing” means that some or all of the verb stem is shared by the intransitive and transitive versions of the verb. A “direct causative” is one which implies that the causation is direct, without the intervention of a mediating force.

these differences are of central importance to the study. As has been observed by numerous researchers in the field, in many instances an ostensible transfer effect can just as easily be a developmental feature that is independent of language background. In short, what seems like transfer could be overgeneralization based on the target language and not necessarily the L1. By having two contrasting L1 groups, it becomes possible to identify an effect as a case of transfer when differences in performance between two groups correspond to differences between their L1s.

The hypotheses discussed above were tested in the two contexts chosen for this study -- Hindi-Urdu or Vietnamese as the learners' L1s with English as their L2 -- through four separate tests in English: (i) A production task using pictures to elicit data, (ii) a multiple choice task based on the same pictures, (iii) a grammaticality judgment test involving high-frequency verbs, and (iv) a second grammaticality judgment test involving low-frequency verbs. Verbs in English were chosen on the basis of their membership in particular semantic classes in the three languages in question, and, in the case of the judgment tests, their frequency in English (as assessed via established frequency lists). (See Chapter 4 for details about causativizing verb classes in the three languages, Chapter 5 for the hypotheses pertaining to the L2 acquisition of the verbs in these classes, and Appendices 2 through 4 for details about the verbs used in the test package) In order to map the route of acquisition of semantic classes, the subjects were identified as belonging to one of three proficiency groups -- elementary, intermediate, and advanced -- on the basis of the first three

sections of Nation's (1990) frequency-based vocabulary placement test for English (see 5.2.2.1 in Chapter 5). Cross-sectional tests of this kind, involving groups of learners who are at different levels of proficiency, are based on the assumption that variations in performance from level to level -- say from elementary to intermediate to advanced -- throw light on the route of acquisition, even though actual "development" can be tracked only if the performance of particular learners is followed over a period of time (Cook, 1986, p. 5).

In addition to the non-native data, responses to the test items were elicited from five native speakers of English, four of whom spoke Canadian English and one Australian English. These data were collected in order to provide a measure of standard native-speaker responses to the test items and to eliminate those items from analysis that were problematic because of divided native-speaker responses (see 5.3.1 in Chapter 5).

1.3 SIGNIFICANCE OF THE STUDY

Not much is known as yet about the organization and functioning of the L2 mental lexicon. While it is generally believed that there is at least some interaction between the L1 and L2 lexicons, the nature of this interaction is not clearly understood. Exactly what types of links exist between the two lexicons or what types of information are shared by the two lexicons remains unclear. Likewise, there is considerable debate on

the nature of the links among items within the L2 lexicon itself. (See Albert and Opler, 1978; Channell, 1988; Green, 1986; Kirsner et al., 1980; Kirsner et al., 1984; Lee, 1994; Meara, 1982, 1984; Potter et al., 1984; Schreuder & Weltens, 1993; Singleton & Little, 1991 for some representative views.) While there has been a fair amount of psycholinguistic research on lexical organization and functioning in balanced bilinguals, resulting in various models of lexical organization, research on the *route* of L2 lexical acquisition by learners who have clearly not gained native or near-native proficiency has been sparse (Channell, 1988). For example, it is not known how a knowledge of the L1 lexicon might affect the process of L2 acquisition itself in terms of the attention paid to the input, the interpretation of the input, the hypotheses made regarding what may or may not exist in the L2, or the circumstances in which L1 properties are imposed on L2 input (Andersen, 1983; Schachter, 1983; Sridhar, 1981; White, 1991).

Exacerbating the problem of conflicting viewpoints and insufficient research on the L2 lexicon is the fact that testing in the area of L2 lexical acquisition has frequently required learners to respond to decontextualized vocabulary items. Such testing has been criticized on the grounds that learner responses to words in isolation often do not reflect the true nature of lexical associations, there being evidence that words yield different associations when viewed in isolation than when viewed in context (Aitchison, 1994:83ff.; Carter, 1987). This study attempts to address the problem related to the testing of decontextualized vocabulary items by focusing on the

L2 classification of verbs and the grammatical repercussions of these classifications, an area of L2 research that is, for the most part, uncharted. In the tests used in this study, each verb appears in two sentences, an intransitive and a transitive; this provides more context for the verb than would be the case if it appeared in complete isolation (even though the sentences themselves are undoubtedly decontextualized). While a small number of L2 studies have involved verb alternations (notably Adjemian, 1983; Ard & Gass, 1987; Carroll & Swain, 1993; Le Compagnon, 1984; White, 1991), they have not focused on the actual organization of the L2 verb lexicon, being more concerned with the transfer of the syntactic frames of individual verbs or of entire sets of verbs from the L1 to the L2, or with the effects of instruction on the acquisition of alternations.⁴

This study should contribute to L2 learnability theory in several ways. First, evidence in a learner's syntax of either the semantic categorization of verbs or of item-by-item lexical learning will shed some light on the acquisition and organization of the L2 lexicon at different stages of acquisition and the extent to which the learner overgeneralizes or correctly generalizes beyond the input: “[L]earners have to, and do, learn the lexical constraints on sentence production. But we still do not know much about the details of how this sort of learning takes place” (Gass & Selinker, 1994, pp.

⁴A part of Ard and Gass's study does look into whether L2 learners place verbs in semantic categories and, if so, when this process begins. However, what they identify as semantic organization could also be the result of item-by-item learning, an issue that will be discussed again in Chapter 2.

280-1). Furthermore, any results obtained in this study that show that L1 lexical properties are transferred to the L2 in certain circumstances and not in others should shed further light on the nature of transfer itself. It is now well-established that transfer is a multi-faceted phenomenon and that in order to understand its complexity, research on transfer needs to encompass various linguistic domains and various language types, especially non-European ones (Kellerman & Sharwood Smith, 1986; Odlin, 1989).

This study can contribute to the body of research needed to achieve a clearer understanding of transfer-related phenomena by examining transfer in the area of lexical acquisition and by using Hindi-Urdu and Vietnamese as L1s for this purpose.

Ultimately, research on transfer in a variety of linguistic contexts should give us a fuller account of the circumstances in which transfer becomes probable than we currently have. It is possible, for example, that contrary to the widely-held view that transfer is most pronounced at the earliest stages of acquisition (Corder, 1981, pp. 98-102; McLaughlin, 1978, pp. 121-7; Newmark & Reibel, 1968; Taylor, 1975), transfer effects may be more prominent only after some cross-checking between the L1 and the L2 highlights similarities between the two languages. Such might be the case if the learner initially acquires the grammatical properties of lexical items in a conservative manner but later, upon perceiving an overlap between the L1 and L2, begins to transfer more liberally. This stance is in keeping with the view that interlingual and intralingual factors work in tandem in language transfer and that certain transfer errors

cannot take place before a particular level of proficiency has been achieved (Odlin, 1989; Wode, 1978).

Since this study focuses on the acquisition of verbs and their grammatical properties, the findings of this study should have implications for second language pedagogy, particularly in the area of grammar and vocabulary instruction. As has been pointed out by some, the connections between psycholinguistic research on the nature of the mental lexicon in bilinguals and research on vocabulary learning and teaching are tenuous at best (Channell, 1987; Harley, 1995; Meara, 1987, 1993). A potential off-shoot of studies such as the current one is to spell out ways in which this gap can be bridged. The norm in second language pedagogy, for example, has been to treat grammar and vocabulary as independent areas of instruction, as is evidenced by the fairly common practice of holding separate lessons for grammar and vocabulary, or having separate textbooks for each, in curricula that break up L2 instruction into components. Such an approach could be remedied if it were recognized in a *non-intuitive* way that verbs sharing a certain syntactic behaviour belong to semantically coherent classes, definable through an examination of shared elements in these verbs' meanings, and if formal research confirmed the relevance of this issue to L2 acquisition.

Since this study centres on the acquisition of verb meaning and verb classes, the issues investigated here are also pertinent to the compilation and use of on-line lexical databases (Atkins and Levin, 1991; Levin, 1991; Levin & Pinker, 1991), which could

prove to be important L2 pedagogical resources. If it could be shown that L2 learners do indeed zero in on the connections between the meaning components of verbs and their grammatical properties, a case could be made for specifying these grammatically relevant meaning components in a systematic and comprehensive way in any lexical resource materials for L2 learners, a requirement that has not been met in the printed dictionaries that are currently in use.

The following chapter contains a review of the psycholinguistic and second language literature on the mental lexicon and lexical transfer from the L1 to the L2. Chapter 3 will review approaches to the lexicon and lexical learnability in linguistic theory and L1 acquisition research. Chapter 4 will provide an overview of types of causatives in English, Vietnamese, and Hindi-Urdu. The last four chapters will then present an account of the study itself: the hypotheses, the research design and methodology, the results and their interpretation, and the implications of these findings for L2 research and pedagogy.

Chapter 2

A REVIEW OF THE PSYCHOLINGUISTIC AND L2 LITERATURE ON THE COMPOSITION OF THE MENTAL LEXICON AND ON L1-TO-L2 TRANSFER

2.1 BRIEF OVERVIEW OF THE ISSUES

While psycholinguistic research on the mental lexicons of native speakers and balanced bilinguals has been fairly substantial, resulting in a variety of models of lexical organization and functioning, relatively little such research has been conducted on the route of L2 lexical acquisition by learners whose L2 proficiency is much lower than near-native. Thus there is considerable uncertainty regarding the nature of the developing L2 lexicon and the interaction between the L1 and L2 lexicons during the acquisition process. This chapter will focus on psycholinguistic research on the organization of lexical knowledge in monolinguals, balanced bilinguals, and L2 acquirers. Included in this discussion will be an overview of various models of lexical representation in bilinguals, particularly those which propose an interaction between the L1 and L2 mental lexicons. This posited interdependence of the lexicons will be examined in the light of the larger issue of transfer from an L1 to an L2, a pivotal issue in SLA research. Such research has provided insights into the types of links between items within a single lexicon and

between a bilingual's two lexicons and is relevant to the current study since the hypotheses to be tested here have been formulated on the assumption that (i) there are semantic links between words in a mental lexicon, (ii) there are close links between words of the same class, specifically verbs, in this lexicon, (iii) there is interaction between a bilingual's two lexicons, and (iv) the links between the two lexicons are in part semantic. Chapter 3, too, will centre on the composition of the mental lexicon but this time within a framework provided by research on language learnability, conducted within theoretical linguistics.

2.2 THE NATURE OF THE L1 MENTAL LEXICON

Much of our knowledge about the L1 mental lexicon is based on speech error research undertaken during the last three decades, involving an analysis of the errors, word associations, and word searches (attempts to dredge up words from memory) of both native speakers and people with speech disorders.¹ A commonly held view among psycholinguists is that the L1 mental lexicon is organized *both* phonologically and semantically, making it fundamentally different in organization from book dictionaries (Aitchison 1994, pp. 10ff.). In addition, lexical entries in

¹ As Channell (1988, p. 84) points out, the concept of "speech error" in L1 psycholinguistic research differs dramatically from the concept of error in SLA: "... L1 errors are taken to be evidence of what L1 learners know, whereas L2 errors are taken (mainly) to be evidence of what L2 speakers do not know ..."

the mental lexicon are seen as containing a great deal more information than is provided by book dictionaries, including, for example, phonological information that equips the listener to cope with variations in pronunciation (depending on the speaker and the stream of speech in which the item occurs) and detailed information about the item's grammatical properties (Aitchison, 1994).²

Many of the findings of speech error research indicate that entries are arranged phonologically in the mental lexicon. Fay and Cutler's oft-cited (1977) examination of stress patterns and syllable count in malapropisms, one of the earliest empirical studies in this area, provided strong evidence in favour of lexical organization according to phonological properties.³ An analysis of 183 malapropisms in a corpus collected by Faye indicated that 98% had the same stress pattern, as when "ludicrous" was substituted for "lucrative," or "bothering" for "borrowing," or "finger" for "fender." Furthermore, 87% of the malapropisms had the same number of syllables as the target word. (In more recent research conducted by Aitchison and Straf, 1982, the figure stands at the 67 percent, which though smaller than Fay and Cutler's, is still noteworthy.) These analyses of malapropisms have also shown that

² The latter issue will be discussed at greater length within a linguistic framework in 3.1 in the following chapter.

³ Malapropisms are words that are related to their target words phonologically but not semantically. Fay and Cutler's malapropisms excluded word substitution errors that could have been spoonerisms, phoneme substitutions based on anticipation or perseveration (repeating a phoneme that occurred earlier in the utterance), and phoneme omission. Also excluded were any errors that could be viewed as having a semantic basis.

words which have similar or identical beginnings and endings are closely associated (Fay & Cutler, 1977; Aitchison & Straf, 1982); in fact, there are phonological resemblances between a malapropism and its corresponding target throughout the two words, as has been pointed out by Hurford (1981).⁴ In addition, Faye and Cutler's reanalysis of 79 semantic errors from their own corpus and from Fromkin's (1973) corpus showed that the majority of these semantic errors had a phonological basis as well: 75% had the same number of syllables as the target and 82% had the same stress patterns as the target. The salience of the beginnings, endings, and rhythm of words has also been witnessed in "tip-of-the-tongue" (TOT) experimental research, involving words that are on the "tip of the tongue" but cannot be recalled completely at the time of elicitation. Early TOT research revealed that the first sound, the last one (though to a lesser extent than the first), stress, and the number of syllables could be better remembered than other formal aspects of the word (Brown & McNeill, 1966; Koriat & Lieblich, 1974; Yarmey, 1973).

On the basis of the close phonological ties between malapropisms and their targets, Fay and Cutler argued that the L1 mental lexicon had to be organized along phonological lines. However, speech error research has also yielded strong evidence in favour of the semantic organization of lexical items (Faye & Cutler,

⁴ The salience of the beginnings and endings of words has been nicknamed the "bathtub effect," corresponding to the protrusion of one's head and feet in a bathtub (Aitchison, 1994).

1977; Fromkin, 1980; Motley, 1980). First, there are often semantic links between errors and their targets. Many selection errors, for example, are based on semantic associations, as shown by the use of "apple" instead of "orange," or "eat" instead of "drink." Blends, too, are regularly semantic in nature, for example, "strying" ("trying" + "striving") (from Green, 1986, p. 213), "dentars" ("dentals" + "velars") (from Fromkin, 1980, p. 87), or "hush" ("hurry" + "rush"). Often phonologically related substitutions are also semantically related, as when "burglars" replaces "beggars" in "I don't have much sympathy for rich-looking *burglars*" (Aitchison, 1994, p. 20). Second, there is an almost unfailing match between the word classes of errors and their targets, irrespective of whether the error has a semantic or phonological basis.⁵ In Faye and Cutler's (1977) corpus, for example, word class is preserved in 99% of the malapropisms. (See also Garrett, 1980, 1988, and Nooteboom, 1969, for evidence of word class preservation in speech errors and for interaction between word class and phonetic similarities in substitution errors, as in the use of "mushroom" for "moustache.") First language acquisition data, too, reveals the same preservation of word class, there being very few L1 acquisition errors involving the misinterpretation of the syntactic class of a word (Maratsos, 1978). Third, there is the obvious need to include some mechanism for providing

⁵ That there exists a close connection between the meaning of a word and its part of speech is unsurprising: "Word class categorization is not arbitrary, and in origin rose out of semantic categories. Prototypical nouns tend to be people and things, and prototypical verbs tend to be actions" (Aitchison 1994, p. 101).

access to semantic information in any psycholinguistic model of speech production and comprehension.

To account for both the phonological and semantic links among items in the word store, Faye and Cutler suggest that there is one phonologically arranged lexicon which is accessible to both a phonological network and a semantic one. Production starts with meaning, which is then mapped onto sound; in comprehension the mapping is from sound to meaning. The existence of two modules, a semantic-syntactic and a phonological one, with tight links among items in the same module (i.e., those that share many properties, for example words in the same semantic field) and looser links with items outside the module, is one commonly held view among psycholinguists (Aitchison, 1994, pp. 222ff.). The semantic-syntactic module facilitates production; the phonological module optimizes the speed of sound identification and facilitates speech comprehension:

Word lemmas (meaning and sound class) seem to be organized in semantic fields, and within these fields there are strong bonds between coordinates which share the same word class, such as *lion*, *tiger*, or *knife*, *fork*, *spoon*. For producing speech, this is a useful arrangement. . . . Word forms (sound structure), on the other hand, are organized with similar-sounding words closely linked, such as *referee* for “refugee”, *reciprocal* for “rhetoric”. This is useful for word recognition. [Aitchison, 1994, pp. 222-3]

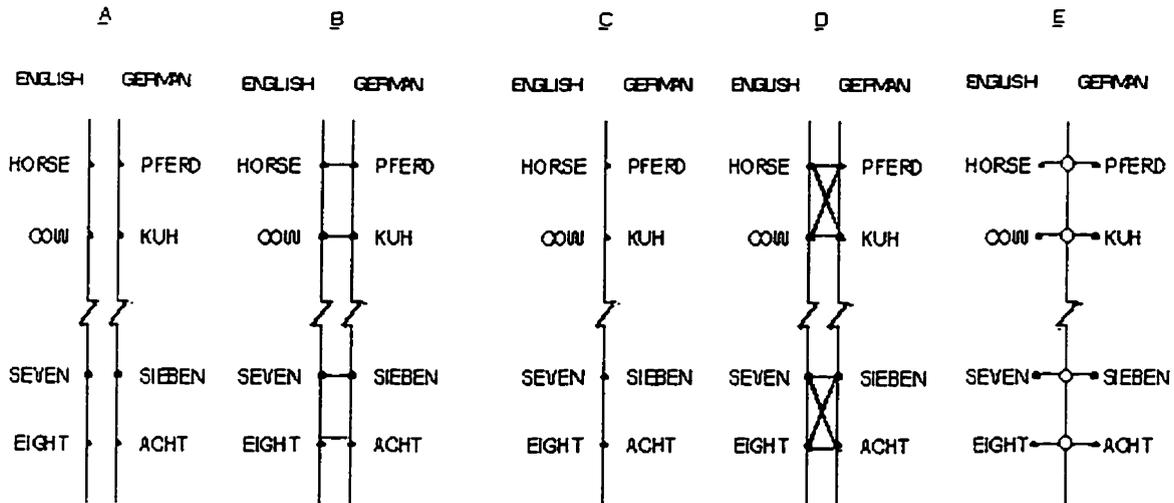
The hypotheses that are being tested in this study have been formulated on the premise that there are links between semantically related verbs, both within the L2 and between the L1 and L2, and that the acquisition of semantic classes may be

tested by examining the learner's syntax via production and grammaticality judgment tests (see Chapter 5). The above-mentioned view that semantically related words and words which belong to the same word class are tightly linked is compatible with the view within linguistics that verbs (i.e., one of the word classes) which display a certain syntactic behaviour generally share certain grammatically relevant meaning components and can thus be said to belong to "semantically coherent" classes. (These issues will be dealt with in greater detail in Chapter 3.)

2.3 THE NATURE OF THE L2 LEXICON AND ITS LINKS WITH THE L1 LEXICON

Much of the research on the nature of the mental lexicon has involved native speakers of English, which has brought with it a concentration on monolingualism since anglophones tend not to speak a second language (Aitchison, 1994, p. 236). The crucial issue here is how lexical information is represented in speakers of more than one language. The following five models, reproduced from Kirsner et al. (1984) depict the representation of lexical information in bilinguals:⁶

⁶ Models A to D, in turn, have been reproduced from Meyer and Ruddy (1974), *Bilingual word recognition: Organization and retrieval of an alternative lexical code* (unpublished article), and Model E from Potter et al. (1984).



Overall, the models may be broadly classified as characterizing either the independence or the integration of the L1 and L2 mental lexicons. Models A and B represent language-specific lexical organization. In model A there are two completely unrelated entries for the same referent, a scenario which is generally considered unlikely, given the ability of bilinguals to provide translation equivalents for items in either language (Kirsner et al., 1984). In B, there are links connecting direct translations alone; the two lexicons are functionally autonomous and interlingual connections are not automatically activated unless a conscious decision is made to do so (see Scarborough et al., 1984, for support for this model).

The remaining models C, D, and E represent integrated lexical networks, which in general are the models that have been best supported by current research findings: "Most studies seem to show that there is interaction between the lexicons

of the two languages in one user . . . " (Channell, 1988, p. 86). This current study, too, takes the view that the L1 and L2 lexicons are integrated, a phenomenon which is reflected in the transference of grammatical properties of L1 verbs to semantically related L2 verbs.

In model C, a word and its translation equivalent have a single underlying representation, or, to put it another way, the two "share the same place"; a single entry records the two phonological shapes of translation equivalents. (This is often referred to as the "single store" hypothesis (Hummel, 1986, p. 48).) In models D and E, words are "stored" in separate lexicons. While in D there are direct inter-language and intra-language connections without a mediating conceptual system, in model E these connections are mediated by a language-free conceptual system. In other words, in E, words are closely or loosely bonded according to the number of conceptual features shared, with translation equivalents (such as cognates) being the most closely associated, though remaining separate lexical entries.

Models D and E are supported by Kirsner et al.'s (1984) research, which provides evidence for the integration of the L1 and L2 networks but with language-specific lexical representations. De Groot (1993) suggests that concrete words (whose meanings are generally more stable across languages than the meanings of abstract words) and L1-L2 cognates tend to be stored compoundly (i.e., separate L1 and L2 entries, but with a common conceptual representation), while the remaining types of words are stored coordinately (language dependently

or separately) (see also Kroll, 1993). Green (1993), on the other hand, sees little need for a model in which the representational formats for L1 and L2 words vary according to the type of word. Instead, he suggests that semantically-related L1 and L2 words have overlapping semantic specifications: "Let us assume that each word form has a separate semantic specification. Translation equivalents have the same or closely similar specification" (p. 259). Model E is also the one presented by Green (1986, 1993). Green's findings support the view that in the case of bilinguals who use both languages and have a good command of each, L1 and L2 entries are simultaneously activated even when only one particular language has been selected: generally the entry that is not required is then suppressed. This phenomenon stems from the interaction between the two lexicons via the conceptual system: "[A nonselected language] may be used frequently in daily life and its activation will, accordingly, be maintained both because the language is spoken and because it is heard. it would continue to receive input from the conceptual system" (1986, p. 215). Green cites the commonplace phenomenon of code-switching among bilinguals (i.e., switching from one language to another within the sentence itself) as evidence of simultaneous activation: "[P]art of the reason for such switching is the availability of expressions in one language compared to another. Speakers can output whichever expression first achieves threshold" (1986, pp. 214-5). Inter-language blends -- for example, "Springling" from "spring" and "Frühling" -- also support the simultaneous activation

hypothesis: "[T]wo names labeling the same referent or idea may both reach threshold and give rise to a blend" (Green, 1986, p. 214). Potter et al.'s (1984) research findings also favour model E. In this study proficient Chinese-English bilinguals and non-proficient French-English bilinguals were asked to translate words directly from the L1 to the L2, or to name pictures using L2 words. The "word association hypothesis" (model D) predicts that translating L1 words into the L2 would be quicker than naming pictures in the L2 because in this model there are direct links between words in the L1 and L2. The "concept mediation hypothesis" (model E), on the other hand, would predict the converse. The results showed that picture naming was quicker in both groups, a finding which supports the concept mediation hypothesis.⁷

In recent times, there have been recommendations that the phrase "stored together" not be interpreted literally since the term indicates that the two lexicons share the same "space." Schreuder and Weltens (1993, p.7), in fact, suggest a change in terminology: "We prefer the above formulation [one which explains L1 and L2 lexical overlap as "shared information"] over 'stored together', because the latter implies a spatial storage metaphor and may very well be too simplified" In this current study, too, references to the "interaction" between learners' L1 and

⁷ As the authors make clear, the word association hypothesis does not counter the generally accepted view that words are related to things in the real world via "concepts" even though the nature of these links is as yet unclear, as Aitchison (1994, pp. 41 ff.) points out.

L2 lexicons will imply that there is a sharing of information between the two lexicons on some level (without any accompanying implication regarding the sharing of “storage space”).

Most of the research studies and models discussed above deal with the way in which balanced bilinguals organize, store and use previously acquired lexical knowledge. Although these studies and models provide insights into the state of the lexicon at advanced stages of L2 acquisition, i.e., when speakers are deemed to have near-native competence in a second language, they may also be seen to throw some light on the earlier stages of lexical acquisition, assuming some kind of continuum of acquisition. In this current study, we are not simply examining how the L2 lexicon is organized, but also how the L1 lexicon influences the process of L2 acquisition itself in those who have not yet gained near-native or native proficiency. The learner's L1, for example, may have a bearing on what is attended to or ignored in the L2 input, how the L2 input is interpreted, and the kinds of hypotheses made regarding what L1 features may or may not exist in the L2 (Andersen, 1983; Kellerman, 1979, 1986; Schachter, 1983; Sridhar, 1981; White, 1991).

2.3.1 Intra-L2 Lexical Links

As discussed above, a commonly held view is that L1 lexical items are stored according to their phonological and semantic features (including word class). When it comes to the types of links that exist in the L2 lexicon, the answers are more

tentative. Laufer (1989, p. 17) proposes that the links between items in nonprimary languages are "primarily phonological," as distinct from the strongly semantic links in primary languages. Similarly, Meara's (1982, 1984) studies suggest that the L2 lexicon is fundamentally different in organization from the L1 lexicon. Meara's L2 word association tests yielded more divergent answers to L2 cues than is generally the case with native speaker responses, pointing to a looser organization of the L2 lexicon. In addition, there was little overlap between the responses of native and non-native speakers. While native speakers tended to give paradigmatic and syntagmatic associations, as when "girl" is paired with "boy" or "wash" with "clothes" respectively, a significant proportion of non-native responses were "clang associations" (i.e., phonologically similar words such as "ring," "sing," and "king"). Meara suggests that these differences could be attributed in part to the phonological organization of the L2 lexicon. Singleton and Little (1991), however, argue that the production of clang associations, a common phenomenon in early childhood (Söderman, 1989), may be the result of low proficiency in a language (i.e., not knowing the meanings of words), irrespective of whether the language being acquired is an L1 or an L2. Henning's (1973) study involving ESL learners, too, points to an earlier phonological organization, which gives way to semantic organization as the learner becomes more and more proficient. (One may assume that a limited vocabulary makes it difficult to come up with words that are semantically related to other words.) Furthermore, Singleton and Little claim that

their own research findings indicate that L2 lexical organization and processing is primarily semantic. Using a "C-test," which roughly involves "restoring" a text in which the second half of every other word has been deleted, Singleton and Little found that the vast majority of the answers provided by their learners (first-year English-speaking learners of French and German) were semantic in nature. First, a large proportion of the answers were correct, which according to Singleton and Little implies semantic processing, and those that were incorrect tended to show a semantic connection with the stimulus.⁸ (One caveat that must be stated here is that the task itself dictated that the learners be focused on meaning. Thus, while the task had the advantage of looking at words in context, as opposed to decontextualized word association tasks, it seemed to have a bias in favour of semantics. See also Chapelle [1994] for some of the potential strengths and limitations of the C-test in relation to L2 vocabulary research.)

2.3.2 L1-L2 Lexical Links

As discussed above, most research findings support the view that the L1 and L2 lexicons are interdependent, be it through common "storage," or through links between separately stored L1 and L2 items, or through "shared information" (as

⁸ A correct response in this test is one that is "appropriate to context and well-formed" (Singleton & Little, 1991, p. 68). Thus, according to the authors, ". . . if a response meets the appropriacy criterion, it is very unlikely to have been arrived at without the semantics of the stimulus having been taken into account" (68).

proposed by Schreuder & Weltens, 1993). Once again, as in the case of intra-L1 and intra-L2 links, the connections between the L1 and the L2 lexicons seem to be both phonological and semantic. In one of Meara's word association tasks, for example, English speakers seemed to be associating French stimulus words with phonologically related English ones, pointing to phonological links between the two lexicons:

STIMULUS	RESPONSE	PRESUMED CAUSE OF INTERFERENCE
<i>caque</i>	<i>rigoler</i> ("cackle"?)	"cackle"
<i>caque</i>	<i>gateau</i> ("cake")	"cake"
<i>mou</i> ("soft")	<i>vache</i> ("cow")	"moo"
<i>traire</i> ("to milk")	<i>essayer</i> ("to try")	"try"

There is, however, also plenty of evidence that L1-L2 lexical links are semantic. Research on translation equivalents (i.e, a lexical item in one language and its semantic counterpart in another), for example, supports the view that the two lexicons are connected semantically: "It is clear that words in one language, and their translation equivalents in the other (when they exist) are related in the brain in a nonrandom way, much as a word and its synonym in the same language may be connected in an associational network" (Albert & Obler, 1978, p. 246, based on their research on balanced bilinguals). Blum-Kulka and Levenston (1983,

p. 132) suggest that L2 learners probably start off with the assumption that there are meaning equivalents for L1 items in the L2:

All second-language learners probably begin by assuming that for every word in their mother tongue there is a single translation-equivalent in the second language. More precisely, perhaps the assumption of word-for-word translation-equivalence as a working hypothesis . . . is the only way a learner can even begin to communicate in the second language. Mastery of the second language involves the gradual abandonment of the equivalence hypothesis, the internalization of the semantic relationships in the second language independently of their first-language equivalent

According to Harley (1992), this equivalence hypothesis might explain certain incorrect vocabulary choices in French immersion contexts, as when the French *coincer* is assumed to be completely identical to "pinch" (when in actuality the two are equivalent only in some contexts), resulting in constructions such as *Il est coincé dans le nez par un mécanisme* (p. 168). By mistakenly considering semantically overlapping (but not identical) verbs to be identical, the learner might impose on the verb the syntactic properties of the corresponding L1 verb: "The learners appear to start producing individual verb items as if not only their semantic content but also their associated argument structure and syntactic frames were identical with the L1 . . ."

(Harley, 1992, p. 176). It is possible, too, that in those instances where the L2 learner fails to find a L1 translation equivalent for a L2 lexical item, the latter may not be acquired easily or may not be used in production. On the basis of data elicited from English speakers learning Hebrew, Blum and Levenston (1979), for example,

suggest that learners tend not to use L2 words for which there are no translation equivalents in the L1.

That the L2 learner is on the look-out for L1-L2 meaning equivalences is also backed up by research findings on L2 learners' use of the L1 lexicon in situations where the native and target languages have close genetic ties, especially in the area of the lexicon (for example, English and French). It is well known, for example, that learners whose target language is related to previously known languages make use of cognates to figure out the meanings of target language items, though some of these are really "false friends" (Ard & Homburg, 1983; Holmes, 1977; Nagy et al., 1993). The L1-based "lexical creations" (vocabulary items coined by learners) of learners whose L1 and L2 are related also lend support to the equivalence hypothesis (Singleton & Little, 1991). In a typical French immersion context, for example, L1-based lexical creations seem to be very common, yielding constructions such as "J'ai appris comment *ride* (pronounced as [Riɔ]) un cheval quand je suis allé chez mon *cottage* (pronounced as [kotáʒ]) l'été dernier"(Tara Park, personal communication).

2.4 THE ACQUISITION OF THE L2 LEXICON: INPUT, RESTRUCTURING AND TRANSFER ISSUES

Of central importance in this study is the question of what motivates the restructuring of the L2 lexicon during the course of acquisition and how this restructuring is implemented. The concept of restructuring, as put forward by

McLaughlin (1990), has been influenced by Piaget's stages of cognitive development: "Each stage constitutes a new internal organization and not merely the addition of new structural elements" (p. 117). In other words, if a new element is simply attached to a body of knowledge without the latter being affected, the change is simply quantitative and does not amount to restructuring. On the other hand, if the previously gained knowledge has to be overhauled in order to "accommodate" the new element, resulting in a change in the very composition of this earlier body of knowledge, the change is "qualitative" and amounts to "restructuring" (McLaughlin, 1990, p. 117). Since restructuring involves the modification of internal cognitive representations, the process is often reflected in non-linear patterns of language acquisition, for example the well-attested "U-shaped performance" of children acquiring aspects of their L1, which has also been observed in L2 contexts (Kellerman, 1985; McLaughlin, 1990). Here, at Stage 1 of acquisition, structures are produced seemingly accurately. At Stage 2, which is represented by the bottom of the U shape, there is an ostensible deterioration since errors now appear in structures that were produced correctly at Stage 1. At Stage 3, these structures are produced accurately once again.

In one of Kellerman's studies (1985), for instance, younger Dutch-speaking learners of English (learners aged 13-17, with fewer years of EFL instruction than those in the older groups) showed an equal acceptance of the transitive and intransitive uses of "break" (either through transfer since Dutch has translation

equivalents of both versions or through response to L2 input). However, older learners (aged 18-20, with more years of EFL instruction) tended to reject the intransitive construction (presumably because it involves an agentless, autonomous event), in spite of having correctly accepted it earlier in the acquisition process. The most advanced group, aged 21 and up, showed a new acceptance of the intransitive "break." The same sort of curve was seen in the acquisition of English hypothetical conditionals by Dutch learners (Kellerman, 1985). This "accuracy" in the early stages of acquisition, witnessed in numerous other studies, has been attributed to initial data-driven "chunk learning," a process in which structures in the input are memorized, without analysis or rule formation (Hakuta, 1974; Wong-Fillmore, 1976). For example, "don't" may be recognized as a simple negative marker and not as "auxiliary + not." Lightbown (1985, p. 177) suggests that this initial "accuracy" followed by "deterioration" could be the result of new learners being in a position to "master" a form as a result of being exposed to only this form (as is common in a beginner-level L2 course) and then coming across complicating data that are not just added to the existing body of knowledge but are actually instrumental in restructuring the learner's grammar (a view in keeping with McLaughlin's, as described above); this increasing complexity widens the range of possible errors that a learner can make. In the third and final phase of the U-shaped pattern, the learner regains accuracy, but this time through a fine-tuned

knowledge of the pertinent rules and their exceptions, and through "practice" (the role of which is discussed in McLaughlin, 1990).⁹

In this particular study, it is the restructuring of the second language lexicon that is the focal point of investigation, and the transfer of L1 lexical properties to the interlanguage is viewed as being an integral part of lexical restructuring.

"Transfer," for the purposes of this study, is seen as the negative or positive effects of native-language influence, detectable in the learner's production or lack of production, comprehension of input, acceptability judgments, and rate of learning (Gass & Selinker 1983; Gass & Selinker, 1994; Kellerman & Sharwood Smith, 1986; Odlin, 1989; Schachter 1983). The following sections will focus on the phenomenon of transfer in general, and on L2 research on the transfer of lexical properties *per se*.

2.4.1 Transferability Based on a Concomitance of L1 and L2 Features: The Importance of Overlap or Perceived Overlap

This study is examining the L2 acquisition of English causatives in the light of the "causative alternation" for the purposes of gaining insight into the acquisition of the L2 lexicon. A small number of other L2 studies, too, have involved verb

⁹ Some researchers have argued that in some L2 situations this third and final stage cannot be arrived at without the benefit of negative evidence. This issue will be addressed below in the discussion of Lydia White's work in the area of L2 learnability.

alternations (i.e., verbs that display more than one type of syntactic behaviour, as discussed in Chapter 1), some addressing the issue of the conditions in which transfer tends to take place. Adjemian (1983), for example, put forward the view that if during the course of acquisition learners perceive that the incoming L2 data are compatible with an L1 rule or feature, they may transfer this rule or feature to their interlanguage. For instance, a learner may impose the L1 syntactic properties of a verb on an L2 translation equivalent, as when French speakers use "listen" without the preposition "to" and English speakers use *écouter* ("listen") with the preposition *à* ("to"). Likewise, during the acquisition process, speakers of English might determine that the rules governing the causative alternation in French are similar to those of English on the basis of input such as this:

1. *Le roti cuit.*
 The roast cooks
 "The roast is cooking."

2. *Le chef cuit le roti.*
 The chef cooks the roast.
 "The chef is cooking the roast."

Thus these English speakers may arrive at many correct causative/non-causative constructions but also some erroneous ones such as *"*Elle marche les chats*" (data from Selinker, Swain, & Dumas, 1975), presumably formulated on the basis of the causative form of "walk" in English ("She walks/is walking the cats").

Similarly, Le Compagnon (1984) suggests that the acceptance of ungrammatical "dative" constructions in English by her French-speaking learners

can be attributed to L1 argument structure. While English has a set of verbs that participate in the dative alternation, their equivalents in French appear with full nouns only in the prepositional construction (NP PP) and not in the double object one (NP NP) (see 3b & 4b below). However, when the indirect object (the NP representing the recipient of the action) is pronominal, there is an obligatory cliticization of the indirect object, giving rise to a NP-V NP construction, as in 6b below: the NP PP construction with pronominal indirect objects is grammatical in only very restricted contexts (Le Compagnon, 1984, pp. 45 ff.). These restrictions can be illustrated via the following examples (based on Le Compagnon, 1984):

3a. *Jacques gave a gift to Nita.*

b. Jacques donne un cadeau à Nita.

4a. *Jacques gave Nita a gift.*

b. *Jacques donne Nita un cadeau.

5a. *She explains the rule to me.*

b. *Elle explique la règle à moi.

6a. **She explains me the rule.*

b. Elle m'explique la règle.

On the basis of grammaticality judgment tests, Le Compagnon concludes that the existence of NP PP type of dative constructions in French prompts learners to generalize this pattern (but not the NP NP one) to unknown verbs in English in those cases where the recipient NP is a full noun. On the other hand, as stated above, when the recipient NP is pronominal, the NP-V NP construction is more common in French, causing French speakers to reject English NP PP datives with

pronoun forms in the PP ("Jacques gave a gift to her") and overgeneralize the corresponding NP NP one ("Jacques gave her a gift").

It must be noted, however, that neither Adjemian's nor Le Compagnon's hypothesis has been adequately validated by empirical research. Adjemian's hypotheses about lexical transfer are valuable, shaped by theoretical considerations and informal error analyses, but are not based on any formal data analysis. Le Compagnon's conclusions, too, need to be viewed with some caution. First, the study is modest in size, with only four learners participating in the grammaticality judgment tests. Second, Le Compagnon, working on the premise that an "unmarked rule" is generalized to new verbs while a "marked rule" is not, concludes that the French speaker correctly assumes that the unmarked rule (yielding NP PP forms) is indeed unmarked (leading to correct generalizations) but then mistakenly assumes that the marked rule (allowing the NP NP construction with clitics in French) is unmarked and therefore transferable to the L2. (Presumably the latter mistake arises because of the higher frequency of NP NP constructions when the recipient NP is a pronoun.) However, mistaking a marked rule for an unmarked one is not necessarily the cause of the overgeneralization errors in Le Compagnon's data since it could have simply been the *similarities* between the two languages that informed the learners that the L1 rules could be transferred to the L2 wholesale. In other words, the input might have seemed to match these L1 rules, there being a sufficient number of constructions such as "Calpurnia sent him a fat bill" in the

English input for the learner to conclude that the L1 and the L2 were similar in this area.

The learner's misanalysis of a *partial* overlap between the L1 and the L2 is the explanation offered by White for the errors of overgeneralization that she encountered in her (1991) study, which also involved the dative alternation, but this time with English-speaking learners of French. As mentioned before, in English many dative verbs alternate, but in French only the prepositional dative construction is permitted (except when the recipient NP is pronominal, as explained above). Thus, in White's study, the alternating L1 (English) constructions were a superset of non-alternating L2 (French) ones.¹⁰ The Grade 6 learners who were used for this study were divided into three experimental groups according to the type of French program they were in and the starting point of this instruction: partial immersion since Grade 4, total immersion since Kindergarten, and submersion since Kindergarten. It was found that all three groups transferred L1 argument structures to the L2 lexicon, presumably because they perceived an overlap between the L1 and L2 and, on the basis of this perception, mistakenly assumed that certain non-existent L1 structures (outside the area of overlap) actually occurred in the L2.¹¹

¹⁰ Sets X and Y are in a superset-subset relationship if Set X is bigger than Set Y and completely subsumes Set Y.

¹¹ There is the possibility, however, that these English speakers based their overgeneralizations on the input itself, interpreting French dative constructions with clitics (e.g., "Jean lui donne un cadeau" and the imperative "Donne-lui un cadeau!") as evidence for the existence of NP NP datives in French.

In another part of the study, White studied the placement of manner adjuncts in prepositional dative sentences. French allows manner adjuncts to appear between the verb and its direct object, but English does not since English requires strict adjacency of a verb and its object; thus, according to White, when it comes to the placement of manner adjuncts vis-à-vis the object the L2 allows a superset of the constructions that exist in the L1, a scenario that is the opposite of the one discussed above:

7a. <i>Olivier</i>	<i>a traversé</i>	<i>la rue</i>	<i>rapidement.</i>
b. Olivier	crossed	the street	quickly.
8a. <i>Olivier</i>	<i>a traversé</i>	<i>rapidement</i>	<i>la rue.</i>
b. *Olivier	crossed	quickly	the street.

White's results indicated that two of the above-mentioned three experimental groups -- the partial immersion and submersion groups -- were conservative, presumably because they were not venturing beyond the area of overlap between the L1 and the L2.¹²

What White infers from her findings is that where the L2 forms constitute a superset of the L1, the situation is unproblematic since even if conservative initially, the learner eventually recognizes (i.e., with positive evidence from the input) that the L2 allows a wider range of structures than the L1 does. However, when the L2 allows only a subset of the L1 constructions, there is a potential

¹² However, there might be a catch here, as White points out, since the tasks were preference tasks, and therefore did not exclude the possibility that the learner found the less preferred sentences acceptable. White (205) suggests that a combination of preference judgments and outright judgments for the same sentences could remedy the situation.

problem. Given the area of overlap, the learner might assume that the L1 rule applies to the L2 *to the same extent* as it does to the L1 and thereupon overgenerate structures that are non-existent in the L2, making negative evidence the only means of eradicating such errors.¹³

Other investigations of transfer by White deal with similar issues, though in terms of markedness, the gist of most of these being that when marked forms or marked parameter settings are transferred from the L1 to the interlanguage, there arises a learnability problem because positive evidence (in the L2 input) alone cannot trigger a restructuring of the grammar (White, 1983, 1985a & b, 1987).¹⁴ For example, White (1983, 1985b) has presented the possibility of a Spanish speaker -- whose language has what White considers the marked setting of the pro-drop parameter (allowing subjects to be optionally deleted) -- transferring this setting to English. The Spanish speaker would therefore have to notice the absence

¹³ This is an issue that White tried to approach differently later, in response to Schwartz's (1993) claim that negative evidence cannot be used to attain linguistic competence. In order to determine whether positive evidence alone would not preempt incorrect IL constructions, Trahey and White (1993) conducted a study in which a group of francophone 11-year-olds in ESL were provided with an "input flood" providing them with positive evidence only (i.e., with no explicit instruction) on correct adverb placement in English. While the post-test showed a great increase in correct adverb placement, incorrect adverb placement was not eliminated. Thus Trahey and White concluded that while relevant input was taken note of, this did not eradicate all errors. However, as Trahey and White acknowledge, perhaps the length of exposure to the "input flood" was too short to complete the preemption process.

¹⁴ Whether using the term "markedness" or using the terms "subsets" and "supersets," White is really putting forward the same view, i.e., that the L2 learner is not always in a position to apply the Subset Principle (Berwick 1985) to L2 input when the L1 forms a superset of the L2 (i.e. has a marked rule or parameter setting).

of subjectless sentences in English in order to arrive at the target language norm. Similarly, English speakers, accustomed to the marked form of dative questions (i.e., involving "preposition-stranding" as in "Who did Eudora give the book to?"), might have trouble recognizing that only the unmarked type of dative question exists in French and might therefore come up with ungrammatical constructions such as *Qui as-tu donné le livre à?* (White, 1983, p. 7), as has been witnessed in French immersion data (Birgit Harley, personal communication). The possibility of transfer of L1 marked forms is also suggested by Liceras' (1983, 1985) study, in which 43% of English-speaking learners beginning to learn Spanish accepted the marked preposition-stranding versions of dative questions as grammatical; they seemed to have transferred a marked L1 form, only later switching to the unmarked one, with only 3% of the advanced group accepting the preposition-stranding sentences. As White (1989, p. 130) points out, it is not clear whether this switch occurs because the learners notice that the marked construction does not occur in the L1 or because they have received explicit instruction in this area later in their program. (There also remains the possibility that incorrect forms are preempted through sufficient positive evidence, i.e., through the repeated occurrence of the correct target language form in the input, as has been discussed in Footnote 13.)

The predominant view, however, contrary to White's, is that it is unmarked forms and not marked ones that are transferred to the L2, as has been discussed in Eckman (1977), Hyltenstam (1987), Rutherford (1982) and Zobl (1980b) (in terms

of linguistic markedness), and Kellerman (1978, 1979, 1986) (in terms of perceived or psycholinguistic markedness).¹⁵ Thus, if in some area, Language A is unmarked and Language B is marked, transfer will be unidirectional, i.e., from Language A to Language B. Zobl (1980b), for example, shows that French speakers acquiring English do not transfer constructions involving a preverbal clitic (object) to English, but English speakers often place the clitic after the verb, paralleling the postverbal placement of objects in English, whether they be nouns or pronouns.

In the present study the acquisition of verb alternations is being examined in terms of the semantic classes that participate in these alternations, an area in which little research has been conducted. A study by Carroll and Swain (1993) involved the semantic and morphological constraints on the dative alternation, but their investigation focused on the effects of different types of negative feedback on the

¹⁵ Markedness has been defined in sundry ways: in terms of frequency, ease or difficulty of acquisition, complexity, expectedness, naturalness and neutralization (Hyltenstam 1987; Rutherford 1982). Linguistic markedness has been determined in two main ways. One way has been through typological studies, in which representative languages from various language families are examined in relation to one another. This has led to the finding of "implicational universals," where the presence of a certain property implies the presence of another property, but not the other way around (Greenberg, 1966); the property that implies the existence of the other is considered "marked." The other method of determining markedness is via a study of a particular language. Within this scheme, the "core" rules of a grammar are considered the least marked and most learnable parts of the grammar, falling within the range permitted by Universal Grammar principles; the periphery, though learnable, is language-specific and more marked than the core (based on Chomsky 1981).

It is also possible to argue that a purely linguistic definition of markedness is inadequate if we are examining such psycholinguistic phenomena as L1 or L2 acquisition or transfer of L1 items to the L2. Kellerman's studies (1978, 1979, 1983, 1986) attempt to establish a correlation between psycholinguistic markedness and transferability; the hypothesis is that transfer is improbable when the L1 structure is perceived to be non-central and the L2 seems genetically distant from the L1.

learning of correct generalizations and not on acquisition based on positive evidence alone. A study conducted by Ard and Gass (1987) did look at the issue of the organization of the L2 lexicon as reflected in ESL learners' grammaticality judgments of constructions involving four different kinds of alternation (e.g., the dative and passive alternations); however, once again the results obtained need to be viewed with some caution. On the basis of their data, the researchers concluded that with increasing proficiency, the lexicon is organized more and more along semantic lines, and that at the lower levels of proficiency there is more reliance on syntactic generalization and item-by-item lexical learning. However, while it is quite possible that what Ard and Gass identified as organization based on semantic relatedness was indeed just that, it must be borne in mind that what was looked at was whether learners had fallen upon the similarities in behaviour between pairs of "sufficiently common" semantically related verbs (for example, "eat" and "drink") (Ard and Gass, 1987, p. 250), but not larger classes of verbs, nor verbs that the learner had not yet encountered in alternating forms. Thus, there remains a possibility that these semantically related verbs might have been learnt on an item-by-item basis after all. (This type of ambiguity will be avoided in the current study through the use of a grammaticality judgment task involving previously *unknown* verbs.)

The L2 studies discussed above highlight some of the significant trends in current treatments of transfer. For one, transfer is being viewed as a strategy which may be facilitative at times and debilitating at others (Odlin, 1989) and which

operates at a conscious or subconscious level. (Some of the first treatments of transfer as a strategy may be found in Andersen, 1983; Corder, 1978; Kellerman, 1978, 1983; and Sridhar, 1981). What also emerges from these studies is the relevance of areas of L1-L2 overlap to the transfer phenomenon, encapsulated in Wode's (1976, 1978) "crucial similarity measure" and Andersen's (1983) "transfer to somewhere principle." This connection between overlap and transfer is also in keeping with the findings of many researchers in the last two or three decades (for example, Jackson, 1981; Oller & Ziahosseiny, 1970; Pica, 1984) that it is often similarities rather than salient differences between the L1 and the L2 that lead to interference errors, contrary to the Contrastive Analysis Hypothesis.

Wode's (1978) study provides one of the best-known examples of the interdependence of interlingual and intralingual factors in language transfer. The study indicates that children growing up bilingual in German (L1) and English (L2) first have a universal rule for negation in English, which is "neg + verb." It is only after these children acquire the category "Aux" (for auxiliary) that German (L1) postverbal negation begins to influence their English. The acquisition of Aux brings to light the resemblance between English and German when it comes to negation involving an auxiliary:

9a. *Ich kann nicht schlafen.*
 b. I can not sleep.

10a. *Ich habe nicht geschlafen.*
 b. I have not slept

As a result, the learners incorrectly assume that the postverbal negation that exists in main clauses in German in the absence of an auxiliary also applies to English, giving rise to negation errors as in 11b:

- 11a. *Ich schwimme nicht.*
 b. *I swim not.

In short, it is only after L2 rules have developed to the point where the resemblance with L1 rules becomes clear that transfer takes place; in other words, the above-mentioned "crucial similarity" condition is met.

That interlingual and intralingual factors work in conjunction with each other is also suggested by the work of Zobl (1980a & b) and Harley (1989). According to Zobl, transfer is promoted by close correspondences between an L1 property and a property that is part of a natural developmental process: "Structural properties of the L2 which give rise to developmental errors may also activate influence from the learner's L1 when an L1 structure is compatible with the developmental error" (Zobl 1980a, p. 470). Zobl (1980b) suggests that utterances such as **Je vois elle*, produced by English-speaking learners of French, arise as a result of the SVO order of English (an L1 factor) and L2 factors such as the predominant SVO order of French, i.e., the order with full nouns. (For details of word order in French with full nouns versus pronouns see the discussion of Le Compagnon's work above.) Similarly, Harley (1989, pp. 14 ff.) suggests that the abundance of verbs with

directional prepositional phrases in the writing of anglophone French Immersion students might be the result of the concomitance of L1 influence (since English uses directional prepositional phrases more liberally than does French) and developmental factors (there being some informal observations in the acquisition literature that children who are acquiring Spanish -- also a Romance language -- conflate motion and manner initially but express direction separately via locative adverbs).

Based on the view that natural developmental processes and L1-to-L2 transfer work in tandem, as well as the notion that L2 input must signal to the learner that L1-to-L2 transfer will somehow facilitate the acquisition of a particular L2 property, Andersen (1983) formulated the "transfer to somewhere principle." This principle includes the following two sub-principles, the second of which constitutes a premise on which this study's transfer-related hypotheses have been based:

A grammatical form or structure will occur consistently and to a significant extent in the interlanguage as a result of transfer *if and only if* (i) natural acquisition principles are consistent with the L1 *or* (ii) there already exists within the L2 input the potential for (mis)-generalization from the input to produce the same form or structure" (p. 182).

The relevance of these issues to the current research study will be explained in the following section.

2.4.2 Lexical Restructuring and Transfer: Relevance to this Study

The transfer-related hypotheses in this study have been formulated on the common premise that new learning does not take place in isolation but instead builds upon and transforms previously acquired knowledge (Ausubel 1968; McLaughlin 1978, 1990); for these reasons, L1 transfer may be seen as the impact that the learner's previously acquired L1 knowledge has upon a current learning task (McLaughlin, 1978; Taylor, 1975). More specifically, this study's transfer-related hypotheses have been influenced by Wode's (1976, 1978) view that "crucial similarity" constitutes an essential prerequisite for transfer and Andersen's (1983) "transfer to somewhere principle," as discussed above. In terms of L2 lexical acquisition, it is expected that learners will search for translation equivalents of L2 items in the L1 and where there seems to be a "match" between individual L1 and L2 verbs or L1 and L2 verb classes, lexical transfer will become a possibility.

The route of acquisition of L2 verb properties may therefore be mapped out as follows. During the initial stages of acquisition the process is seen as being completely data-driven, as has been discussed earlier under "U-shaped behaviour" (Hakuta, 1974; Kellerman, 1985; McLaughlin, 1990; Wong-Fillmore, 1976). It is hypothesized that when acquiring new lexical items, the learner searches for a possible equivalent in the L1, i.e., a translation equivalent (Levenston & Blum-Kulka, 1983), or a lexical rule that operates in a similar way in the two languages

(Adjemian, 1983), or a semantic class of verbs that is subject to the same rules. It is possible that in naturalistic settings there would be cross-checking without active transfer at this stage, but that transfer effects would come to light in situations where data are carefully elicited in order to reveal whether a targeted form is used or not. Thereafter, at what would correspond to the middle and final stages of U-shaped behaviour, the learner begins to formulate verb classes and lexical rules and is in a position to determine whether L1 classes and rules are transferable to the L2 or not. (Chapter 3 will provide a more detailed account of U-shaped behaviour vis-à-vis lexical acquisition.) In those cases where there is no transfer, the middle stage of the U-shaped curve may nonetheless yield *intralingual* overgeneralization errors, say if a verb class has been tentatively formed but is not constrained enough. The final "clean-up" stage, during which both interlingual and intralingual errors may be attended to, is seen to be driven in part by "preemption," a process whereby an error is replaced by a correct structure through exposure to positive input and more crucially through a recognition that this new, correct form is the *only* way of saying something (MacWhinney, 1987, pp. 291 ff.).

It is hypothesized that when L2 verbs and their L1 "translation equivalents" seem to be in similar semantic classes (i.e., displaying similar syntactic behaviour), there are good chances that transfer will take place. Where L1 and L2 sets are near-identical, such transfer will be entirely positive, leading

to a quick formation of semantic classes, which will enable the learner to go beyond the input (an issue that will be elaborated upon in the following chapter).¹⁶ When there is no overlap or when the overlap is *obviously* only partial it is hypothesized that "crucial similarities" will be offset by "crucial differences" and transfer will be much less probable than when the overlap is great. For example, verbs of emotional expression causativize in Hindi-Urdu, but clearly do not in English; therefore, there should be no reason for transfer from Hindi-Urdu to English here:

12a. *govind* *bahut hāśaa/royaa*
 b. Govind a lot laughed/cried
 "Govind laughed/cried a lot."

13a. *mitthoo-ne* *govind-ko* *bahut hāśaa/royaa*
 b. Mitthoo ERG Govind-ACC a lot laughed/cried.
 "**Mitthoo laughed Govind a lot."

In short, the fact that the L1 forms a superset of the L2 will not automatically give rise to a host of L1-based overgeneralization errors.

However, it might be the case that sets in the two languages do not overlap completely (for example, an L2 subset of a slightly larger L1 set or two overlapping sets) and yet L1-L2 similarities are substantial enough to make the overlap between the two languages *seem* complete, leading to transfer-related errors which show up in

¹⁶ It is being assumed that no two languages are *completely* identical in terms of semantic classes.

grammaticality judgments or comprehension or production. Within what are considered transferable areas, there may be subtle points of difference, for instance when L1 verbs and their L2 "equivalents" behave differently on account of subtle language-specific differences in the constraints that spell out exactly which verbs participate in the alternation. If we consider verbs of voluntary motion, for example, we see that "run," "walk," "jump," "dance," and "climb" are causativizable in Hindi-Urdu (to form causatives that represent "forced" or "facilitated" movement); in English all of these are causativizable as well, except for "climb," presumably because the class does not admit verbs which show direction (Levin, 1993):

14. Don Quixote ran/walked the steed past the windmill.
15. He danced her around the market square.
16. Eustacia jumped the horse over the pond.
17. *The stable boy climbed the child onto the horse.

However, the Hindi-Urdu speaker might mistakenly assume that if verbs like "run" and "walk" causativize in both languages, "climb" does too, and might thus allow an overgeneralization such as Sentence 17 above.

Other difficulties may arise on account of differences in the semantic representations of "equivalent" verbs. In some areas of the lexicon there may be relatively few problems associated with translation equivalents. For example, it is generally believed that the concept and therefore the core meaning of certain concrete objects like "tiger," "apple," and "moon" is likely to be the same across

languages (Aitchison, 1994, p. 41; De Groot, 1993, pp. 37ff.; Kolers, 1963; Taylor, 1976).¹⁷ The concrete meanings of such words would presumably not be prone to misinterpretation. However, other less prototypical “words” are subject to more cross-linguistic variation, often involving subtle variations in conceptual representations/meanings. Thus, if indeed learners are on the look-out for translation equivalents in the L1, they might on occasion mistakenly consider non-identical words that are comparable in their prototypical meanings to have *identical* conceptual/semantic representations, leading to negative transfer of peripheral meanings (Ijaz, 1986).

In addition, this study will address the issue of when during the acquisition process transfer effects become most prominent. It is commonly believed that the L1 has its greatest influence during the initial stages of acquisition simply because a knowledge of the L1 constitutes the bulk of relevant prior knowledge at that stage (Corder 1981, pp. 98-102; McLaughlin, 1978, pp. 121-7; Newmark and Reibel, 1968; Taylor, 1975). However, there are other possibilities. Odlin (1989, pp. 133ff) suggests that when it comes to the facilitating effects of some cross-linguistic similarities, as exemplified by the fairly successful use of cognate vocabulary in certain contexts (Ard & Homburg, 1983; Nagy et al., 1993), there is no reason why

¹⁷It is being assumed here that the concept of something and its meaning (semantic structure) overlap but cannot be treated as being identical (Aitchison 1994, Pinker 1989a).

positive transfer should not continue well into the advanced stages of L2 language acquisition. Odlin also raises the point that certain negative transfer errors cannot take place before a particular level of proficiency has been achieved. Similarly, Wode's (1978) study and Harley's (1989) study point to the interdependence of interlingual and intralingual factors in creating the conditions conducive to transfer.

It is possible, therefore, that at the initial data-driven stages of L2 acquisition, the learner might refer back to the L1 system, simply taking mental notes (consciously or subconsciously) on similarities and differences between some aspect of the L1 and L2 systems, without making any firm decisions regarding what is or is not grammatical in the L2. Thus, during this period of indecisiveness not much would be actually transferred from the L1 to the L2 in those instances where the learner was not forced to arrive at a decision regarding that particular aspect of the L2. Given that "[t]ransfer processes are 'visible' in terms of what they produce, i.e. in the transfer patterns" (Kohn, 1986, p. 22), there would thus be less evidence of transfer in initial *naturalistic* L2 production than thereafter. However, if learners were to be compelled to provide responses in a *test* situation, for example on a grammaticality judgment task, L1 influence would be more pronounced than otherwise (see 5.2.2.2 in Chapter 5).

In the following chapter, the issue of subsets and supersets will be discussed again, but this time within the framework of lexicalist theories of grammar. It will be seen that when it comes to elucidating certain verb-related syntactic phenomena, the

concept of subset and superset or overlapping sets (as has been discussed by White 1985a & b, 1987, 1991, for example) needs to be further fine-tuned to account for the existence of narrow semantic verb classes within certain broad classes.

Chapter 3

THE LEXICON IN CURRENT LINGUISTIC THEORY AND LEARNABILITY STUDIES

The previous chapter dealt with research on the L1 and L2 lexicons and the nature of transfer from the L1 to the L2. This chapter will review approaches to the lexicon and lexical learnability in linguistic theory and L1 acquisition research since these views have contributed to the theoretical framework within which this study has been conducted. More particularly, this study has drawn upon Pinker's (1989a) "learnability-theoretical approach" to L1 acquisition, although additional factors have had to be taken into consideration in order to make such an approach applicable to an L2 context.

3.1 HOW LEARNERS' SYNTACTIC KNOWLEDGE REFLECTS THEIR LEXICAL KNOWLEDGE

As was discussed earlier, in this study the acquisition and organization of the L2 lexicon is being investigated by examining the syntactic fallout of learners' L2 lexical organization, more specifically by looking at which verbs learners consider to be causativizable and which not. In the tests used to elicit data, L2 learners of English had to (i) produce English sentences containing causative

verbs, (ii) choose between different types of English causatives in various contexts, and (iii) judge the grammaticality of grammatical and ungrammatical English causative sentences (see Chapter 5 and Appendix 4). This chapter provides the rationale for investigating lexical knowledge by examining aspects of a learner's syntax, in this case those aspects that are related to causativization.

The lexicon has gained great prominence in various grammatical theories in recent years. Lexical entries are now seen as carrying large amounts of detailed information, taking over much of the "work" done by other aspects of a grammar, for example the copious phrase structure and transformational rules of earlier generative grammars (Chomsky, 1970, 1981; Jackendoff, 1975). In short, many syntactic structures that were said to be generated by syntactic rules are now being seen as resulting from lexical rules operating on lexical entries, although there are differences among various grammatical theories regarding which structural relations are best explained via lexical rules. Of these, the two theories that will be focused on here are Government-Binding theory (GB) and Lexical Functional Grammar (LFG); since both explain how the syntax of a language is driven at least in part by the lexicon, and both can account for causativization via lexical rules, either theory may be adopted for the purposes of this study.

Within theories in which syntax is driven by the lexicon, the mental representation of a lexical item has to include more than idiosyncratic information about the item and much more detail than exists in a typical dictionary entry. It is

generally believed that a lexical entry must contain information about an item's pronunciation, morphological characteristics, meaning or semantic structure (including selectional restrictions), and syntactic category; in addition, many lexicalist theories put forward the view that entries for major categories like verbs, nouns, adjectives, and prepositions, and for certain types of affixes, must also include information about the item's "argument structure" or "subcategorization frame," a level of representation that is projected from semantic structure.

(Discussion of the mental representation of lexical items may be found in both the linguistic and psycholinguistic literature, for example, in Aitchison, 1994; Atkins and Levin, 1991; Jackendoff, 1983, 1990; Marantz, 1984; Miller, 1978; Pinker, 1989a; Levin and Rappaport Hovav, 1991, 1992; Tanenhaus & Carlson, 1989; see also Stowell, 1992, for the status of the lexicon in current linguistic theories.)

Let us consider the argument structure of verbs in some detail since this concept has figured prominently in many learnability studies and is of importance in the current study. The argument structure of a verb is that part of the verb's entry which specifies exactly how many arguments it has, how these are realized syntactically and within some theories, what their thematic roles are. Thematic roles such as "agent," "patient," "theme," and "goal" are assigned by the verb and show how the various arguments participate in the event in question (Gruber, 1976; Jackendoff, 1972); adjuncts are not assigned thematic roles and co-occur with a

large variety of verbs.¹ Pinker (1989a, 1989b), for example, using notation based on Lexical Functional Grammar (LFG) (Bresnan, 1978, 1982), presents the argument structure of "give" in a sentence like "Magnus gave his savings to the Salvation Army" and "sink" as in "The brigands sank the ship" as follows:

give	(SUBJECT, agent	OBJECT, theme	OBLIQUE) goal
sink	(SUBJ, agent	OBJECT) patient/theme	

In the form of LFG proposed by Bresnan (1978, 1982), argument structure consists of two levels. one with a list of unordered thematic roles, and the other with constrained mappings between thematic roles and grammatical functions ("functional subcategorization").² The representations of "give" and "sink" in government-binding theory (GB) are similar to the LFG ones in many respects (Pinker, 1989a, p. 35), but instead of grammatical functions, complements are presented as external and internal arguments within a subcategorization frame. The subcategorization frame of "give" in a sentence like "Magnus gave his savings to the Salvation Army," for example, has an external argument, which corresponds to the subject NP

¹ The terms "thematic role" and "theta role" are being used interchangeably in this discussion.

² If there is just one thematic role, it is assigned the grammatical function "subject"; if there are two or three, they are assigned "subject" and "object," or "subject" "object" and "object2" respectively (Zaenen & Maling, 1984). The difference between LFG and GB in their representations of certain intransitives, as in "The ship sank," will be dealt with in Footnote 4 in Chapter 4.

("Magnus"), an internal argument which corresponds to the direct object NP ("his savings"), and an oblique argument which is realized as a prepositional phrase ("to the Salvation Army"). The mapping of semantic structure onto syntactic structure within these two theories is said to be brought about by universal or near-universal "linking rules," or "alignment principles" (Baker, 1985; Carter, 1988; Pinker, 1984; Stowell, 1992). Within an LFG framework these linking rules correlate grammatical functions with arguments in a lexicosemantic structure or with thematic roles projected from lexicosemantic structure.³ Within GB, theta roles are mapped onto underlying structural positions via principles of argument alignment.⁴

Since grammatical theory is seen by many as not just accounting for adult-state grammars but also aspects of language acquisition, it is not surprising that the acquisition of lexical entries and lexical rules is being viewed in a new light in current L1 acquisition research. The acquisition of the argument structure of verbs can be considered especially significant given that verbs have a rich variety of arguments and given that any sentence is ungrammatical unless it has the exact arguments subcategorized by the verb: "Since the argument structure of the entries

³ As mentioned before, there is variation among theories regarding the status of thematic roles.

⁴ Baker (1985), for example, has posited the Universal Theta Assignment Hypothesis (UTAH): "Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure." Similarly, within Relational Grammar Perlmutter and Postal (1984) have put forward the Universal Alignment Hypothesis (UAH): "There exist principles of universal grammar which predict the initial relation borne by each nominal in a given clause from the meaning of the clause."

of verbs in the lexicon assume such a large burden in explaining the facts of the language, the acquisition of argument structures is a correspondingly crucial part of the problem of explaining language acquisition" (Pinker, 1989b, p. 15).⁵ The same conclusion was drawn by Bloom, Tackeff, and Lahey (1984, p. 405) on the basis of their findings on children's acquisition of "to" in infinitive complement structure: "The subcategorization of verbs exerts a major influence on the acquisition of increasingly complex structures in children's sentences, and the development of the verb lexicon and of grammar are mutually dependent."

3.1.1 Lexical Rules that Operate on Classes of Verbs in Verb Alternations

In addition to detailed lexical entries, it has been proposed that there are lexical rules which relate entries in the mental lexicon. One type of lexical rule that has been posited links two members of a verb alternation, each with its own subcategorization frame or argument structure. Such rules were proposed in the 1970s as ways of accounting for alternating constructions, as in the causative,

⁵ Ironically, it is verbs themselves that are most vulnerable in the event of a speech disorder. In certain types of aphasia, for example, the patient seems to retain a much larger proportion of nouns than verbs, using the same verb over and over again or omitting it altogether (Allport & Funnell, 1981; Hand et al., 1979). Aitchison (1994, p. 102) links this fragility of verbs with the syntactic "work" that they have to do: "The preference for nouns shown by aphasics is not just because there are many more nouns than verbs. It is more likely because nouns they are relatively free of syntactic restrictions. Verbs, on the other hand are somewhat more tricky, perhaps because they are inextricably entangled with the syntax of a sentence."

dative and passive alternations, without employing syntactic transformations (Bresnan, 1978; Chomsky, 1970; Jackendoff, 1975; Oehrle, 1976; Wasow, 1977).

3.1.1.1 Position #1: No lexical rules

When a verb participates in an alternation such as the causative alternation, one could posit the view that there are two separate unlinked lexical entries for each subcategorization. However, this does not reflect the close semantic relationship between the verbs; nor does it account for a speaker's "productivity," which is an ability to produce types of utterances that have not been encountered in the input through the application of rules (an issue which will be discussed below). An alternative is that there is a *single* entry for such verbs but with two different syntactic projections; for example, the same entry for "lend" yields both "Manuel lent his best shirt to Basil" and "Manuel lent Basil his best shirt." This view is problematic as well because it not only runs counter to current views on projection of the syntax from the lexicon but also fails explain why some verbs alternate and others do not.

3.1.1.2 Position #2: Lexical rules that operate on argument structure

One possible solution to these problems is that there are two separate lexical entries for an alternating verb such as "break" (each specifying a different subcategorization for the verb), which are linked by lexical redundancy rules; the lexical entries for suppletive forms like "kill" and "die" are not linked at all, but the

relationship between "kill" and other causatives is captured in their similar subcategorizations (Jackendoff, 1975, pp. 658ff.). In the same way, a single lexical rule could be seen as operating on a large number of verbs *at the level of argument structure* and giving as output their alternating forms. This mechanism can be seen as accounting for productivity (going beyond the input through rule application) since the child has to acquire only one of the lexical entries plus the lexical rule in order to arrive at the alternating constructions for a number of verbs. However, these rules can account only broadly (via thematic roles) for the semantic classes of verbs on which lexical rules operate, casting little light on why various exceptions exist within these broad classes.

3.1.1.3 Position #3: Lexical rules that operate on classes of verbs at the level of semantic structure

A third possible solution and the one that is favoured in this study is as follows: A lexical rule operates on an entire semantic class, and not merely on entries for individual verbs, and at the level of semantic structure and *not* argument structure (Pinker, 1989a). Within a scheme such as Pinker's, a lexical rule actually changes the verb's semantic structure (and not just its argument structure), which in turn automatically effects the necessary change in the argument structure of the verb via the operation of the linking rules discussed above (Pinker, 1989a, pp. 62-65). In other words, these linking rules stipulate one syntactic structure for one meaning of the verb and another for the meaning effected by a lexical rule. The

workings of lexical rules may be shown diagrammatically as follows (from Pinker, 1989a, p. 63):

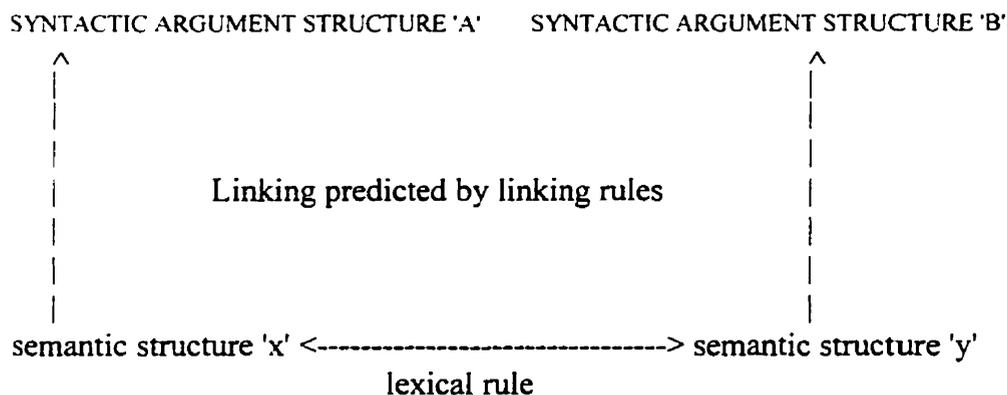


Fig. 3.1 Lexical rules effecting verb alternation

3.1.2 How Membership of Verbs in Grammatically Relevant Classes is Based on Their Meaning Components

The question that needs to be asked at this point is how one determines membership of a verb in a certain alternating class on the basis of semantic structure (or “lexico-semantic structure” or “lexical conceptual structure” [LCS]). Semantic structure theories fall broadly under decompositional theories of word meaning. According to the latter, the meanings of words can be “decomposed” into a set of semantic primitives; words in the mental lexicon are related to one another if they share semantic components. (Whole-word theories, on the other hand, treat words as

argument of GO is a theme. Mapping from conceptual structure to syntactic phrase structure is accomplished via "correspondence rules" (without a mediating level of argument structure between conceptual structure and syntactic structure). These correspondence rules are language-specific (since syntactic structure is language-specific) but are constrained by Universal Grammar (Jackendoff, 1990).

Talmy's concept of "conflation," too, employs the notion of semantic primitives, confluations being language-specific combinations of semantic elements such as "Motion," "Manner," "Means," "Direction" and "Cause" that create word meanings (Talmy, 1985). The range of semantic elements that can be incorporated into word meanings in the languages of the world is small, constituting only a part of the range of elements that may be relevant to the cognitive representation of an event or state. In short, many meanings that are lexicalized in certain languages of the world can be expressed only periphrastically in others, or, to put it another way, "the presence of lexical gaps . . . suggests that languages do not all share exactly the same inventory of LCSs" (Nirenberg and Levin, 1992, p. 7) For instance, English has motion verbs that combine Motion, Manner, and displacement in a particular path, yielding constructions such as: "The bottle floated into the cave"; Spanish, however, does not allow such a combination, requiring one to use a verb of external motion, represented as GO (Jackendoff, 1990), with a participle that provides the manner of motion: *La botella entro a la cueva flotando* ("The bottle moved into the cave, floating"). Similarly, English can conflate Motion, Cause, and Manner in causative verbs giving

us constructions like "Jorge rolled the keg into the river," while in Spanish the causative "roll" would be expressed by a simple motion verb together with a separate constituent, *rodandolo* (= "by rolling" [the object]) (examples based on Talmy, 1985, pp. 68-70). On the other hand, English does not conflate manner or means with result or direction (Levin and Rappaport Hovav, 1992, pp. 252-3); "arrive" type verbs, for example, give direction of motion but not manner or means, and "roll" type verbs give manner or means but not direction. Similarly, in the category of "inductive causation" (Talmy, 1985, pp. 79-81), English does not allow causation through psychological/emotional contact (i.e., where an effect is mediated by the psychological [internal] processes of the causee): *"The baby-sitter cried/laughed/slept Molly." In Hindi-Urdu, on the other hand, these confluences do exist, marked with the causative *-aa* suffix; "make cry," "make laugh" and "make sleep," for example, are lexicalized as the causative verbs *rulaanaa*, *hāsaanaa*, and *sulaanaa* respectively. Thus, these verbs of psychological/emotional expression participate in the causative alternation in Hindi-Urdu even though they do not in English. In short, in the case of verb alternations, alternation is licensed only if the resulting verb conflates elements in a way that is permitted in the language (Pinker 1989a).

This focus on correspondences between the semantic representations of verbs and their syntactic properties has characterized the work of many others in the field (Brousseau & Ritter, 1990; Grimshaw, 1990; Guerssel et al., 1985; Jackendoff, 1983, 1990; Hale and Keyser, 1986; Levin & Rappaport Hovav, 1991, 1992;

Levin, 1993; Massam, 1990; *inter alia*). In general, the view that has been put forward is that differences in the syntactic behaviour of verbs stem from differences in grammatically relevant aspects of their semantic composition; similarities in syntactic behaviour usually stem from similarities in their semantic composition:

Decisions about which verbs can be construed as capable of undergoing a given semantic change are not made by each speaker for each verb. Rather, the lexicon of a language defines subclasses consisting of verbs whose meanings are variations of a single semantic plan, and it is these subclasses that precisely delineate which verbs a speaker may construe in the two different ways corresponding to the input and output of the lexical rule
[Pinker, 1989a, p. 64]

Verbs fall into classes on the basis of shared meaning components, and the members of these classes have in common a range of properties concerning the expression and interpretation of the arguments. [Levin, 1991, p. 210]

3.1.2.1 Narrow classes within a broad class of verbs

In this study, a distinction is being made between broad lexical classes and narrow lexical classes, as posited by Pinker (1989a). Broad semantic classes contain verbs that have the same thematic roles, mapped onto the same grammatical functions or structural positions.⁷ However, if we consider English, it is usually the case that only some of the verbs that fall into a broad semantic class for a particular type of alternation actually alternate. Thus if we try to account for anticausatives (the

⁷ Pinker explains broad classes via his “thematic core theory” (see Pinker 1989b, pp. 37ff).

intransitive counterparts of causatives) broadly, we could say that causatives typically show that "X (a theme) undergoes a change of location or state" (adapted from Pinker, 1989a, p. 88). However, not all verbs that have a theme undergoing a change of location or state actually causativize, as is the case in 2 and 3 below:⁸

1. The artichokes boiled. ~ The apprentice boiled the artichokes.
2. The cat disappeared. ~ *The sorcerer disappeared the cat.
3. The child arrived at school. ~ *The nanny arrived the child at school.

Similarly, if we consider causatives collectively, we could say that causatives show that "Y (agent) acts on X (patient), causing X to go into a location or a state." However, not all the verbs that are compatible with this representation have anticausatives (intransitive) counterparts, as seen in 5 and 6 below:

4. The apprentice burned the gravy ~ The gravy burned.
5. Botero tinted his hair ~ *His hair tinted.
6. Pandora killed the hedgehog ~ *The hedgehog killed.

What this means is that within a broad class there are subclasses of verbs that permit alternation -- "narrow conflation classes" -- which alone fulfill both the "sufficient and necessary" conditions for alternation (Pinker, 1989a). The existence of narrow classes in a particular language is governed by restrictions regarding what combinations of semantic elements are allowed in that language (cf. Talmy's concept of conflation, as discussed above); these constraints are usually

⁸ The semantic restrictions on causativization will be discussed in greater detail in Chapter 4.

semantic in nature and often not transparent, it being common for closely related words to differ in their syntactic behaviour on the basis of a relatively obscure difference:

Languages differ from one another, within limits, in terms of which semantic elements can coexist in a verb definition. Which combinations are admissible or inadmissible will determine, in large part, which rules can operate in which verbs. Languages specify the licit combinations rather precisely, yielding large sets of thinly sliced classes of possible or impossible verb meanings. [Pinker, 1989b, pp. 38-9]

Within Pinker's scheme, broad-range lexical rules operate on the semantic structures of verbs in broad conflation classes and predict possible forms; narrow-range rules, operating on narrow conflation classes, predict actual (existent) forms. In short, a verb's semantic structure has to be examined in greater detail in order to arrive at syntactically relevant classes, and not just the thematic roles the verb assigns. Importantly, however, this does not make the broad rules and classes redundant since they "bind" the narrow rules and classes together (which otherwise would be disparate) and could be said to aid in acquisition since they define the parameters within which narrow classes must be formulated.

The mechanism proposed in Pinker (1989), contrary to the one proposed in Pinker (1984) and Mazurkewich and White (1984), involves lexical rules acting *directly on semantic structure and never directly on argument structure* since semantic structure dictates what verbs fall into the narrow classes which actually

alternate, while argument structure simply gives the broad class which encompasses these narrow cases (see Fig. 3.1 above). According to the mechanism proposed by Pinker, a lexical rule operating upon a verb in an appropriate conflation class actually alters the verb's semantic structure, accounting for the subtle differences in meaning between members of constructions, as exemplified by the difference between "The tutor taught Hausa to the civil servants" (i.e., with or without success) and "The tutor taught the civil servants Hausa" (probably with some success) (Green, 1974; Oehrle, 1976; Pinker, 1989a).

Lexical rules also bring about any morphological change that may be required, for example the insertion of the *-aa* suffix in the case of the Hindi-Urdu causative or the *-en* insertion in the case of the English passive. Furthermore, they indicate which intransitive and causative pairs will share stems; in other words, "suppletion," as pertaining to an alternation such as the causative one, is subject to language-specific lexical rules (though there are some universal tendencies, as put forward by Nedyalkov and Silnitsky, 1971). Here a causative/anticausative pair does exist (i.e., the confluations themselves are permitted in the language) but only in suppletive form; for instance, we can have "Her neighbour died" or "Maria murdered/killed her neighbour" but cannot have *"Maria died her neighbour." (As Talmy (1985) has pointed out, the lack of stem-sharing applies to practically all verbs of killing and dying in English.)

Pinker's contention that it is only a conjunction of narrow-range rules within a broad-range rule that can provide the necessary and sufficient conditions for certain types of alternation corresponds with the findings of others in the field that thematic roles alone do not necessarily provide all of the information pertaining to the linking of semantic structure and syntactic structure (Grimshaw, 1990; Gropen et al., 1991; Hale and Keyser, 1986; Levin and Rappaport Hovav, 1991; Rappaport and Levin, 1988). As explained above, one of the problems associated with linking based on thematic roles is that there can be variation in linking patterns even when the thematic roles in question are the same. In addition, there are often subtle semantic differences between two versions of an alternating verb when participant roles are supposedly the same in both versions (as in the above-mentioned example: "The tutor taught Hausa to the civil servants" ~ "The tutor taught the civil servants Hausa"). Levin and Rappaport Hovav (1991) show how verb meaning needs to be scrutinized in order to explain syntactic behaviour through their examination of "clear" and "wipe" type verbs; both kinds of verbs, usually classified as verbs of "removal," seem to behave identically if one looks at one type of construction:

7. Bluebeard cleared the crumbs from the table.
8. Salome wiped the stains from the floor.

Here an agent (subject) removes some material (direct object) from a particular location (oblique). However, if one examines their syntactic behaviour more closely, "clear" verbs can appear with "of" phrases, but "wipe" verbs don't:

9. Bluebeard cleared the table of crumbs.

10. *Salome wiped the floor of stains.

Similarly, "clear" verbs participate in the causative alternation, but "wipe" verbs don't:

11. The sky cleared.

12. *The floor wiped.

Levin and Rappaport Hovav suggest that the crucial difference here is that "clear" verbs include a resulting state (an "accomplishment") but do not specify a "means" of accomplishing the task, while "wipe" verbs lexicalize a means of performing an activity, a subtlety not captured by typical thematic roles. Similarly, "break" verbs can be distinguished from "cut" ones; the former does not specify a means, but gives a resultant state, and the latter specifies an instrument by means of which an activity is conducted (Guerssel et al., 1985; Levin & Rappaport, 1991, p. 136). In earlier studies this type of variation had simply been identified as the "lexical idiosyncrasy" of certain causatives/anticausative pairs (Wasow, 1977, p. 333). Investigations such as Levin and Rappaport Hovav's (1991, 1992) have led to the general conclusion that the mapping between syntax and semantics must involve the verb's inherent semantic structure.

3.2 THE ACQUISITION OF VERB CLASSES

3.2.1 The L1 Acquisition of Broad and Narrow Classes

Let us consider how the issues discussed above pertain to the L1 acquisition of alternating verbs since theoretical views and empirical data related to the L1 acquisition of grammatically relevant verbs classes could provide some insights into the L2 acquisition of the same. Furthermore, learners bring with them to the L2 acquisition process a knowledge of the L1, which is liable to have bearing on the L2 acquisition of verb classes (see Chapter 2). As mentioned above, one possible method of acquiring alternations is an item-by-item lexical one (Baker, 1979; Fodor, 1985). Here the learner acquires one subcategorization frame for an alternating verb like "break" by being exposed to a causative (transitive) construction such as "The burglar broke the tureen" and separately acquires the other argument structure through exposure to an inchoative construction such as "The tureen broke." Alternatively, the subcategorizations of an alternating verb could be acquired individually (i.e., conservatively) and then linked by lexical redundancy rules, presumably for organizational/storage reasons; such rules could also specify the forms of *possible* subcategorizations for verbs not yet encountered in the input, but these subcategorizations would not be considered a part of the grammar unless they actually appeared in the input (Fodor, 1985).

Real-life L1 data, however, seem to indicate that child learners and adult speakers do go beyond the data, at least to some extent. It is believed that though initially children acquire the argument structures of alternating verbs monotonically, i.e., only upon encountering them in caregiver speech, they soon begin to generalize the alternation to other verbs (Berman, 1982; Bowerman, 1982; Mazurkewich & White, 1984; Pinker, 1989a, pp. 18-26, 287-93), as is exemplified by the well-attested overgeneralization of causatives in child language data: ⁹

"He just keeps *disappearing* himself in different places." (Christy at 4;2, from Bowerman, 1982)

[A causative has been used where there is a gap in the adult lexicon.]

"Who *deaded* my kitty cat?" (John at 2;6, from Bowerman, 1982)

[A stem-sharing causative has been used instead of the suppletive form "kill."]

"I'm *singing* him [a musical box cow] (Christy at 3;1, from Bowerman, 1982)

"Daddy can *purr* Pandora" [by stroking the cat] (Tara at 7;6)¹⁰

[This semantic class -- emission of (animal) sounds -- does not allow causativization in English.]

"Nani *strolled* Adam to the park" (Tara at 8;7)

[Only some verbs of locomotion allow causativization.]

"You are *falling* me" (Adam at approx. 4)

[Directional motion verbs do not causativize in English.]

⁹ Like overgeneralized causatives, the overgeneralization of double NP datives seem to persist well into childhood. In Mazurkewich and White's study (1984), for example, subjects were required to say whether various double object and prepositional dative constructions were grammatical or not; almost half of their 9-year-old subjects accepted "David suggested Ruth the trip" and a fifth accepted "Nancy drove Ted the car."

¹⁰ This sentence and the ones that follow are from unpublished data collected by the author.

In addition, causative verbs might be created from words in other lexical categories, as in:

- "*Bigger* it, Mummy." (Adam at 3;6)
- Don't *worse* it." (Adam at 3;7)
- Don't *small* it." (Adam at 3;8 ½)
- "It's *nervousing* me." (Tara at around 5)
- The tum [an antacid] is *feeling* me better (Adam at 3;8)
- "Doesn't this *mouth-water* you?" (Tara at 10;10)¹¹

Children also generalize patterns of alternation to novel verbs introduced to them in experimental situations (Gropen et al., 1989; Pinker et al., 1987). Furthermore, adults seem to have little difficulty in determining whether a newly-encountered verb alternates or not, for instance, when neologisms appear in a speech community (e.g., the commonly cited type of alternation of "Fax/e-mail/fed-ex your response to me" with "Fax/e-mail/fed-ex me your response").

The above-mentioned overgeneralizations by children could be seen as resulting from the application of an alternation pattern to all types of predicates without serious consideration of the semantic distinctions among them. This approach, however, is believed to be problematic because unconstrained

¹¹ It seems that these are an overgeneralization of the pattern periphrastic causative ----> direct causative, as in "make someone upset" and "upset someone." Here adjectives are being used as verbs (incorrectly): "Making me nervous" ----> "nervousing me" and "make it bigger" ----> "bigger it." The last two cases are a little different as "feel" is a verb, and "mouth-water," a non-existent word, involves noun incorporation.

overgeneralization cannot be put right without negative evidence, giving rise to a learnability problem that is commonly referred to as "Baker's paradox" (named on the basis of Baker, 1979, but see also Braine, 1971). Baker's paradox may be summarized as follows: If language acquisition entails productivity via the application of small number of syntactic rules (i.e., the ability to create novel, infinite sentences on the basis of finite data, as postulated by mainstream generativists), we need to consider a possible scenario in which the child overgeneralizes the use of these syntactic rules by having a single deep structure for an alternating verb from which the second syntactic construction is derived via a transformation. For example, children would apply the following transformational rule to any verb taking a prepositional dative, thereby arriving at a host of ungrammatical sentences like *"The footman polished Cinderella her slippers":¹²

$$NP_1 \text{ -- obj } NP_2 \text{ -- to/for + obj } NP_3 \text{ -----> } NP_1 \text{ -- obj } NP_3 \text{ -- obj } NP_2$$

Likewise, the case of the causative, the learner could arrive at overgeneralizations like *"Grandpa remained me at home" or *"God existed Adam." In short, the child could very well end up with a superset of the target-language grammar, an outcome which would not be problematic but for evidence that negative feedback is neither required, nor usually given in the course of first language acquisition,

¹² Similar generalizations could be made by relating one subcategorization or argument frame to another, for example: [___ NP1 to/for NP2] -----> [___ NP2 NP1].

and if given is ignored or is not understood (Braine, 1971; Chomsky, 1959; Brown and Hanlon, 1980; Pinker, 1984). In other words, there is no plausible explanation for how these overgeneralizations would be "unlearned." If the verbs to which rules applied belonged to arbitrary lists, the only alternative to applying a syntactic rule to all verbs at large would be to learn their grammatical properties in an item-by-item fashion on the basis of positive input. This, however, counters the productivity factor.

A solution that has been proposed is that children do indeed generalize, not via a syntactic rule, but on the basis of their knowledge of verb classes, which are generally semantic in nature; in other words, such an approach centres on falsifying the assumption that the syntactic behaviour of verbs is unpredictable. The question to be asked now is how children successfully place verbs in syntactically relevant semantic classes. On the basis of L1 acquisition data on the dative alternation, Mazurkewich and White (1984) suggested that after an initial period of conservatism, the child formulates lexical rules that operate at the level of argument structure which have some of the constraints of the adult grammar but not all; in short, lexical rules grow in complexity during the course of development. For example, the child might correctly recognize that the first object in the double-object dative needs to be the Goal or Beneficiary but be unaware of the further constraint that the first object must also be the possessor of the second object. Once the latter constraint is acquired and tacked on to the lexical rule, overgeneralizations such as *"Please open me this"

will disappear from the child's grammar. As mentioned above, the process of acquiring alternations, as delineated in Pinker (1989a), differs from Mazurkewich and White's in one significant way: lexical rules operate directly on lexicosemantic structure and never on argument structures. Here, broad-range rules and classes require minimal learning since the acquisition of these is facilitated by the universal or near-universal rules that link an argument with a particular thematic role to a grammatical function or as structural position. (The agent, for example, corresponds to the subject or external argument, the causee -- the entity acted upon and affected -- to the object or internal argument. The linking rules relevant to causativization will be discussed in some detail in Chapter 4.) Narrow-range rules and classes are acquired partly conservatively, being formulated on the basis of any single verb that is actually heard to alternate; this pattern is then extended to similar verbs, i.e., verbs that share the same set of grammatically relevant meaning components (or, to use Talmy's [1985] terminology, "conflate" the same semantic elements). In short, broad-range rules are "large top-down generalizations constrained by linking rules" and narrow-range rules are "minor bottom-up generalizations of lexical entries, tracking the development of meaning . . ." (Pinker, 1989a, p. 293). As these narrower constraints are acquired, previous overgeneralizations generated by an under-constrained rule begin to be expunged from the learner's grammar. Once the learner knows the narrow-range rules and classes for alternations, the learner can arrive at new (and correct) argument structures that have not actually been

encountered in the input for any verb that the learner knows the meaning of: "[T]he generalization that the learner would make would be: if X alternates, other verbs with the same grammatically relevant semantic structure alternate, too" (Pinker, 1989a, p. 274).

An examination of children's real-life errors indicates that their errors do not result from the random employment of syntactic rules. According to Pinker (1989a), these errors tend to stem from (i) a real gap in the learner's lexicon or a temporary retrieval problems, an especially plausible source of error in the case of suppletive or quasi-suppletive forms like "drop" (causative for "fall"), (ii) the use of broad-range semantic constraints on alternations, and (iii) distorted semantic representations (definitions) of verbs.¹³ As the subtleties of the lexicon are slowly mastered, the child makes fewer and fewer overgeneralization errors, without the benefit of negative evidence.

Braine et al. (1990), however, have suggested that there might be no productive rule underlying the overgeneralization of causatives, and that these so-called overgeneralization errors arise through the application of the Agent-verb-

¹³ Malapropisms are fairly common in children's speech. Bowerman, for example, reports that Christie used "give" and "put" correctly at the age of two but then lost the distinction between them at the age of three on account of their shared meaning. However, as we know, they have different argument structures and using one for the other results in an ungrammatical utterance. Similarly, children often treat "say" and "tell" as being synonymous, resulting in utterances such as *"You said me that" (Adam at 4;4, from the author's data).

Patient pattern (serving as a default argument structure) to the wrong verbs. This ostensibly happens because initially the child is not sure of the argument structure of the verb, and later, once the argument structure has been acquired, because the child is under conversational pressure to place a particular argument -- agent or patient -- in subject position. However, Bowerman (1992) uses data in which erroneous causatives and their correct counterparts appear within the same context to point out that the sequence of corrections is not just from incorrect to correct (as would be expected if the problem were related to discourse pressure), but also from correct to incorrect, weakening Braine et al.'s argument that causativity errors result from the inappropriate use of a default argument structure because of the exigencies of discourse.

Pye's contention (1990) is that these errors of overgeneralization stem mainly from the retrieval problems entailed in the learning of suppletive forms, and that the problem disappears with the strengthening of children's access to individual verbs. Pye is right about the large number of overgeneralized causatives that can be linked to suppletion and about the learning-related difficulties posed by suppletive or irregular forms (see MacWhinney, 1987 and Maratsos et al., 1987). However, his suggestion that children produce causative overgeneralizations only in extraordinary circumstances (as in elicitation experiments) is questionable, given the fair number of examples in unsolicited, naturalistic data. Moreover, there are a sizable number of overgeneralizations that do not involve suppletive forms.

Bowerman (1992) has highlighted a large number of causativity errors in L1 acquisition data which she claims violate Pinker's broad-range rule for causativization and thus undermine his theory regarding the acquisition of lexically-governed alternations. Pinker's broad-range causativization rule (1989a, pp. 223 ff.) allows the causing of an EVENT (involving the predicates GO and ACT), but prohibits the causing of a STATE (involving the predicates BE and HAVE) (capitalized words used as in Jackendoff, 1983). However, many of these so-called broad-range rule violations may simply involve malapropisms, or substitutes when suppletive forms might not be readily accessible. Furthermore, children may not know exactly how the "control factor" works vis-à-vis particular verbs (the entity in subject position must have the ability to directly cause the event in question [Smith, 1970]). Some of Bowerman's examples of children's broad-range violations are as follows, with alternative interpretations in brackets:

Water *bloomed* these flowers. [*Used in the same way as "wither," the absence of a causative version of "bloom" being simply a gap, not a broad-range violation.*]

Is this to *climb* her up? [*Used in the same way as "walk the dog."*]

Let's *stay* this open. [*"Keep" or "leave" are temporarily unavailable.*]

This is *aching* my legs. [*"Ache" is not clearly seen as a state, perhaps because of its frequent use in the -ing adjectival form.*]

I meant to *be* it like this. [*Jumbled form of "I meant it to be like this."*]

3.2.2 The L2 Acquisition of Broad and Narrow Classes

As discussed above, the exact mechanism via which children undo their overgeneralizations is under contention. However, what is more important for us here vis-à-vis L2 acquisition is that ultimately, by some means or another, children do arrive at the “right” classes, i.e., neither too narrow nor too broad. It can be assumed that all adult L2 learners will know implicitly that the verb lexicon is organized at least in part on the basis of grammatically relevant semantic criteria. Hindi-Urdu speakers know, for example, that verbs which take the “dative experiencer” subject (case-marked with *ko*) represent the experiencing of non-volitional psychological, emotional, or physical feelings and sensations, and that intransitive verbs indicating volition can take the ergative *ne* marker in the perfective (*ne* typically appears with *transitive* verbs in the perfective), but that verbs of locomotion such as “run,” “jump,” “creep” and “crawl” never take *ne*. In short, at the commencement of L2 acquisition, learners are not only equipped with a knowledge of the specifics of L1 classes, but also correctly expect that the semantics of a verb will have some bearing on its syntactic behaviour and that verbs will group together in grammatically relevant classes.

As has been stated before, this study aims to investigate the L2 acquisition of causatives in English by speakers of Hindi-Urdu and Vietnamese in order to gain further insight into the organization of the L2 lexicon. Given that patterns of lexicalization vary from language to language, it is not surprising that classes of

causativizable verbs differ in the three languages in question. While Hindi-Urdu has a very broad class of verbs that causativize, Vietnamese has a handful of stem-sharing direct causatives (without affixation), other types of causation being expressed through suppletive or periphrastic constructions. Like Vietnamese, English has narrow classes of stem-sharing non-affixed direct causatives, as well as suppletive and periphrastic ones. However, there are significant differences in the size, composition, and nature of these classes in the two languages. In the following chapter, the nature of the causative alternation will be examined in general, as well as the specifics of causativization in Hindi-Urdu, Vietnamese and English.¹⁴

¹⁴ While the alternation is being treated as bidirectional (as will be discussed in the following chapter), the reverse process of anticausativization is not being examined in as much detail since anticausatives will not be included in the various tests given to the subjects.

Chapter 4

CAUSATIVES IN ENGLISH, HINDI-URDU, AND VIETNAMESE

4.1 OVERVIEW OF CAUSATIVE TYPES IN ENGLISH, HINDI-URDU, AND VIETNAMESE

For the purposes of this study a causative verb is one which has as its direct object an entity that is not only acted upon by an agent but is also affected by the action in a physical or metaphorical way (Pinker, 1989a, pp. 85-6; Shibatani, 1976, p. 2). Direct causatives are those where there is no force mediating between the agentive action and the undergoing of this action by the affected entity; in short, the causation is "direct." From a formal perspective, there are two main types of direct causatives: "stem-sharing" and "suppletive." The former share verb stems with their non-causative counterparts, thus participating in what is commonly called the "causative alternation"; in this study, the terms "direct causative" or "lexical causative" will refer to such causatives, as in Pinker (1989a). Suppletive causatives, on the other hand, involve no stem sharing at all, as in "kill" (suppletive for "die") and "drop" (suppletive for "fall").

In English, one significant difference between direct causatives and periphrastic causatives (which have an embedded sentence as the complement of

"cause." "make." and the like) is that the causee in a periphrastic causative is not acted upon directly and may be seen as being just a theme (an entity in physical or metaphorical motion) and not a patient (an entity that is acted upon by the agent) (Pinker, 1989a, pp. 85-6). In general, if a language has *both* direct causatives and periphrastic ones, the former imply direct causation ("manipulative causation") and the latter indirect causation ("directive causation") (Shibatani, 1976, pp. 31 ff.; see also Comrie, 1985, pp. 332 ff.).

A language may have one or more causative types, in numbers that vary from very small to very large (Haspelmath, 1993). While the formation of periphrastic causatives tends to be very productive (Fodor, 1970; Shibatani, 1976; Comrie, 1985) and the formation of suppletive causatives non-productive (by definition), there is great cross-linguistic variation in the productivity of morphological causatives (Comrie, 1985, p. 332). The distribution of causative types in the languages that are of direct relevance to this study is summarized in Table 4.1 below:¹ (Note that in addition to the verb types here, Vietnamese has "serial verbs," which have no equivalent in English or Hindi-Urdu; these will be discussed in 4.4 below.) The causativizing behaviour of some representative English, Hindi-Urdu and Vietnamese verbs is summarized in Table 4.2.

¹ Since no formally calculated frequencies of types of causatives are available for the languages under observation here, this assessment is informal and based on an examination of commonly used verbs.

Table 4.1 Types of Causatives in English, Hindi-Urdu, and Vietnamese

	DIRECT, STEM-SHARING CAUSATIVES	SUPPLETIVE CAUSATIVES	PERIPHRASTIC CAUSATIVES
ENGLISH	-- A moderate number. -- Alternation involves no morphological change and is subject to numerous semantic constraints.	-- Some.	-- Wide-ranging, with "make," "cause" and the like.
HINDI-URDU	-- Wide -ranging. -- Alternation involves morphological change and is subject to few semantic constraints.	-- Some.	-- No periphrastic causatives of the "make" type (Kachru, 1976).
VIETNAMESE	-- A few. -- Alternation involves no morphological change and is subject to numerous semantic constraints.	-- Some.	-- Numerous, with <i>làm</i> ("make"/"cause"), <i>cho</i> ("let"), and the like.

Table 4.2 Examples of the types of causative constructions in which verbs appear in English, Hindi-Urdu, and Vietnamese

	ENGLISH	HINDI-URDU	VIETNAMESE
PHYSICAL-CHANGE-OF-STATE VERBS -- E.g., <i>burn</i> (a letter), <i>crack</i> (an egg), <i>melt</i> (butter)	Direct	Direct	Suppletive (with optional serialization)
MANNER-OF-MOTION VERBS -- Motion takes place in a certain manner. e.g., <i>roll</i> (a barrel), <i>spin</i> (a top)	Direct	Direct	Direct
VERBS OF SOUND EMISSION (BY A SOUND-MAKING OBJECT) -- An object is made to produce sound, e.g., <i>ring</i> (a bell), <i>blow</i> (a whistle)	Direct	Direct	Suppletive (with optional serialization)
FORCED/FACILITATED MOVEMENT -- A being is helped or forced to move, e.g., <i>run</i> (a horse past a barn), <i>walk</i> (a baby to the park), <i>dance</i> (someone around the living room), <i>jump</i> (a horse over a fence)	Direct (usually with a PP)	Direct	Suppletive (with optional serialization)
ACTIONS MEDIATED BY THE UNDERGOER'S INTERNAL MECHANISMS (EMOTIONAL EXPRESSION, ANIMAL SOUNDS ETC.) -- E.g., <i>laugh</i> , <i>cry</i> , <i>roar</i> , <i>bark</i>	Periphrastic	Direct	Periphrastic

In the sections that follow, stem-sharing direct causatives, suppletive causatives and periphrastic causatives will be examined in some detail in the three languages that are being used in this study (English, Hindi-Urdu and Vietnamese), with a focus on language-specific semantic (and occasionally phonological) constraints on their use. While the causative-anticausative alternation in English is being considered bi-directional for the purposes of this study, the emphasis here is on causativization rather than anticausativization, and this is the focus of the tests that have been administered to the two language groups. Furthermore, the study is limited to single-word causatives and periphrastic causatives, phrasal verbs (e.g., English "put out" and "tear down" or Hindi-Urdu *gul karna* = "end" and *behtar banaanaa* = "improve") will not be discussed in any detail here.

4.2 DIRECT STEM-SHARING CAUSATIVES IN ENGLISH, HINDI-URDU, AND VIETNAMESE

4.2.1 Direct Stem-Sharing Causatives: Formal Aspects

In the stem-sharing morphological category, English has causatives that are identical in form to their intransitive counterparts. They represent a subclass of morphological causatives that Nedyalkov and Silnitsky (1973, pp. 2-3) call "conversive syntagmatic causatives," in which the noncausative and causative forms are identical (e.g., "break" and "open"), as is also the case in a few other languages

such as Berber (Guerssel et al., 1985) and Greek (Haspelmath, 1993). (These causatives are "conversive" because they constitute non-directional opposition, and "syntagmatic" because "[c]ausative and non-causative meanings are determined solely by the environment of the verb" [Nedyalkov and Silnitsky, 1973, p. 7].) The same is the case for the relatively few stem-sharing direct causatives in Vietnamese, a fact that is not surprising given the lack of (inflectional) morphological markings in Vietnamese.

In Hindi-Urdu, on the other hand, the causative alternation involves a morphological change, for example through the addition of the causative affix -*aa* or through ablaut vowel alternation in the stem, as in Hindi-Urdu *girnaa* ("to fall," intr.) ~ *giraanaa* ("to drop," tr.), or *khulnaa* ("open," intr.) ~ *kholnaa* ("open," tr.), respectively (Kachru, 1976; Kellogg, 1965, pp. 252-7; Southworth, 1971; Shapiro, 1976; Saksena, 1982, p. 2). Most causatives that are formed in this fashion are contactive or direct.² Verbs without a "doer" appear in "neuter" (*akarmak kriiyaa*) and "neuter-passive" (*bhavvachyaa kriiyaa*) constructions (Scholberg, 1940, pp. 96-7). The former are said to consist of the active form of verb but with a "passive meaning" as in 1 below:

² The traditional classification of Hindi-Urdu causatives as "first causative" and "second causative," standing for direct and indirect causatives respectively, is confusing because these terms refer to form alone (the first causative including the -*aa* suffix and the second the -*vaa* suffix), and not to meaning. The two *forms* can be synonymous, both signifying non-contactive causation. Furthermore, there are direct causative forms like *torna* ("break") and *phutnaa* ("burst") that do not contain the -*aa* suffix.

1. *makaan banaa/ hilaa/ bikaa* = "The house got made/ shook/ sold."

These verb roots can be combined with the explicator *jaanaa* to form compounds called neuter-passive verbs; *jaanaa* carries the meaning of "change of state" or "completion of action" (Shapiro, 1976).³ The majority of non-causative intransitives in Hindi-Urdu have stem-sharing causative counterparts.

4.2.1.1 An analysis of causatives with affixes

As discussed above, some alternations involve a special morphological marking on the verb, for example the suffix *-aa* on a Hindi-Urdu causative verb. Since the English causative does not have a marking, it could be argued that it is not equivalent to the Hindi-Urdu one, a point that needs to be addressed in this current study. According to Marantz's (1984) analysis of morphologically derived causatives, the causative affix is a higher verb in the sentence and it takes as a complement a clause headed by the root verb. Such a causative affix then functions in the same way as a free-form verb like "make," as in "Igor made the child cry," with one significant difference: there is a merger of the causative affix and the root

³ In terms of form, neuter-passive verbs can be distinguished from passives since they contain the verb root and not the passive participle. Furthermore, neuter-passive constructions are agentless: "When attention is drawn to the agent the true passive form is usually employed . . ." (Scholberg, 1940, p. 97). Magier (1987), too, finds that these neuter-passive verbs (which he calls "anti-transitive") do not imply the presence of an agent and are thus different from passives: "The causing action is simply not part of the cognitive scene evoked by . . . univalent anti-transitive verbs" (p. 191).

verb in the lexicon (which, within Marantz's scheme, is a lexical operation rather than a syntactic one). Marantz argues that if a causative verb without an affix contains the CAUSE primitive used in decompositional theories of the lexicon (for example, Jackendoff, 1983), causative verbs with affixes must carry the meaning of CAUSE plus something else that is represented by the causative affix.

While Marantz's theory of affixation needs to be taken into consideration here since the majority of Hindi-Urdu causatives have a causative affix, the judgments obtained from Hindi-Urdu-English bilinguals for the purposes of this study confirmed that Hindi-Urdu direct causatives (i.e., those formed from intransitive bases, generally through *-aa* suffixation or morpheme-internal changes, as discussed above) and *grammatical* English direct stem-sharing causatives are considered to be translation equivalents by such bilinguals, irrespective of the morphological differences between the two. For example, these informants considered "The man burned the letter" identical in meaning to the Hindi-Urdu *aadmii ne chitthii jalaayii* (literally: man-ERG letter burn-CAUSATIVE AFFIX), while they judged "The man made the letter burn" to be similar but not identical to the same Hindi-Urdu sentence. It was only when there was no grammatical direct causative available in English that these informants considered a Hindi-Urdu causative equivalent to an English "make" periphrastic causative, as was the case with constructions such as "The girl

made the baby laugh." (See Appendix 1 for the particulars of these elicited judgments.)

The translation equivalence of unaffixed English direct causatives and affixed Hindi-Urdu direct causatives seems to be based on similarities in *meaning* between them since both are used to represent direct unmediated causation; in Hindi-Urdu direct causatives include not only physical occurrences, but also psychological/cognitive ones (for example. see Kachru, 1980, pp. 103-4; Saksena, 1982). Where causation is considered indirect, Hindi-Urdu speakers use other constructions, for example, a bi-clausal one as in 2a or the "second' causative as in 2b:

2a. *uske thokne ke vajah se phuuldaan tuut gayaa*
 his hammering because of vase broke went
 "Because of his hammering, the vase broke."

2b. *jawaahar-ne (ashok-se) per katvaayaa.*
 Jawahar-ERG (Ashok-INSTR) tree cut. [INSTR = instrumental case marker]
 "Jawahar had the tree cut (by Ashok)."

Note that this is not to say that there are no structural differences between Hindi-Urdu direct causatives and English direct causatives, but that despite these structural differences, Hindi-English bilinguals equate a Hindi-Urdu direct causative with an English direct causative rather than an English "make" causative in those instances where such a choice is available to them.

4.2.2 Direct Stem-Sharing Causatives: Semantic Aspects

4.2.2.1 The causativization of "unaccusatives" versus the causativization of "unergatives" in English

Let us consider the distinction that has been made between intransitives that are "unaccusative" and those that are "unergative" (Perlmutter, 1978; Perlmutter & Postal, 1984, pp. 94ff.) since the "unaccusative" class includes the vast majority of subclasses of causativizing English verbs. Broadly speaking, unaccusative verbs take non-agentive arguments and unergative verbs, agentive ones. Perlmutter (1978) classifies unergatives semantically as intransitive verbs that represent "volitional acts" and "involuntary bodily processes," and unaccusatives as intransitives "whose initial nuclear term is semantically a patient" (e.g., "fall," "sink," and "wither"), including verbs of "involuntary emission of stimuli that impinge on the senses" (e.g., "glitter," "pop," and "stink"). The distinction between unaccusatives and unergatives has also been characterized syntactically and morphologically (Burzio, 1981; Keyser and Roeper, 1984; Simpson, 1983; *inter alia*). However, despite a strong correlation between the classification of a verb as unergative or unaccusative and the semantic criteria put forward by Perlmutter, there is some cross-linguistic variation in the classification of intransitives, as has been pointed out by Rosen (1982).

While the criteria for distinguishing between unaccusative and unergative verbs have been challenged, a division between verbs with agentive subjects and other verbs is still relevant to defining classes of verbs which causativize in English and

which do not, especially since the majority of causativizing verbs in English fall into the unaccusative class and not the unergative. Therefore, the terms “unaccusative” and “unergative” will continue to be used in this study, with it being understood that (ii) there is a correspondence between unergative verbs and verbs which take agentive subjects, and between unaccusative verbs and verbs with non-agentive subjects, and (ii) these correspondences are not perfect (see Footnote 5).

Unaccusative verbs are said to have a single argument, with the role of “theme,” which may be defined as an entity whose state or location is characterized, or an entity which undergoes a change of state or location (i.e., physical or metaphorical “movement”) (Gruber, 1976; Jackendoff, 1972; Pinker, 1989a, p. 85).⁴ That there is no agent bringing about the event in such intransitive sentences as “The windshield cracked” is corroborated by the “all by itself” test, which separates unaccusatives from middles and passives (Keyser and Roeper, 1984, pp. 404-5):

3. The windshield cracked all by itself.
4. *The windshield cracked by the vandals.
5. *The windshield was broken all by itself.
6. ?These cabbages boil easily all by themselves.

⁴ According to the Unaccusative Hypothesis (Burzio, 1981), spelled out within a GB framework, this theme argument is originally in underlying object position and moves to the empty subject position. In the Perlmutter-type Relational Grammar, a “promotion” rule switches the NP argument of an unaccusative from object position to subject position. However, within LFG the argument structure for intransitive verbs like “sink” and “melt” is as follows:

“melt” (intr.)	(SUBJ)	“melt” (tr.)	(SUBJ)	(OBJ)
	theme		agent	theme

Since in LFG there is a only single stratum of operation, the grammatical function attributed to the single argument of “sink” and “melt” verbs is “subject” as opposed to “object.”

Unergatives, on the other hand, are said to be those verbs that usually assign an agent role to the external argument and may be represented by the thematic core "X acts" (Pinker, 1989a), overlapping with Talmy's category of "self-agentive agency" (1985, p. 78), as in "Eudora ran in the Boston marathon" or "Goebbels talked for many hours."⁵ If, bearing Rosen's (1982) caveats in mind, we see unergatives as generally representing volitional actions or processes that have causes internal to an entity, it becomes clear why unergatives are less prone to causativization than unaccusatives (though some do causativize in English, as will be discussed later): An external force cannot *directly* cause actions or processes over which either the entity has full power or some other internal mechanism has full power (see also Legenhausen, 1988). In this study it is expected that this factor will contribute to learners' perceptions that the causativization of unergatives is unusual.

As explained in Chapter 3, in this study, alternations are seen as resulting from lexical operations at the level of semantic structure and not argument structure. In Pinker's terms (1989a, p. 88), the causativization of unaccusatives involves the conversion of the thematic core "X is in a location or state or goes to a

⁵ Some verbs can have subjects that may be interpreted as themes by some and agents by others. For example, "John slid across the floor" is classified as unaccusative by Hale and Keyser (1986, p. 10), who give priority to the theme role, and as unergative by Perlmutter and Postal (1984), who give priority to the agent role. Similarly, while motion verbs like "fly" and "walk" are generally classified as unergative, it has been argued that when subcategorized with a directional PP (as in "flew across the sky") they group with unaccusatives, falling into the change-of-state/location category (Voorst, 1988, p. 70ff.).

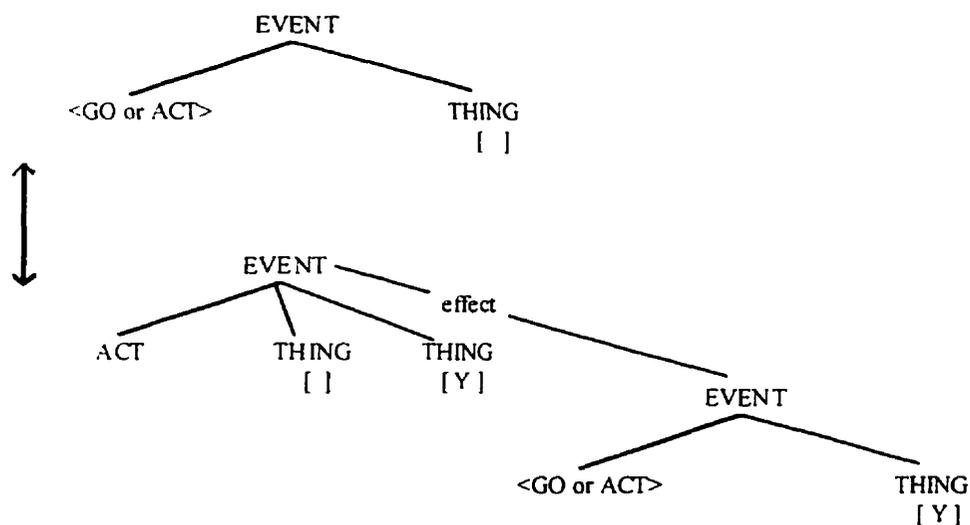
location or state" to "Y acts on X, causing X to go into a location or a state." and anti-causativization is the same in reverse. (Presumably for unergatives the thematic core "X acts" is converted to "Y acts on X, causing X to act.")

The theme (or affected entity or causee) is mapped onto object function or direct internal argument position and the agent (or causer) is mapped onto subject function or external argument position (since the causer is external to the predicate at the level of semantic representation). The mapping of the agent (causer) and the theme (causee) onto subject and object positions respectively is a cross-linguistic phenomenon (Comrie, 1985), which can be attributed to the universal linking rules discussed in 3.1 above. (As has been pointed out in the literature, this alignment between thematic roles and grammatical relations can be considered canonical, but only for nominative-accusative languages.) By virtue of being in direct object position, which is typically occupied by the patients of agentive action (Hopper and Thompson, 1980), the theme argument in a causative construction can be seen as being simultaneously a patient and a theme (Pinker, 1989a, pp. 85-6; Shibatani, 1976, p. 2). It is the entity which is not only acted upon directly by the agent, but is also affected by the action in a physical or metaphorical way. Thus, in this study a causative verb is one which has as its direct object an entity that is both acted upon and affected in some manner.

4.2.2.2 Semantic constraints on the formation of direct stem-sharing causatives in (a) English, (b) Hindi-Urdu and (c) Vietnamese⁶

(a) Semantic classes relevant to stem-sharing causativization in English

Causativization in English is far more restricted than in Hindi-Urdu. Pinker's broad-range causative alternation rule allows the causing of an EVENT (involving the predicates GO and ACT), but prohibits the causativization of verbs with the predicates BE and HAVE (Pinker, 1989a, p. 223, based on conceptual categories from Jackendoff 1983). This rule of causativization "allows a verb that specifies an event involving a thing to be embedded as an effect of an agent acting on that thing" (Pinker 1989a, p. 223), as shown below:



[Based on Pinker 1989a, p. 223]

⁶ Note that when a verb or verb class is identified as causativizable, this simply means that it *can* causativize. As in the case of other grammatical processes (cf. Allerton, 1978, on dativization, or Voorst. 1992, on anticausativization), aspectual and pragmatic factors play a big role in determining whether a "causative" or anticausative is grammatical, odd, or ungrammatical.

Many of the restrictions on causativization in English can be linked to the strict directness constraint on lexical causatives. (As explained in 4.2.2.1 above, the appearance of the causee in direct object position goes hand in hand with the directness constraint.) As a result, "[l]exical causatives are prohibited for causation mediated by the voluntary actions or psychological processes of the causee" (Pinker, 1989a, p. 48). (Nor, for that matter, can there be another mediating force). Smith (1970) explains the directness constraint via the "feature of control": the external argument (causer) must have the ability to control the activity in question, presumably by having direct contact with the affected entity.⁷

In English, the directness constraint eliminates from causativization the majority of "unergative" verbs, the subjects of which are generally agents and not themes. For example, it excludes those unergatives that represent happenings which cannot be directly caused by an extraneous force since they involve a physical or psychological or emotional mechanism internal to the subject NP, either under or outside the control of this entity (e.g., "breathe," "spit," "cough," "sneeze," "giggle," "cry," "shriek," and "shout"); similarly, this directness constraint eliminates from causativization verbs of "emission of lights, sounds, and substances," involving emission from within

⁷ There are, however, some exceptions to the directness constraint, as in "Fruitland Limited grows oranges in imperial valley" (Maratsos et al., 1987) though here too one may see the workers who actually grow the oranges as being part of the company, or see "grow" as meaning something like "produce for commercial purposes," rather than "tend."

an inanimate thing (e.g., “glow,” “gleam,” “hum,” “ooze,” and “bubble”) (Levin, 1993; Pinker, 1989a, pp. 132, 227-8; Smith, 1970):⁸

7. The baby cried/giggled/smiled.

*Kermit the Frog cried/giggled/smiled the baby.

8. The invalid breathed/coughed/sneezed/yawned/whimpered.

*Dr. Killjoy breathed/coughed/sneezed/yawned/whimpered the invalid.

As explained above, “unaccusatives” are usually better candidates for causativization than unergatives in English. Most change-of-state verbs (e.g., “melt,” “freeze,” “open,” and “close”), including practically all verbs expressing the “material disruption of an object” (e.g., “break,” “crack,” and “shred”), are causativizable in English (Levin, 1993; Pinker, 1989a; Talmy, 1985, p. 84):

9. The statue broke/cracked/shattered/sank/melted.

Rodin broke/cracked/shattered/sank/melted the statue.

In the tests used in this current study, physical-change-of-state verbs are included in Semantic Class A (see Appendix 2).

Another narrow class of unaccusatives allowing causativization in English is made up of manner-of-motion verbs, many of which represent “motion around an

⁸ Verbs like “ring,” “blow,” “buzz,” “beep,” are being classified differently in this study since they involve sound-making instruments, e.g., bells, whistles, buzzers and horns, and are causativizable (see Semantic Class D in Appendix 2).

Note that for the purposes of this study, verbs of “emission of lights, sounds, and substances” are being included in Class F, consisting of noncausativizing “unergatives” (see Appendix 2), even though there is some uncertainty in the literature regarding how these verbs of emission should be classified.

axis" and which have the capacity to represent both volitional and nonvolitional actions, for example, "skid," "roll," "bounce," "float," and "rotate" (Levin, 1993, pp. 264-5; Pinker, 1989a; see Semantic Class B in Appendix 2).

However, numerous unaccusative verbs in English that should causativize because the broad-range rule licenses this, do not do so in reality. Only those verbs that fall into certain narrow classes within the broad class of potentially causativizable verbs actually meet the conditions for causativization (Pinker, 1989a). The non-causativizing verbs include verbs of appearing and disappearing; coming into existence and ceasing to be; and "verbs of inherently directed motion," which give motion in a particular direction without indicating manner, for example "go," "come," "rise," "fall," "arrive," "leave" (Levin, 1993, pp. 263-4; Levin and Rappaport Hovav, 1992; Pinker, 1989a pp. 130-2):

10. The block of ice fell/rose/disappeared/arrived.

*The whalers fell/rose/disappeared/arrived the block of ice.

Similarly, verbs of "calibratable changes of state" such as "plummet," "skyrocket," and "soar" (Levin, 1993, pp. 247-8) specify a direction and are thus not causativizable. In the present study, verbs of directional motion are represented by Semantic Class B2 in the tests (see Appendix 2).

Conversely, among unergative verbs in English there is at least one subclass which allows causativization. The "controlled movement alternation" (also called the "induced action alternation" or the "accompanied causation alternation," as in

Brousseau and Ritter, 1990, p. 34, and Levin, 1993) involves verbs of voluntary motion performed in a certain manner, but only with causees that can be manipulated (e.g., horses, babies, and dolls) and there too usually only with locative PPs. (If the PPs are not expressed, they are understood [Levin, 1993].)

11. The horse walked/raced/galloped past the farmhouse.

Hagar walked/raced/galloped the horse past the farmhouse.

"Amble" and "meander," however, are ungrammatical in such constructions, or are, at best, borderline in acceptability (Smith, 1970), presumably because they imply an unforced and unhurried type of locomotion. In the tests used for this study, verbs of forced/facilitated movement are included in Semantic Class E (see Appendix 2).

(b) Semantic classes relevant to stem-sharing causativization in Hindi-Urdu

Stem-sharing causativization is a very productive process in Hindi-Urdu. (On the other hand, there are no *make*-type periphrastic causatives in Hindi-Urdu [Kachru, 1976, pp. 354-56]). It seems that those lexical rules that add affixes to stems have a wider applicability than the rules that do not, exemplified by the greater productivity of the passive rule than the dative movement rule in English (Marantz, 1984, Oehrle, 1975). Pinker (1989a, pp. 148-151) suggests that the meaning of a verb created through affixation might be seen by the learner as being simply the sum of the meaning of the stem and the meaning of the affix. Therefore, changes in a verb's semantic structure and corresponding argument structure would

then be recognized as directly resulting from affixation. In short, affixation may indicate to the learner that the alternation in question is relatively unconstrained. On the other hand, verbs that maintain identical forms in alternating constructions might be viewed as polysemous, therefore requiring close scrutiny in order for their meanings to be gauged accurately. Thus the learner might see this type of alternation as being constrained from the very start.

As mentioned earlier, Hindi-Urdu causatives formed from intransitive bases are "direct," indicating either physical or psychological contact between the causer of the event and the causee: "The conditions for causative contact can be stated as follows: in order for causative contact to be initiated, the causer must be personally involved in the verb activity; and in order for the causative contact to be completed, the causee must be the target of this activity" (Saksena, 1982, p. 85).⁹ In terms of the degree of control that the causer has over the causee, there is a great

⁹ The indirect causative, on the other hand, represents mediated causation (Kachru, 1976; Shapiro, 1976; Saksena, 1982), as in Turkish and Hebrew. There is no equivalent of the Hindi-Urdu indirect causative in English in the category of morphological causatives; the closest match would be with periphrastic causatives as in: "The policeman had the truck stopped." The vast majority of such causatives are marked with the suffix *-vaa*, and the remaining with the *-aa* suffix and sometimes with both *-aa* and *-vaa*. An example of the three morphologically related forms is as follows:

bhaagnaa = to run; *bhagaanaa* = to make an entity run; *bhagvaanaa* = to get someone to make an entity run

In the last case, the NP who is the one actually performing the action of chasing the animal or human away (the "non-affected agent" [Saksena, 1982]) does not have to be realized syntactically, and if it is, it appears as an NP marked with instrumental case.

deal of variation among causatives in Hindi-Urdu since they range in meaning from "cause" to "facilitate." For example, *bhagaanaa* may be translated as "make an entity run by scaring it" (*bhaagna* = "run away," *bhagaanaa* = "chase away"), *dauraanaa* implies that the causer has some control over the causee's locomotion (*daurna* = "run," *dauraanaa* = "to take an animal out for a run" or "to make someone run around"). On the other hand, *bethaanaa* and *pahunchaanaa* are only facilitative (*bethna* = "sit" and *bethaanaa* = "seat someone"; *pahaunchnaa* = "to arrive" and *pahunchaanaa* = "to accompany to a destination"). In the case of verbs that are causative in form but represent facilitation only, both the facilitator and the entity who is assisted have control over the proceedings.

It is not just the majority of "unaccusatives" that are causativizable in Hindi-Urdu, but also the majority of "unergatives" (e.g., *hāсна* = "laugh," *daurna* = "run," *kuudna* = "jump"), for even though unergatives indicate that the agentive subject acts with volition, as causees (the undergoers of the action) in causative constructions these entities can be compelled to or helped to perform an activity. Furthermore, as mentioned before, contactive causatives in Hindi-Urdu include not only verbs that represent physical contact but also those that indicate psychological contact (e.g., *hāsaanaa*, *rulaanaa*, *sikhaanaa*, *sonaa*, *samjhaanaa* = causative forms of "laugh," "cry," "learn," "sleep," and "understand" respectively) (Kachru, 1980; Saksena, 1982). A number of other verbs in categories that would seem to involve noncausable events, for example, "ooze," "leak" and "slip," have stem-

sharing causative forms in Hindi-Urdu. In sum, the range of causativizable verbs in Hindi-Urdu is very large indeed.

Nonetheless, causativization in Hindi-Urdu is subject to a few semantic constraints, giving rise to a small set of intransitive and transitive verbs that do not causativize. (Judgments as to whether causative forms of various verbs exist or not have been made by consulting various Hindi-Urdu-speaking informants as well as a variety of Hindi-English, English-Hindi and Hindi-Hindi dictionaries [Agarwal et al., 1955; Bahri, 1969; Chaturvedi & Tiwari, 1975; Pathak, 1976; Varma, 1958; Verma & Sahai, 1977].) Let us suppose that the thematic core (cf. Pinker) for direct causatives in Hindi-Urdu is as follows:

An agent (with volition) acts upon a causee, causing or assisting the latter to change location or state.

Such a rule imposes the following restrictions on causativization in Hindi-Urdu. An agent (i.e., an extraneous force) cannot cause an event that has causes that are not only internal to an entity but cannot be controlled by the entity itself. Nor can an external force cause events that are completely under the control of an entity.¹⁰ This constraint blocks the causativization of some verbs pertaining to

¹⁰ The same control factor may be seen as being responsible for the animacy-related selectional restrictions on some verbs, thus making the causativization of the metaphorical extensions of these impossible. The causative verbs *badalnaa* = "change" and *chamkaanaa* = "shine," for example, can only take inanimate causees (Saksena, 1982, pp. 138-140). Their metaphorical extensions *chamaknaa* = "excel" or "stand out though excellence" (indicating personal drive) and *badalnaa* = "change in one's personality or character" (indicating personal decision-making) cannot be causativized.

involuntary bodily processes such as *khāāsnaa* ("cough"); some verbs of sensory perception, for example, *jhāāknaa* ("peep" or "glance"); and some stative verbs like *honaa* ("be").¹¹ In addition, there are causatives that are accepted by some speakers but not others, for example, *chhinkaanaa* ("make someone sneeze"), *kapaanaa* ("make someone shiver"), *mutaanaa* ("make someone urinate") or *hāpaanaa* ("make someone pant"). Among transitives that resist causativization are some verbs denoting cognitive activity or mental perception or lack of attention such as *sochnaa* ("think"), *pahachaanaa* ("recognize"), *jaanaa* ("know") and *khonaa* ("lose"), as well as stative verbs like *chaahnaa* ("want"):

12. **mohun-ne bacche-ko khāsaayaa*
 Mohun-ERG the child coughed
 "Mohun made the child cough."
13. **siitaa-ne aurat-ko ek burii chiiz sochaayii*
 Sita ERG the woman a bad thing thought
 "Sita made the woman think a bad thought."

There also seems to be a phonological constraint which blocks the causativization of verbs ending in *-aanaa* (see Thakur, 1970, p. 198, for examples), with the exception of some verbs: *gavaanaa* ("cause to sing") from *gaanaa*, *khilaanaa* ("make someone eat") from *khaanaa*, and in some dialects *livaanaa* ("cause to bring") from *laanaa*. This might be the reason why onomatopoeic verbs that

¹¹ There are some exceptions even in these classes, for example, *rahnaa* = "remain" and *kāāpnāa* = "shiver," which have causative counterparts *rakhnaa* (Kellogg, 1965) and *kupaanaa* (for some speakers) respectively.

involve reduplication (for example, *khuspusaanaa* ("whisper"), *gungunaanaa* ("hum"), and *khatkhataanaa* ("knock.") -- often cited in the literature as being basically noncausativizable (e.g., Masica, 1976) -- resist causativization. Others in this category are verbs such as *tutlaanaa* ("lisp") or *pachtaanaa* ("regret"), though it is also possible that these verbs are excluded from causativization because they represent non-volitional internally-caused effects.

In summary, we may say that practically every verb that causativizes in English does so in Hindi-Urdu as well. In addition, beyond this area of overlap, there are a very large number of Hindi-Urdu causatives which do not have English counterparts, for example *rise/fall* type verbs; unergative verbs involving emission of sounds, substances, and lights; verbs of emotional expression; and verbs indicating physiological processes. In other words, the classes of verbs that causativize in English form little subsets within the superset of Hindi-Urdu causatives. Thus, in this study it is hypothesized that the Hindi-Urdu speakers will have more overgeneralized direct causatives in classes such as the *rise/fall* one than the Vietnamese speakers, who do not have direct causatives in these classes (see the section on Vietnamese suppletive causatives below, as well as Chapter 5, for details of the various hypotheses).

(c) Semantic classes relevant to stem-sharing causativization in Vietnamese

The conclusions drawn in this thesis regarding verb classes in Vietnamese are based on data elicited from various Vietnamese-speaking informants, there being only a sparse literature on the topic of verb semantic classes in Vietnamese.¹² This discussion of stem-sharing intransitive-transitive verbs in Vietnamese focuses on those verbs that are being used in the tests created for this particular study.

In Vietnamese a distinction is made between "factive verbs," which denote actions, and adjective-like "stative verbs," which denote states (Nguyen-Dinh-Hoa, 1966; Kuhn, 1990). Broadly speaking, it seems that for stem-sharing to take place in Vietnamese, verbs need to be "unaccusative" and, furthermore, factive (i.e., action) rather than stative since the latter usually do not appear as transitives (but see Footnote 18). One class of verbs that seems to allow stem-sharing is manner-of-motion verbs, many of which also represent "motion around an axis." (In English some of these, for example, "open" and "close," are included under "change-of-state" verbs, but note that unlike "burn," "break" and "melt" verbs, these verbs do not involve a change in the material *substance* of the entity.) Examples of Vietnamese causative verbs that are identical in shape to their intransitive counterparts appear in 14-18 below:

¹² While many Vietnamese speakers were informally consulted for this study, there were three Vietnamese-speaking informants whose judgments were sought while the test package (see Appendix 4) was being compiled. The main informant was a graduate student of linguistics; the other two informants were undergraduate students with some metalinguistic knowledge of Vietnamese and English.

- 14a. *Cửa Đóng (lại).*¹³
 door close (inward direction) ~
 "The door closed."
- b. *Hòa Đóng cửa (lại).*
 Hoa close door (inward direction).
 "Hoa closed the door."
- 15a. *Cửa mở (ra).*
 door open (outward direction) ~
 "The door opened."
- b. *Hòa mở cửa (ra).*
 Hoa open door (outward direction).
 "Hoa opened the door."
- 16a. *Con vù xoay/quay (quay tròn)*
 The top spin/turn (around) ~
 "The top spun."
- b. *Châu xoay/quay con vù.*
 Chau spin/turn the top.¹⁴
 "Chau spun the top."
- 17a. *Cây rung (rinh) trong gió.*
 The tree shake in wind. ~
 "The tree shook in the wind."
- b. *Hãng rung cây.*
 Hang shake the tree.
 "Hang shook the tree."
- 18a. *Cái thùng lăn xuống đồi.*
 The barrel roll down the hill. ~
 "The barrel rolled down the hill."
- b. *Ngươi Đản ông lăn chiếc thùng.*
 The man roll the barrel.
 "The man rolled the barrel."

Another category that seems to allow identical intransitive and causative verb forms is the "stick" and "cut" one, presumably a category where there is a physical change of state via an "instrument" (e.g., an implement for cutting):

- 19a. *Tờ giấy (Được) dán lên bàn.*
 The paper (fortunately) stick on table.
 "The paper stuck to the table."

¹³ Vietnamese verbs regularly appear with "coverbs" that indicate direction, result and orientation, for example *vào* ("in"), *lại* (inward direction), *ra* (outward direction), *lên* ("up") or *xuống* ("down") (Dinh-Hoa Nguyen, 1972). Clark (1978) classifies these coverbs as prepositions.

¹⁴ The causative versions of the Vietnamese "spin," "shake," and "roll" may appear with *làm* ("make" or "do"), but according to the informants providing these data the constructions using "làm" are less common or natural than the ones without *làm*.

- 19b. *Hòa dán tờ giấy lên bàn*
 Hoa stick paper on table
 "Hoa stuck the paper onto the table."
- 20a. *Tờ giấy (Được) cắt (ra khỏi cuốn sách).*
 The paper (fortunately) cut (out the book).
 "The piece of paper got cut out of the book."
- 20b. *Hòa cắt tờ giấy (khỏi cuốn sách).*
 Hoa cut paper (out the book)
 "Hoa cut a piece of paper out of the book."

4.3 SUPPLETIVE CAUSATIVE IN (a) ENGLISH, (b) HINDI-URDU AND (c) VIETNAMESE

4.3.1 English Suppletive Causatives

As discussed above, within a broad conflation class consisting of verbs that causativize in English there are various subclasses of verbs that do not. In some cases there are gaps where no causative counterparts of the intransitives exist, for example, "disappear," "bloom," "faint," while in other cases, there exists a suppletive form instead of a stem-sharing form. In English, two classes of verbs taking suppletive causatives involve motion in a direction (such as *go/take* and *come/bring*) and internally caused events (such as *die/kill*, *eat/feed*, and *vomit/nauseate*) (Fodor, 1970; Levin, 1993; Pinker, 1989b, p. 51; Talmy, 1985, p. 84).

4.3.2 Hindi-Urdu Suppletive Causatives

Since the vast majority of Hindi-Urdu verbs have direct stem-sharing causatives (as discussed in 4.2.2.2), there are just a handful of suppletive causatives in Hindi-Urdu, for example in the class of verbs that end in *aanaa*. (These verbs are generally blocked from causativization, as mentioned in 4.2.2.2). Examples of such suppletive causatives are: *aanaa* (“come”) ~ *laanaa* (“bring”); *jaanaa* (“go”) ~ *bhejnaa* (“send”).

4.3.3 Vietnamese Suppletive Causatives

Verbs of forced/facilitated movement

Unlike English which allows the causativization of verbs of voluntary motion in a manner (cf. the “forced/facilitated movement alternation”), the causative versions of verbs in this class in Vietnamese are expressed via suppletive forms, and occasionally via periphrastic causatives. (With the verbs in 21a through 23b below, however, the use of *làm* (“make” or “cause”) + verb is either ungrammatical or odd.) Some of these constructions have an optional second verb (for example, 21b & c and 22b below); these “serial verb” constructions will be discussed in the next section (4.4).

- 21a. *Con chó chạy (ra) tới công viên.*
 The dog ran (out) to the park.
 "The dog ran to the park."
- 21b. *Giáp dắt con chó ([ra] tới công viên).*
 Giáp take responsibility for the dog(to the park)[with or without a leash]
 "Giáp took the dog to the park."
 or
- 21c. *Trần Đi với con chó tới công viên.*
 Trần go with the dog to the park.
 "Trần went with the dog to the park."
- 22a. *Đứa bé Đi vòng quanh công viên.*
 The child walk around the park.
 "The child walked around the park."
- 22b. *Tara dắt Đứa bé (Đi) từng bước vòng quanh công viên.*
 Tara take baby (go) every step around the park
 "Tara helped the baby walk around the park."
 or
- 22c. *Tara dẫn Đứa bé (Đi) từng bước vòng quanh công viên.*
 Tara take responsibility for baby (go) every step around the park.
 "Tara took the baby around the park."
- 23a. *Đứa bé ngủ.*
 The baby sleep
 "The baby slept."
- 23b. *Hương ru Đứa bé (ngủ).*
 Hương sing and rock baby (sleep).
 "Huong sang and rocked the baby to sleep."

Verbs of directional motion

In Vietnamese, in general suppletive causatives are also used for motion in a direction, both when the entity in motion is inanimate or animate:

- 24a. *Cái diều bay lên trời.*
 The kite rise up sky.
 "The kite rose up to the sky."
- 24b. *Đứa bé thả con diều lên trời.*
 The child let fly the kite up sky.
 "The child made the kite rise up to the sky."
- 25a. *Đứa bé trèo lên tường.*
 The child climb up wall.
 "The child climbed onto the wall."
- 25b. *Toàn Đặt (*trèo) Đứa bé lên bàn.¹⁵*
 Toan put the child up table.
 "Toan lifted the child onto the table."

Verbs of emission of sounds by instruments ("bells-and-whistles")

Verbs of sound emission (through an instrument), too, seem to take either suppletive or periphrastic causatives in Vietnamese, once again because the intransitive verb is a stative, adjective-like one (see 26 & 27 below). However, if the reference is to the *action* that leads to sound emission, a direct causative is allowed, as with *rung* ("shake") in Example 28. Note that while *rung* refers to the action of moving an object or the shape of the movement, *reo* refers to the sound that is emitted.

¹⁵ The baby in this sentence does not do any climbing. If *làm . . . trèo* were used, the baby would be doing the climbing (with help). However, this construction was considered unnatural by the informants.

- 26a. *Còi* *hụ*.¹⁶
whistle blow [sound emitted] ~
"The whistle blew."
b. *Người đàn ông thổi còi*.
The man blow whistle.
"The man blew the whistle."
- 27a. *Chuông* *reo*¹⁷
Bell ring ~
"The bell rang."
b. *Giáp làm chuông reo. (*Giáp reo chuông.)*
Giáp make bell ring.
"Giáp made the bell ring."
- 28a. *Chuông* *rung*.
bell shake ~
"The bell shook."
b. *Giáp rung chuông*.
Giáp shake bell
"Giáp shook the bell."

Based on the conclusion that in the directional motion, emission-of-sounds "bell-and-whistles" (*ring/blow*) and physical-change-of-state classes, Hindi-Urdu has direct causatives and Vietnamese tends to have suppletive ones, it was predicted that there would be certain differences in performance between the Hindi-Urdu and Vietnamese groups within these classes in English. It was hypothesized that in verb classes such as physical change of state and emission of sounds, elementary-level Vietnamese speakers would have lower scores than Hindi-Urdu speakers since Hindi-Urdu, like English, has direct causatives in these classes, while Vietnamese does not (see 4.4 below as well). (These hypotheses have been spelled out in Chapter 5.)

¹⁶ It is possible to use *thổi* here as well; however, the difference between *hụ* and *thổi* is that the former involves sound emission and the latter represents the action of blowing the whistle.

¹⁷ While *rung* refers to shape or action, *reo* refers to the sound emitted.

4.4 SERIAL VERBS IN VIETNAMESE

A type of verb construction that exists in Vietnamese for which there is no equivalent in English or Hindi-Urdu is the serial verb construction. There is great variation in the types of predicates that are classified as serial verbs (Schiller, 1989, p. 405; Seuren, 1991). However, some criteria for identifying multiple verbs as a verb series are as follows. First, it is generally agreed upon that serial verbs cannot have semantically loaded or functionally loaded complementizers preceding them and that they are grammatically *subordinated* to the higher clause, and not coordinated (Seuren, 1991); furthermore, there is only one tense/aspect marking for the entire chain of verbs (Baker, 1989; Kuhn, 1990; Schiller, 1989; Seuren, 1991). There is generally also a stipulation that either all the verbs have the same subject or there be an NP that is the object of one verb and the subject of the other: "[S]erial verb constructions are formed only on the basis of the same subject or the object-subject constraints" (Foley and Olson, 1985, p. 26). This holds good in Vietnamese where "any or each member of a verb series may be followed by an object; the subject of the first verb in series may be the subject of all the verbs, or the object of one verb may be the subject of the next" (Emeneau, 1951, p. 53). These two options are represented by the following sentences respectively:

29. *Tôi trượt ngã* [Same subject]
 I slip fall.
 "I slipped and fell."

30. *Tôi ném cốc vỡ.* [Shared object-subject]
 I throw glass break
 "I threw the glass and it broke." (From Mikami, 1981, pp. 114-5)

The sentences above also show that the second verb (V2) is adjunctive, which, according to Seuren (1991, p. 196), must be the case for a verb to qualify as a serial:

[W]hat is expressed in the serial VP *must not be a proper semantic argument to the higher verb*. From a lexical semantic point of view, that is, from the point of view of lexical argument structure, the VP of a serial verb must not be an obligatory part of the sentence in question, but an independent addition, as though it were either a new sentence or a modifying clause expressing purpose or result.

In Vietnamese, the representation of a physical change of state as an autonomous event (i.e., as an inchoative) seems to usually involve a stative (adjective-like) verb. As mentioned before, stative verbs usually cannot be used transitively (hence causatively). Therefore, in the causative, a suppletive form is used as the main verb and the intransitive verb may appear as an adjunctive resultative in a serial construction, as in the following examples.¹⁸

- 31a. *Ni^lđ'c sô*i*.* (**ni^lđ'c Đun.*)
 water boil [stative]
 "The water boiled."
- b. *Hòa Đun (sô*i*) ni^lđ'c.* (**Hòa sô*i* ni^lđ'c.*)
 Hoa cook liquid (active) (boil [stative]) water.
 "Hoa boiled the water."
 or (less commonly)
- c. *Hòa Đun ni^lđ'c (sô*i*).*
 Hoa cook water (boil)
 "Hoa boiled the water."

¹⁸ The main Vietnamese-speaking informant has pointed out that stative verbs such as *rách* and *vở* can be used transitively at times, but only when they appear as adjunctive V2s in serial constructions.

- 32a. *Tờ giấy (bị) xé/rách.*¹⁹
 The paper (unfortunately) tear (active)/tear [stative]
 "The paper tore."
- b. *Hòa xé (rách) tờ giấy. (*Hòa rách tờ giấy.)*
 Hòa tear (stative) paper.
 "Hoa tore the paper."
 or (less commonly)
- c. *Hòa xé tờ giấy (rách).*
 Hoa tear paper (torn)
 "Hoa tore the paper."

The existence of serial verbs in Vietnamese could account for some of the constructions produced by the Vietnamese speakers on Test 1 that do not fit into the "direct causative" or "periphrastic causative" categories. (See 7.3 in Chapter 7 for a discussion of serial-type constructions in the data obtained from the Vietnamese speakers.)

¹⁹ Many of these non-causative verbs can be or have to be "passive." The passive in Vietnamese consists of a complex sentence with a verb of experiencing taking an active (embedded) sentence as its complement (Keenan, 1985; Tam Duy Le, 1976; Thompson 1965, pp. 228ff.). In the following examples, stative *bị* marks an adversative passive and stative *được* a beneficial one:

Quang bị Bảo ghét
 Quang suffer Bao detest
 "Quang is detested by Bao.

Quang Được Bảo thương
 Quang enjoy Bao love

"Quang is loved by Bao. (Examples from Keenan, 1985, pp. 260-1)

4.5 PERIPHRASTIC CAUSATIVES IN (a) ENGLISH AND (b) VIETNAMESE²⁰

4.5.1 Periphrastic Causatives in English

One significant difference between lexical (direct) causatives and periphrastic ones in English is that in the latter the causee is not acted upon directly and may be seen as being just a theme and not a patient (Pinker, 1989a). As mentioned earlier, it seems to be the case that if a language has both lexical (direct) causatives and periphrastic ones, the former imply direct causation and the latter indirect causation (Comrie, 1985; Shibatani 1976). The effect is most clear-cut when the causee is inanimate since here the causation is always or almost always seen as being indirect, as in "Ophelia made the vase fall by rattling the windows." However, when the causee is animate the causation is *usually* interpreted as being indirect. In addition, there is generally some element of coercion involved in the causation as in "The foreman made the apprentices work night and day." According to Shibatani (1976, p. 32), "make" does not indicate direct physical manipulation, being more "directive"; thus Sentence (a), which has an animate causee, is more mainstream than Sentence (b):

- 33a. John made Bill move.
 b. John made the chair move.

²⁰ As noted earlier, there are no equivalents of *make*-type periphrastic causatives in Hindi-Urdu.

Lexical causatives, on the other hand, usually imply direct causation without a mediating entity or force outside the causer-causee interaction. Thus, they are generally not compatible with delayed effects, as is illustrated by this well-known example from Fodor, 1970 (see also Smith, 1970):

- 34a. ?? Claudius killed his brother on Tuesday by giving him poison on Monday.
 b. Claudius caused his brother to die on Tuesday by giving him poison on Monday.

Similarly, a mediating entity with a direct causative makes for an odd sentence:

- 35a. ??You burnt the artichokes by forcing me to turn the heat on too high.
 b. You made me burn the artichokes by forcing me to turn the heat on too high.

4.5.2 Periphrastic Causatives in Vietnamese

Many causatives in Vietnamese are periphrastic, especially with “unergative” verbs. A large number of these periphrastic causatives are formed with the verb *làm* (= “do,” “make,” “cause”), one meaning of which is “to make to be so-and-so” (Emeneau, 1951, p. 61; Nedyalkov and Silnitsky, 1971). Verbs of emotional expression, emission of sounds by animate creatures, bodily reactions, require this type of construction, for example, *khóc* (“cry”), *cười* (“laugh”), *sủa* (“bark”), *gầm* (“roar”), *hát* (“sing”), *ho* (“cough”) and *hắt h hơi* (“sneeze”):

- 36a. *Em bé khóc/cười/hát.*
 baby cry/laugh/sing
 The baby cried/laughed/sang.

- 36b. *Quang làm em bé khóc/cười/hát.*
 Quang make baby cry/laugh/sing
 "Quang made the baby cry/laugh/sing."

Other verbs like *cho* ("let," or "allow") and *Để* ("let") can be used in the same way:

- 37a. *cho tôi hát*
 allow me sing
 "Permit me to sing." [From Emeneau, 1951, p. 69]

- 37b. *Để tôi hát*
 let me sing
 "Let me sing." [From Kuhn, 1991, p. 276]

These constructions, though often identified as serials (Mikami, 1981), can be best explained as cases of subordination, in which the lower clause allows independent tense/aspect markings or independent time phrases (Kuhn, 1990). Thus, they seem to be similar to the English periphrastic "make" causative, representing causation that is not direct, a conclusion that is in keeping with the judgments of the Vietnamese-speaking informants used in this study.

In the tests used for this study, these *laugh/cry* verbs are represented by Semantic Class F (see Appendix 2). Since Vietnamese has translation equivalents of *make*-type periphrastic causatives and Hindi-Urdu does not, the Vietnamese speakers were expected to be able to correctly *produce* a larger proportion of such constructions than the Hindi-Urdu speakers. (See Chapter 5 for the relevant hypotheses and the criteria on which they are based.)

4.5.2.1 The use of *làm* to represent events accidental (non-volitional) occurrences

It seems that in Vietnamese *làm* (or some similar verb) often indicates that the action is accidental or non-volitional when used with unaccusatives (verbs which normally take non-agentive subjects), as has been indicated by two of the three Vietnamese-speaking informants involved in this study. According to Mikami (1981, pp. 108ff.) as well, *làm* implies that the undergoer of the action has no volition. However, while Mikami treats *làm* constructions with unergatives as being the same as the *làm* constructions with unaccusatives, the native-language data used in this study provides some evidence to the contrary. Most importantly, the basic word order for *làm* + unaccusatives (*làm* + verb + object = V V NP) seems to be different from the order for *làm* + unergative (V NP V), though the *làm* + object + verb order is possible as well.

38. *Trám làm bể/vỡ cửa sổ của tôi.*²¹
 Tram made break window I
 "Tram broke my window (accidentally)."

39. *Người ở Đàn ông làm cháy con cá."*
 Man made burn a fish
 "The man burned the fish (accidentally)."

Thompson (1987, pp.232 & 330-1), too, discusses the role of volition in the "causative resultative construction," in which cause and effect is expressed

²¹ To indicate that the action was deliberate a verb such as *dap* or *dap bể*² would have to be used.

sequentially, the first verb being a "momentary action verb" (generally *làm*) and the second one, which gives the result, generally an "extended state verb" (presumably an unaccusative verb). According to Thompson, the inclusion of *cho* (= "in order to") helps to indicate that an action is performed intentionally:²²

40a. *Con mèo Đau.*
 Cat pain/hurt
 "The cat is in pain."

40b. *Tôi làm cho con mèo Đau.*
 I cause in order cat hurt.
 "I hurt the cat (intentionally)."

On the basis of these data, it is hypothesized that on the tests used in this study the Vietnamese speakers would tend to opt for *make*-type causatives to show accidental causation, represented by the verbs "fall," "burn," and "break" in Semantic Class A2 (see 5.1.2.1 in Chapter 5 for details).

The following chapter summarizes the hypotheses that are to be tested in this study. These hypotheses have been formulated in the light of the psycholinguistic, SLA, and linguistic literature on the lexicon (as discussed in Chapters 2 and 3), as well as the specifics of causativization in Hindi-Urdu, Vietnamese and English (as discussed in this chapter).

²² According to the informants used in this study, however, the "*làm + cho*" combination could also represent non-volitional (accidental) causation in certain contexts.

Chapter 5

HYPOTHESES, METHOD AND PROCEDURE

The hypotheses to be tested in this study have been formulated on the basis of theoretical views on the mental lexicon, research findings on the nature of the bilingual lexicon and on transfer from the L1 to the L2, and the specifics of causativization in English, Hindi-Urdu, and Vietnamese (issues that have been discussed in the three preceding chapters). These hypotheses will first be stated in general terms in order to provide an overview of the central issues being investigated in this study and then, in the case of the transfer-related hypothesis, in terms of the specific semantic classes that are being focused upon in the tests.

5.1 HYPOTHESES STATED IN BROAD TERMS: HINDI-URDU AND VIETNAMESE AS L1S AND ENGLISH AS L2

5.1.1 Hypothesis 1: On the Formation of Semantic Classes

At an elementary level of lexical proficiency the learners of each language group will acquire the grammatical properties of verbs one at a time.¹ *At an intermediate level of lexical proficiency learners will begin to place verbs in semantic classes,*

¹ There is, however, no feasible way of testing for this type of monotonic acquisition.

*thereby paving the way for generalizing beyond the input at an advanced level.*²

(See Chapter 3 for a discussion of the issues underlying this hypothesis.) Evidence of semantic categorization will be found in a greater accuracy in the responses within a semantic class at one proficiency level than at the level(s) below, both within a test and across tests. While such intra-class accuracy in responses vis-à-vis known verbs will be ambiguous between item learning and system learning (i.e., semantic categorization), accuracy in responses related to new verbs will provide a more definitive test of this hypothesis.

5.1.2 Overview of Hypothesis 2: On L1-to-L2 Transfer

There will be transfer from the L1 to the L2 at all three levels of proficiency but only if there is good reason for generalization, i.e., if there are signals in the L2 input itself which inform the learner that the L1 and L2 are similar in some respect. However, when the overlap is great but not complete, the learner may mistakenly consider what is *similar* to be *identical*, failing to perceive subtle differences that exist between the two languages in that area. For instance, a "translation equivalent" might have different selectional restrictions (which form a part of a verb's semantic representation), or a class of verbs in the L1 that behaves

² The lexical proficiency of a learner is identified as "elementary," "intermediate," or "advanced" on the basis of a modified version of Nation's (1990) "A Vocabulary Levels Test," as will be discussed in 5.2.2.1 below.

similarly to a class in the L2 might encompass a slightly different repertoire of verbs. Consider verbs of forced/facilitated (voluntary) motion in English. Such verbs are causativizable in English, but usually only with an accompanying PP.

Without a PP, these constructions are often odd or ungrammatical:

??Harry ran the dog.

Tara ran the dog to the park.

*The babysitter danced the child all morning.

He danced her around the living room.

It is hypothesized that within this class, the Hindi-Urdu speakers will (correctly) accept the grammatical sentences and (incorrectly) accept the ungrammatical/odd sentences far more readily at all proficiency levels than the Vietnamese speakers. The reason for this is that once the causative versions of "dance" and "run" etc. have been noted in the English input, cross-checking between the L1 and L2 will show the Hindi-Urdu learners that both languages causativize these verbs of forced/facilitated motion. These learners might then transfer the argument structure of all such Hindi-Urdu verbs to English, arriving at overgeneralizations like *"Antonio climbed the baby onto the table" and "causative" versions of "dance" and "run" without prepositional phrases. (PPs are neither obligatory nor frequent with these verbs in Hindi-Urdu.)

Similarly, the Vietnamese speakers will tend to overuse the English "make" causative because (i) there are translation equivalents in the L1 *and* (ii)

these causatives are frequent in the L2 input. With many verbs involving internal mechanisms such as "laugh," "cry," and "sneeze," Vietnamese uses *làm* (or an equivalent) in causative constructions, which corresponds to the English "make" in periphrastic causatives (see 4.5.2). Based on this, it is hypothesized that Vietnamese speakers will (i) produce such periphrastic causatives earlier than Hindi-Urdu speakers, and (ii) overuse them at all three levels to express accidental causation (see 4.5.2.1) on the false assumption that uses of *làm* and "make" constructions overlap completely.

When the overlap is complete or almost complete, transfer will be positive. For example, all physical-change-of state direct causatives in English have equivalents in Hindi-Urdu (see Chapter 4), which should lead to quicker production/acceptance by the Hindi-Urdu group of such English causatives. In general, such transfer should lead to a quicker formation of a semantic class -- and thereby to an earlier ability to go beyond the input in this area -- than when there is little or no overlap.

A corollary to the "similarity" condition for transfer is that the mere existence in the L1 of a semantic class or a rule will not provide sufficient motivation for transferring this class or rule to the L2 if there is no clear indication of a "match" between the two languages in this area (an issue that has been elaborated upon in Chapter 2). For example, there are many classes of verbs that causativize in Hindi-Urdu but not in English, but these will not

automatically lead to negative transfer. Hindi-Urdu speakers, for instance, will not accept English equivalents of Hindi-Urdu constructions such as "laughed the audience" and "slept the baby" because there is nothing in the L2 input that will suggest that these verbs are causativizable, a factor magnified by the learner's conservatism in the initial stages of the acquisition process. In fact, if anything, the input will suggest that the opposite holds true, given the existence of common periphrastic constructions such as "make the children laugh" and "got the baby to sleep." In addition, the learner may recognize that verbs like "laugh" and "sleep" suggest happenings that are controlled by the doer or by some mechanism internal to the doer and, therefore, are not necessarily subject to extraneous control, a feature reflected in the unergative-unaccusative distinction within some theories, as discussed in Chapter 4.

In the following section, Hypothesis 2, stated broadly above, will be broken down into more specific "testable" hypotheses, corresponding to the various semantic classes of verbs included in the test package.

5.1.2.1 Specific transfer-related hypotheses based on a comparison of semantic groupings of verbs in English, Hindi-Urdu, and Vietnamese³

CLASS A1: PHYSICAL-CHANGE-OF-STATE VERBS – direct causatives in English
Known verbs (Tasks 1 & 2): BURN, CRACK, MELT
New verbs (Task 4): RUPTURE, REKINDLE, DETONATE

CLASS D: BELLS-AND-WHISTLES VERBS (SOUND PRODUCTION BY AN INSTRUMENT) – direct causatives in English
Known verbs (Tasks 1 & 2): RING, BLOW

Hypothesis

- (2a) At the elementary level the Hindi-Urdu learners will perform better in these two semantic classes than their Vietnamese counterparts.
- (2b) However, the Vietnamese group will be able to catch up with the Hindi-Urdu group by the next (intermediate) level.
- (2c) By the advanced level, both groups should have scores that are close to the maximum.

Rationale: Initially, the Hindi-Urdu speakers will be assisted by positive transfer since these direct (stem-sharing) causatives in English have direct (stem-sharing) equivalents in Hindi-Urdu.⁴ Corresponding Vietnamese causatives in this class are usually suppletive, with optional serialization; in some cases, for example with "melt" and "freeze," causation is expressed periphrastically (see 4.2.2.3 and 4.4.). However, because these verbs represent physical happenings that are easily perceived as being causable by extraneous forces and because of the abundance of such causatives in the input, the Vietnamese speakers will catch up with the Hindi-Urdu ones by the intermediate level and both language groups will have high scores in these classes by the advanced level.

³ The pool of verbs and the sentences in which these verbs appear may be found in Appendices 3 and 4 respectively. Note that all of the verb classes are not represented in each test, for reasons that will be given in 5.2.2.3 below.

⁴ The term "direct causative" will be used to represent stem-sharing causatives. Where the direct causative does not involve any stem sharing, the term "suppletive causative" will be used.

CLASS A2: ACCIDENTAL CAUSATION

Known verbs (Tasks 1 & 2): BREAK, BURN, FALL
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Hypothesis

(2d) At all levels, where English speakers would use direct causatives to represent direct, accidental causation, more “make” periphrastic causatives will be used by the Vietnamese speakers to express such causation than by the Hindi-Urdu speakers.

Rationale: There is a *làm* ("make") construction in Vietnamese, which is used to indicate accidental causation (see 4.5.2.1). In Hindi-Urdu, on the other hand, there is no periphrastic equivalent of the “make” construction. Thus, the Hindi-Urdu speakers’ responses in this context should be no different from their responses in Class A1.

CLASS E: FORCED/FACILITATED MOTION VERBS⁵

Known verbs (Task 3): WALK, RUN, DANCE, JUMP (grammatical direct causatives in English, all with PPs)
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Hypothesis

(2e) As a result of positive transfer from Hindi-Urdu, Hindi-Urdu speakers at all three proficiency levels will accept more of these sentences than the Vietnamese speakers.

Rationale: There are translation equivalents of these English causatives in Hindi-Urdu (see 5.1.2 above). The elementary-level Vietnamese learners, on the other hand, will reject all or most of the sentences or will place them in the “don’t know”

⁵ Test 3, the grammaticality test using known verbs, has been used only to test transfer-related hypotheses. First, because there is great divergence among native speakers on the grammaticality of causative versions of voluntary motion verbs such as “run,” “walk,” and “dance,” it is very difficult to say what constitutes a correct response and what does not within this class. Second, it is possible that some of the learners had never encountered the causative versions of these verbs prior to testing, thus making it possible for one to argue that these are tantamount to “new” verbs. However, the results of Tests 3 and 4 need to be viewed separately since it is only in Test 4 that there can be any certainty regarding whether the verbs in question are familiar to the learners or not.

category for various reasons. First, there are no translation equivalents in Vietnamese (see 4.3.3). Also, as intransitives, these verbs represent *voluntary* motion and thus direct control of such motion by external forces is highly constrained (see 4.2.2.1). In addition, in general such causatives are low-frequency items in the input in English, their use being greatly constrained; it may, therefore, be a while before they are noticed in the input. Thus, while there will be some growing acceptance of these sentences by the Vietnamese learners at the intermediate level onwards, there will still be numerous rejections and "don't know" responses even at the advanced level.

CLASS E: FORCED/FACILITATED MOTION VERBS
Known verbs (used in ungrammatical/borderline English sentences in Task 3): *JUMP (no PP), ?? RUN (no PP), *DANCE (no PP), *CLIMB (with PP)

Hypotheses

(2f) In the case of ungrammatical/borderline English "causatives" in this class, there will also be differences between the two language groups, the Hindi-Urdu speakers accepting more of these sentences than the Vietnamese speakers at all proficiency levels.

Rationale: Cross-checking between the L1 and L2 at an elementary level will show the Hindi-Urdu learners that both languages causativize verbs like "dance" and "run." Some of these learners will then mistakenly transfer the argument structure of all such Hindi-Urdu verbs to English; PPs are not obligatory (nor common) with these verbs in Hindi-Urdu. In addition, many Hindi-Urdu speakers will also (incorrectly) accept the "causative" version of "climb" in English through the same kind of overextension. ("Climb" is similar to Class E verbs but does not causativize in English presumably because it also conflates "direction.") The Vietnamese speakers will reject these sentences or else place them in a "don't know" category, treating them in the same way as they will grammatical causatives in this class (see Hypothesis 2e above).

CLASS B1: MANNER-OF-MOTION VERBS -- direct causatives in English
Known verbs (Task 1): ROLL, SPIN
New verbs (Task 4): TWIRL, FLIP, GYRE

Hypothesis

(2g) The Hindi-Urdu and Vietnamese speakers will show similar patterns of development. Because of positive transfer, at the intermediate level a clear majority of responses should be correct in both L1 groups, with almost complete accuracy at the advanced level.

Rationale: There are direct causatives in this class in both the L1s, as well as in English.

CLASS B2: DIRECTIONAL-MOTION VERBS -- direct causatives not allowed in English
Known verbs (Tasks 1 & 2): RISE, FALL
New verbs (Task 4): PLUMMET, SOAR, RECEDE

Hypothesis

(2h) As a result of negative transfer, the Hindi-Urdu speakers will use a larger number of incorrect direct causatives for these verbs (non-causativizable in English) at all proficiency levels than the Vietnamese speakers will at corresponding proficiency levels.

Rationale: A combination of interlingual and intralingual factors will trigger misgeneralizations in the Hindi-Urdu speakers group:

- i. The verbs in Class B2 are causativizable in Hindi-Urdu (interlingual factor)
- ii. Class B2 (noncausativizable in English) differs from Class B1 (causativizable in English) in only very subtle ways. Both classes contain "unaccusative" verbs of motion, but while verbs in Class B1 do not indicate direction, verbs in Class B2 do.

Direct causatives are not used in this class in Vietnamese, thereby eliminating the essential interlingual factor that could trigger misgeneralizations.

CLASS F: ANIMAL SOUNDS/INTERNAL MECHANISMS VERBS – direct causatives not allowed in English		
Known verbs (Task 1): LAUGH, CRY , BARK , ROAR		
New verbs (Task 4):		
WRITHE	BRAY	SEEP
QUIVER	SHRIEK	OOZE
PALPITATE	PURR	
PANT		

Hypotheses

(2i) On Test 1, the production task, the Vietnamese group will produce a greater proportion of correct periphrastic causatives than the Hindi-Urdu speakers at all levels of proficiency; however, on Test 2, the multiple-choice task, there will be no difference between the two groups.

Rationale: On Test 2, the multiple-choice task, the performance of the two language groups is expected to be similar, on the premise that (i) neither group expects that direct causatives are allowed with such “unergative” verbs in English, and (ii) there is nothing in the input that would mislead learners to think otherwise. In short, on Test 2, neither group is expected to pick direct causatives in this class. On Test 1, however, the Vietnamese speakers are expected to have an edge in the *production* of these English “make” periphrastic causatives since there are translation equivalents of these in Vietnamese; Hindi-Urdu, in contrast, has no “make” periphrastic causatives and employs direct causatives with this class of verbs.

(2j) In terms of producing, accepting, or rejecting *incorrect* direct causatives in this class on all of the relevant tests, the Hindi-Urdu and Vietnamese speakers will show similar patterns of development.

Rationale: The Vietnamese and Hindi-Urdu speakers are expected to perform similarly in this respect for the same two reasons as stated above: (i) Both language groups should view these ‘unergative’ verbs as representing occurrences that are less likely to be *directly* causable than certain other types of verbs, for example physical-change-of-state, and (ii) there is nothing in the input to trigger a misgeneralization, i.e., such verbs will never be encountered as direct causatives in the input. Thus, in the case of both language groups, there will be increasing accuracy from one proficiency level to the next.

5.2 METHOD

5.2.1 The Sample

The participants in the present study were ESL learners, half of whom spoke Hindi-Urdu as a first language and the other half Vietnamese. Each language learner group was further divided into three proficiency groups -- elementary, intermediate, and advanced -- in order to make comparisons between learners at different levels of proficiency, as well as comparisons between the Hindi-Urdu and Vietnamese speakers within a particular proficiency level.

5.2.1.1 Criteria for using Vietnamese-speaking learners as a comparison group

As explained earlier, Hindi-Urdu was chosen as the L1 of the ESL learners who participated in this study of the acquisition of English direct causatives because causativizing verb classes in English form subsets within the superset of Hindi-Urdu causatives (see 2.4 and 4.2.2.3) and, consequently, the learners' L1 was expected to have some impact on their acquisition of English causatives. However, when it comes to testing for transfer, determining whether the appearance of certain structures in a learner's interlanguage is the result of transfer (interlingual) or of development (intralingual) is often problematic, leaving results open to different interpretations (Odlin, 1989, pp. 41 ff.). Mazurkewich (1984a, 1984b), for instance, hypothesizes that L2 acquisition starts at exactly the same point as L1 acquisition, i.e., with unmarked forms and values, presumably based on the argument that the adult learner still has

unimpeded access to Universal Grammar (a view known as the "null hypothesis"). In her (1984b) study involving dative questions in English, for example, Mazurkewich interprets the preference of the beginning-level French group for dative questions of the unmarked "pied-piping" kind ("to whom . . .?") versus the marked "stranding" variety ("who . . . to?") as evidence that supports the null hypothesis. So too, in her study on dative alternation, Mazurkewich interprets her French-speaking learners' preference for the unmarked NP PP construction as validating the null hypothesis. However, as White has pointed out (1983, 1989, pp. 121 ff.), the French speakers' choices, especially in the earlier stages of acquisition, could just as easily have been the result of transfer from their L1, given that French has the unmarked versions of both dative questions and dative constructions.

In this study, the problem of ambiguous evidence was attended to by having a comparison group consisting of Vietnamese learners of English at the same three levels of proficiency as the Hindi-Urdu speakers. It may be argued that Vietnamese is typologically distant from English while Hindi-Urdu belongs to the Indo-European group of languages, and thus Vietnamese is inappropriate as a comparison language, given the concept of "psycholinguistic markedness."⁶ However, this factor may be seen as being offset by the fact that Vietnamese is an analytic language and is closer in

⁶ Kellerman (1979) suggests that native speakers' perceptions of the "coreness" of structures and meanings (cf. Rosch's prototype theory of categorization [1975]) might have some bearing on the potential transferability of these to the L2. According to Kellerman, a feature that is perceived as "psycholinguistically marked" will most likely not be transferred to the L2 (i.e., will not be

this respect to English than is Hindi-Urdu, which has a fairly rich morphology. In the case of the causative alternation, for example, there is no morphological marking in either English or Vietnamese that accompanies causativization or anticausativization, whereas there is in Hindi-Urdu.

5.2.1.2 The participants

Altogether 97 ESL learners were tested (excluding the pilot tests). Of these, five were not included in the statistical analysis, one because it was only later established that Vietnamese was not the participant's first language, another because Vietnamese was no longer the participant's stronger language (Cantonese was), and three others because the learners did not have enough English to understand the test materials. Of the remaining 92 participants, 47 were Hindi/Urdu-speaking and 45 Vietnamese-speaking. Seventy-four were enrolled in bilingual or multilingual ESL community programmes in various parts of Metropolitan Toronto, and neighbouring Mississauga and Brampton; in general, these programmes were geared to provide new immigrants with the kind of job training and language support that would help them find employment or upgrade their current employment situation. Of the remaining 18 participants, seven (five Vietnamese-speaking and two Hindi/Urdu-

considered universal). In addition (and more relevant to the issue of whether or not Vietnamese can be considered an appropriate comparison language), a perception of the typological distance between the L1 and the L2 and the learner's actual knowledge of the L2 contribute to the transferability of a lexical item. (See Ringbom 1986 and Singleton and Little 1991 for findings that support Kellerman's hypothesis.)

speaking) had graduated from such programs in the recent past; six (four Vietnamese-speaking and two Hindi/Urdu-speaking) were associates of students enrolled in these community programmes; and five (two Vietnamese-speaking and three Hindi/Urdu-speaking) were found through contacts outside these programmes.

Learners were identified as being at an elementary, intermediate, or advanced level of lexical proficiency in English on the basis of their performance in the first three sections of Nation's (1990, pp. 264-269) "A Vocabulary Levels Test."⁷ Level 1 of the test consists of high-frequency English words (chosen from the 2,000 most frequently-used words), Level 2 has words that were slightly lower in frequency than these (within the 3,000-word level), and Level 3 is at the 5,000-word level. Levels 4 and 5 of Nation's test were not included since it was felt that Level 3 was difficult enough for the purposes of this study and that data collected from those who could cope with Levels 4 and 5 would not be of relevance to this study since such learners would likely be bilingual with native-like competence in English. (For further details on how the proficiency levels were determined, see 5.2.2.1 below.)

All of the learners were adult, and literate in English. While the majority of them (about two-thirds) were female (reflecting the predominance of women in the targeted

⁷ Since there is no widely-accepted standard test for determining L2 proficiency level, either in general (Verhoeven & de Jong, 1992) or in a specific area such as vocabulary development, the terms "elementary," "intermediate," and "advanced" can be understood only in relation to one another, i.e., "advanced" is higher than "intermediate," which is higher than "elementary." (See Meara, 1993, for a discussion revolving around the need for a standardized measure of lexical development.)

programs), there were 3-8 males in each language/proficiency group (see Table 5.1 below). Similarly, while about two-thirds of the participants did not have any post-secondary education, there were 3-8 learners who had attended college or university (in their home countries in the vast majority of cases) in each sub-group (see Table 5.3 below). In terms of years of English instruction, the Vietnamese learners tended to have a few more months of such instruction in Canada than the Hindi-Urdu speakers; conversely, the Hindi-Urdu speakers tended to have more years of English instruction in India/Pakistan than the Vietnamese speakers did in Vietnam (see Table 5.2 below). In both language groups, the mean number of years spent in Canada and the mean number of years of English instruction (in either the learners' home countries or in Canada) tended to increase with proficiency (see Table 5.2).

Table 5.1 Participants' gender and age group by language background and proficiency level

LEVEL	HINDI-URDU			VIETNAMESE		
	TOTAL	FEMALES/ MALES	AGE GROUPS/Ns	TOTAL	FEMALES/ MALES	AGE GROUPS/Ns
ELEMENTARY	18	14/4	18-29: 8 30-39: 6 40-49: 1 50 & up: 3	15	11/4	18-29: 7 30-39: 5 40-49: 3 50 & up: 0
INTERMEDIATE	15	12/3	18-29: 8 30-39: 4 40-49: 1 50 & up: 2	15	10/5	18-29: 7 30-39: 4 40-49: 1 50 & up: 3
ADVANCED	14	6/8	18-29: 3 30-39: 6 40-49: 2 50 & up: 3	15	9/6	18-29: 6 30-39: 3 40-49: 5 50 & up: 1

Table 5.2 Participants' length of residence in Canada and instructional background in English

LEVEL	HINDI-URDU			VIETNAMESE		
	YEARS IN CANADA	YEARS OF ENGLISH INSTRUCTION IN CANADA	YEARS OF ENGLISH INSTRUCTION IN HOME COUNTRY	YEARS IN CANADA	YEARS OF ENGLISH INSTRUCTION IN CANADA	YEARS OF ENGLISH INSTRUCTION IN HOME COUNTRY
ELEMENTARY	Mean: 1.72 SD: 1.35	Mean: .56 SD: .58	Mean: 4.56 SD: 3.90	Mean: 1.76 SD: 2.02	Mean: .87 SD: 1.19	Mean: 2.43 SD: 2.02
INTERMEDIATE	Mean: 2.0 SD: 1.95	Mean: .65 SD: .87	Mean: 6.17 SD: 3.13	Mean: 1.59 SD: 1.35	Mean: .66 SD: .57	Mean: 5.6 SD: 2.07
ADVANCED	Mean: 4.68 SD: 5.29	Mean: .74 SD: 1.84	Mean: 6.91 SD: 3.69	Mean: 2.49 SD: 2.34	Mean: 1.38 SD: 1.34	Mean: 5.0 SD: 3.02

Table 5.3 Participants' level of formal education

LEVEL	HINDI-URDU	VIETNAMESE
	NUMBER OF LEARNERS AT EACH LEVEL OF FORMAL EDUCATION	NUMBER OF LEARNERS AT EACH LEVEL OF FORMAL EDUCATION
ELEMENTARY	Elementary school: 4 (Mean # of yrs.: 6.75) Secondary school: 8 (Mean # of yrs.: 10.75) College/University: 6 (Mean # of yrs.: 3.17)	Elementary school: 3 (Mean # of yrs.: 7.00) Secondary school: 9 (Mean # of yrs.: 10.44) College/University: 3 (Mean # of yrs.: 2.00)
INTERMEDIATE	Elementary school: 0 Secondary school: 8 (Mean # of yrs.: 11.56) College/University: 7 (Mean # of yrs.: 3.57)	Elementary school: 0 Secondary school: 11 (Mean # of yrs.: 11.82) College/University: 4 (Mean # of yrs.: 2.80)
ADVANCED	Elementary school: 1 (# of yrs.: 8) Secondary school: 7 (Mean # of yrs.: 11.14) College/University: 6 (Mean # of yrs.: 3.00)	Elementary school: 0 Secondary school: 7 (Mean # of yrs.: 12.00) College/University: 8 (Mean # of yrs.: 3.63)

In return for their time and cooperation, participants were paid a small sum of money (\$8.00 each) and were also given feedback on their performance.⁸ The arrangements for meeting with participants were made in numerous ways. As mentioned before, the majority were attending ESL classes in a community programme at the time of testing. In some cases, the programme administrator or the teachers themselves selected prospective participants on the basis of an informal assessment of their level of proficiency and literacy. (An ability to read and write in English was a prerequisite for participating in the study). On other occasions the test administrator was invited to make an announcement during a class and briefly screen the learners on the spot (for availability, first language, and an ability to read and write in English) or else meet with them after class.⁹ In some cases, permission was granted to work with participants during school hours. On other occasions, the testing had to take place after classes were over, for example if the teacher wished it so or if no other room was available for testing.

⁸ Usually where a participant had to make a special trip for the testing the payment was \$10 to cover the cost of transportation.

⁹ Since this type of preliminary screening was informal, some errors were made at that stage. However, these were rectified without much trouble when the participants actually tackled the tests. For example, those whose proficiency/literacy level was too low for the purposes of the test, “gave up” soon after they started. In a small number of cases the learner’s L1 turned out to be something other than indicated earlier; this was brought to light via the questionnaire (see Appendix 4).

The learners were screened for language background, first through preliminary informal questioning and then formally through a questionnaire (see Appendix 4). The screening revealed that some of the Hindi-Urdu learners also spoke or understood Punjabi, a discovery that was unsurprising given the proximity of Punjabi-speaking areas to Hindi and Urdu speaking ones. However, it was decided that this would not be a confounding variable since causativization in Punjabi is identical to causativization in Hindi-Urdu, barring a few differences in vocabulary. Similarly, there was some variation among the Vietnamese participants in the type of dialect spoken by them (for example, the Northern dialect versus the Southern one). However, this was not considered significant since the differences between dialects are mainly in the area of pronunciation and, to a lesser extent, in the area of lexis;¹⁰ in terms of basic structure of the language, the differences among Vietnamese dialects are negligible (Dương Thanh Bình, 1971, p. 14). Some of the older Vietnamese learners had also studied a little French at school, but their knowledge of French at the time of testing was minimal, being limited to a few set phrases.

¹⁰ These lexical differences are not of a kind that has any bearing on this study.

5.2.2 Instruments

5.2.2.1 Nation's test for assessing lexical proficiency

As mentioned earlier, the participants were identified as being at the elementary, intermediate, or advanced level of lexical proficiency on the basis of how they performed on the first three levels of Nation's (1990) vocabulary test. In each test item, learners were asked to match three words with their respective meanings, which had to be chosen from a total of six possible answers. One such item is as follows:

1.	blame	
2.	hide	___ keep away from sight
3.	hit	___ have a bad effect on something
4.	invite	___ ask
5.	pour	
6.	spoil	

From Nation, 1990, pp. 265-6

Altogether there were six sets of three words that needed to be matched with their meanings at each level of the test, amounting to a total of 18 points per level.

While learners' performance on Level 1 did not differ dramatically from their performance on Level 2, those who "got through" the second part found Level 3 much more challenging, in keeping with the 2,000-word jump between Levels 2 and 3. To save time and to prevent participants from becoming frustrated with the task, those who did poorly at one level were allowed to abandon the next more difficult level if they were having great difficulty with it; those who were clearly

identified as “elementary” on the basis of their scores on Levels 1 and 2 were not asked to work on Level 3. Learners were identified as being elementary, intermediate or advanced according to the following formula:

Table 5.4 Scheme for the placement of learners into proficiency groups

Maximum score per level: 18 points	
Elementary	Less than 12 points at Level 2 or less than 21 points at Levels 1, 2, & 3 combined.
Intermediate	12 points or more at Level 2 or between 21 and 38 points (inclusive) at Levels 1, 2, & 3 combined.
Advanced	13 points or more at Level 3 or 39 points or more at Levels 1, 2, & 3 combined.

In his guidelines on the use of his test as a diagnostic tool, Nation suggests that a score of 12 or below at a particular level (out of a maximum of 18) indicates that the learner needs further work at that particular lexical level. The cut-offs used to place learners in this particular study were similar to Nation’s (i.e., around the 12-point mark); however, on the basis of the scores witnessed in the pilot study (see 5.3.2 below) an adjustment was made to the scoring, whereby learners were placed either on the basis of their scores at one level or else a combination of their scores at all three levels. This addition was geared to take care of those cases where a learner’s performance was borderline at a particular level, but outstanding at lower levels. For example, it was felt that a learner who may have scored only

10 out of a maximum of 18 on Level 3, but 17 out of 18 on each of the lower levels, was more proficient than learners identified as “intermediate”; hence an alternative placement scheme was set up to deal with such exceptional cases.

Mean scores for each language/proficiency group appear in Table 5.5 below, together with significance levels for differences between the Hindi-Urdu and Vietnamese groups at any given proficiency level. The observed *p*-values, obtained through a t-test, showed that none of the differences between the language groups was significant (*p*-value set at $\leq .05$)

TABLE 5.5 Mean scores and standard deviations (SD) on Levels 1-3 Nation’s test (max. per level = 18)

LEVEL	HINDI-URDU				VIETNAMESE				2-TAILED P-VALUES FOR DIFFERENCES IN MEANS OF THE TWO LANGUAGE GROUPS
	#1	#2	#3	ALL THREE LEVELS	#1	#2	#3	ALL THREE LEVELS	
ELEMENTARY N (HINDI) = 18 N (VIET) = 15	9.5 (SD = 2.04)	4.22* (SD = 3.69)	—	13.72 (SD = 4.76)	7.13 (SD = 2.26)	5.07* (SD = 3.97)	—	12.2 (SD = 5.86)	.416
INTERMEDIATE N (HINDI) = 15 N (VIET) = 15	12.87 (SD = 1.55)	11.53 (SD = 1.68)	2.8* (SD = 4.07)	27.2 (SD = 4.90)	13.0 (SD = 1.81)	11.6 (SD = 1.99)	2.73* (SD = 3.53)	27.33 (SD = 4.82)	.941
ADVANCED N (HINDI) = 14 N (VIET) = 15	16.07 (SD = 1.44)	16.07 (SD = 1.88)	13.5 (SD = 3.18)	45.64 (SD = 5.2)	16.53 (SD = 1.64)	16.67 (SD = 1.84)	14.13 (SD = 3.09)	47.2 (SD = 5.24)	.429

* Some of the participants did not complete these sections.

5.2.2.2 Rationale for using elicited data

The rationale underlying the elicitation of production data or grammaticality judgments is that unconstrained naturalistic data may not permit a complete assessment of the learner's competence (Cook, 1986; Bennett-Kastor, 1988; Bialystok & Swain, 1978). There might be structures that the learner knows or predicts as existing in the L2 but does not use, at least not in the naturalistic data that are collected. This concern is particularly relevant in the case of causatives since analyses of L1 naturalistic data have shown a sparsity of causativization errors relative to the size of a given corpus (Maratsos et al., 1987; Pye, 1991). In addition, learners are known to "avoid" producing certain structures in areas where their competence or level of confidence is shaky, attributable to a variety of causes such as L1-L2 differences, perceived non-transferability of marked grammatical structures or lexical items, or the sheer complexity of the L2 structures or rules in question (Kellerman, 1986; Kleinmann, 1977; Laufer & Eliasson, 1993; Perkins & Larsen-Freeman, 1975; Schachter, 1974). Furthermore, since elicitation tests involve a variety of controls, the results of these tests are often easier to interpret than those arrived at through an analysis of naturalistic data, and, by virtue of being uniform, such tests can assist the investigator in making comparisons between groups of learners. For these reasons, data on the acquisition of classes of causativizing verbs was collected via (a) a production task using pictures, (b) a multiple choice task based on the same pictures as were used in the production task

and (c) a grammaticality judgment test involving previously known verbs, and (d) a grammaticality judgment test involving previously unknown verbs.

5.2.2.3. Tests of English causatives: General considerations

Choice of verbs for Tests 1-4

While it might seem as though a large number of verbs could have qualified for inclusion in the tests of causatives in English, in actuality the choices were limited by various factors. First, the choice was restricted by causativization patterns in the three languages involved in this study. In terms of causativization patterns vis-à-vis semantic classes, the following combinations were used:

HINDI-URDU	VIETNAMESE	ENGLISH
grammatical	grammatical	grammatical
grammatical	ungrammatical	ungrammatical
grammatical	ungrammatical	grammatical

Second, for the first three tasks, only high-frequency verbs could be chosen in order to ensure that all of the learners, including the elementary-level ones, were familiar with them as lexical items; conversely, for Test 4 (grammaticality judgment involving new verbs) only low-frequency verbs qualified. Thus, occasionally it was not possible to find appropriate verbs in a particular class at a word-frequency level (emission-of-substances verbs, for example, were hard to

come by in high-frequency categories). Furthermore, in the picture tasks (Tasks 1 and 2), the choices had to be limited to causable events that could be depicted clearly in an illustration, for example those showing the breaking of objects or the melting of substances.

High frequency was verified by consulting word lists in Francis and Kucera's *Frequency Analysis of English Usage: Lexicon and Grammar* (1982) and morpheme lists in Ljung's *A Frequency Dictionary of English Morphemes* (1974). Francis and Kucera's inventory gives the number of times a word appears in the "Brown corpus"; for the purposes of this study, a high-frequency verb is one that appears at least 33 times in this corpus. Ljung's (1974) inventory of English morphemes is based on the eight thousand most frequent words in the Thorndike and Lorge (1959) corpus, but unlike Francis and Kucera's inventory, it provides morpheme frequencies rather than word frequencies. Approximately two-thirds of the known verbs used in this study belong to Ljung's Classes A and B (100-199 and 200-399 occurrences respectively per million), with the lowest frequency among the "known" verbs ("spin") at 24 occurrences per million.

Each verb was related to one or more other verbs in the same semantic class since the various hypotheses revolved around the L2 acquisition of grammatically relevant semantic classes (see Appendix 2). As a result of the above-mentioned restrictions placed on the choice of verbs, each of Tests 1-4 included only some of the full range of verb classes included in this study. It was also felt that the testing

of certain hypotheses did not require the inclusion of a semantic class across all of the tests and that the test package should be kept small enough to allow testing to be completed in one session.

Overall scoring procedures for Tests 1-4

Each tally was a frequency count of a response type within a semantic class for an individual learner. What counted as a "targeted response" varied from test to test depending on the hypotheses being tested. Thus, it could be either the correct or the incorrect responses that were tallied. If on a particular learner's test there was no response to an item, the *entire* group of verbs containing this item was excluded since the possible reasons for the omission were sundry and could not be guessed at; for example, it was felt that a blank answer resulting from an oversight could not be considered equivalent to a blank answer resulting from an inability to arrive at a response. There were, however, very few blank answers that had to be dealt with in this fashion, as will be clear from the frequency data presented in Chapter 6.

5.2.2.4 Picture-based production test: Test #1 (Appendix 4)

The first test of English causatives was an individually-administered, unpaced written production task, which was administered before the other tests of English causatives in order to ensure that responses were uninfluenced by the constructions provided in the picture-based multiple choice and judgment tests. In the production task, learners were given 17 pairs of pictures, one of each pair depicting the

noncausative intransitive verb and the other its causative counterpart (i.e., with some entity or force bringing about the event). The noncausative intransitive sentence was provided below the picture, for example "The baby laughed." The learners were asked to provide a corresponding sentence which best described the action in the second picture (the causing of the laughing), prompted by questions such as "What did the girl do to the baby?" Thus, this test provided information about what learners would actually say in a given situation, i.e., when the answers had to be actually constructed by them.

There were two verbs from each semantic class (see Appendix 2) in this test. To minimize uninterpretable responses or responses that use verbs other than the targeted ones, the learners were asked to restrict each answer to a single sentence and to use a particular verb in the response, for example, "burn," "break," or "melt."¹¹ In terms of type of causative, there was only one felicitous choice in each case. For example, if the picture showed the agent burning a letter, a direct causative would better describe the picture than a periphrastic one ("burning the letter" rather than "making the letter burn"). (See 5.3.1 below on native-speaker judgments regarding the grammaticality/felicitousness of the various responses.)

¹¹ Exceptions to the latter stipulation were the test items using "fall" (since this takes a suppletive causative) and "ring" (in order to find out whether some of the Vietnamese learners would use a suppletive form here since this is the case in Vietnamese).

Scoring. As was to be expected in a production task, the response types were more diverse here than in Tests 2-4 (in spite of the fact that the responses were “guided” by the specific directions that accompanied each question). Each question on this test had only one type of answer that was considered grammatical, or else one type that was more felicitous than the other possibilities. The constructions that were scored were those that could be unambiguously classified as “direct causative” or “periphrastic causative,” even if alternative responses were technically correct. A fair number of the responses were given a zero for the non-use of a relevant construction (for example, if they were bi-clausal cause-and-effect constructions and therefore fell into neither the direct causative nor the periphrastic causative category, or because they were incomprehensible) (see Table 5.6 for examples, and Appendix 5 for a classification of the various response types). Errors that were irrelevant to the hypotheses being tested -- for example those related to spelling, verb tense, or article use -- were ignored.

Table 5.6 Examples of the scoring procedure used in Test 1

TARGETED RESPONSE: "THE ANIMAL TRAINER MADE THE LION ROAR."

ACTUAL RESPONSE	Classified as:	Tally of use of (correct) periphrastic	Tally of use of (incorrect) direct causative
The animal trainer made the lion to roar.	Periphrastic	1	0
The animal trainer roared the lion.	Direct	0	1
The animal trainer beat the lion and the lion roared.	Cause and effect	0	0
The animal trainer show lion is noise.	Not classifiable	0	0

Inter-rater reliability of the Test 1 scoring. To test the reliability of the scoring of Test 1, a second person was asked to score ten of the 92 tests independently of the test administrator. The person, who was a native speaker of English and who also had a metalinguistic knowledge of the grammatical systems of a few languages (including English), was asked to identify each response as belonging to one of the following categories: (i) Direct causative, or (ii) periphrastic causative, or (iii) suppletive causative (in the case of "fall"), or (iv) something other than (i)-(iii). The criteria for classifying responses were briefly outlined. It was found that 147 out of a total of 150 responses, equivalent to 98% of the total, were classified in an identical manner by the two raters.

5.2.2.5 Picture-based multiple-choice test: Test #2 (Appendix 4)

This test re-used the pictures that were included in Test 1 to show the causation of various events. Once again, the learners were asked a question regarding the role of the agent, e.g., “What is the man doing to the letter?”; however, in this test the learners were required to circle the best of two or three answers, one of which was the most grammatical/felicitous of the set. (In general, there were only two choices; however, in the case of “fall” there were three choices on account of the extra suppletive form, “drop,” and in the case of one of the “burn” forms, two periphrastics were included, one with “make” and the other with “let,” since translation equivalents of either of these would be possible answers in Vietnamese.) This test was included in the package in order to see if learners had receptive knowledge of a construction even if they lacked productive knowledge of it.

Scoring. Each question on Test 2 had one answer that was more grammatical/felicitous than the other(s). The following table exemplifies the scoring procedure:

Table 5.7: Examples of scoring procedure for the picture-based multiple-choice task

	“ROAR”	“BARK”	“LAUGH”	SCORE FOR (CORRECT) PERIPHRASTIC CAUSATIVES IN THIS SEMANTIC CLASS	NUMBER OF (INCORRECT) DIRECT CAUSATIVES IN THIS SEMANTIC CLASS
<i>Learner #1</i>	Periphrastic	Periphrastic	Periphrastic	3	0
<i>Learner #2</i>	Periphrastic	Direct	Direct	1	2
<i>Learner #3</i>	Direct	Direct	Direct	0	3
				Mean is $4 \div 3 = 1.333$	Mean is $5 \div 3 = 1.667$

5.2.2.6 Grammaticality judgment test involving previously known verbs: Test #3 (Appendix 4)

In this unpaced test the learners were given a non-causative version of each verb in English and asked if a sentence containing its causative counterpart was (i) good, (ii) bad, or if (iii) they could not tell whether the sentence was good or bad. The 16 verbs used in the test were judged to be part of the "basic" vocabulary of the target language on the basis of frequency, which was assessed in the manner spelled out in 5.2.2.3.

Grammaticality judgment tests are based on the Chomskyan notion that, among other things, a speaker's linguistic competence equips him or her to make judgments related to the grammaticality of utterances. In this study, grammaticality tests have been used to ascertain what the learner hypothesizes as existing or not existing in the target language (and not only what the learner has already acquired or actually produces). However, despite the widespread use of such tests in the last three decades or so, they have been found to have certain potential weaknesses (Bolinger, 1968; Birdsong, 1989; Chaudron, 1983; Fodor, 1985). For instance, yes-no types of responses do not always account for *levels* of grammaticality, learners are often distracted by aspects of a construction that are not relevant to the test, and the learner's reasons for judging a construction to be ungrammatical are often unclear. A further criticism leveled at judgment tests is that they do not indicate what would actually be *produced* by a speaker in a given context. In response to

these caveats, an attempt was made to simplify the test sentences and instructions in the judgment tests used in this study, for example by keeping the sentences as basic as possible in terms of their meanings. To get away from the yes-no type of dichotomy in choice of response, a "don't know" option was provided as well. Like the picture-based tasks, the grammaticality judgment tests were unpaced to allow for variations in proficiency level or working styles.

Scoring. Since it was hypothesized that the Hindi-Urdu group would accept the causative versions of the *run*-type verbs willingly while the Vietnamese speakers would reject them, whether they were grammatical or not, the acceptance of such a construction was given 1 point, while no points were received if one of the other two responses (rejection and "don't know") was chosen. A second calculation of the same items tallied the *rejections* of causative, whether grammatical or ungrammatical/ borderline. Each rejection was given a point, with no points for the other two responses. The three non-causativizable internal mechanisms verbs used in this test ("sleep," "smile," and "cough") were scored in a similar way.

5.2.2.7 Grammaticality judgment test involving previously unknown verbs: Test #4 (Appendix 4)

To test their ability to go beyond the input, learners were asked for their judgments related to 19 English verbs previously unknown to them (see below for criteria); some of these belonged to classes that causativize in English and others did not (see Appendix 3).

The judgment task itself required the learners to first read the meaning of each verb as well as a sentence using the verb in a non-causative sense, and then say whether a sentence containing its causative counterpart was (i) good or (ii) bad, or whether (iii) they did not know if the sentence was good or bad. Once again, this test was unpaced.

For this test only *low* frequency verbs were selected, assessed on the basis of Francis and Kucera's (1982) list. Only those verbs which appear no more than ten times in the Brown corpus were chosen. (In fact some of the verbs were so low in frequency that they did not appear in the corpus at all.) That these verbs were not known to the learners was confirmed by interviewing those participants who had been identified as "advanced" on the basis of a quick scoring of their vocabulary test.¹² The procedure was as follows. Before an advanced-level participant started work on the judgment test using new verbs, the investigator drew the person away from the group in order to work on a checklist containing a list of the relevant verbs (see Task 4A in Appendix 4). Each word on the checklist was read aloud while the learner looked at it in written form. The learner was then asked if he or she knew what the word meant. "Familiarity" with the meaning of a verb was assessed on the basis of any definition or communication strategy used by the learner which indicated some recognition of the word's meaning.

¹² The rationale for interviewing only the higher-level learners will be provided in 5.3.2 below.

Scoring. Correct acceptance or correct rejection, as well as the converse of this, incorrect acceptance and incorrect rejection, was calculated per semantic class for each learner. As explained above, the advanced-level learners were interviewed individually and asked whether they knew the meanings of any of the low-frequency words used in the test. Where the learner knew what the verb meant *and* where the causative form of the verb actually existed, the response to the item was excluded from the data being analyzed and the learner's score for the remaining items was raised proportionally.¹³

5.2.2.8 Questionnaire (Appendix 4)

The questionnaire, which followed the four tests of English causatives, was completed via an oral interview (to save time and to have some one-on-one interaction with the participants, as will be explained below). The questionnaire required the learners to state what their L1 was (to confirm the answer obtained from them during an informal pre-test screening) and to say whether they knew any language other than their L1 and English. The learners were also asked how long they had lived in Canada or any other English-speaking country, and how

¹³ This type of adjustment affected three advanced-level Hindi-Urdu scores and three advanced-level Vietnamese scores in the physical-change-of-state class, as well as two advanced level scores in each of the language groups in the manner-of-motion class. Note that a non-causativizing verb was not counted as a "known" verb since by definition its use in a causative construction would be ungrammatical and therefore absent from the input; thus such a verb would be "unknown."

many years they had studied English, both in their home countries and in Canada. In addition, they were asked what their level of formal education was and to which of four age groups they belonged. These last few questions were geared to ensure that the distribution of the participants across language or proficiency groups was comparable in terms of background factors such as age, education, and years of formal instruction in English. This information has been summarized in Tables 5.1 through 5.3 above.

5.3 PROCEDURE

5.3.1 Piloting of Tests 1-4 with Native Speakers

As part of the procedure to "test the tests," formal responses to the items on Tests 1-4 were elicited from five native speakers of English, four of whom spoke Canadian English and one who spoke Australian English. The results of this part of the data collection are summarized below (see also Appendix 6)

5.3.1.1 Picture-based production and multiple-choice tasks (Tests 1 & 2)

Here the choices of the native speakers were unanimous, with the exception of the two items which required inanimate subjects and the item involving "fall" (see Appendix 6). In the former case, the targeted responses to the questions: "What did the key do (to the box)?" and "What did the hammer do to the window?" were active sentences with inanimate subjects. However, on Test 2, three speakers chose

the passive construction (“The box was opened by the key”) and only two the active causative: on Test 1, one used a passive with ‘open.’ (Other informal observations also point to native speakers of English tending to avoid the use of inanimate subjects even though these are allowed in English.) There was another complication related to these test items as well. It was later determined, through additional feedback from a Vietnamese-speaking informant, that the Vietnamese translation equivalent of “The hammer broke the window” was indeed “grammatical,” as had been previously determined, but was not “natural-sounding.” Thus it was decided that the items involving the breaking and opening of objects by inanimate subjects would have to be excluded from the analysis.

In the *fall/rise* class, the choices of the native speakers were unanimous on Test 2. However, on Test 1, in response to the question “What did the man do to the can of paint?” (based on a picture in which a can of paint has just been dropped), three of the responses involved the targeted suppletive causative of “fall,” (i.e., “drop”), one used “make . . . fall,” and one used “spill.” While “make . . . fall” is grammatical, it is less felicitous than “drop”; “spill” is both grammatical and felicitous, but it is not the causative counterpart of “fall.”. Despite these discrepant responses, the item involving “fall” was retained. First, it was felt that because the suppletive “drop” is formally more complicated than a direct stem-sharing causative, some confusion related to this item was unavoidable, irrespective of the quality of the pictorial stimulus was (see 7.4.2.2 for a discussion of this issue). Second, it was

felt that the problem could be remedied by focusing on the use of *incorrect* direct causatives (e.g., *The man fell the can of paint”) in the analysis of the L2 data.

5.3.1.2 Grammaticality judgment task with previously-known verbs (Test 3)

Here again the judgments of the native speakers were unanimous, except in the case of three sentences: "The soldier jumped the horse over the wall" (which was accepted by four and rejected by one), "Bart ran the dog" (which was accepted by two and rejected by three), and "Cordelia ran the dog to the park" (which was accepted by three, rejected by one, and considered borderline by another). That there were some differences of opinion in this area was unsurprising because the causative versions of all such verbs are "marked," as has been explained earlier. Because the main hypothesis in this case was that Hindi/Urdu speakers would accept such sentences more readily than would the Vietnamese group (irrespective of whether they were acceptable or unacceptable), these sentences were retained in spite of the mixed reviews they received from native speakers.

Test 3 also contained three "unergative" verbs that do not causative ("cough," "sleep," and "smile") for comparative purposes (see 7.2.2.1 in Chapter 7). In addition, this test included a few "distracters" involving dative alternation to break the "anticausative ---> causative" pattern established in Tests 1 and 2.

5.3.1.3 Judgment task with new verbs (Test 4)

All of the sentences in this test were accepted or rejected unanimously by native speakers with the exception of the causative version of "ossify." The sentence in question was eliminated from the statistical analysis since the main hypothesis regarding learners' performance on this task centred on the formation of *correct* semantic classes by the two language groups. In addition, the ungrammatical sentence "Fear quivered the child" was excluded because it was realized later that the inanimate subject constituted a factor which could account for a learner's rejection of the sentence, as opposed to an unambiguous rejection on the basis of the fact that such "physiological" verbs do not causativize.

5.3.2 Piloting of Tests 1-4 with Non-Native Speakers

Pilot testing with a small sample of Hindi-Urdu and Vietnamese speakers was undertaken primarily to ensure that the instructions in each task were clear, that the pictures elicited responses which focused on the targeted action, and that grammaticality judgments were not influenced by irrelevant factors. In addition, the piloting was geared to ensure that the administering of the tests in the main study would be smooth. The first pilot included eight participants; after a few modifications were made, a second pilot was run, this time with ten participants. The L1s and levels of these two sets of learners are tabulated below:

Table 5.8 The participants in the pilot studies

LANGUAGE GROUP	ELEMENTARY	INTERMEDIATE	ADVANCED
HINDI-URDU	9	0	4
VIETNAMESE	2	3	0

As a result of the piloting, a few modifications were made to the test instruments. Some of the pictures were redrawn since they had elicited the "wrong" type of responses. One of the original drawings, for example, depicted a cat causing a dog to bark by hissing at it, but this scenario confused the learners, perhaps because in most people's minds a dog would be more likely to intimidate a cat rather than vice versa. More significantly, a multiple choice task based on roughly the same pictures that were used for the production task was introduced into the test package (Test 2). As explained above, here the learners had to state whether they preferred a direct causative or a periphrastic one involving "make."¹⁴ The rationale for adding this task was to determine whether learners would use a periphrastic construction if it were actually provided to them. In addition, in the production test the instructions were modified because it was felt that the responses to the questions were too unconstrained to provide useful data. To remedy this, the learners were

¹⁴ In the case of "fall" and "burn" (accidental) there were also a suppletive construction using "drop" and a "let" form, respectively; the choices with inanimate subjects also included a response in the passive.

asked to answer the question in a single sentence, using the verb that was being focused on. It was also found that many of the learners were slowed down by their desire to spell everything correctly. As a result, a line was added to the instructions stating that spelling was not important in the task at hand.

The pilot also contributed to some of decisions regarding the manner in which the tests were to be administered. It was recognized that with low-level learners, working with a group that was larger than six was impracticable, as at this level the learners were more reliant on each other for help with responses (despite instructions to work independently) and monitoring the situation often became difficult. The piloting also revealed that participants wanted feedback upon completing their tasks, if only to find out the meanings of some of the lexical items on Nation's vocabulary test. Since testing had to be done in a single session (because the participants were not available again or because many of the locations were remote), feedback had to be given immediately after the test-taking period. It became clear that giving feedback to of a large number of participants during the 1¼ to 1½ hour period allocated for the testing would not be feasible. For these reasons, it was decided that the main testing would be conducted in small groups.

Overall, the pilots also revealed that the tests were too time-consuming. To rectify this, both of the grammaticality judgment tasks were shortened considerably. The questionnaire, originally filled out by the participants themselves, was completed by the test administrator on the basis of a guided interview, which not

only saved time as the interviewer could phrase questions in different ways to facilitate communication, but also promoted more interaction with the participants, a feature which they appreciated.

On the basis of the piloting it was also decided that low-proficiency learners who could barely get through Level 1 of Nation's vocabulary test would not be forced to complete the remaining parts since it was found that these learners laboured long over words in Levels 2 and 3 that were completely unfamiliar to them. The piloting also indicated that only the advanced-level learners should be asked to go through the checklist of low-frequency verbs used in the second judgment task (see above) since none of the learners at the other proficiency levels had any familiarity with the items on the checklist. (On average, the *advanced* learners recognized only one or two of these low-frequency verbs; the elementary learners in the pilot were simply frustrated by the task since, in spite of the tester's repeated assurances, they felt that they had been expected to know these words but had failed to do so.) Also, it was found that conducting this word-recognition task orally saved a great deal of time since learners were given both a visual and an audio cue and could be hurried along when it was clear that they had no recognition of the word in question. A further benefit of conducting this task orally was that it allowed the learners to use a range of communication strategies to convey what they thought the word meant.

The piloting also revealed that the "probably good" and "probably bad" responses included in the grammaticality judgment tests (Tests 3 and 4) were rarely used and only made the task cumbersome, especially for the low-proficiency learners. Thus the number of response types in these tasks were reduced from five to three, a modification which also saved testing time.

5.3.3 The Main Study: Data Collection

The participants were tested in groups of 1 to 6, depending on how many were available on a particular day at a particular location and how much space could be freed up for testing. There were 97 participants in all (including those whose tests were discarded, for reasons discussed above in 5.2.1.2) and 39 testing sessions, yielding an average of 2.5 learners per session. Though the number of participants in a testing situation varied, care was taken to keep the procedure as uniform as possible, facilitated by the fact that the investigator administered all of the tests. The participants were informed that they were not being "tested" in the traditional sense of the word since any response provided valuable information, irrespective of whether it was "right" or "wrong." Furthermore, it was made clear that in any reporting of test results, their anonymity was guaranteed. The participants were also informed that they could work at their own pace, but that they should not spend an inordinate amount of time on one item, especially if they were under time constraints of their own. (In general, the time taken to finish the tests, excluding

feedback, was 50 to 75 minutes. As such, despite the fact that they had fewer tasks to complete, the lower-level learners took around 20 minutes longer overall than the higher-level learners.) Since in most contemporary ESL classes cooperative work is very common, it was explained very carefully that for this particular research project the participants could not consult with each other at all or use a dictionary and that the tester could explain the instructions to them briefly but could not lead them towards any of the "answers."

The learners were given one task at a time in the following order in a single session:

Nation's vocabulary test (Level 1 and, where relevant, Level 2)
Test 1: Picture-based production test
Test 2: Picture-based multiple-choice test
<i>Where applicable, Level 3 of Nation's vocabulary test ¹⁵</i>
Test 3: Grammaticality judgment task involving known verbs
<i>Where applicable (advanced-level learners only), question-and-answer session using checklist of verbs that appear on Test 4</i>
Test 4: Grammaticality judgment task involving new verbs
Questionnaire (completed via an interview with each participant)

¹⁵ The first two sections of Nation's task were graded while the participants were working on the production and multiple-choice task based on pictures, and Level 3 was only given to those who had a minimum score of 12 on the second part or 22 altogether on the first two parts (see 5.2.2.1 for the placement scheme).

Where it was found that a person was "stuck" at a particular item, he or she was encouraged to move along. When a task was finished, it was collected and the pages eyeballed to make sure that the task had been completed. If there were numerous blanks, this was pointed out to the learner though people were not forced to complete items that they found completely unfamiliar. At the end of the testing the participants were interviewed and asked a few specific questions related to their language background (see 5.2.2.8). As feedback, each learner was also given (in writing) the meanings of those words in Nation's test that they did not know, a quick overview of their performance on Tasks 1 to 3, and any other feedback they sought on the nature of the research project.

The following chapter includes an account of the statistical tests used to analyze the data and the results of the data analysis.

Chapter 6

RESULTS

6.1 INTRODUCTION

The test data were scored in the manner delineated in the Chapter 5 and then analyzed using SPSS for Windows. The Kruskal-Wallis One-Way ANOVA, the nonparametric counterpart of the One-Way ANOVA, was used to make initial comparisons of the performance of learners across the three proficiency levels in each language group. In order to compare the Hindi-Urdu with the Vietnamese scores at each proficiency level (for example, the elementary *Hindi-Urdu* group with the elementary *Vietnamese* group), as well as the scores within a language group across proficiency levels (for example, the *elementary* Hindi-Urdu group with the *intermediate* Hindi-Urdu group), a Mann-Whitney U-test was then run for each of the relevant semantic classes of verbs and combinations thereof. These non-parametric tests were used because many of the distributions were not normal and variances not equal, making the t-test unsuitable for the purpose of comparing means (Butler, 1985). The atypical distributions and unequal variances resulted from the fact that Tests 2, 3, and 4 offered the learners a very limited range of choices and in many cases one language group showed a strong tendency to reject

or accept certain types of sentences, while the other group's responses were distributed more evenly.

In every case, for a difference to be considered significant, the observed significance value was set at .05 or less ($p = \leq .05$). To test those hypotheses where there was an *a priori* expectation that one group would do better than the other or accept or reject more of a certain type of construction, a one-tailed test was used since the purpose of the test was to determine whether a difference in a particular direction could be detected. This was the case, for example, when the Hindi-Urdu and Vietnamese groups' performances were expected to diverge or where learners at a specific level of lexical proficiency were expected to perform better than counterparts at a lower level. Where it was hypothesized that there would be no difference between the groups, a two-tailed test was run since in this case the validation or rejection of the equality hypotheses required looking at a possible difference in either direction.

In Chapter 5, two broad hypotheses were spelled out, the first focusing on the route of acquisition vis-à-vis the acquisition of the grammatical properties of verbs in certain semantic classes and the second on transfer from the L1 to the L2. The results of the statistical analysis will be presented in two main parts, the first pertaining to Hypothesis 1 (6.2) and the second to Hypothesis 2 (6.3). The Hypothesis 1 results will, in turn, be divided into two sections, the first centering on previously known verbs and the second on new verbs. The results pertaining to

Hypothesis 2 will be presented one semantic class at a time, as per the specific transfer-related sub-hypotheses (2 a-j) delineated in Chapter 5.

6.2 LANGUAGE-SPECIFIC LEVEL-BY-LEVEL ACQUISITION PATTERNS

Hypothesis #1

At an elementary level of lexical proficiency, the learners of each language group will acquire the grammatical properties of verbs one at a time. At an intermediate level of lexical proficiency learners will begin to place verbs in semantic classes, thereby paving the way for generalizing beyond the input at an advanced level. Evidence of semantic categorization will be found in a greater accuracy in responses within a semantic class at one proficiency level than at the level(s) below, both within a test and across tests. While such intra-class accuracy in responses vis-à-vis known verbs will be ambiguous between item learning and system learning (i.e., semantic categorization), accuracy in responses related to new verbs will provide a more definitive test of this hypothesis.

6.2.1 Known verbs: Tests 1 and 2

A comparison of the performance of learners at one proficiency level with the performance of learners at the other two proficiency levels, within each language group (i.e., Hindi-Urdu or Vietnamese) and within each semantic class on each test (e.g., the physical-change-of-state class on Test 1), revealed that though there was a tendency for scores to be higher at the advanced level than at the intermediate and, in turn, higher at the intermediate level than at the elementary, only some of

the level-based differences in performance were significant. This section summarizes the performance of each subgroup of learners (identified according to L1 background and level of proficiency) on each semantic class within Tests 1 or 2, together with significance levels for differences in performance at different levels of proficiency within a language group. Since Hypothesis 1 is directional (advanced-level learners being expected to perform better than intermediate ones, and intermediate learners better than elementary ones), the relevant p -values yielded by the Mann-Whitney test are 1-tailed; these are reported in Tables 6.2 through 6.25 below. (The Kruskal-Wallis One-Way ANOVA, in which all three levels are compared simultaneously, does not test hypotheses directionally.)

6.2.1.1 Physical-change-of-state (burn/melt) verbs: Tests 1 and 2 (known verbs)

In this class, there was a tendency for scores to increase with proficiency, in keeping with Hypothesis 1. However, none of the differences in between levels was found to be statistically significant, with the exception of the difference between the Test 1 elementary and advanced scores in the Vietnamese group, favouring the advanced group, as had been hypothesized ($p = .029$) (see Tables 6.2 & 6.4 below).

Physical-change-of-state verbs: Tests 1 and 2 (contd.)

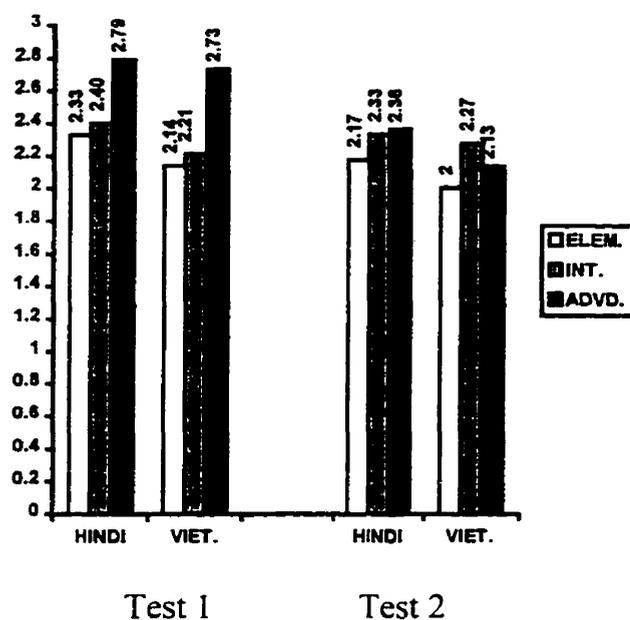


Fig. 6.1 Mean scores for CORRECTLY using/choosing direct causatives in the PHYSICAL-CHANGE-OF-STATE class (max. score per test = 3)

Table 6.1 Scores for the production of direct causatives (correct) in the PHYSICAL-CHANGE-OF-STATE class: Test 1

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 3)	RANGE
HINDI: ELEM.	18 of 18	3	3
INTER.	15 of 15	3	3
ADVD.	14 of 14	3	1
VIET.: ELEM.	14 of 15	2	3
INTER.	14 of 15	2.5	3
ADVD.	15 of 15	3	1

Table 6.2 Comparisons of Test 1 scores for correct responses in the PHYSICAL-CHANGE-OF-STATE class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.373	.141
ELEM.-INTER. (Mann-Whitney)	.459	.293
INTER.-ADVD. (Mann-Whitney)	.113	.061
ELEM.-ADVD. (Mann-Whitney)	.097	.029

Table 6.3 Scores for correctly choosing direct causatives in the PHYSICAL-CHANGE-OF-STATE class: Test 2

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 3)	RANGE
HINDI: ELEM.	18 of 18	2	2
INTER.	15 of 15	3	3
ADVD.	14 of 14	3	3
VIET.: ELEM.	15 of 15	2	3
INTER.	15 of 15	3	2
ADVD.	15 of 15	2	3

Table 6.4 Comparisons of Test 2 scores for correct responses in the PHYSICAL-CHANGE-OF-STATE class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.383	.757
ELEM.-INTER. (Mann-Whitney)	.127	.231
INTER.-ADVD. (Mann-Whitney)	.490	.394
ELEM.-ADVD. (Mann-Whitney)	.113	.322

6.2.1.2 Bells-and-whistles (ring/blow) verbs: Tests 1 and 2 (known verbs)

Once again, in this class the majority of differences between levels did not achieve significance, except in two instances, both in Test 1 and in the expected direction (i.e., favouring the group that was at a higher proficiency level): the difference between the intermediate and advanced groups among the Hindi-Urdu speakers ($p = .041$) and the difference between the elementary and advanced groups among the Vietnamese speakers ($p = .026$) (see Tables 6.6 & 6.8 below).

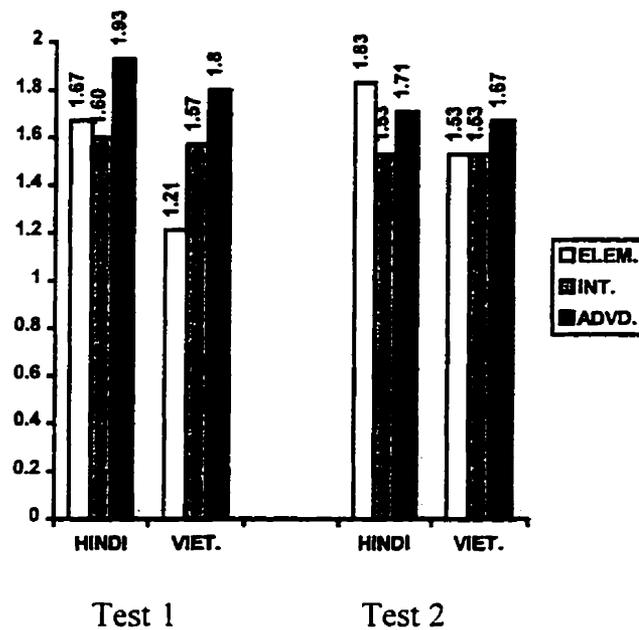


Fig. 6.2 Mean scores for CORRECTLY using/choosing direct causatives in the BELLS-AND-WHISTLES class (max. score per test = 2)

Bells-and-whistles verbs: Tests 1 and 2 (contd.)

Table 6.5 Scores for producing direct causatives (correct) in the BELLS-AND-WHISTLES class: Test 1

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 2)	RANGE
HINDI: ELEM.	18 of 18	2	2
INTER.	15 of 15	2	2
ADV.D.	14 of 14	2	1
VIET.: ELEM.	14 of 15	1.5	2
INTER.	14 of 15	2	2
ADV.D.	15 of 15	2	1

Table 6.6 Comparisons of Test 1 scores for correct responses in the BELLS-AND-WHISTLES class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.213	.136
ELEM.-INTER. (Mann-Whitney)	.368	.145
INTER.-ADV.D. (Mann-Whitney)	.041	.157
ELEM.-ADV.D. (Mann-Whitney)	.069	.026

Table 6.7 Scores for correctly choosing direct causatives in the BELLS-AND-WHISTLES class: Test 2

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 2)	RANGE
HINDI: ELEM.	18 of 18	2	1
INTER.	15 of 15	2	2
ADV.D.	14 of 14	2	2
VIET.: ELEM.	15 of 15	2	2
INTER.	15 of 15	2	2
ADV.D.	15 of 15	2	2

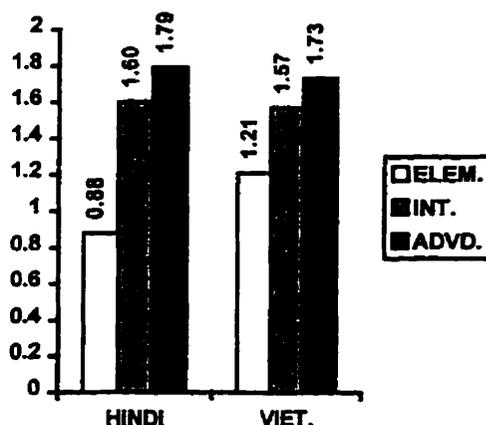
Table 6.8 Comparisons of Test 2 scores for correct responses in the BELLS-AND-WHISTLES class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.607	.868
ELEM.-INTER. (Mann-Whitney)	.266	.500
INTER.-ADV.D. (Mann-Whitney)	.229	.322
ELEM.-ADV.D. (Mann-Whitney)	.500	.322

6.2.1.3 Manner-of-motion (spin/roll) verbs: Test 1 (known verbs)

In the manner-of-motion class on Test 1 there was a general progression in scores from low to high corresponding to proficiency levels in both language groups. The Kruskal-Wallis test showed that, overall, the differences among the levels in the Hindi-Urdu group were significant ($p = .004$); more specifically, there were significant differences between the elementary and intermediate levels ($p = .008$) and the elementary and advanced levels ($p = .001$) in the Hindi-Urdu group, as

revealed by the Mann-Whitney test. In addition, there was a significant difference between the elementary and advanced Vietnamese-as-L1 groups ($p = .050$). All of the significant differences were in the hypothesized direction. (The relevant significance levels may be found in Table 6.10 below.)



Test 1

Fig. 6.3 Mean scores for CORRECTLY using direct causatives in the MANNER-OF-MOTION class (max. score = 2)

Table 6.9 Scores for production of direct causatives (correct) in the MANNER-OF-MOTION class: Test 1

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 2)	RANGE
HINDI: ELEM.	17 of 18	1	2
INTER.	15 of 15	2	2
ADV.D.	14 of 14	2	1
VIET.: ELEM.	14 of 15	1.5	2
INTER.	14 of 15	2	1
ADV.D.	15 of 15	2	1

Table 6.10 Comparisons of Test 1 scores for correct responses in the MANNER-OF-MOTION class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.004	.225
ELEM.-INTER. (Mann-Whitney)	.008	.166
INTER.-ADV.D. (Mann-Whitney)	.216	.184
ELEM.-ADV.D. (Mann-Whitney)	.001	.050

6.2.1.4 Directional motion (rise/fall) verbs: Tests 1 and 2 (known verbs)

A comparison of the production of incorrect direct causatives in the directional motion class on Test 1 revealed that the only significant difference between proficiency levels lay between the intermediate and advanced Vietnamese-as-L1 speakers ($p = .016$), favouring the advanced group, who produced fewer incorrect direct causatives, as per the hypothesis. (see Table 6.12).¹ On Test 2, both language groups had significant differences between the intermediate and advanced groups, as well as between the elementary and advanced groups (see Table 6.14). Both sets of differences were in the hypothesized direction, i.e., they favoured the advanced-level learners, who had fewer incorrect direct causatives than the comparison groups.

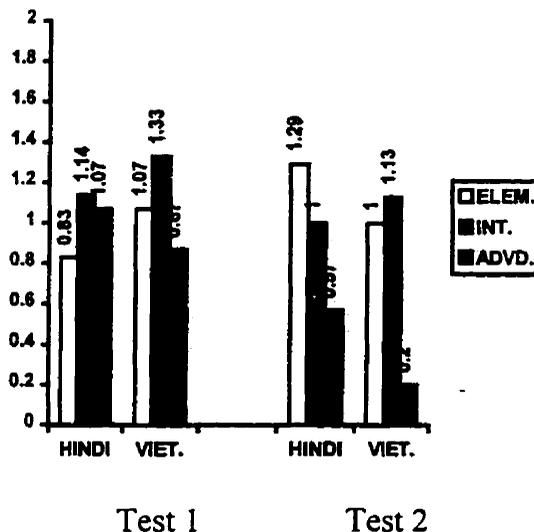


Fig. 6.4 Mean number of INCORRECT direct causatives used/chosen in the DIRECTIONAL MOTION class (max. number per test = 2)

¹ Note, however, that among the Vietnamese speakers on Test 1, the number of incorrect direct causatives first tended to increase between the elementary and intermediate levels before decreasing between the intermediate and advanced levels (see Fig. 6.4).

Directional motion (rise/fall) verbs: Tests 1 and 2 (contd.)

Table 6.11 Production of incorrect direct "causatives" in the DIRECTIONAL MOTION class: Test 1

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 2)	RANGE
HINDI: ELEM.	18 of 18	1	2
INTER.	14 of 15	1	2
ADVD.	14 of 14	1	2
VIET.: ELEM.	14 of 15	1	2
INTER.	15 of 15	1	2
ADVD.	15 of 15	1	2

Table 6.12 Comparisons of production of incorrect direct "causatives" in the DIRECTIONAL MOTION class: Test 1

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.416	.128
ELEM.-INTER. (Mann-Whitney)	.122	.161
INTER.-ADVD. (Mann-Whitney)	.371	.016
ELEM.-ADVD. (Mann-Whitney)	.154	.195

Table 6.13 Incorrect choice of direct "causatives" in the DIRECTIONAL MOTION class: Test 2

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 2)	RANGE
HINDI: ELEM.	17 of 18	1	2
INTER.	15 of 15	1	2
ADVD.	14 of 14	1	2
VIET.: ELEM.	15 of 15	1	2
INTER.	15 of 15	1	2
ADVD.	15 of 15	0	1

Table 6.14 Comparisons of Test 2 use of incorrect direct "causatives" in the DIRECTIONAL MOTION class

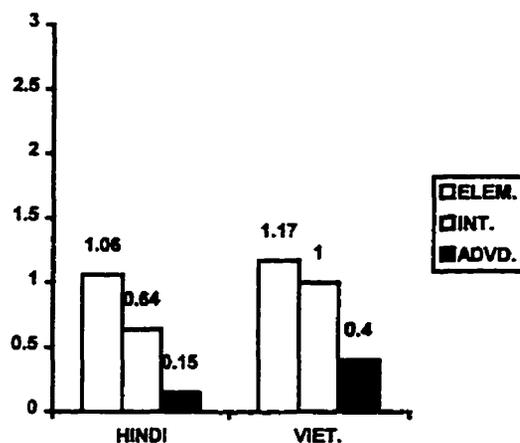
LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.027	.001
ELEM.-INTER. (Mann-Whitney)	.110	.311
INTER.-ADVD. (Mann-Whitney)	.041	.004
ELEM.-ADVD. (Mann-Whitney)	.006	.001

6.2.1.5 Animal sounds/internal mechanisms (laugh/cry/bark) verbs: Tests 1 & 2 (known verbs)

In the animal sounds/internal mechanisms class there were a number of significant differences between proficiency levels, most of them in the Hindi-Urdu group, both in the use of *incorrect* direct causatives (e.g., *"The letter-carrier barked the dog") and in the use of *correct* periphrastic causatives in this class (e.g., "The letter-carrier made the dog bark"). The use of incorrect direct causa-

tives in this class tended to decline with proficiency among both language groups, but the only significant differences were in the Hindi-Urdu group: the number of incorrect direct causatives produced at the advanced level was significantly lower than at both the elementary and intermediate levels (see Figure 6.5 and Table 6.16). In the production of *correct* periphrastic causatives on Test 1 (see Table 6.18) there were once again significant differences in the Hindi-Urdu group: the scores at the advanced level were significantly higher than at the elementary and intermediate levels. In the Vietnamese group a significant difference emerged between the elementary and advanced groups, in favour of the advanced group, for the production of correct periphrastic causatives on Test 1. In the case of the Test 2 scores, there were significant differences for both language groups: the scores for both the Hindi-Urdu and Vietnamese groups were higher at the advanced level than at either the elementary or the intermediate levels (see Table 6.20). (The Test 2 *p*-values are the same for the use of correct periphrastic causatives and incorrect direct causatives because the learners were offered only two choices in this context, one of which was correct and the other incorrect.) Note that in all of the above-mentioned contexts there were no significant differences between the elementary and intermediate levels in either the Hindi-Urdu or the Vietnamese groups.

Animal sounds/internal mechanisms (laugh/cry/bark) verbs (contd.)



Test 1

Fig. 6.5 Mean number of INCORRECT direct causatives used in the ANIMAL SOUNDS/INTERNAL MECHANISMS class (max. number = 4)

Table 6.15 Production of incorrect direct "causatives" in the ANIMAL SOUNDS/INTERNAL MECHANISMS class: Test 1

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 4)	RANGE
HINDI: ELEM.	16 of 18	1.5	4
INTER.	14 of 15	0.5	2
ADVD.	13 of 14	0	1
VIET.: ELEM.	12 of 15	0.5	4
INTER.	13 of 15	0	4
ADVD.	15 of 15	0	2

Table 6.16 Comparisons of production of incorrect direct "causatives" in the ANIMAL SOUNDS/INTERNAL MECHANISMS class: Test 1

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.042	.354
ELEM.-INTER. (Mann-Whitney)	.217	.290
INTER.-ADVD. (Mann-Whitney)	.025	.262
ELEM.-ADVD. (Mann-Whitney)	.008	.063

Animal sounds/internal mechanisms (laugh/cry/bark) verbs (contd.)

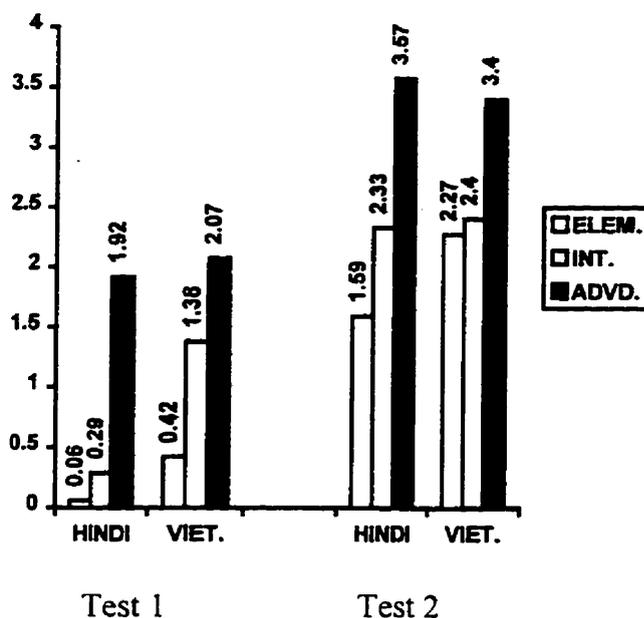


Fig. 6.6 Mean scores for CORRECTLY using/choosing periphrastic causatives in the ANIMAL SOUNDS/INTERNAL MECHANISMS class (max. per test = 4)

Table 6.17 Scores for the correct production of periphrastic causatives in the ANIMAL SOUNDS/INTERNAL MECHANISMS class: Test 1

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 4)	RANGE
HINDI: ELEM.	16 of 18	0	1
INTER.	14 of 15	0	3
ADV.D.	13 of 14	1	4
VIET.: ELEM.	12 of 15	0	2
INTER.	13 of 15	1	4
ADV.D.	15 of 15	2	4

Table 6.18 Comparisons of Test 1 scores for correct responses in the ANIMAL SOUNDS/INTERNAL MECHANISMS class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.001	.024
ELEM.-INTER. (Mann-Whitney)	.224	.059
INTER.-ADV.D. (Mann-Whitney)	.004	.129
ELEM.-ADV.D. (Mann-Whitney)	.001	.003

Table 6.19 Scores for correctly choosing periphrastic causatives in the ANIMAL SOUNDS/INTERNAL MECHANISMS class: Test 2

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 4)	RANGE
HINDI: ELEM.	17 of 18	1	4
INTER.	15 of 15	2	4
ADV.D.	14 of 14	4	4
VIET.: ELEM.	15 of 15	3	4
INTER.	15 of 15	3	4
ADV.D.	15 of 15	4	4

Table 6.20 Comparisons of Test 2 scores for correct responses in the ANIMAL SOUNDS/INTERNAL MECHANISMS class*

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.003	.040
ELEM.-INTER. (Mann-Whitney)	.111	.301
INTER.-ADV.D. (Mann-Whitney)	.024	.035
ELEM.-ADV.D. (Mann-Whitney)	<.001	.005

*The *p*-values pertaining to incorrect responses in this case are exactly the same as for correct responses.

6.2.1.6 Significance levels for pooled scores on Tests 1 and 2 (known verbs)

The analysis of the Test 1 and Test 2 data according to semantic class, presented above, shows that the performance of learners in each language group tended to be better at the advanced level than at intermediate level and better at the intermediate level than at the elementary. However, as has been shown above, only some of the differences in performance within particular semantic classes were statistically significant. Since the number of learners at each proficiency level was small, as was the number of items in each semantic class on Tests 1 and 2, the next step in the analysis was to pool the various scores within each test in order to determine whether the *overall* tendency for improvement across levels was statistically significant. Each learner's overall score was calculated in the following manner:

Table 6.21 Procedure for pooling scores

SCORES FOR CORRECTLY ANSWERED ITEMS ON TEST 1					
Example	Change-of-state (max. = 3)	Bells-and-whistles (max. = 2)	Manner-of-motion (max. = 2)	Animal sounds (max. = 4)	TOTAL SCORE (MAX. = 11)
Learner #1	3	1	2	4	10
Learner #2	1	1	1	2	5

Tests 1 and 2 were scored in exactly the same way; however, because Test 2 had no manner-of-motion class, this test had a maximum score of 9, as opposed to a maximum of 11 for Test 1.²

The mean Test 1 and Test 2 pooled scores for each proficiency level within a language group are summarized in Figures 6.7 and 6.8 respectively. When these scores were compared via a Kruskal-Wallis One-Way ANOVA, it was found that in three of the four cases -- the Hindi-Urdu speakers on both Tests 1 and 2, and the Vietnamese speakers on Test 1 -- the observed significance level was below .05 (see Tables 6.23-6.24 below). Thus, in these three cases the null hypothesis predicting no difference in performance across proficiency levels could be rejected. In addition, in both language groups there were significant increases in scores between the elementary and advanced levels and the intermediate and advanced levels on Test 1, as well as between the elementary and advanced levels on Test 2, as indicated by the Mann-Whitney test (see Tables 6.23 & 6.24). The Hindi-Urdu advanced-level learners also had significantly higher scores than the intermediate-level Hindi-Urdu learners on Test 2 (see Table 6.24).

² The pooled verbs excluded the three accidental causation verbs (“fall,” “burn,” and “break”) since this class differs from all of the others, which involve volitional causation. (Leaving out the accidental causation verbs also avoided the duplication of “burn,” which appears in both the physical-change-of-state class and the accidental one.) Also excluded was the directional motion class -- consisting of “rise” and “fall” (which also appears in the accidental class) -- since the causativization of these is quirky from a morphological point of view (see 7.2.2.2 in the following chapter).

Pooled verbs: Test 1 (known verbs)

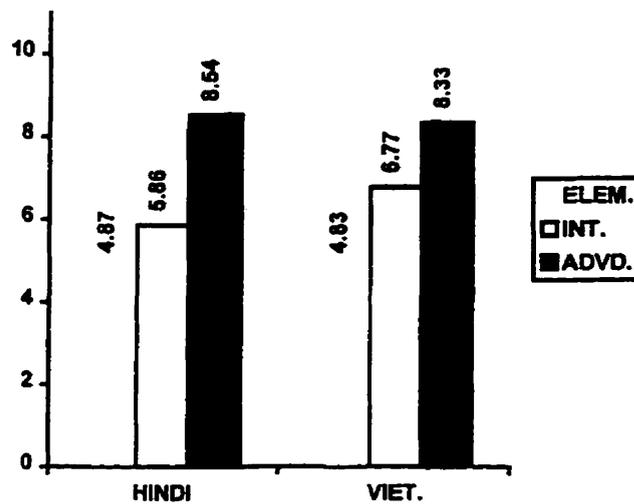


Fig. 6.7 Mean scores for Test 1 POOLED verbs (max. = 11)

Table 6.22 Pooled Test 1 scores for correct responses

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 11)	RANGE
HINDI: ELEM.	15 of 18	6	7
INTER.	14 of 15	6.5	8
ADVD.	13 of 14	8	6
VIET.: ELEM.	12 of 15	5	9
INTER.	13 of 15	7	9
ADVD.	15 of 15	8	6

Table 6.23 Comparisons of pooled Test 1 scores

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	<.001	.005
ELEM.-INTER. (Mann-Whitney)	.119	.067
INTER.-ADVD. (Mann-Whitney)	.004	.024
ELEM.-ADVD. (Mann-Whitney)	<.001	.001

Pooled verbs: Test 2 (known verbs)

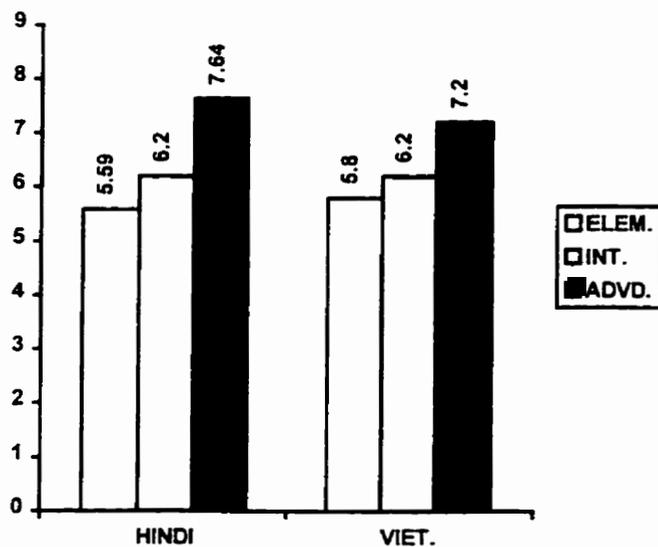


Fig. 6.8 Mean scores for POOLED verbs on Test 2 (max. = 9)

Table 6.24 Pooled Test 2 scores for correct responses

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 9)	RANGE
HINDI: ELEM.	17 of 18	5	3
INTER.	15 of 15	6	8
ADVD.	14 of 14	8	5
VIET.: ELEM.	15 of 15	5	5
INTER.	15 of 15	5	4
ADVD.	15 of 15	8	5

Table 6.25 Comparisons of pooled Test 2 scores

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.010	.073
ELEM.-INTER. (Mann-Whitney)	.194	.277
INTER.-ADVD. (Mann-Whitney)	.048	.665
ELEM.-ADVD. (Mann-Whitney)	.006	.001

As has been explained before, on Tests 1 and 2 an overall increase in the number of correct or consistent answers within a semantic class between levels could reflect *either* the formation of semantically coherent classes *or* item-by-item learning since Tests 1 and 2 involved *known* verbs. The following section presents findings based on Test 4, which was designed to provide more definitive information on the formation of “semantically coherent” classes than the previous three tests since it involved “new” verbs.³

6.2.2 New Verbs: (Test 4)

As with the results of Tests 1 and 2 in the previous section, the Test 4 results will first be presented one semantic class at a time and then as a whole (i.e., based on pooled scores).

When the differences between the three proficiency levels within a language group were examined according to semantic class, very few of the differences were found to be significant. There was a significant difference favouring the advanced over the elementary Vietnamese L1 subgroup in the directional motion class (see Table

³ As discussed in Chapter 5 (see 5.1.2.1 and Footnote 4), the Test 3 verbs are in a different category from the verbs in Tests 1 and 2 because despite being high-frequency verbs as *intransitives*, their use as *causatives* tends to be relatively infrequent. At the same time, the status of the Test 3 verbs is distinct from that of the Test 4 ones since the former cannot be unambiguously classified as “unknown.” The Test 3 results, however, will be presented in Section 6.3, which includes all of the results pertaining to transfer.

6.31). This language group also had significant differences in the animal sounds/internal mechanisms class, with the advanced level learners outperforming both the elementary and intermediate learners (see Table 6.33). Among the Hindi-Urdu speakers only one difference achieved significance, that between the elementary and intermediate levels in the animal sounds/internal mechanisms class, in favour of the intermediate level (see Table 6.33).

The Test 4 results for individual semantic classes are summarized in Figures 6.9 through 6.13 and Tables 6.26 through 6.35 below. Once again, since the hypothesis regarding performance on Test 4 is directional (predicting an increase in scores from one proficiency level to the next), the Mann-Whitney p -values reported below are one-tailed.

6.2.2.1 Physical-change-of-state verbs: Test 4 (new verbs)

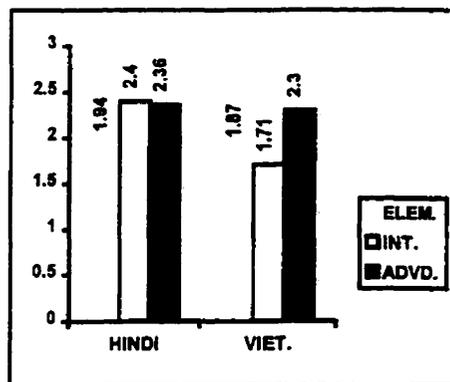


Fig. 6.9 Mean scores for the CORRECT ACCEPTANCE of PHYSICAL-CHANGE-OF-STATE causatives (max. = 3): Test 4 (new verbs)

Table 6.26 Scores for the correct acceptance of PHYSICAL-CHANGE-OF-STATE direct causatives: Test 4

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 11)	RANGE
<i>HINDI: ELEM.</i>	16 of 18	2	3
<i>INTER.</i>	15 of 15	3	3
<i>ADVD.</i>	11 of 14	3	2
<i>VIET.: ELEM.</i>	15 of 15	2	3
<i>INTER.</i>	14 of 15	2	3
<i>ADVD.</i>	15 of 15	3	3

Table 6.27 Comparison of Test 4 scores for correct responses in the PHYSICAL-CHANGE-OF-STATE class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
<i>ALL THREE LEVELS (Kruskal-Wallis)</i>	.291	.269
<i>ELEM.-INTER. (Mann-Whitney)</i>	.075	.341
<i>INTER.-ADVD. (Mann-Whitney)</i>	.349	.059
<i>ELEM.-ADVD. (Mann-Whitney)</i>	.134	.123

6.2.2.2 Manner-of-motion verbs: Test 4 (new verbs)

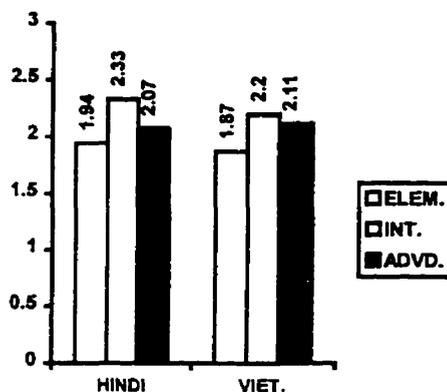


Fig. 6.10 Mean scores for the correct acceptance of MANNER-OF-MOTION causatives (max. = 3): Test 4 (new verbs)

Table 6.28 Scores for the correct acceptance of MANNER-OF-MOTION direct causatives: Test 4

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 20)	RANGE
<i>HINDI: ELEM.</i>	17 of 18	2	3
<i>INTER.</i>	15 of 15	2	2
<i>ADVD.</i>	14 of 14	2.5	3
<i>VIET.: ELEM.</i>	15 of 15	2	2
<i>INTER.</i>	15 of 15	2	3
<i>ADVD.</i>	14 of 15	3	3

Table 6.29 Comparison of Test 4 scores for correct responses in the MANNER-OF-MOTION class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
<i>ALL THREE LEVELS (Kruskal-Wallis)</i>	.574	.462
<i>ELEM.-INTER. (Mann-Whitney)</i>	.129	.109
<i>INTER.-ADVD. (Mann-Whitney)</i>	.481	.453
<i>ELEM.-ADVD. (Mann-Whitney)</i>	.272	.185

6.2.2.3 Directional motion verbs: Test 4 (new verbs)

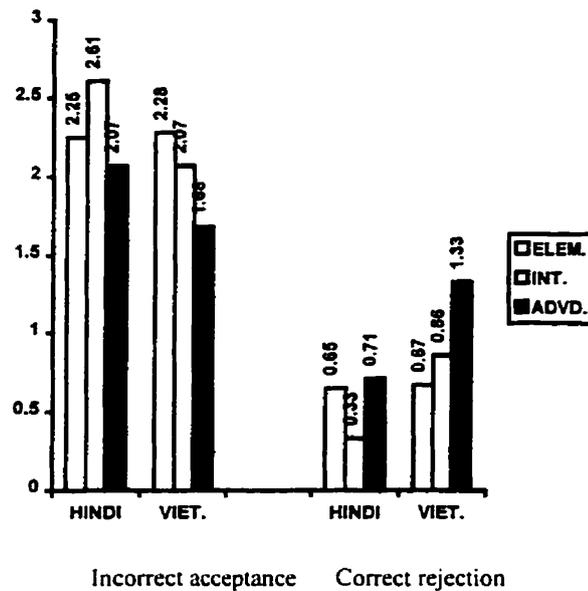


Fig. 6.11. Means for DIRECTIONAL MOTION "causatives"
(max. number = 3) : Test 4 (new verbs)

Table 6.30 Scores for the correct rejection of
DIRECTIONAL MOTION direct "causatives": Test 4

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 3)	RANGE
HINDI: ELEM.	17 of 18	0	2
INTER.	15 of 15	0	1
ADV.D.	14 of 14	1	3
VIET.: ELEM.	15 of 15	0	3
INTER.	14 of 15	1	3
ADV.D.	15 of 15	1	3

Table 6.31 Comparisons of Test 4 scores for correct
responses in the DIRECTIONAL MOTION class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.451	.144
ELEM.-INTER. (Mann-Whitney)	.139	.216
INTER.-ADV.D. (Mann-Whitney)	.130	.096
ELEM.-ADV.D. (Mann-Whitney)	.457	.033

6.2.2.4 Animal sounds/internal mechanisms verbs: Test 4 (new verbs)

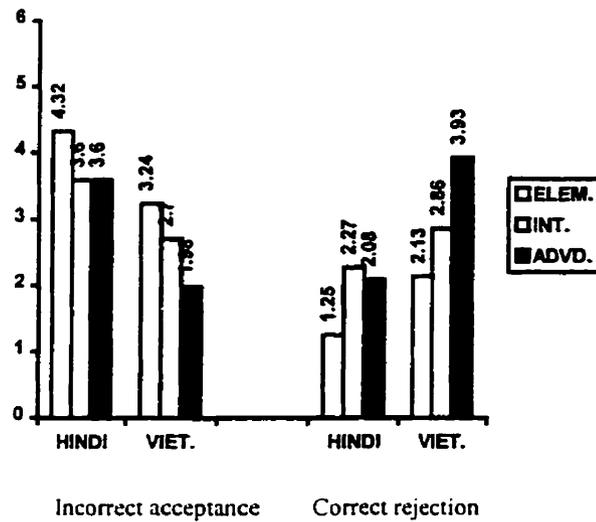


Fig. 6.12 Means for ANIMAL SOUNDS/INTERNAL MECHANISMS "causatives" (max. number = 6): Test 4 (new verbs)

Table 6.32 Scores for the correct rejection of direct "causatives" in the ANIMAL SOUNDS/INTERNAL MECHANISMS class: Test 4

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 6)	RANGE
HINDI: ELEM.	16 of 18	1	5
INTER.	15 of 15	2	5
ADVD.	14 of 14	2	6
VIET.: ELEM.	15 of 15	2	6
INTER.	14 of 15	3	5
ADVD.	15 of 15	5	6

Table 6.33 Comparison of Test 4 scores for correct responses in the ANIMAL SOUNDS/INTERNAL MECHANISMS class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.081	.041
ELEM.-INTER. (Mann-Whitney)	.009	.120
INTER.-ADVD. (Mann-Whitney)	.281	.046
ELEM.-ADVD. (Mann-Whitney)	.110	.010

6.2.2.5 Emission-of-substances (seep/ooze) verbs: Test 4 (new verbs)

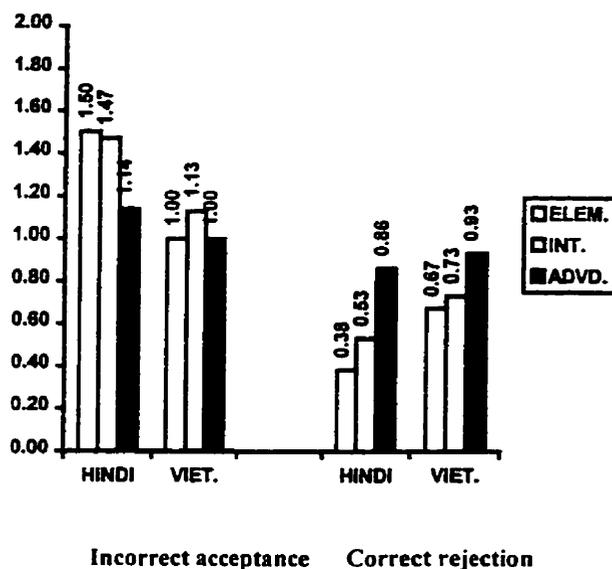


Fig. 6.13. Means for EMISSION-OF-SUBSTANCES "causatives" (max. number = 2): Test 4 (new verbs)

Table 6.34 Scores for the correct rejection of direct "causatives" in the EMISSION-OF-SUBSTANCES class: Test 4 (new verbs)

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 2)	RANGE
HINDI: ELEM.	16 of 18	0	1
INTER.	15 of 15	0	2
ADV.D.	14 of 14	1	2
VIET.: ELEM.	15 of 15	1	2
INTER.	15 of 15	1	2
ADV.D.	15 of 15	1	2

Table 6.35 Comparison of Test 4 scores for correct responses in the EMISSION-OF-SUBSTANCES class

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.182	.684
ELEM.-INTER. (Mann-Whitney)	.261	.384
INTER.-ADV.D. (Mann-Whitney)	.121	.275
ELEM.-ADV.D. (Mann-Whitney)	.072	.205

6.2.2.6 Significance levels for pooled verbs on Test 4 (new verbs)

The results summarized above show that when the Test 4 results are viewed one semantic class at a time, there are very few statistically significant differences between performance at one proficiency level and another. However, eyeballing Figures 6.9 through 6.13 shows that when the two semantic classes that allow causativization (physical-change-of-state and manner-of-motion) are separated from the classes that do not allow causativization (directional motion, animal sounds/internal mechanisms, and emission of substances), there is a tendency for the proportion of acceptances to increase between the elementary and advanced levels in the former grouping of semantic classes and to drop in the latter.

To test whether these overall tendencies were statistically significant, the correct responses on Test 4 were pooled, in the same manner as the Test 1 and Test 2 scores (see Table 6.21 above).⁴ The results of the Kruskal-Wallis test show that the differences among the three proficiency levels were significant ($p = .015$ for the Hindi-Urdu group and $p = .031$ for the Vietnamese one, as shown in Table 6.37 below). A Mann-Whitney comparison of scores at any two levels within the same language group showed a significant difference among the Hindi-Urdu speakers between the elementary and intermediate levels ($p = .001$), among the Vietnamese

⁴ The maximum score on Test 4 was 17, obtained via the rejection of 11 ungrammatical sentences and the acceptance of 6 grammatical ones.

speakers between the intermediate and advanced levels ($p = .036$) and among both language groups between the elementary and advanced levels ($p = .047$ for the Hindi-Urdu speakers and $p = .008$ for the Vietnamese ones) (see Table 6.37 below).

The overall scores, however, were low, with only the advanced Vietnamese group getting more than 50% of the answers correct, as may be seen in Fig. 6.14 below.

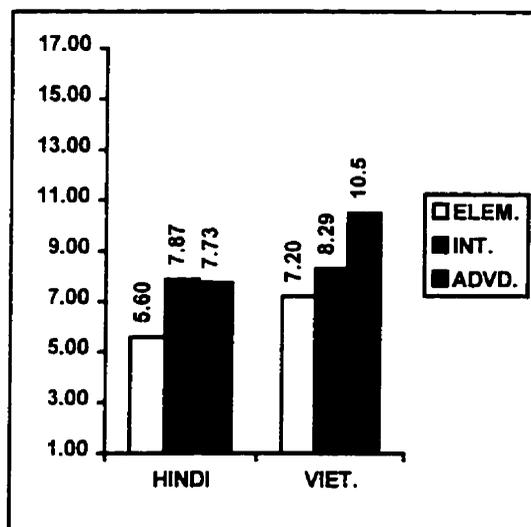


Fig. 6.14 Mean scores for CORRECT responses: Level-by-level performance on Test 4 (new verbs)

Table 6.36 Pooled Test 4 scores for correct responses

GROUPS	VALID # OF CASES	MEDIAN (MAX. SCORE = 17)	RANGE
HINDI: ELEM.	15 of 18	5	7
INTER.	15 of 15	8	5
ADVD.	11 of 14	7	9
VIET.: ELEM.	15 of 15	6	11
INTER.	14 of 15	9	10
ADVD.	14 of 15	11.25	10.5

Table 6.37 Comparison of pooled scores for correct responses on Test 4

LEVELS BEING COMPARED	SIGNIFICANCE LEVEL: HINDI-URDU	SIGNIFICANCE LEVEL: VIETNAMESE
ALL THREE LEVELS (Kruskal-Wallis)	.015	.031
ELEM.-INTER. (Mann-Whitney)	.001	.122
INTER.-ADVD. (Mann-Whitney)	.448	.036
ELEM.-ADVD. (Mann-Whitney)	.047	.008

6.3 TRANSFER-RELATED ACQUISITION PATTERNS

6.3.1 Specific Transfer-Related Hypotheses: Results

The following sections will give a detailed account of the transfer-related results in response to the specific hypotheses (2a-j) spelled out in Chapter 5, followed by an overview of transfer effects in Section 6.3.2. The *p*-values reported below are 1-tailed (i.e., in those cases where the Hindi-Urdu and Vietnamese groups are expected to perform differently on account of L1-to-L2 transfer), unless otherwise stated (i.e., when the two language groups are expected to perform similarly).

6.3.1.1 Physical-change-of-state and bells-and-whistles verbs

Hypothesis 2a: At the elementary level the Hindi-Urdu learners will perform better in these two semantic classes than their Vietnamese counterparts.

Results: The elementary Hindi-Urdu group tended to have higher scores than their Vietnamese counterparts in these two semantic classes on the relevant tests (Tests 1, 2, and 4) (see Figs. 6.15 through 6.19). However, despite this tendency in the hypothesized direction, none of the differences between the scores of the two language groups at the elementary level was statistically significant (see Tables 6.38 through 6.40).

Hypothesis 2b: However, the Vietnamese group will be able to catch up with the Hindi-Urdu group by the next (intermediate) level.

There were no significant differences between the Hindi-Urdu and Vietnamese groups at the intermediate and advanced levels, as had been predicted (see Tables 6.38 through 6.40). Note, however, that since no significant difference existed between the two language groups at the elementary level, the Vietnamese group did not have any “catching up” to do, rendering Hypothesis 2b untestable.

Hypothesis 2c: By the advanced level, both groups should have scores that are close to the maximum.

Results: In accordance with the hypothesis, the means for correct answers in the physical-change-of-state and bells-and-whistles classes were on average high at the advanced level: 92%, 75% and 78% in the physical-change-of-state class on Tests 1, 2, and 4 respectively, and 93% and 85% in the bells-and-whistles class on Tests 1 and 2 respectively (see Figs. 6.15 through 6.19 below). Note, however, that the range of scores was wide on Test 2 and Test 4, signifying that some of the advanced learners did poorly in these contexts (see Tables 6.3 and 6.26 above for range of scores).

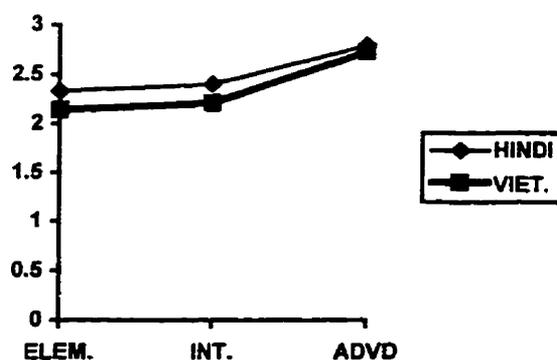
Physical-change-of-state and bells-and-whistles classes (contd.)

Fig. 6.15 Mean scores for the CORRECT production of direct causatives in the PHYSICAL-CHANGE-OF-STATE class (max. 3): Test I

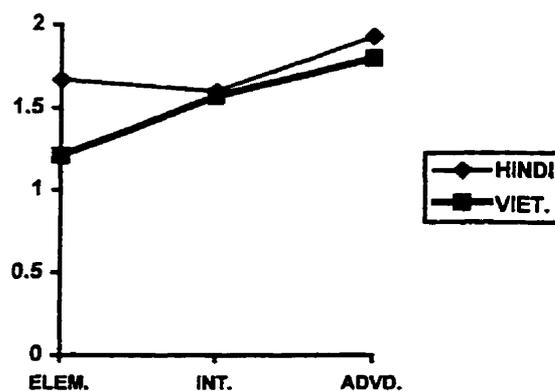


Fig. 6.16 Mean scores for the CORRECT production of direct causatives in the BELLS-AND-WHISTLES class (max. 2): Test I

Table 6.38 Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups in the TEST 1 PHYSICAL-CHANGE-OF-STATE and BELLS-AND-WHISTLES classes (see Tables 6.1 & 6.5 for median scores)

CLASS	LEVEL	Ns: Hindi/Viet.	p-VALUES
Change-of-State	ELEM.	18/14	.227
Change-of-State	INTER.	15/14	.561*
Change-of-State	ADV.D.	14/15	.746*
CHANGE-OF-STATE	OVERALL	47/43	.385*
Bells-and-Whistles	ELEM.	18/14	.064
Bells-and-Whistles	INTER.	15/14	.896*
Bells-and-Whistles	ADV.D.	14/15	.324*
BELLS-AND-WHISTLES	OVERALL	47/43	.191*

*These values are 2-tailed because the two language groups were expected to perform similarly at these levels.

Physical-change-of-state and bells-and-whistles classes (contd.)

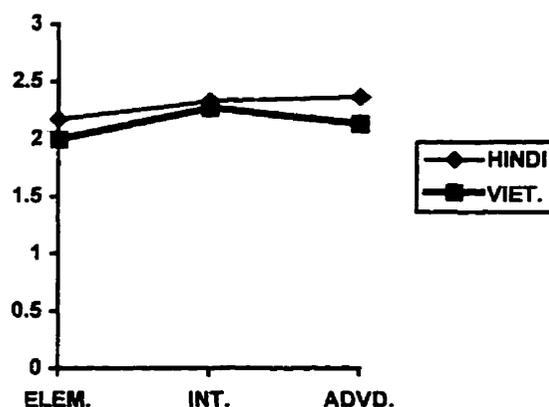


Fig. 6.17 Mean scores for CORRECTLY choosing direct causatives in the PHYSICAL-CHANGE-OF-STATE class (max. 3): Test 2

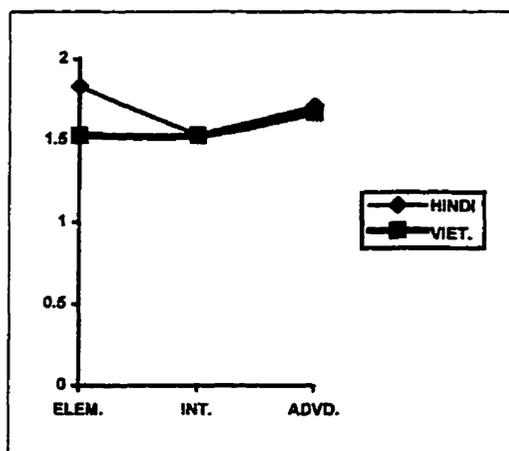


Fig. 6.18 Mean scores for CORRECTLY choosing direct causatives in the BELLS-AND-WHISTLES class (max. = 2): Test 2

Table 6.39 Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups in the TEST 2 PHYSICAL-CHANGE-OF-STATE and BELLS-AND-WHISTLES classes (see Tables 6.3 & 6.7 for median scores)

CLASS	LEVEL	Ns: Hindi/Viet.	p-VALUES
Change-of-State	ELEM.	18/15	.378
Change-of-State	INTER.	15/15	.746*
Change-of-State	ADVD.	14/15	.550*
CHANGE-OF-STATE	OVERALL	47/45	.578*
Bells-and-Whistles	ELEM.	18/15	.104
Bells-and-Whistles	INTER.	15/15	.837*
Bells-and-Whistles	ADVD.	14/15	.537*
BELLS-AND-WHISTLES	OVERALL	47/45	.240*

* These values are 2-tailed because the two language groups were expected to perform similarly at these levels.

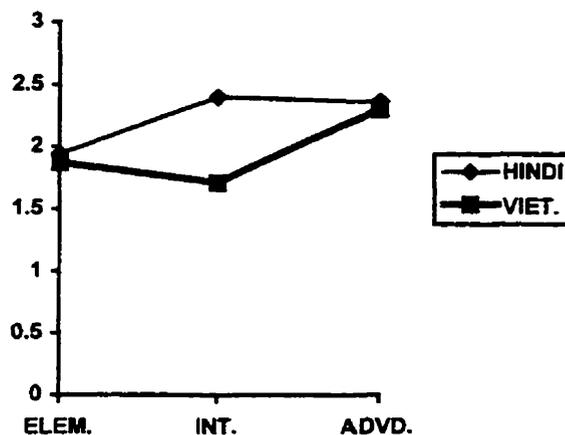
Physical-change-of-state and bells-and-whistles classes (contd.)

Fig. 6.19 Mean scores for CORRECTLY accepting direct causatives in the PHYSICAL-CHANGE-OF-STATE class (max. = 3): Test 4 (new verbs)

Table 6.40 Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups in the TEST 4 PHYSICAL-CHANGE-OF-STATE class (see Table 6.28 for median scores)

CLASS	LEVEL	Ns: Hindi/Viet.	p-VALUES
Change-of-State	ELEM.	16/15	.450
Change-of-State	INTER.	15/14	.061*
Change-of-State	ADVD.	11/15	1.0*
CHANGE-OF-STATE	OVERALL	42/44	.290*

*These values are 2-tailed because the two language groups were expected to perform similarly at these levels

6.3.1.2 Accidental causation of physical change of state or location

Hypothesis 2d: At all levels, where English speakers would use direct causatives to represent direct, accidental causation, more “make” periphrastic causatives will be used by the Vietnamese speakers to express such causation than by the Hindi-Urdu speakers.⁵

Results: This hypothesis was validated in both Test 1 and Test 2; the Vietnamese speakers used significantly more periphrastic causatives than the Hindi-Urdu speakers at every level of proficiency (see Figs. 6.20 & 6.21 and Tables 6.41 & 6.42 below).

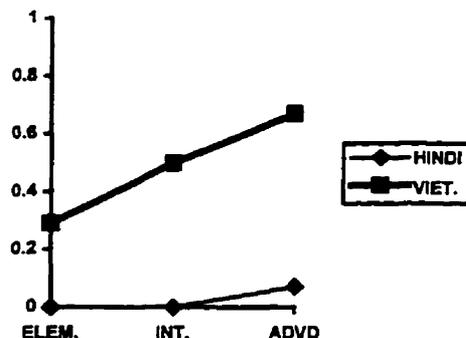


Fig. 6.20 Means for the use of “make” constructions to express ACCIDENTAL CAUSATION (max. = 3): Test 1

Table 6.41 *Make*-type constructions to represent accidental causation: Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups on Test 1

LEVEL	Ns: Hindi/Viet.	MEDIAN Hindi/Viet.	RANGE Hindi/Viet.	<i>p</i> -VALUES
ELEM.	17/14	0/0	0/2	.025
INTER.	15/14	0/0	0/3	.015
ADVD.	14/15	0/0	1/2	.008
OVERALL	46/43	0/0	1/3	<.001

⁵ As explained before, these “make” causatives are not ungrammatical, but they are less felicitous than other options in the given context. For example, in the case of the accidental dropping of a cup, “The man made the cup fall” would be grammatical but less felicitous than “The man dropped the cup.”

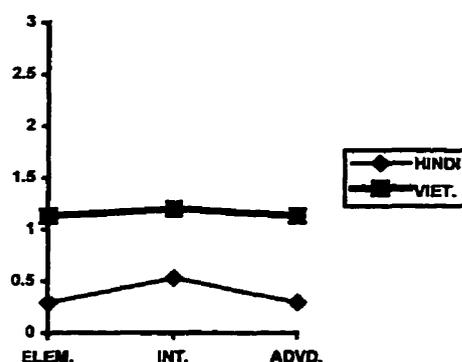


Fig. 6.21 Means for the use of "make" constructions to express ACCIDENTAL CAUSATION (max. = 3): Test 2

Table 6.42 *Make*-type constructions to represent accidental causation: Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups on Test 2

LEVEL	Ns: Hindi/Viet.	MEDIAN Hindi/Viet.	RANGE Hindi/Viet.	<i>p</i> -VALUES
ELEM.	17/15	0/1	2/3	.005
INTER.	15/15	0/1	3/3	.050
ADVD.	14/15	0/1	2/2	.003
OVERALL	46/45	0/1	3/3	<.001

6.3.1.3 Directional motion (rise/fall) verbs

Hypothesis 2h: As a result of negative transfer, the Hindi-Urdu speakers will use a larger number of incorrect direct causatives for these verbs (non-causativizable in English) at all proficiency levels than the Vietnamese speakers will at corresponding proficiency levels.

Results: While it was hypothesized that the Hindi-Urdu speakers would have overgeneralized direct causatives in this class because of negative transfer and because of the similarity of this class to the manner-of-motion class, not only did

the Hindi-Urdu speakers have overgeneralizations at every level of proficiency but the Vietnamese speakers did as well. On average, one out of every two verbs used in the production test (Test 1) was an overgeneralized direct causative (see Fig. 6.22); the proportion of incorrect responses was almost as high on Test 2 (see Fig. 6.23). There was no overall significant difference between the production of overgeneralized causatives in the *rise-fall* class on Test 1 by the two groups at any of the proficiency levels (see Table 6.43). However, on Test 2 there was a significant difference between the two language groups at the advanced level in favour of the Vietnamese group (who had fewer incorrect direct causatives, as predicted), as well as an overall difference, calculated by comparing the Hindi-Urdu group as a whole with the Vietnamese group as a whole (see Table 6.44). On Test 4, once again *both* groups had overgeneralized “causatives” in this class (“soar,” “plummet,” and “recede”), in even higher numbers than in the previous tasks, with very similar means at the elementary level (see Fig. 6.24 & 6.25). However, there was a significant difference between the scores of the two language groups at the intermediate and advanced levels for their correct rejection of overgeneralized causatives in this class, in favour of the Vietnamese group (as predicted), as well as an overall difference between the entire Hindi-Urdu group and the entire Vietnamese group for the same, favouring the Vietnamese group. In addition, there was a significant difference between the two language groups at the intermediate level for incorrect acceptance of ungrammatical direct causatives in

this class (see Table 6.45), with the Hindi/Urdu speakers being the more accepting of these causatives as predicted.

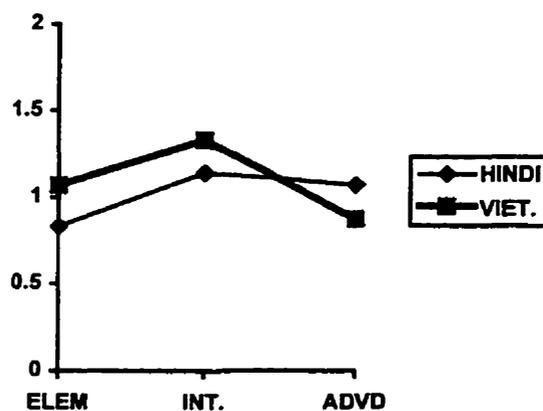


Fig. 6.22 Means for the INCORRECT production of direct causatives in the DIRECTIONAL MOTION class (max. number = 2): Test 1

Table 6.43 Mann-Whitney comparison of the-Hindi-Urdu and Vietnamese groups: Incorrect production of direct "causatives" in the DIRECTIONAL MOTION class on Test 1 (see Table 6.11 for median scores)

LEVEL	Ns Hindi/Viet.	<i>p</i> -VALUES
ELEM.	18/14	.175
INTER.	14/15	.259
ADVD.	14/15	.168
OVERALL	46/44	.265

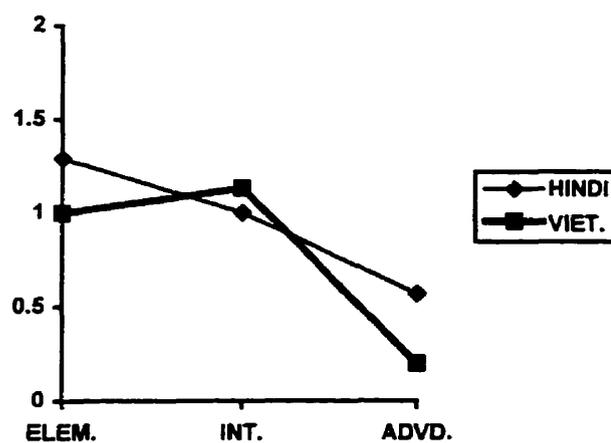
Directional motion (rise/fall) verbs (contd.)

Fig. 6.23 Means for INCORRECTLY choosing direct causatives in the DIRECTIONAL MOTION class (max. number = 2): Test 2

Table 6.44 Mann-Whitney comparison of the-Hindi-Urdu and Vietnamese groups :Incorrect choice of direct "causatives" in the DIRECTIONAL MOTION class on Test 2 (see Table 6.13 for median scores)

LEVEL	Ns Hindi/Viet.	<i>p</i> -VALUES
ELEM.	17/15	.133
INTER.	15/15	.293
ADVD.	14/15	.042
OVERALL	46/45	.023

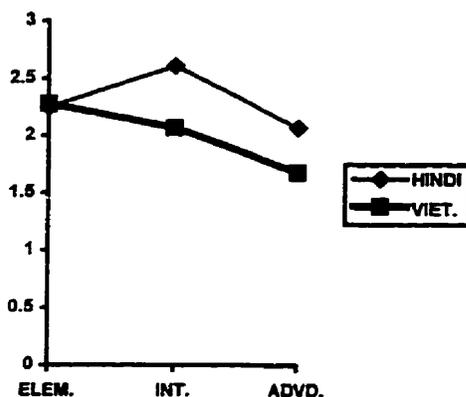
Directional motion (rise/fall) verbs (contd.)

Fig. 6.24 Means for INCORRECTLY accepting ungrammatical "causative" versions of DIRECTIONAL MOTION verbs (max. number = 3): Test 4

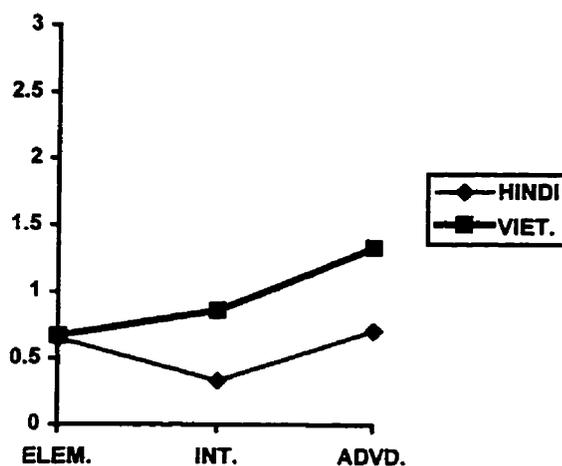


Fig. 6.25 Mean scores for the CORRECT rejection of ungrammatical "causative" versions of DIRECTIONAL MOTION verbs (max. = 3): Test 4

Table 6.45 Mann-Whitney comparison of the Hindi-Urdu and Vietnamese groups : Correct rejection of direct "causatives" in the DIRECTIONAL MOTION class on Test 4 (see Table 6.30 for median scores)

LEVEL	Ns Hindi/Viet.	INCORRECT ACCEPTANCE <i>p</i> -VALUES	CORRECT REJECTION <i>p</i> -VALUES
ELEM.	17/15	.468	.475
INTER.	15/14	.048	.033
ADVD.	14/15	.142	.047
OVERALL	46/44	.060	.023

6.3.1.4 Forced/facilitated motion (run/walk) verbs: Test 3

Hypothesis 2e: As a result of positive transfer from Hindi-Urdu, Hindi-Urdu speakers at all three proficiency levels will accept more of the grammatical sentences in this class than the Vietnamese speakers.

Hypothesis 2f: In the case of ungrammatical/borderline English “causatives” in this class, there will also be differences between the two language groups, the Hindi-Urdu speakers accepting more of these sentences than the Vietnamese speakers at all proficiency levels.

Results: As had been hypothesized, the differences between the Hindi-Urdu and Vietnamese speakers in their acceptance of both the grammatical and ungrammatical/borderline versions of these causatives was highly significant at every level of proficiency on Test 3 (see Tables 6.46-6.48); the Hindi-Urdu speakers accepted roughly twice as many direct causatives in this class as their Vietnamese counterparts (see Figs. 6.26 & 6.28).⁶ A corollary to this hypothesis was that there would be a significant difference between the two language groups in terms of their *rejection* of these causatives, the Vietnamese group rejecting both grammatical and ungrammatical/borderline “causatives” in this class more frequently than the Hindi-Urdu speakers. This, too, was validated at every level of proficiency, as shown in Tables 6.46 and 6.47.

⁶ As mentioned in earlier chapters, what is being called “grammatical” here is considered grammatical by the majority (i.e., not necessarily all) of native speakers whose judgments were elicited for the purposes of this study.

Forced/facilitated motion (run/walk)verbs (contd.)

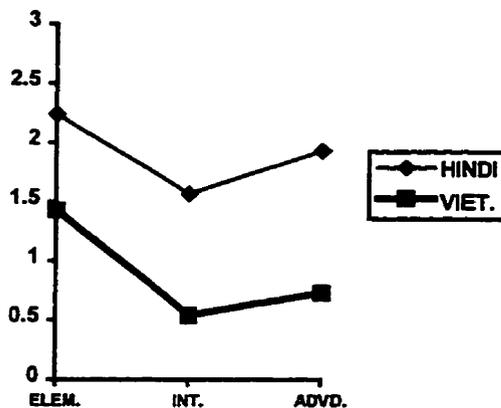


Fig. 6.26 Means for the acceptance of grammatical causatives versions of "walk," "run," "jump" and "dance" (max. = 4): Test 3

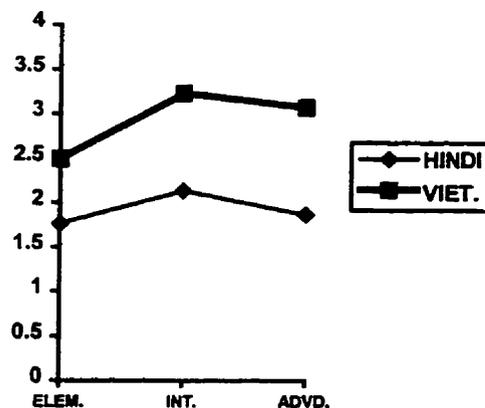


Fig. 6.27 Means for the rejection of grammatical causatives versions of "walk," "run," "jump" and "dance" (max. = 4): Test 3

Table 6.46 Mann-Whitney comparison of the Hindi-Urdu and Vietnamese groups in terms of their acceptance/rejection of grammatical constructions using FORCED/FACILITATED MOTION (*run*-type) verbs: Test 3

LEVEL	Ns Hindi/Viet.	ACCEPTANCE			REJECTION		
		MEDIAN Hindi/Viet.	RANGE Hindi/Viet.	p- VALUES	MEDIAN Hindi/Viet.	RANGE Hindi/Viet.	p- VALUES
ELEM.	17/14	2/2	4/4	.028	2/2.5	4/4	.045
INTER.	14/13	2/0	4/2	.004	2/3	4/2	.005
ADVD.	14/15	2/1	4/2	.004	2/3	4/2	.009
OVERALL	45/42	2/1	4/4	<.001	2/3	4/4	<.001

Forced/facilitated motion (run/walk) verbs (contd.)

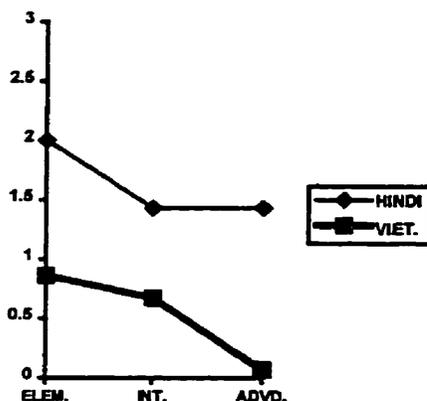


Fig. 6.28 Means for the acceptance of ungrammatical/borderline causative versions of "run," "jump," and "dance" (without PPs), as well as "climb" (with PP) (max. = 4): Test 3

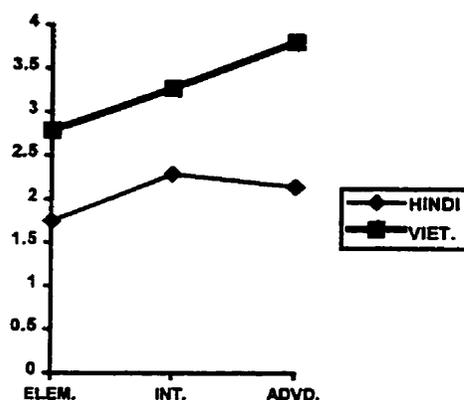


Fig. 6.29 Means for the rejection of ungrammatical/borderline causative versions of "run," "jump," and "dance" (without PPs), as well as "climb" (with PP) (max. = 3): Test 3

Table 6.47 Mann-Whitney comparison of the Hindi-Urdu and Vietnamese groups in terms of their acceptance/rejection of ungrammatical/borderline constructions using FORCED/FACILITATED MOTION (*run*-type) verbs: Test 3

LEVEL	Ns Hindi/Viet.	ACCEPTANCE			REJECTION		
		MEDIAN Hindi/Viet.	RANGE Hindi/Viet.	p- VALUES	MEDIAN Hindi/Viet.	RANGE Hindi/Viet.	p- VALUES
ELEM.	16/14	2/1	4/2	.011	1.5/3	4/3	.017
INTER.	14/15	1/1	4/2	.028	2.5/3	4/2	.001
ADVD.	14/15	1/0	4/1	<.001	2.5/4	4/1	.047
OVERALL	44/44	1/0	4/2	<.001	2/3.5	4/3	<.001

6.3.1.5 Manner-of-motion (spin/roll) verbs

Hypothesis 2g: The Hindi-Urdu and Vietnamese speakers will show similar patterns of development. Because of positive transfer, at the intermediate level a clear majority of responses should be correct in both L1 groups, with almost complete accuracy at the advanced level.

Results: It had been predicted that within the manner-of-motion class no differences would emerge between the two language groups. This was confirmed at every level of proficiency in both Test 1 and Test 4, the two tests in which this class is represented (see Tables 6.48 & 6.49). Also, as hypothesized, the majority of responses were correct at the highest two levels (more pronouncedly on Test 1 than on Test 4) (see Figs. 6.30 & 6.31).

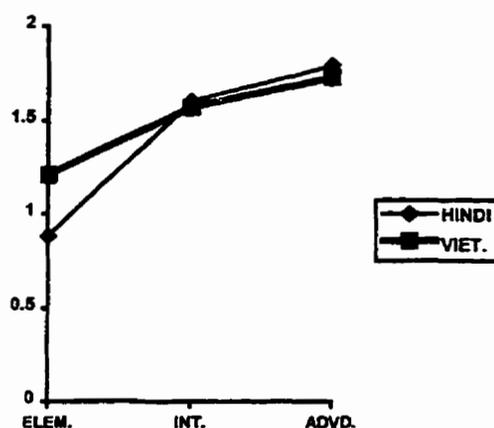


Fig. 6.30 Mean scores for CORRECTLY producing direct causatives in the MANNER-OF-MOTION class (max. = 2): Test 1

Table 6.48 Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups in the MANNER-OF-MOTION class on Test 1 (see Table 6.9 for median scores)

LEVEL	Ns: Hindi/Viet.	<i>p</i> -VALUES
ELEM.	17/14	.290*
INTER.	15/14	.719*
ADVD.	14/15	.746*
OVERALL	46/43	.532*

*These values are 2-tailed because the two language groups were expected to perform similarly in this class.

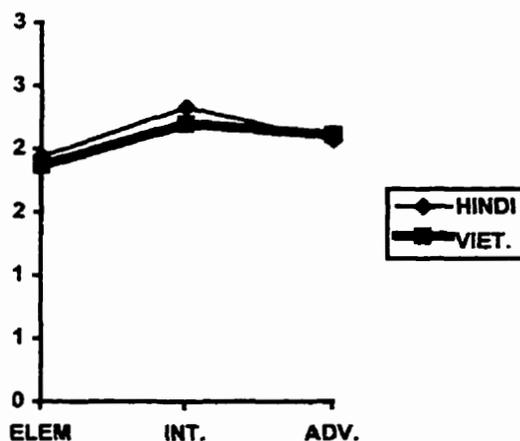
Manner-of-motion (spin/roll) verb (contd.)

Fig. 6.31 Mean scores for the (correct) acceptance of direct causatives in the MANNER-OF-MOTION class (max. = 3):
Test 4

Table 6.49 Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups in the MANNER-OF-MOTION class on Test 4 (see Table 6.28 for median scores)

LEVEL	Ns Hindi/Viet.	<i>p</i> -VALUES
ELEM.	17/15	.750*
INTER.	15/15	.818*
ADVD.	14/14	.880*
OVERALL	46/44	.761*

*These values are 2-tailed because the two language groups were expected to perform similarly in this class.

6.3.1.6 Animal sounds/internal mechanisms verbs

Hypothesis 2i: On Test 1, the production task, the Vietnamese group will produce a greater proportion of correct periphrastic causatives than the Hindi-Urdu speakers at all levels of proficiency; however, on Test 2, the multiple-choice task, there will be no difference between the two groups.

Results: On Test 1, as predicted, the Vietnamese speakers used a significantly larger proportion of (correct) periphrastic causatives at the elementary and intermediate levels than their Hindi-Urdu-speaking counterparts; the gap, however, was bridged by the Hindi-Urdu learners by the advanced level (see Table 6.50). On Test 2, the two language groups did not differ; both groups (correctly) chose approximately the same proportion of correct periphrastic causatives (see Fig. 6.34 and Table 6.51). In short, Hypothesis 2i was validated by the results.

Hypothesis 2j: In terms of producing, accepting, or rejecting *incorrect* direct causatives in this class on all of the relevant tests, the Hindi-Urdu and Vietnamese speakers will show similar patterns of development.

Results: The prediction that the two language groups would perform similarly in this area was borne out by the Test 1 and 2 results. On each of Tests 1 and 2, both groups used equivalent numbers of ungrammatical direct causatives at every level of proficiency (see Fig. 6.33-6.34 and Table 6.50-6.51).

The Test 4 results for animal sounds/internal mechanisms verbs, however, were markedly different from the Test 1 and Test 2 results for this class, in general because the Hindi-Urdu group accepted incorrect direct causatives in

this context on a much larger scale than the Vietnamese group did. The overall performance of the two language groups differed significantly in terms of both acceptance and rejection of incorrect direct causatives (see Table 6.52 below). There were significant differences between the two language groups at the advanced level (for both correct rejection and incorrect acceptance) and at the elementary level (for incorrect acceptance only) (see Table 6.52). Similarly, in the emission-of-substances class, there were significant differences between the two language groups across all three levels as well as at the elementary level, but only for the incorrect acceptance of direct causatives (and not correct rejection) (see Table 6.53 below). In all of these cases in Test 4, the differences favoured the Vietnamese speakers, who accepted fewer incorrect direct causatives in this class.

To sum up, Hypothesis 2j was validated by the results of Tests 1 and 2 but not by the Test 4 results.

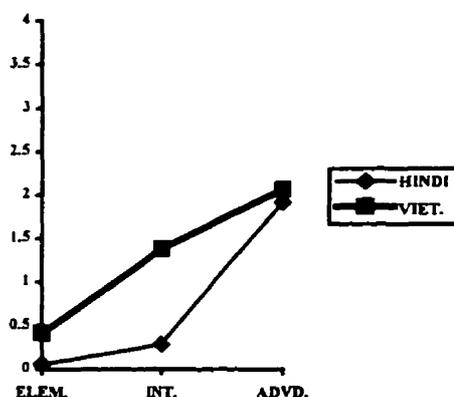
Animal sounds/internal mechanisms verbs (contd.)

Fig. 6.32 Mean scores for the CORRECT production of periphrastics in the ANIMAL SOUNDS/INTERNAL MECHANISMS classes (max. = 4): Test I

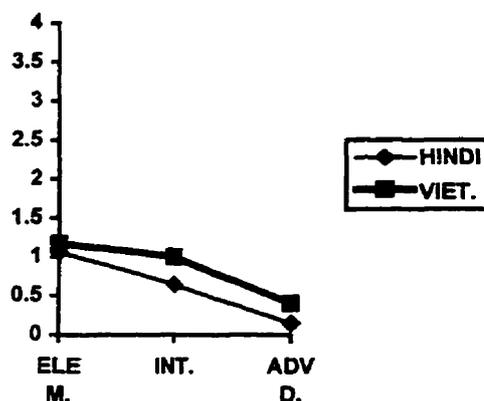


Fig. 6.33 Means for INCORRECTLY producing direct causatives in the ANIMAL SOUNDS/INTERNAL MECHANISMS classes (max. = 4): Test I

Table 6.50 Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups in the ANIMAL SOUNDS/INTERNAL MECHANISMS class on Test I (see Tables 6.15 & 6.17 for median scores)

	Ns	(CORRECT) PERIPHRASTIC CAUSATIVE	(INCORRECT) DIRECT CAUSATIVE
LEVEL	Hindi/Viet.	p-VALUE	p-VALUE
ELEM.	16/12	.033	.941*
INTER.	14/13	.014	.805*
ADVD.	13/15	.387	.403*
OVERALL	43/40	.006	.983*

* These values are 2-tailed because the two language groups were expected to perform similarly in this class. (The 1-tailed value for the correct use of periphrastic causatives on Test I is in keeping with the fact that Hypothesis 2i is directional.)

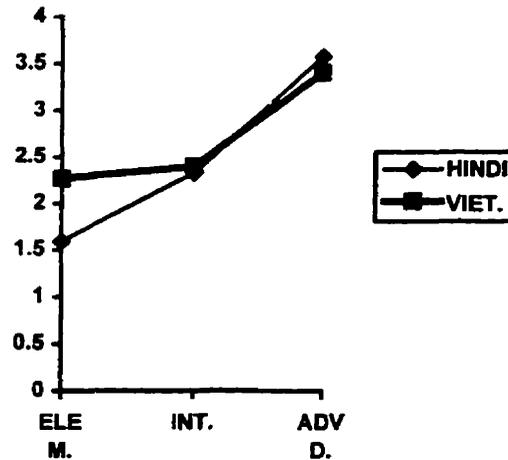
Animal sounds/internal mechanisms verbs (contd.)

Fig. 6.34 Mean scores for CORRECTLY choosing periphrastics in the ANIMAL SOUNDS /INTERNAL MECHANISMS classes (max. = 4): Test 2

Table 6.51 Mann-Whitney comparison of the Hindi-Urdu and Vietnamese groups in the ANIMAL SOUNDS/INTERNAL MECHANISMS class on Test 2 (see Table 6.19 for median scores)

LEVEL	Ns	(CORRECT)	(INCORRECT)
		PERIPHRASTIC CAUSATIVE	DIRECT CAUSATIVE
	Hindi/Viet.	p-VALUE	p-VALUE
ELEM.	17/15	.204*	.204*
INTER.	15/15	.982*	.982*
ADVD.	14/15	1.0*	1.0*
OVERALL	46/45	.494	.494*

*These values are 2-tailed because the two language groups were expected to perform similarly in this class. The p -values for the correct and incorrect responses are identical because within Test 2 this class allowed for only two responses, one of which was correct and the other incorrect.

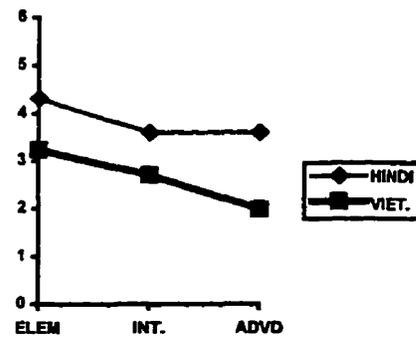


Fig. 6.35 Means for the INCORRECT acceptance of direct causatives in the ANIMAL SOUNDS/INTERNAL MECHANISMS classes (max. = 6): Test 4

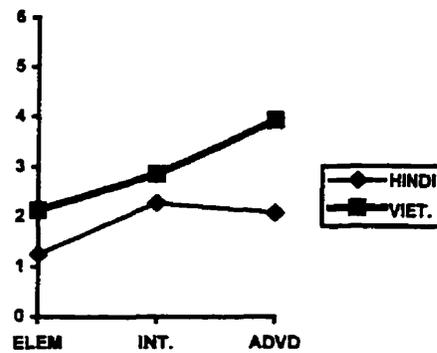


Fig. 6.36 Mean scores for the CORRECT rejection of direct causatives in the ANIMAL SOUNDS/INTERNAL MECHANISMS classes (max. = 6): Test 4

Table 6.52 Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups in the ANIMAL SOUNDS /INTERNAL MECHANISMS class on Test 4 (see Table 6.34 for median scores)

LEVEL	Ns: Hindi/Viet.	(INCORRECT) ACCEPTANCE <i>p</i> -VALUE	(CORRECT) REJECTION <i>p</i> -VALUE
ELEM.	16/15	.053*	.171*
INTER.	15/14	.074*	.247*
ADVD.	14/15	.033*	.020*
OVERALL	45/44	.001*	.006*

*These values are 2-tailed because the two language groups were expected to perform similarly in this class.

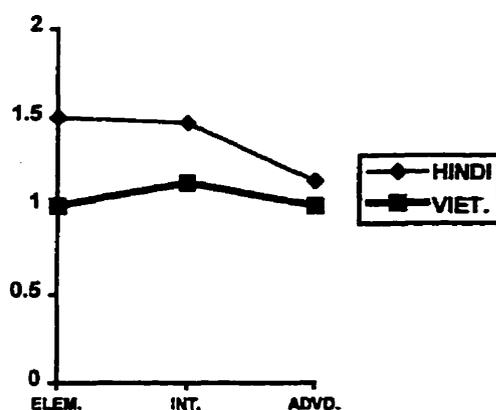


Fig. 6.37 Means for the INCORRECT acceptance of direct causatives in the EMISSION-OF-SUBSTANCES (seep/ooze) class (max. = 2): Test 4

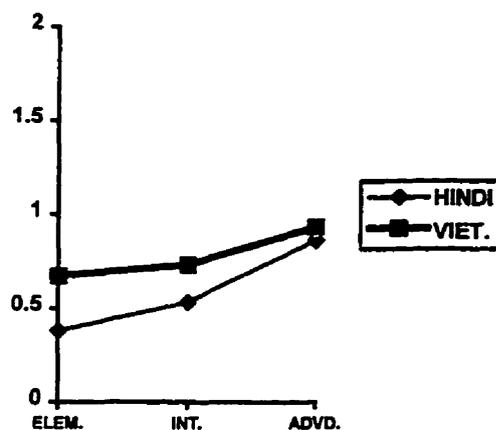


Fig. 6.38 Mean scores for the CORRECT rejection of direct causatives in the EMISSION-OF-SUBSTANCES class (max. = 2): Test 4

Table 6.53 Mann-Whitney comparison of the performance of the Hindi-Urdu and Vietnamese groups in the EMISSION-OF-SUBSTANCES class on Test 4 (see Table 6.36 for median scores)

LEVEL	Ns Hindi/Viet.	(INCORRECT) ACCEPTANCE <i>p</i> -VALUE	(CORRECT) REJECTION <i>p</i> -VALUE
ELEM.	16/15	.037*	.262*
INTER.	15/15	.204*	.422*
ADVD.	14/15	.643*	.835*
OVERALL	45/45	.030*	.227*

*These values are 2-tailed because the two language groups were expected to perform similarly in this class.

6.3.2. Summary account of transfer effects

This section provides an overview of the specific transfer-related results presented above.

6.3.2.1 Validation of transfer-related hypotheses in three contexts: Manner-of-motion, accidental causation, and forced/facilitated motion verbs

There were three semantic contexts in which transfer effects or the lack thereof were clear-cut and in accordance with the relevant hypotheses. In the accidental causation class, where it was predicted that the Vietnamese group's use of "make" periphrastic causatives would far outnumber the Hindi-Urdu groups use of these (Hypothesis 2d), the Vietnamese speakers did indeed produce a significantly larger number of such causatives at *every* proficiency level on both Tests 1 and 2. The same was true of the forced/facilitated motion (*run*-type) causatives (see Test 3), where the Hindi-Urdu speakers found a significantly larger number of these grammatical, in *every* semantic grouping and at every level, as had been hypothesized (Hypotheses 2e and 2f). In the manner-of-motion class there was *no* significant difference between the scores of the language groups at *any* proficiency level on either Test 1 or Test 4, as per the hypothesis regarding this semantic class (Hypothesis 2g).

6.3.2.2 Tendency in the hypothesized direction, but without statistical significance: Physical-change-of-state and bells-and-whistles verbs

In the physical-change-of-state and the bells-and-whistles classes, it was predicted that the elementary-level Hindi-Urdu group would have a larger proportion of (correct) direct causatives than the elementary-level Vietnamese group (Hypothesis 2a). The mean scores of the elementary Hindi-Urdu group tended to be higher than those of their Vietnamese counterparts; however, the differences were not substantial or consistent enough to be statistically significant. (In accordance with the hypothesis, however, there was no significant difference between the groups at the higher levels, and as predicted, the means obtained by both advanced groups for correct responses were generally high (see Figs. 6.15 through 6.19, as well as Tables 6.38 through 6.40).

6.3.2.3 Mixed results in two contexts: Directional motion verbs, and animal sounds/internal mechanisms/emission-of-substances verbs

In other cases the results were fuzzier. In the directional motion (*rise-fall*) class, it was predicted that the Hindi-Urdu and Vietnamese groups would show differences in their performance since only the Hindi-Urdu group were expected to have overgeneralized direct causatives here in this class (Hypothesis 2h). However, *both* language groups had a surprisingly large proportion of overgeneralized direct causatives at the elementary level; in Test 1, these overgeneralizations were plentiful even at the

advanced level (see Fig. 6.22 & Table 6.43). However, in Test 2, there was a drop in the acceptance of these overgeneralizations by the advanced level; the drop was especially sharp in the case of the Vietnamese group resulting in a significant difference in the advanced-level scores of the two language groups (see Fig. 6.23 & Table 6.44). The results in the directional motion class in Test 4 showed that at the elementary level, both groups were “in the same boat” (with more than 50% of overgeneralizations). At higher levels of proficiency, however, the Vietnamese group showed a steady decline in the use of these overgeneralizations, while the Hindi-Urdu group remained roughly at the same level. As a result, the differences between the means obtained by the Hindi-Urdu and Vietnamese groups for the correct rejection of incorrect direct “causatives” were significant at the intermediate and advanced levels (see Figs. 6.24 & 6.25, as well as Table 6.45).

The same sort of pattern emerged with the “unergatives” that are noncausativizable in English (animal sounds/internal mechanisms, and emission). Here, it was hypothesized that the two language groups would perform equivalently, with only a difference related to the production of periphrastic causatives (Hypotheses 2i and 2j). In accordance with Hypothesis 2i, at the elementary and intermediate levels the Vietnamese speakers correctly used more periphrastics in Test 1 than their Hindi-Urdu counterparts; in all other respects there were no significant differences between the language groups in Tests 1 and 2, as per Hypothesis 2j (see Figs. 6.32 through 6.34, 6.37 & 6.38 and Tables 6.50, 6.51, &

6.53 above). However, on Test 4 (with new verbs), in the case of the animal sounds/internal mechanisms class, the performance of the two groups diverged, contrary to Hypothesis 2j. While both groups overgeneralized greatly, there were significant differences between the proportions of overgeneralizations in the two groups. Once again the results in the animal sounds/internal mechanisms class showed that the advanced-level Vietnamese learners had significantly fewer overgeneralizations than their Hindi-Urdu counterparts (see Figs. 6.35 & 6.36, as well as Table 6.52).

The following chapter will present interpretations and conclusions based on a global viewing of the specific results summarized above.

Chapter 7

INTERPRETATION OF THE RESULTS AND CONCLUSIONS

7.1 INTRODUCTION

In Chapter 6, the results of the statistical analysis of the test data were presented piece by piece in response to the specific hypotheses delineated in Chapter 5. This chapter focuses on broader-based interpretation of the test results, viewing them more globally than previously. The conclusions drawn are listed in Tables 7.1 and 7.2 below in order to provide a brief overview of the lines along which the chapter is organized.

Table 7.1 Conclusions regarding the formation of semantic classes by the learners

ON THE FORMATION OF SEMANTIC CLASSES	
CONCLUSION #1	There is evidence from the results of Test 4 (using new verbs) that the learners at the advanced level of lexical proficiency had a better ability to infer the grammatical properties of newly encountered verbs than the learners at the elementary level of lexical proficiency.
CONCLUSION #2	There is evidence across the tests that the learners tended to do better on some semantic classes than on others.
CONCLUSION #3	On Tests 1, 2, and 4, there was tendency for learners at the advanced level to outperform learners at the intermediate level and for the intermediate-level learners to outperform the elementary-level learners. However, the test results show that it was between the intermediate and advanced levels that most of the significant differences lay rather than between the elementary and intermediate levels.

Table 7.2 Conclusions regarding the transfer of verb properties from the L1 to the L2

ON L1-TO-L2 TRANSFER OF VERBS' GRAMMATICAL PROPERTIES	
CONCLUSION #4	The learning of the grammatical properties of L2 verbs can be facilitated by positive transfer in instances where the L1 and L2 closely resemble each other.
CONCLUSION #5	The existence of a translation equivalent of an L2 construction in the L1 can give learners an advantage on a test requiring production even though there is no advantage on a multiple-choice (receptive) test.
CONCLUSION #6	Some cases of negative transfer seem to be based on a partial misinterpretation of the input resulting from a combination of interlingual and intralingual factors.
CONCLUSION #7	Transfer effects, where they do occur, can be immediate (i.e., they appear at the elementary level).
CONCLUSION #8	Transfer may manifest itself in the difficulty or ease involved in unlearning generalizations.

These conclusions will be dealt with individually in the sections below. In each case evidence supporting the conclusions will be presented and assessed.

7.2 ON THE FORMATION OF SEMANTIC CLASSES

7.2.1 Conclusion #1: On the Formation of Semantic Classes

There is evidence from the results of Test 4 (using new verbs) that the learners at the advanced level of lexical proficiency had a better ability to infer the grammatical properties of newly encountered verbs than the learners at the elementary level of lexical proficiency.

7.2.1.1 Evidence for Conclusion #1 based on the results of Test 4 (new verbs)

Hypothesis 1 predicted that after an initial stage of item-by-item learning, L2 learners in both language groups would be able to go beyond the input on the basis of the semantic classes they had formed, a development that would be reflected in the advanced-level learners' ability to make educated guesses about the grammatical behaviour of newly-encountered verbs. As was pointed out in Chapter 6, the overall scores for correct responses on Test 4 were not high even at the advanced level; the mean scores for the advanced-level Vietnamese and Hindi-Urdu learners were 62% and 50% respectively of the maximum (see Fig. 6.14). However, to put things in perspective, it should be pointed out that in both language groups, the learners at the elementary level had very low scores as a result of their large-scale acceptance of non-existent causatives (see Fig. 6.11 through 6.13). Thus, in fact, even though the results obtained by the advanced-level learners were not excellent, it can be concluded that a certain amount of learning does take place between what have been called the elementary and advanced levels in this study, as is reflected in the

statistically significant differences between these proficiency levels for both the Hindi-Urdu and the Vietnamese groups on pooled test scores (see Table 6.37).¹ The improvement appears two-pronged: In physical-change-of-state and manner-of-motion classes there was a tendency in favour of using (correct) direct causatives with growing proficiency (see Figs. 6.9 and 6.10). In the remaining classes -- directional motion, animal sounds/internal mechanisms, and emission-of-substances -- there was a tendency in favour of rejecting the use of (incorrect) direct causatives (see Figs. 6.11 through 6.13).

7.2.1.2 What the significant increases in Test 4 scores imply

The advanced-level learners' grasp of semantic coherence within groups of verbs might have been more obvious if there had been a larger number of significant differences between proficiency levels within *individual* classes of verbs and if the scores at the advanced level had been higher than what they were. However, the fact that differences among at least the elementary and advanced levels were significant when scores for correct responses in all of the classes were pooled indicates that as proficiency grows, learners are better equipped to make judgments about a verb's behaviour on the basis of semantic criteria than before (i.e., to make

¹ In addition, the intermediate Hindi-Urdu group did significantly better than their elementary counterparts and the advanced Vietnamese group did significantly better than their intermediate counterparts, as seen in Table 6.37.

better connections between newly encountered verbs and previously known ones that are related to them). In a test such as Test 4, involving verbs that have not been learned one-by-one through exposure to the input, a tendency for correct direct causatives to increase in classes such as physical change of state and manner of motion, and a corresponding tendency for overgeneralizations (i.e., incorrect direct causatives) to decrease in classes such as directional motion, animal sounds/internal mechanisms, and emission-of-substances, has to mean that a larger number of verbs are being correctly categorized for *semantic* reasons since there is no other information available to the learners. However, the modest scores obtained by the advanced-level learners may be seen as an indication that the process of fine-tuning verb classes was far from being complete at what has been called the advanced level in this study.

7.2.1.3 Evidence for Conclusion #1 based on the results of Tests 1 and 2 (known verbs)²

The results indicated that on Tests 1 and 2, both involving previously known verbs, the overall scores obtained by the Hindi-Urdu and Vietnamese learners for producing or choosing grammatical/felicitous causative types increased significantly between the elementary and advanced levels (if we consider the two extreme ends of the three proficiency levels used in this study); on Test 1 there

² As discussed before, Test 3, the grammaticality judgment test using known verbs, has been used only to test transfer-related hypotheses.

were also significant increases in pooled scores between the intermediate and advanced levels for both language groups (see Table 6.23). Furthermore, by the advanced level more than two-thirds of the responses were correct in every class on every test (see Figs. 6.1 through 6.6), with the exception of two classes in Test 1 alone: the directional motion (*rise/fall*) class and the animal sounds/internal mechanisms class (see Figs. 6.4 & 6.6).

These measures of improvement reflect a growing accuracy in the responses to items on Tests 1 and 2 as proficiency increases and *could* be the result of an increasing grasp of coherence within semantic classes. However, no claims can be made regarding how the correctly acquired verbs were learned, i.e., item-by-item or through correct generalization. (As discussed in earlier chapters, a test involving previously known verbs cannot shed light on a learner's formation of semantic classes or lack thereof, or a learner's past or present ability to go beyond the data.) In short, the results on the tests involving previously known verbs could be interpreted as indicating a fine-tuning of classes although it could also be argued that the increase in accuracy with growing proficiency has nothing to do with verb classes, resulting instead from data-driven item-by-item learning.

7.2.2 Conclusion #2: On Variations in Performance Depending on Semantic Class

There is evidence across the tests that the learners tended to do better on some semantic classes than on others.

Despite the ambiguities regarding the results obtained from Tests 1 and 2 (see 7.2.1.3 above), these tests can provide insights into matters such as the classes in which performance is relatively good even at the elementary level, irrespective of language background; the classes in which learners make numerous errors regardless of language background *and of previous exposure to the verbs* in question; and the classes in which learners make enormous strides between the elementary and advanced levels despite a poor showing at the elementary level.

If one takes a broad look at the results of the three tests which share semantic classes (i.e., Tests 1, 2, and 4, see Appendix 2), certain trends applying to *both* language groups become apparent. Interestingly, the learners' performance is not uniform across semantic classes. The physical-change-of-state class tended to have the highest scores, with good scores at all proficiency levels (see Fig. 7.1 below). Likewise scores tended to be consistently good at all levels in the bells-and-whistles class (see Fig. 7.2 below). (In both of the above-mentioned classes, however, very few of the proficiency-based increases

in scores achieved significance, but it could be concluded that the generally high scores at the elementary level precluded the possibility of substantial improvement across proficiency levels; see Tables 6.2, 6.4 , 6.6 & 6.8 for the relevant significance levels.) The poorest performance tended to be in the directional motion class, with a sizable number of incorrect direct “causatives” at the elementary level, and almost as substantial a number at the advanced level. In fact, on Test 1, in Hindi-Urdu group, there were *more* overgeneralizations in this class at the advanced level than at the elementary level (see Fig. 7.4 below and Tables 6.12 and 6.14).³ (The exception was Test 2, where there was a significant drop in the selection of overgeneralized direct causatives between each of the two lowest levels and the advanced one in both language groups.) With the manner-of-motion class the scores tended to be fairly good; all of the scores were well above the 50% mark, with the exception of the elementary-level Hindi-Urdu group’s score on Test 1, but here too scores at the intermediate and advanced levels were significantly better than at the elementary level (see Fig. 7.3 below and Table 6.10). Performance on the

³ There was a significant drop in the use of incorrect direct causatives on Test 1 between the intermediate and advanced levels among the Vietnamese group, but note that the proportion of incorrect direct causatives *increased* between the elementary and intermediate levels in this group (see Fig. 7.4); thus there was no significant difference between the elementary and advanced levels (see Table 6.12). On Test 4, the advanced Vietnamese group outperformed the elementary group in the directional motion class, but not the even at the advanced level more than half of the responses were incorrect (see Fig. 7.4 and Table 6.31).

animal sounds/internal mechanisms class was poor at the elementary level in general (see Fig. 7.5 below, but there were many significant increases between the elementary and advanced levels, *viz.* among the Hindi-Urdu group on Test 1, the Vietnamese group on Test 4, and both language groups on Test 2, indicating improvement with growing proficiency (see Tables 6.18, 6.33, and 6.20 respectively).

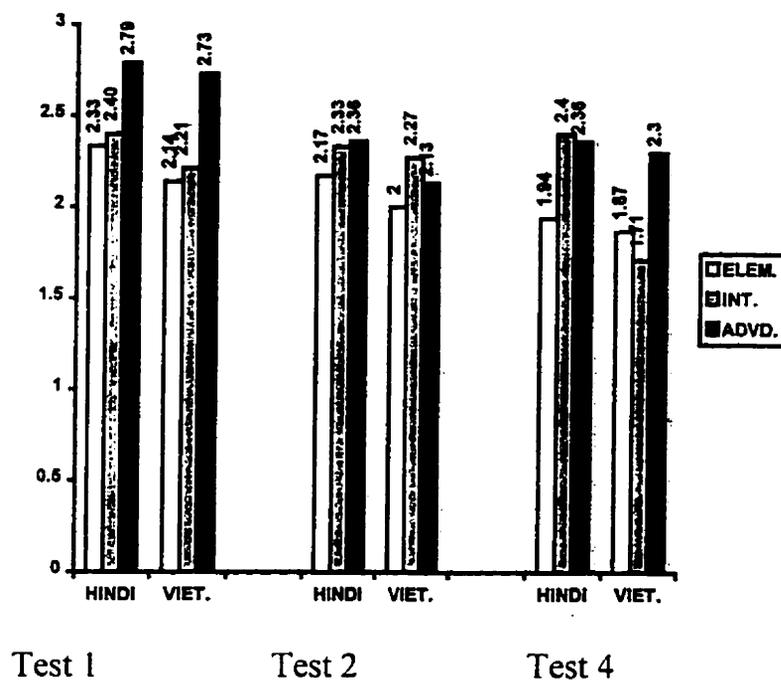


Fig. 7.1 Mean scores for CORRECTLY using/accepting direct causatives in the PHYSICAL-CHANGE-OF-STATE class (max. score per test = 3)

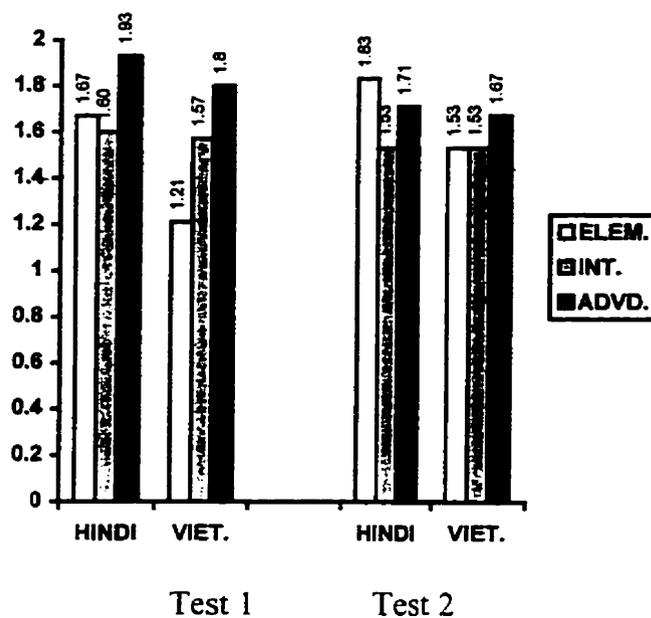


Fig. 7.2 Mean scores for CORRECTLY using/accepting direct causatives in the BELLS-AND-WHISTLES class (max. score per test = 2)

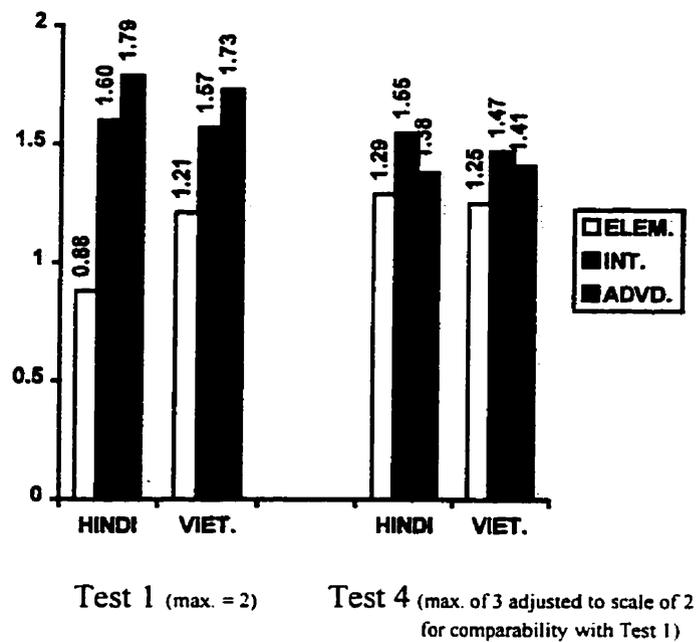
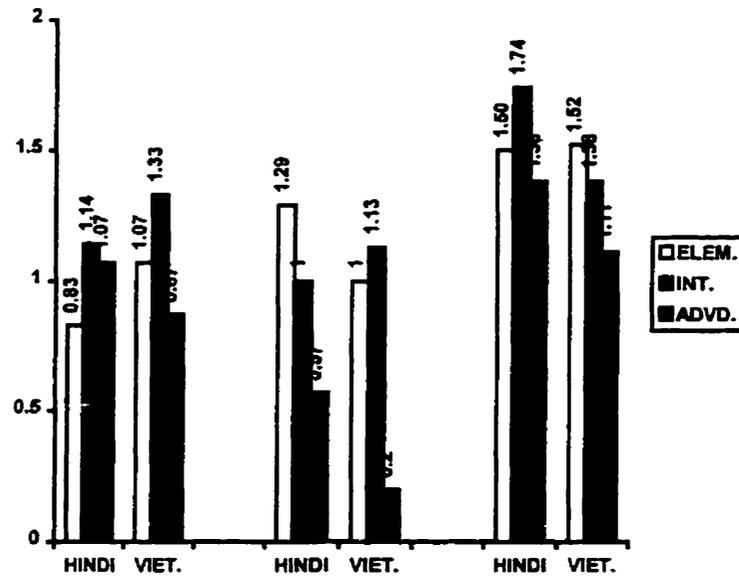
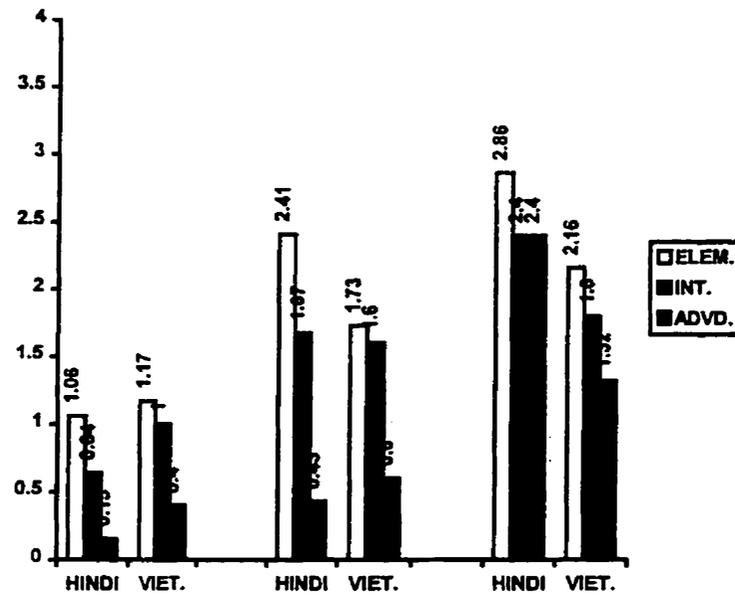


Fig. 7.3 Mean scores for CORRECTLY using/accepting direct causatives in the MANNER-OF-MOTION (*spin/roll*) class



Test 1 (max. = 2) Test 2 (max. = 2) Test 4 (max. of 3 adjusted to scale of 2 for comparability with Tests 1 & 2)

Fig. 7.4 Mean number of INCORRECT direct causatives used/accepted in the DIRECTIONAL MOTION (*rise/fall*) class



Test 1 (max. = 4) Test 2 (max. = 4) Test 4 (max. of 6 adjusted to scale of 4 for comparability with Tests 1 & 2)

Fig. 7.5 Mean number of INCORRECT direct causatives used/accepted in the ANIMAL SOUNDS/INTERNAL MECHANISMS class

7.2.2.1 A comparison of the use of direct stem-sharing causatives in causativizing and non-causativizing classes across the four tests

It could be argued that across the board, irrespective of semantic class, the learners tended to be more partial to stem-sharing English direct causatives than to alternative constructions and that the high correct scores in the physical-change-of-state, bells-and-whistles and manner-of-motion classes simply follow from this “blind” partiality to these direct causatives. However, when the performance of the two language groups is viewed according to the semantic classes in question, it becomes clear that even if there is a predisposition to use direct causatives in certain contexts, there have to be other influences at work as well. Consider Figures 7.6 through 7.8 below, giving the mean number of direct causatives used within a semantic class by the advanced-level learners in each of the two language groups; classes that allow causativization and those that do not appear in separate clusters in order to illustrate that in most cases these two broad categories are not treated as being equivalent .

On each of Tests 1 and 2 (see Figs. 7.6 and 7.7 below), there was a significant difference between the number of direct causatives used by each of advanced-level groups (Hindi-Urdu and Vietnamese) in the causativizing classes (physical-change-of-state, bells-and-whistles and, in Test 1, manner-of-motion) and the two non-causativizing classes (directional motion and animal sounds) ($p = < .001$ for each language group on each test). This indicated that on each of Tests 1 and 2, there was a greater proportion of correct direct causatives used by advanced-level learners in the

causativizing classes than in the non-causativizing classes, pointing to a discriminating use of direct causatives among both language groups at this proficiency level.

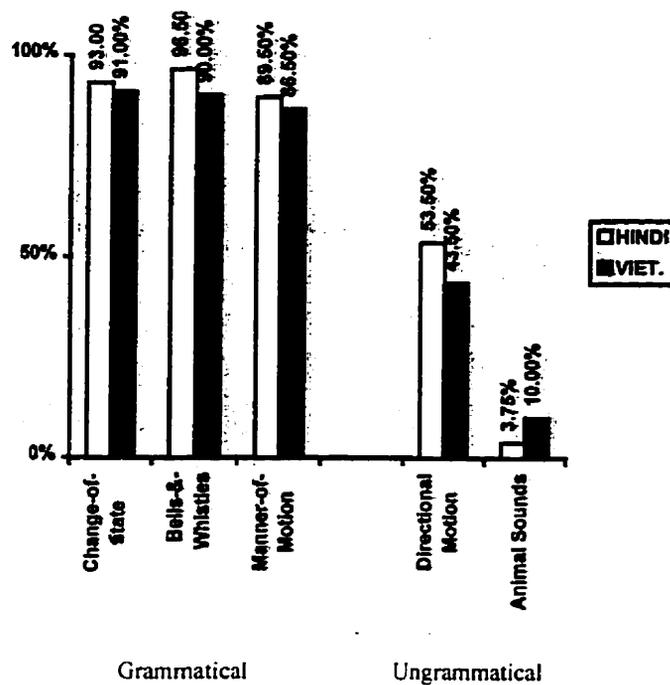


Fig. 7.6 Production of direct causatives – both grammatical and ungrammatical – by the advanced-level learners: Test 1

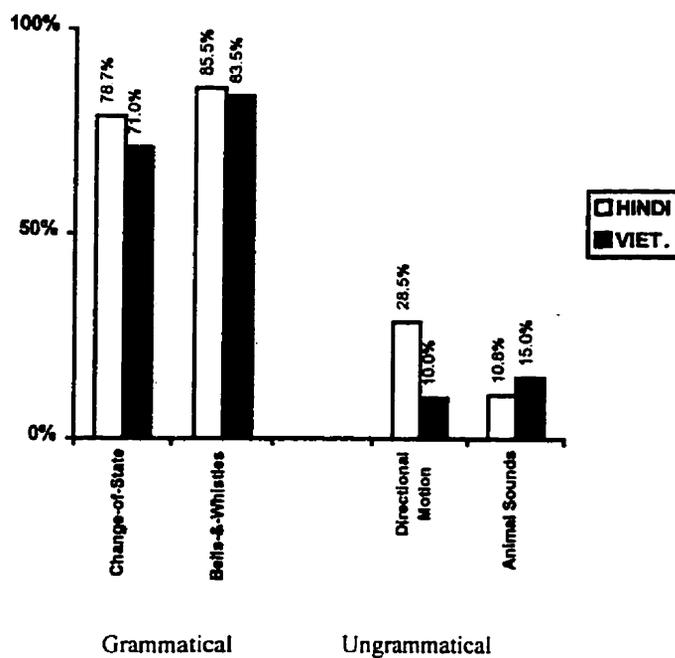


Fig. 7.7 Use of direct causatives – both grammatical and ungrammatical – by the advanced-level learners: Test 2

Similarly, on Test 3, when the correct acceptances by advanced-level learners in the *run/walk* class were compared with their incorrect acceptances in the *cough/sleep/smile* class, there were significantly more correct acceptances than incorrect acceptances in the Vietnamese group ($p = .008$), but not in the Hindi-Urdu group ($p = .763$).⁴ This shows that the Vietnamese advanced-level learners were discriminating in their use of direct causatives on Test 3, even if the Hindi-Urdu group were not in this particular context.

The Test 4 situation mirrored the Test 3 one (see Fig. 7.9 below). Here the difference between the advanced Hindi-Urdu group's acceptance of correct direct causatives (in the physical-change-of-state and manner-of-motion classes) and incorrect ones (in the directional motion, animal sounds/internal mechanisms) was not significant ($p = .544$), but the advanced Vietnamese group's was significant, once again in favour of *correct* acceptances ($p = .008$).

⁴ Three "unergative" verbs ("cough," "sleep," and "smile") were included in Test 3 for comparison with verbs in the voluntary motion (*run/walk*) class since unlike *run/walk* verbs, these "unergatives" do not causativize at all (see Test 3 in Appendix 4).

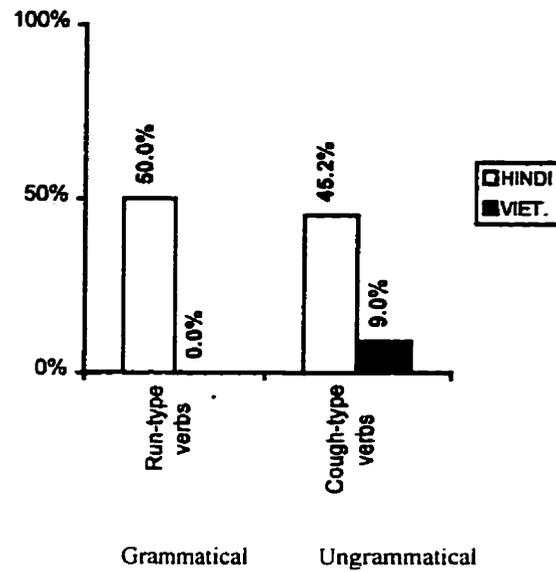


Fig. 7.8 Acceptance of direct causatives – grammatical and ungrammatical – by the advanced-level learners: Test 3

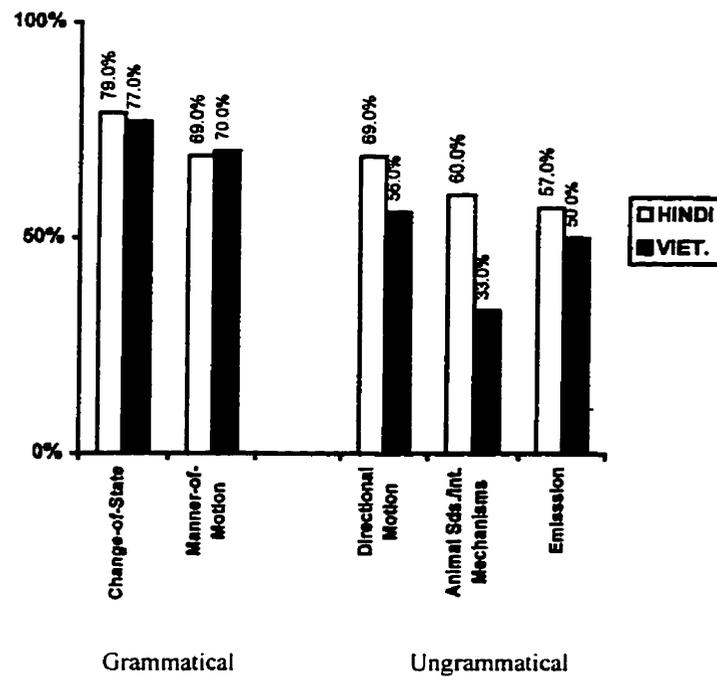


Fig. 7.9 Acceptance of direct causatives – both grammatical and ungrammatical – by the advanced-level learners: Test 4

To sum up, both groups of learners showed a tendency to do better on some semantic classes than on others. The classes on which the learners fared well also happened to be the classes that allow stem-sharing direct causatives. To illustrate that the good performance in these classes was not just the outcome of learners' tendency to overuse direct causatives randomly, the advanced level learners' use of direct causatives in causativizing classes was compared with their use in non-causativizing classes. It was found that in all but two cases (involving the Hindi-Urdu group in Tests 3 and 4), there were significant differences between the proportional use of licit and illicit direct causatives. (The advanced-level Hindi-Urdu group's overuse of overgeneralized direct causatives in the above-mentioned two contexts will be discussed in 7.3.6.1 below.)

7.2.2.2 Possible explanations for variations in acquisition patterns based on semantic class

At least as far as this particular study is concerned, it seems that not all semantic classes are equal in the L2 acquisition process. It is evident that large-scale research needs to be conducted before even modest claims can be made about the orders in which certain grammatically relevant L2 classes are acquired (and here too there are complicating factors such as what constitutes "acquisition"), or about the differing levels of accuracy within semantic classes at various stages in the L2 acquisition process. Nonetheless some tentative explanations (see a-d below) may be put forward for why performance tended to vary from class to class in this study

and why the performance of the Hindi-Urdu speakers paralleled that of the Vietnamese speakers in many ways. (Where the parallels were close in spite of the two L1s being markedly different in that area, it was concluded that transfer could not be a deciding factor in the patterns that had emerged.)

(a) *Types of causation.* It is possible to argue that some classes of verbs are easy to acquire, and/or enjoy high accuracy, because of what these verbs represent conceptually of the real world, and furthermore, because learners can easily find correspondences between their conceptual representations, their meanings, and their syntactic frames. For example, in the case of causativization, it may be the case that those classes of verbs which represent happenings, generally physical, that can clearly be seen as *directly* causable by outside forces are quickly recognized as taking direct objects which correspond to the patients of the agentive action (i.e. there is no mediating force); this would license the use of such verbs as direct stem-sharing causatives. Such a view corresponds with Legenhausen's (1988) association of "prototypical causation" (Rosch, 1975; Lakoff, 1977) with the "ergative" sentence pattern, which we have called the "direct stem-sharing causative" construction in this study. Within such a scheme, prototypical causation involves a clustering of conditions, for example, agentivity, unmediated physical manipulation of the patient (undergoer of the agentive action), and the change of state of the patient (Legenhausen, 1988).

Thus it is possible that the consistently good performance in the physical-change-of-state class is the result of these changes being physical, usually involving inanimate objects and thus being viewed as “causable” by external forces. So too, in the bells-and-whistles class, it may be easy to classify the ringing of a bell or the blowing of a whistle as “causable” since they involve *inanimate* objects (such as a bell or a whistle), whose primary function is to produce sound. (Note that if it is an animate entity producing the sound, causativization is disallowed: in this study, verbs such as “shriek” or “sing,” have been classified as “animal sounds/internal mechanisms” verbs.) A possible explanation for the reasonably good performance in the manner-of-motion class is that the causee is usually an inanimate object that has been put into physical motion by an outside force, which the learner might classify as directly causable. This same explanation may account in part for the confusion that the learners seemed to suffer in the directional motion class, resulting in the numerous overgeneralized direct causatives in this class, for example *“(The man falls the cup.” Apart from the conflation of direction in these verbs, directional motion verbs could arguably represent events that are perceived to be just as “causable” as those represented by manner-of-motion verbs; learners may take a while to notice that a crucial distinction between the two classes is that one implies direction and the other does not. (As discussed earlier, these difficulties cannot be attributed to negative transfer since the data provided by both the Hindi-Urdu group and the Vietnamese

group were fraught with overgeneralized direct causatives in this class.)

Interestingly, the overgeneralized use of “fall” has been recorded in L1 child language data (e.g., Bowerman, 1982; see 3.2.1) and has been noted in L2 contexts as well. According to G. Bunyi (personal communication, October 8, 1996), for example, Gikuyu speakers in Kenya occasionally produce utterances such as “You fell me” and “He fell my pen” despite being fairly proficient in English.

(b) Broad classes versus narrow ones. Another explanation for variation in results across semantic classes lies in Pinker’s (1989a & b) concept of broad and narrow classes (see 3.1.2). It is possible that learners acquire the broad-range rule for causativization before the narrow-range rules, i.e., they tend to causativize all verbs with an ACT or GO component. Thus, those narrow classes that actually allow direct causatives -- for example, physical change of state, “bells and whistles,” and manner of motion -- enjoy high accuracy from the very start. Conversely, those narrow classes that do not allow direct causatives (though encompassed by the same broad-range rule), either (i) contain overgeneralized direct causatives that have to be discarded later, or else (ii) lie in a state of “limbo” in those cases where the learner realizes that such direct causatives are ungrammatical in these classes but cannot come up with structural alternatives to these causatives, an issue that is discussed in the next section.

(c) *Form-related difficulties.* Another factor contributing to the ease or difficulty of acquisition may be the nature of the *forms* or *constructions* required to represent causation. Let us consider the directional motion verbs “fall” and “rise,” which seem to have posed some difficulty for the learners, though more on Test 1 than Test 2. “Fall” has an obvious form-related complication: its causative form is suppletive (“drop”). As discussed in 3.2.1, suppletive forms seem to be more difficult to acquire or more difficult to retrieve from memory or both (Maratsos et al., 1987; Pye, 1990). In the case of “rise,” it is possible that the “raise” form muddies the waters to an extent, a problem that occasionally surfaces in the utterances of native speakers as well. For example, people are raised from the dead and ships from the bottom of the sea, but kites are probably not “raised,” if one considers normal kite-flying practices. Thus, it may be the case that in some instances, even when learners know that direct stem-sharing causatives in this class are not grammatical, they cannot supply an alternative form/construction easily.

In the animal sounds/internal mechanisms class, the learners needed to come up with a periphrastic causative, as in “Malvolio made the dog bark,” which involves the embedding of a lower clause in the higher one and is, in this respect, more complicated structurally than the “Dogberry broke the vase” type of causative. It is possible that learners generally recognize that direct causatives are inappropriate in this class since causation here usually involves animate causees and any intervention from the outside world has to be mediated by psychological

or physiological workings within the causee; in addition, *make*-type periphrastics used with such verbs may have been noted in the input. Nonetheless, when “backed into a corner,” as could be the case on a production test such as Test 1, learners might not be able to come up with the appropriate periphrastic causatives, either because these constructions cannot be retrieved from memory, or because they simply have not been learned.

This explanation can also account for some of the noticeable differences between the results of Tests 1 and 2 in the animal sounds/internal mechanisms class in this study, as well as the directional motion class. In the directional motion class, on Test 2 (the multiple choice test) both language learner groups had significantly fewer incorrect direct causatives at the advanced level than at the elementary or the intermediate levels (see Table 6.14). On Test 1, the production test, however, there was no significant drop between the elementary and advanced levels (see Table 6.12). (The advanced level Vietnamese group performed significantly better than their intermediate-level counterparts, but note that the proportion of incorrect responses tended to increase between the elementary and intermediate levels in the Vietnamese group.)

One possible explanation for this test-based difference centres on the above-mentioned peculiarities of “fall” and “rise” and the greater impact of these peculiarities on a production task rather than multiple choice one; the learners did better when they had to select the best of two or three options

provided to them than when they had to come up with their own constructions. In the case of “fall,” for example, in the Test 2 context, learners did not have to retrieve the suppletive “drop” from memory, and with “rise” they simply had to choose one of two options (direct causative “rise” or the periphrastic “make . . . rise”). On Test 1, on the other hand, learners had less to fall back on. For example, in the case of “fall” all they were given was the intransitive sentence “The can of paint fell” and a picture depicting the causing of the falling. It is possible that some of the learners knew that suppletion was involved here but could not come up with “drop,” a scenario which may account in part for learners’ using other verbs to represent the causing of the act of dropping the can of paint, for example “The man *hit* the paint,” or focusing on actions different from the targeted one, for example “The man *painted* the wall.”

Similarly, both groups of learners used a clearly larger proportion of correct periphrastic causatives in the animal sounds/internal mechanisms class on Test 2 than on Test 1 (see Fig. 6.6). Here, too, it can be said that the learners tended to have a better ability to pick out the right construction (the periphrastic one) from two or three options than to put together the requisite periphrastic construction themselves as a response to a Test 1 question.

(d) Input as a factor in the acquisition of verbs. Yet another factor that might pertain to ease or difficulty of acquisition or to high or low accuracy in certain

contexts is the frequency and quality of input received by learners. It could be that high-frequency verbs are acquired earlier or more easily than low-frequency verbs. However, this issue is fraught with difficulties of various kinds. For example, in this study, all of the verbs on Tests 1 and 2 might be listed as “high-frequency” in frequency lists (see 5.2.2.3), but their relative frequency in the input actually received by the specific learners who participated in the study is not known. To complicate matters further, the connection between their frequency in the input and actual intake is hardly clear-cut. We know that exposure alone to linguistic input is not tantamount to actual “intake” (Chaudron, 1985; Corder, 1967; White, 1987) and intake does not necessarily mean complete acquisition. Thus, it is possible that a learner actually encounters various verbs in the input, but attends to them selectively, influenced perhaps by L1 factors or by the stage he or she is at in the acquisition process. In short, all that can be said is that input could be a factor in the ease or difficulty of acquisition of classes of verbs in this study though nothing more definitive can be said about its role here.

7.2.3 Conclusion #3 on the Formation of Semantic Classes

On Tests 1, 2, and 4, there was tendency for learners at the advanced level to outperform learners at the intermediate level and for the intermediate-level learners to outperform the elementary-level learners. However, it was between the intermediate and advanced levels that most of the significant differences lay rather than between the elementary and intermediate levels.

To provide a quick overview of the greater frequency of significant values between the intermediate and advanced levels, rather than the elementary and intermediate levels, the following table has been compiled, based on significance values for the use of direct causatives (correct or incorrect), as recorded in Chapter 6.

Table 7.3 A record of the significant differences between adjacent proficiency levels

	TEST 1					TEST 2				TEST 4				
	Change of state Hindi/ Viet.	Bells-and-whistles Hindi/ Viet.	Manner-of-motion Hindi/ Viet.	Directional motion Hindi/ Viet.	Animal sounds Hindi/ Viet.	Change of state Hindi/ Viet.	Bells-and-whistles Hindi/ Viet.	Directional motion Hindi/ Viet.	Animal sounds Hindi/ Viet.	Change of state Hindi/ Viet.	Manner-of-motion Hindi/ Viet.	Directional motion Hindi/ Viet.	Animal sounds Hindi/ Viet.	Emission Hindi/ Viet.
Significance achieved between the ELEMENTARY and INTERMEDIATE levels	no/no	no/no	<u>YES</u> /no	no/no	no/no	no/no	no/no	no/no	no/no	no/no	no/no	no/no	<u>YES</u> /no	no/no
Significance achieved between the INTERMEDIATE and ADVANCED levels	no/no	<u>YES</u> /no	no/no	no/ <u>YES</u>	<u>YES</u> /no	no/no	no/no	<u>YES</u> / <u>YES</u>	<u>YES</u> / <u>YES</u>	no/no	no/no	no/no	no/ <u>YES</u>	no/no

The table indicates that there are only *two* significant differences in performance between the elementary and intermediate levels, as opposed to *eight* such differences between the intermediate and advanced levels.

7.2.3.1 Possible Reasons for Greater Progress between the Intermediate and Advanced Levels than between the Elementary and Intermediate Levels

Two explanations may be proffered for Conclusion #3. The first is based on the frequency levels on which Nation's (1990) test is based (see 5.2.2.1). As discussed earlier, since Levels 1, 2, and 3 were at the 2,000-, 3,000-, and 5,000-word levels respectively, the gap between Levels 2 and 3 (the "intermediate" and "advanced" levels of this study) was larger than between Levels 1 and 2 (the "elementary" and "intermediate" levels of this study). This same inequality in frequency intervals corresponds to the unequal numbers reported in Conclusion #3. In short, at the starting point of testing, the advanced-level learners were more ahead of the intermediate level learners than the intermediate learners were of the elementary-level learners and this was reflected in Conclusion #3.

It could also be argued that it is only between the intermediate and advanced levels that L2 learners generally gain a *keen* awareness of the key role of verb meaning in questions of grammaticality versus ungrammaticality. Advanced-level learners may not only be more focused on verb meaning, but may also have enough grammatical competence to be aware of alternative constructions when a construction seems incorrect. Thus, if we apply McLaughlin's (1990) concept of "restructuring" or Kellerman's (1985) concept of "U-shaped behaviour" to this situation (see 2.4), it could be said that the lower-level learners in both language groups seem to be operating with very broad-based rules (e.g., "causation in English is generally expressed via direct

causatives”); in other words, these learners are at the bottom of the “U,” a stage at which errors begin to appear on account of the over-application of a rule. The higher-level learners, on the other hand, have begun to fine-tune their rules. If we use Pinker’s (1989a) concept of narrow classes within broad classes, we could say that new learners tend to go with broad classes rather than narrow (see also Section b in 7.2.2.2 above). Note that this explanation for the preponderance of significant differences between the intermediate and advanced levels (rather than between the elementary and intermediate levels) is compatible with Conclusion #1 as well.

It is also possible that elementary and intermediate learners engage in some syntactic overgeneralization (i.e., without attending to verb meaning at all), at least in a test-taking context where they are compelled to respond to a question; alternatively they may use direct causatives as a “default” construction when in doubt. For example, in a test situation, these learners may rationalize that if “Alfred burned the letter” is good then “The girl rose the kite” should suffice as well. Note that this explanation is in keeping with Ard and Gass’s (1987) findings that low-level learners rely on item-by-item learning and syntactic generalization, while higher-level learners use semantic categorization (see 2.4.1).

The preceding three conclusions are based on data from both language groups and provide a summary account of patterns of acquisition common to both groups.

The following sections will explore those areas where the results for the Hindi-Urdu and Vietnamese groups diverge, arguably owing to the influence of the L1 on the learning of the grammatical properties of L2 verbs.

7.3 TRANSFER AND ITS EFFECT ON THE ROUTE OF ACQUISITION OF SEMANTIC CLASSES

7.3.1 General Comments about the Transfer-Related Conclusions (4 to 8)

As summarized in 6.3.2, in certain semantic classes there were significant differences between the Hindi-Urdu and Vietnamese groups; these could be attributed to transfer since other variables such as proficiency had been controlled for. On the other hand, there were cases where the results only partially validated a specific transfer-related hypothesis or else brought to light transfer effects that had not been anticipated.

However, it is important to note that none of the evidence was in the *opposite* direction from the predicted one. For example, there was no case of the Vietnamese speakers using a significantly larger number of overgeneralized direct causatives than the Hindi-Urdu speakers in the face of a hypothesis that predicted a greater number of overgeneralizations among the Hindi-Urdu speakers. If we consider the “transfer-to-somewhere” principle (Andersen, 1978; Wode, 1976 & 1978) upon which Hypothesis 2 was formulated (see 2.4 and 5.1.2), the transfer-related results of this study can still be viewed as adhering to this principle since there *are* distinctions among semantic classes in their susceptibility to transfer (see 6.3.2, as well as 7.3.2

through 7.3.4 in this chapter). In other words, there are still sufficient grounds for linking the presence of transfer effects with there being a “reason for (mis)generalization” (Andersen, 1983) and linking the absence of transfer effects with there not being any reason for (mis)generalization. The differential treatment of semantic classes vis-à-vis transfer also highlights the need to take into account the various subsets that might exist in a seemingly homogeneous “set,” a point made in 2.4.2 in relation to White’s work on transfer (1985a & b, 1987, 1991).

It should also be mentioned in this discussion of transfer that some of the sentences produced by the Vietnamese speakers on Test 1 seemed to be influenced by verb serialization in Vietnamese (see 4.4); however, in many of these cases there was no mechanism for positively identifying such constructions as being serials. Note also that the other three tests (Tests 1-3) did not provide opportunities for such verbs to be used since these tests gave the learners fixed choices, for example, between a direct stem-sharing causatives and a periphrastic causative, or between accepting and rejecting a direct causative. While a couple of dozen of the responses produced by the Vietnamese speakers could be possible candidates for serial verb status, there were no such constructions among the responses of the Hindi-Urdu speakers. Examples of serial-type constructions produced by the Vietnamese speakers are listed below:

Suzie is cooking butter melt.
 The girl managed to *rise* the kite *fly*.
 The trainer *teased* the lion *roar*.
 The man *play* whistle *blow*.

The following sections present conclusions that have been drawn on the basis of a global view of the transfer-related results reported in Chapter 6.

7.3.2 Conclusion #4 (on Transfer)

The learning of the grammatical properties of L2 verbs can be facilitated by positive transfer in instances where the L1 and L2 closely resemble each other.

A comparison of the scores of the learners in the Hindi-Urdu and Vietnamese groups lends some support to the notion that close similarities between the L1 and L2 lead to positive transfer, which manifests itself in accelerated learning (i.e., at a specific proficiency level one group is significantly ahead of the other on account of positive transfer). In two of the four relevant semantic contexts there was clear statistical evidence in support of accelerated learning through positive transfer (see 7.3.2.1 and 7.3.2.2 below). In one of the remaining two classes, there was a tendency in this direction, but the results were not statistically significant (see 7.3.2.3 below). In the fourth case, the results were ambiguous between accelerated learning through transfer and ease of acquisition stemming from the nature of the semantic class in question (see 7.3.2.4) The details of these four cases are as follows:

7.3.2.1 The use of periphrastics in the animal sounds/internal mechanisms class (Test 1)

Although the scores for correctly using periphrastic causatives in the animal sounds/internal mechanisms class on Test 1 (the production task) were low in general, the Vietnamese speakers used a significantly larger number of such causatives in this context than the Hindi-Urdu speakers, at both the elementary and intermediate levels, as per Hypothesis 2i. (see Table 6.50). This advantage presumably stems from the existence of the *làm* construction in Vietnamese, which can be construed as a translation equivalent of the English “make” causative; there is no translation equivalent of the English “make” causative in Hindi-Urdu (see 4.5 and 7.3.3 below).

7.3.2.2 Forced/facilitated motion verbs (Test 3)

In the forced/facilitated motion (*run/walk*) class on Test 3, the Hindi-Urdu speakers showed a greater willingness to accept the grammatical causative versions of these verbs than their Vietnamese counterparts at all proficiency levels (see Fig. 6 26 and Table 6.46), presumably because similar direct causatives exist in Hindi-Urdu. (In Vietnamese these intransitive verbs have suppletive causatives, as has been illustrated in 4.3.3.)

7.3.2.3 Physical-change-of-state and bells-and-whistles verbs (Tests 1, 2, & 4)

It was hypothesized that in the physical-change-of-state and bells-and-whistles classes on Tests 1 and 2 the Vietnamese group would lag behind at the elementary level (Hypothesis 2a).⁵ None of these differences between the elementary-level Hindi-Urdu and Vietnamese groups was statistically significant (see Tables 6.38-6.40). Nonetheless, the fact that the scores showed a consistent tendency in the anticipated direction (i.e., the Hindi-Urdu scores at the elementary level tended to be higher than the Vietnamese ones) provides some grounds for speculating that if a larger number of learners were to be tested or if there were more items in the relevant classes on the tests, the differences in scores could indeed turn out to be significant.

7.3.2.4 Possible positive transfer: Manner-of-motion verbs (Tests 1 & 4)

In another instance, the manner-of-motion (*spin/roll*) class (Tests 1 and 4), there were no significant differences in the scores of the two language groups at any level of proficiency; overall, both language groups did relatively well in this class (see 6.3.1.5). However, given that both Hindi-Urdu and Vietnamese have direct causatives in the manner-of motion class (see 4.2.2.2), as does English, there was no way of determining unequivocally whether it was positive transfer or some

⁵ In Vietnamese, the change-of-state and bells-and whistles verbs used on the tests in this current study have suppletive causative forms (representing direct causation), which are often followed by optional resultatives that have the same form as the adjective-like intransitive verb (see Chapter 4).

transfer-free developmental factor (for example, those discussed in Sections a & b of 7.2.2.2 above) that was responsible for the relatively good performance in this class, a common problem in L2 data analysis (as discussed in 5.2.1.1).

7.3.3 Conclusion #5 (on Transfer)

The existence of a translation equivalent of an L2 construction in the L1 can give learners an advantage on a test requiring production even though there is no advantage on a multiple-choice (receptive) test.

The fact that both groups used very few incorrect direct causatives on Test 1 and that both groups had similar scores for *choosing* periphrastic causatives on Test 2 indicates that the Hindi-Urdu learners had the same level of *awareness* of the ungrammaticality of direct causatives within this class as the Vietnamese learners (see Tables 6.50 & 6.51). However, the Vietnamese group had significantly better scores than the Hindi-Urdu group at the elementary and intermediate levels for the *production* of correct periphrastic causatives on Test 1 (see Fig. 6.32 and Table 6.50). The advantage of the Vietnamese speakers in terms of the production of periphrastic causatives on Test 1 could be attributed to the availability of a translation equivalent of the periphrastic construction in the L1 (i.e., the *làm* construction); in Hindi-Urdu, on the other hand, there are no *make*-type periphrastics (see 4.5). In other words, in a situation where a Vietnamese speaker and a Hindi-Urdu speaker both know that the use of a direct causative is not permitted, the Vietnamese would be able to find a (correct) alternative

construction in the L1, while the Hindi-Urdu speaker would not. Such an explanation is compatible with the view that having nothing to fall back on in the L1 results in slower learning in the L2, as is suggested by the work of Blum and Levenston (1979, 1983) on L2 learners' reliance on L1-L2 translation equivalents (see 2.3.2).

7.3.4 Conclusion #6 (on Transfer)

Some cases of negative transfer seem to be based on a partial misinterpretation of the input resulting from a combination of interlingual and intralingual factors.

As discussed in 2.4.1, it has been suggested that transfer is motivated by a combination of interlingual and intralingual factors (Harley, 1989; Wode, 1976, 1978; Zobl 1980a & b; see 2.4.1). Thus, in this study it was hypothesized that the Vietnamese speakers would use periphrastic causatives for accidental causation, the interlingual factor here being the existence of *làm* in Vietnamese to show lack of volition and the intralingual factor being the existence of a similar “make” causative in English (see 4.5.2.1 and 5.1.2). This hypothesis was supported at all levels of proficiency on both of the relevant tests (Tests 1 and 2) (see 6.3.1.2).

The same type of overgeneralization based on interlingual and intralingual factors seems to have been responsible for the Hindi-Urdu speakers' large-scale acceptance of not just the grammatical causatives in the forced/facilitated motion (*run/walk*) class, but also the ungrammatical/borderline causatives (see 5.1.2 and 6.3.1.4).

7.3.4.1. Lack of clear-cut results in the directional motion (*rise/fall*) class

While the results in the accidental causation and forced/facilitated motion classes were completely in keeping with Hypotheses 2d and 2e-f respectively, in the directional motion (*rise/fall*) class the results ran counter to expectations. It had been hypothesized (Hypothesis 2h) that in this class, there would be transfer from Hindi-Urdu to English because such verbs are causativizable in Hindi-Urdu (the interlingual factor) and because this class is semantically close to the manner-of-motion class (the intralingual factor). However, as has been reported above, there was great overuse of direct causatives in this class by the elementary-level learners, not only in the Hindi/Urdu group (as hypothesized), but also in the Vietnamese one, in equivalent proportions (see Figs. 6.22 through 6.24). As suggested earlier (see 7.2.2.2), the difficulties that seem to be involved in acquiring this class might stem from the morphemic peculiarities of ‘fall’ and ‘rise’ or from the resemblance between these verbs and causativizing manner-of-motion verbs.

It should be noted that while these results in the directional motion class are surprising, they do not counter the view that it is the coincidence of interlingual and intralingual factors that drives L1-to-L2 transfer.

7.3.5 Conclusion #7 (on Transfer)

Transfer effects, where they do occur, can be immediate (i.e., they appear at the elementary level).

The test results show that transfer effects, when they did emerge, made their first appearance at the elementary level. The following is a list of those classes in which there was evidence of this early transfer among the *elementary-level* learners:

- ◆ The use of “make” forms by the Vietnamese speakers to express accidental causation: Tests 1 and 2 (see Tables 6.41 and 6.42).
- ◆ The acceptance by the Hindi-Urdu speakers of grammatical causatives involving forced/facilitated motion (*run/walk*) verbs: Test 3 (see Table 6.46).
- ◆ The acceptance by the Hindi-Urdu speakers of ungrammatical/borderline causatives involving forced/facilitated motion (*run/walk*) verbs: Test 3 (see Table 6.47).
- ◆ The use of periphrastic causatives by the Vietnamese speakers in the animal sounds/bodily mechanisms class: Test 1 (see Table 6.50).
- ◆ The acceptance by the Hindi-Urdu speakers of ungrammatical direct causatives in the animal sounds/bodily mechanisms class: Test 4 (see Table 6.52).
- ◆ The acceptance by the Hindi-Urdu speakers of ungrammatical direct causatives in the emission-of substances class: Test 4 (see Table 6.53).

In short, there was no evidence that transfer effects were more conspicuous at the intermediate level rather than at the elementary one, a scenario that would be a possibility if at the elementary level, the learner was occupied in a kind of preliminary “reconnoitering” of new territory, simply taking mental notes on

where the L1 and L2 seemed to overlap and where they seemed to differ, without actually engaging in active transfer (see 2.4.2). Thus, the findings in this study are in keeping with the generally-held view that transfer is more prevalent in the early phases of acquisition than in subsequent ones (Corder, 1981; McLaughlin, 1978; Newmark & Reibel, 1968; Taylor, 1975) (see 2.4.2). It is, however, possible that transfer-related results based on naturalistic data would differ from those obtained via elicitation. As discussed in 5.2.2.2, learners often "avoid" the use of certain features of the L2 when they lack competence in that area (or at least feel that they do), often because of the complexity of the rules or structures involved (Kellerman, 1986; Kleinman, 1977; Laufer & Eliasson, 1993; Schachter, 1974). When data are carefully elicited, however, it becomes difficult to employ avoidance. In short, there could be less evidence of transfer in naturalistic data produced by elementary-level learners than in data *elicited* from the same learners.

7.3.6 Conclusion #8 (on Transfer)

Transfer may manifest itself in the difficulty or ease involved in unlearning overgeneralizations.
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The extent to which the use of English direct causatives was overgeneralized among both the Hindi-Urdu and Vietnamese groups was surprising. The classes in which this overgeneralization was most rampant -- among both the Hindi-Urdu

and Vietnamese speakers -- were the directional motion class (on all tests), and the animal sounds/bodily mechanism and emission-of-substances classes on Test 4 (see 6.3.1.3 and 6.3.1.6). Since the Vietnamese group had a sizable proportion of overgeneralizations in these areas (without having corresponding constructions in their L1), this overuse of direct causatives in English cannot be attributed to transfer alone. However, it could be argued that transfer effects manifest themselves in the differing rates at which these generalizations are *unlearned* at the intermediate or advanced levels. Thus, Hindi-Urdu speakers, who have a wide spectrum of direct causatives in their L1, including classes such as directional motion, animal sounds/internal mechanisms, and emission, tend to hold on to overgeneralized direct causatives in similar classes; Vietnamese speakers, who have a limited range of direct causatives, and none in classes such as directional motion, animal sounds/internal mechanisms, and emission, rid themselves of overgeneralized causatives in these classes sooner than Hindi-Urdu speakers. The results of this study provide some support for this finding in certain semantic classes.

The decline in the use of overgeneralized constructions by the Vietnamese speakers from one proficiency level to the next is most clearly seen in the directional motion class (Tests 1, 2, and 4). On Test 1, there was a decrease in the production of incorrect direct causatives between the intermediate and advanced levels among the Vietnamese group, but no corresponding drop among the Hindi-

Urdu group (see Table 6.12). On Tests 2 and 4, there was no significant difference between the Hindi-Urdu and Vietnamese elementary-level speakers, with both sets of learners accepting a large proportion of overgeneralized direct “causatives” (see Tables 6.44 and 6.45). However, at the advanced level on Test 2, there was a sharp drop in the proportion of incorrect responses (i.e., in the acceptance of direct causatives) in the Vietnamese group, resulting in a significant difference between the Hindi-Urdu and Vietnamese groups at the advanced level (see Fig. 6.23 and Table 6.44). Similarly, on Test 4 there was a sharp decline in the acceptance of incorrect direct causatives by the Vietnamese speakers at the intermediate and advanced levels; once again, as a result of this decline, the differences between the Hindi-Urdu and Vietnamese groups for the rejection of direct causatives gained significance at the intermediate and advanced levels (see Fig. 6.24 & Table 6.45).

The same pattern was in evidence in the forced/facilitated motion (*run/walk*) class (Test 3), the Vietnamese groups’ acceptance of ungrammatical/borderline causatives dropped from about 20% at the elementary level to almost 0% by the advanced level (see Fig. 6.28). The drop in the Hindi-Urdu case was not as sharp, falling from 50% at the elementary level to about 38% at the advanced. In short, in this class, not only did the Hindi-Urdu speakers have a considerably larger number of overgeneralizations at the elementary level, but their performance held more-or-less steady over proficiency levels, resulting in a bigger gap between the two groups at the advanced level than at the elementary one. A similar pattern was seen in the

animal sounds/internal mechanisms class on Test 4, where the Vietnamese speakers' incorrect acceptance of direct causatives fell between the intermediate and advanced levels, while the Hindi-Urdu speakers' scores held steady (see Fig. 6.36).

Consequently, there was a bigger gap between the scores of the Hindi-Urdu and Vietnamese learners at the advanced level than at the elementary one.

There were, however, two cases in which the decline in the overuse of direct causatives in the Vietnamese group was not much greater than in the Hindi-Urdu group. The first was in the animal sounds on Test 1 (see Fig. 6.34 and Table 6.51), but here there were not a large number of overgeneralizations in this class to start with and the Hindi-Urdu learners did not show significant improvement with growing proficiency either. The second case was the emission-of-substances class in Test 4, where the performance of the Vietnamese speakers remained unchanged across proficiency levels (see Fig. 6.38); once again, the Hindi-Urdu group did not make any significant gains over proficiency levels in this class either.

To sum up, the Vietnamese speakers tended to use fewer overgeneralized direct causatives at the advanced level than at lower levels, while the Hindi-Urdu speakers tended to “hang on” to their overgeneralized constructions. The advantage that the Vietnamese speakers had over their Hindi/Urdu-speaking counterparts in this respect corresponds to the *non-existence* of direct causatives in the relevant semantic classes in Vietnamese, as opposed to the *existence* of these direct causatives in Hindi-Urdu.

7.3.6.1 Comments on the prevalence of overgeneralized direct causatives in the data

The test results make clear that there was overuse of direct causatives on all of the tests, especially on Test 4, and that only some of this overgeneralization stemmed from L1-to-L2 transfer.

Reasons for overgeneralization among the Vietnamese group that are not based on the learners' L1. The question to be asked at this point is why there was a noticeable overuse of direct causatives among the Vietnamese group, in the directional motion class on all the tests, and animal sounds/internal mechanisms class on Test 4, and, in general, more pronouncedly at the elementary and intermediate levels than the advanced. Unlike Hindi-Urdu, Vietnamese does not use direct causatives in these classes. One explanation for the Vietnamese speakers' overgeneralizations in the directional motion class is that it takes learners a while to master the meaning-related subtleties of this class, as well as the morphemic complications that “fall” and “rise” entail, issues that have been discussed above (see 7.2.2.2). The other explanation, based on proficiency, is similar to the one discussed in 7.2.3.1: Learners at lower levels of proficiency are less focused on the subtleties of verb meaning than advanced-level learners, a problem that is exacerbated when responses are elicited under very tight guidelines, forcing learners to make decisions which they might otherwise “avoid” (see 7.3.5 above). This explanation is in keeping with the fact that in such contexts

the advanced-level Vietnamese speakers tended to have a significantly lower proportion of incorrect direct causatives than their counterparts at lower levels (see Conclusion #8). In short, it could be the case that at the advanced level, the Vietnamese speakers, assisted by their awareness of the significance of verb meaning *and* the fact that direct causatives are not permitted in the directional motion and animal sounds/internal mechanisms classes in their L1, no longer use direct causatives as their “default causative” in this class.

The Hindi-Urdu speakers’ overuse of direct causatives on Tests 3 and 4. The L1-based reasons for the Hindi-Urdu speakers’ propensity to overuse direct causatives in various contexts has been covered in Chapters 4 and 5. This section focuses instead on a transfer-related finding that was unexpected: At the advanced level, on Tests 3 and 4, there was no significant difference between the Hindi-Urdu speakers’ acceptance of grammatical and ungrammatical causatives ($p = .763$ for Test 3 and $p = .544$ for Test 4) (see 7.2.2.1). It seems to be the case that on Tests 3 and 4 the Hindi-Urdu speakers were liberal in their acceptance of overgeneralized direct causatives, without paying much heed to the verb in question. What had been expected instead was that by this proficiency level the learners would have rid themselves many of the overgeneralizations that had persisted at the intermediate level. The question to be asked here is why there was a significant

difference between the Hindi-Urdu speakers' correct and incorrect use of direct causatives on Tests 1 and 2 ($p = < .001$ on both tests), but not on Tests 3 and 4.

One explanation is that Tests 3 and 4 are grammaticality judgment tests and Tests 1 and 2 are not. It is possible that grammaticality judgment tests bring out the Hindi-Urdu speakers' willingness to "stretch" the parameters of a causativizing class of verbs. Let us consider the case of Hebrew since this might provide some insights into the issues at hand. As in Hindi-Urdu, a wide range of verbs causativize in Hebrew, in particular "unergative" (agentive) verbs; missing forms are accidental gaps, which can get filled in easily either mistakenly or deliberately (serving as lexical innovations) and often continue well beyond puberty (Borer & Wexler, 1987).⁶ The same kind of phenomenon seems to be in operation in Hindi-Urdu. In Hindi-Urdu, the repertoire of verbs that causativize is enormous (see 4.2.2.3); there are also many "borderline" causatives that are sometimes considered grammatical and sometimes not. Thus, when judgments were sought from native speakers of Hindi-Urdu during the preliminary stages of this research project, there were differences of opinion regarding the grammaticality of certain causatives, for example, the causative forms of "forget," "spit" or "lisp." Often these native speakers indicated that if they repeated the borderline sentence

⁶ Borer and Wexler (1987) suggest that when these overgeneralizations cease, it is on account of "social factors."

frequently enough it began to “sound good.” It is possible that the same sort of “flexibility” regarding the grammaticality of Hindi-Urdu causatives came into play in Tests 3 and 4. One crucial difference between these two tests and Tests 1 and 2 was that in Tests 3 and 4, direct causatives (correct or incorrect) alone were given to the learners, as opposed to a choice between differing causative types (e.g., direct and periphrastic). It is possible that after a while, for some learners at least, all of the sentences began to “sound good.” In short, it could be argued that the grammaticality judgment tests brought to light transfer effects more efficiently than Tests 1 and 2. Note, however, that the above explanation for the Hindi-Urdu learners’ large-scale overgeneralization on Tests 3 and 4 could also be used to support the view that judgment tests do not always account for levels of grammaticality and are poor indicators of what learners would actually produce in a particular situation (Birdsong, 1989; Chaudron, 1983) (see 5.2.2.6).

The findings of this research study, as detailed in this chapter and the previous one, have implications for both L2 research and pedagogy. These implications will be the focus of the concluding chapter.

Chapter 8

GENERAL CONCLUSIONS

8.1 CONTRIBUTION OF THIS STUDY

This research study set out to investigate the internal organization of the L2 lexicon by examining the acquisition of constraints on English causativization at three different stages of lexical proficiency; it also aimed to determine whether there is evidence in this organization that the L1 and L2 lexicons interact. The test results indicated that advanced level learners in each of the Hindi-Urdu and Vietnamese groups had significantly higher overall scores than corresponding groups at the elementary level on Test 4, which required learners to infer on the basis of meaning whether certain newly-encountered verbs causativized or not. These significant increases in overall scores between the elementary and advanced levels suggest that more advanced learners make better connections between newly encountered L2 verbs and previously known verbs that are semantically related to them than do elementary-level learners. This same sort of significant increase between the elementary to the advanced levels was witnessed when the scores of each of Tests 1 and 2 (using known

verbs) were pooled; however, in this case the improvement was interpreted as growing *accuracy* across semantic classes with increasing proficiency.

Thus, it can be said that through the findings of this study some further insight has been gained into (i) the organization of the L2 lexicon at three different levels of lexical proficiency, and (ii) the learner's ability or inability to generalize beyond the input at each of these levels. As discussed in Chapter 2 (see 2.1, 2.3, and 2.4), psycholinguistic and SLA research on the route of L2 lexical acquisition and on L2 lexical organization among less proficient learners has been fairly limited, especially within frameworks based on the interaction between lexical and syntactic knowledge. The findings of this empirical study lend support to theoretical arguments promoting the central role of the lexicon in acquisition (see 3.1 and 8.4.1 below).

Furthermore, it may be claimed that the findings of this study shed further light on the nature of the interaction between the L1 and L2 lexicons, an area of research where many questions remain to be answered (see 2.3). The validation of some of this study's transfer-related hypotheses points to an interaction between the L1 and L2 lexicons that is at least partly semantic in nature, perhaps because L2 learners are influenced by the behaviour of individual L1 translation equivalents of L2 verbs or even entire L1 semantic classes of verbs in their acquisition of the L2 verb lexicon. Moreover, these findings may be seen as providing insights into the nature of transfer in general, for example by

highlighting the existence of subclasses with varying degrees of “transferability” within larger classes, or by drawing attention to the possible role of transfer in the ease or difficulty of shedding overgeneralized features of the L2 (see 7.3 for an account of the above-mentioned findings).

These significant results notwithstanding, this study has certain limitations, which will be discussed in the following section.

8.2 LIMITATIONS OF THE STUDY

8.2.1 The Level of Difficulty of Test 4

As explained in Chapter 5 (5.2.2.1), the first three levels alone of Nation’s (1990) five-level vocabulary test were used to identify the proficiency of participants since it was felt that at Level 3 a “ceiling effect” would come into play; in other words, learners at a higher level would not be able to outperform the Level 3 ones if the Level 3 learners’ scores were already close to perfect. In general, the advanced groups did fare well on Tests 1 through 3. However, as has been reported in the results, the advanced learners’ scores on Test 4 (the grammaticality judgment task employing new verbs), while significantly better than the elementary learners’ scores, were not high (see 6.2.2.6). Thus, in retrospect it can be concluded that a fourth more advanced level of participants

would have extended the range of scores, throwing further light on what learners do with newly-encountered “difficult” vocabulary items.

Not surprisingly, at the other end of the proficiency continuum, the elementary-level learners seemed to have some difficulty coping with Test 4. This proficiency level was included in this study in order to capture transfer effects as early in the acquisition process as was feasible. The test scores, coupled with the test administrator’s informal observations during the testing sessions, indicated that the elementary-level learners seemed to manage adequately on Tests 1-3. However, Test 4 seemed to be too difficult for the lower-level learners on two counts. First, these learners were being asked to make inferences about verbs that they were completely unfamiliar with. Second, the test required a great deal more reading than Tests 1-3 since the learners not only had to read the test sentences but also the meanings of each “unknown” verb. While the degree of difficulty of Test 4 does not negate the value of the elementary-level results, given that these learners “got through” the test, albeit laboriously, it reinforces the need for a fourth level with higher proficiency than the “advanced” level employed in this study.

8.2.2 The Pictorial Stimuli on Test 1

As far as possible, an attempt was made to ensure that the match between picture and verb in Test 1 was such that the opportunity to come up with alternative verbs was minimized. Despite some revisions (see 5.3.2), a few problems lingered in those cases where the causation was indirect or involved the suppletive causative of “fall,” as in “The girl made the baby cry” or “The man dropped the cup” respectively. The complication in the former case seemed to stem from the fact that the causation involved the psychological/physiological inner workings of an animate causee and was realized syntactically as a periphrastic causative. In the case of “fall,” the targeted causative was the suppletive “drop” or equivalent; however, when learners did not use it, it was not clear whether this was on account of a confusing illustration or the fact that the causative form was suppletive. Given the complications in these two cases, it is possible that even with improved illustrations these types of causation could not be depicted completely unambiguously.

8.2.3 The Unequal Word-Frequency Intervals on Nation’s Test

While Nation’s (1990) test was a useful instrument for separating one proficiency group from another, the inequality of the intervals between the levels made it difficult to interpret certain results unambiguously. As explained in Chapter 7

(7.2.3.1), the words in Levels 1, 2, and 3 of Nation's test were in the 2,000, 3,000, and 5,000 most frequently used word groups; as a result, the interval between Levels 2 and 3 was greater than between Levels 1 and 2. While this lack of congruence in intervals was not a serious problem, it made it difficult to interpret whether the tendency for significant increases to occur between the intermediate and advanced levels rather than the elementary and intermediate levels was a function of the placement test or an indication that the rate of learning accelerates after some of the fundamental aspects of verb behaviour have been acquired at the intermediate level (see Conclusion #3 in 7.2.3).

8.2.4 Size of the Study

While the total number of participants in each of the Hindi-Urdu and Vietnamese groups was not small ($N_s = 47$ and 45 respectively), the numbers in the proficiency-based subgroups within a language group averaged only fifteen per subgroup. In addition, there were only two to four verbs in each class on a test, often because of a dearth of suitable high-frequency verbs (see 5.2.2.3) or the need to keep the test package small. In other words, the findings of this research study might have been more definitive had the study been conducted on a larger scale.

8.3 IMPLICATIONS FOR RESEARCH

8.3.1 Research on the Acquisition of Verb Classes

As stated before, it was concluded that the increase in scores between the elementary and advanced levels on Test 4 had to be grounded in verb semantics since the learners had no other type of information to base their judgments on. That verb meaning was a factor in how accurately or how quickly verbs were acquired was also witnessed in the variation in performance according to semantic class when this performance was viewed across all of the relevant tests. It was also determined that the significant differences between the Hindi-Urdu and Vietnamese groups that came to light on Tests 1 through 4 were the result of lexical transfer. While there were a few unexpected cases of no transfer effects where transfer had been predicted, and, conversely, transfer effects where none had been predicted, there were a substantial number of cases of positive and negative transfer that were in accordance with the transfer-based hypotheses. There is, nonetheless, a need for further research in this area, involving a wider range of verb classes, with a larger number of verbs in each class, as well as a wider range of proficiency levels.

Further research could also include studies of the acquisition of semantic classes relevant to various syntactic phenomena, involving a variety of languages (both as L1s and L2s), with different morphologies, classes of verbs, and

selectional restrictions on verbs. For example, an interesting hypothesis to test would be that when the L2 has a wide range of causatives, learners of this language who have subsets of these causatives in their L1 do not undergeneralize for long since they get ongoing positive evidence regarding the existence of these causatives in the input. This, for example, might apply to English-speaking learners of Hindi-Urdu or Hebrew as L2. The stumbling block in such cases then would not be the acquisition of the broad range of verbs that undergo causativization in the L2 but could be the morphophonemic changes involved in causativization.

Similarly, further research could be undertaken on the influence of L1 verb serialization on the acquisition of the argument structure of verbs in non-serializing languages like English; as discussed in 7.3.1, in the current study this issue was not investigated via quantitative analysis. The issue of selectional restrictions, too, was not the focus of any of hypotheses tested in this study. For example, "The watercress grew" alternates with "The gardener grew the watercress," but "The children grew" does not alternate with *"Mother Courage grew her children," an issue which impacts on acquisition (Maratsos et al., 1987).¹

¹ To complicate matters further, there are dialectal differences in judgments of acceptability related to selectional restrictions, as well as changes in usage with time. Of late, for example, it has become fairly common to hear of "growing the economy" or "growing a business"; so too, in certain political contexts "disappear" may be used causatively, as in "The government disappeared the protesters."

The stance taken in this study regarding the transfer of subsets and sets differs from the usual ones in acquisitional studies (e.g., White, 1995a & b, 1991) because it takes into consideration the possibility that the L1 and L2 might not simply be each a set or a subset, but that there may be *numerous* subsets (in the case of this study, “narrow classes”) within a set. This study also suggests that when it comes to transfer, the various subsets within a set are not involved equally in L1-to-L2 transfer processes (see 7.3). This hypothesis, too, needs to be tested in a variety of language contexts.

Finally, the transfer-related findings discussed in Chapter 7 (see 7.3) could be tested within other frameworks (i.e., other than one centred on the interaction between verb semantics and syntax) in order to determine whether they have general applicability. Two, in particular, could be subjected to further empirical testing since they do not seem to have been examined in great depth in L2 research: Conclusion #5 on the advantage that translation equivalents might give learners in terms of actual production (even though these learners may have no advantage on a multiple-choice or judgment test), and Conclusion # 8 on how transfer may manifest itself in the ease or difficulty involved in unlearning overgeneralizations (see 7.3.3 and 7.3.6).

8.3.2 Lexical Databases

As discussed in Chapter 2, dictionaries in the form of books are poor copies of the mental lexicon. Among other things, book dictionaries do not provide exhaustive accounts of the syntactic behaviour of words. Thus, as pointed out by Aitchison (1987, p. 13), both “eat” and “resemble” are transitive verbs, but most book dictionaries do not specify that “eat” can passivize but “resemble” cannot.

The issues investigated in this study, i.e., the interaction between the lexicon and syntax and the relevance of this interaction to L2 acquisition, also pertain to current work on the creation of comprehensive on-line lexical databases (Atkins and Levin, 1991; Levin, 1991; Levin and Pinker 1991; Zernik, 1991). These databases are to be rich repositories of lexical information and are geared to overcome some of the shortcomings of printed dictionaries: “A lexical knowledge base should make explicit what a native speaker knows about a word” (Levin, 1991, p. 215). Since such databases are attempting to specify grammatically relevant meaning components of all lexical entries in a systematic and comprehensive way, it is possible that in the future these on-line databases will prove to be better resources for L2 learners than the book dictionaries that are currently in use (cf. Nesi & Meara, 1994). However, while linguists attempt to isolate meaning components that bind a group of words together (and simultaneously separate this group from others), L2 researchers need to investigate the

relevance of this decompositional approach to L2 acquisition, in terms of both lexical learning and teaching.

8.3.3 The Cultural and Affective Aspects of the Data Collection

The process of data collection undertaken for this study in second language communities highlighted the need for cultural sensitivity when working in the midst of L2 learners even though in theory it could seem possible to conduct such testing without much personal interaction. As recorded in Chapter 5 (5.2.1.2), the majority of the students were new arrivals in the country and were enrolled in community language programmes. Many had never participated in a research study before and had to be reassured that their performance was not being evaluated in the traditional sense, for example to place them in a language programme or in the job market. It was also necessary to remind the participants that a variety of responses were useful to the researcher and that it was not imperative to get the “right” answer, if indeed there was one. This sort of instruction would apply to any participant, whether L1 or L2, but it was particularly important in the case of learners who had little familiarity with this type of data collection. Some of the learners also seemed accustomed to receiving guidance from their instructors and peers during an activity, as is usual in ESL programmes using collaborative learning, and often stopped working when in doubt. In such situations, a balance had to be struck between gentle prodding -- for

example through a reminder that the learners were not being “graded” -- and ensuring that no biasing information was given to them during the test session.

In short, it was found that affective and cultural factors were very important in the data collection process even though in theory the tests were such that they could have been administered without much interaction with the participants. Such factors would have to be considered carefully in any research project involving second language learners with a variety of differing cultural expectations in a testing situation, even when the tests are designed to be self-explanatory.

8.4 PEDAGOGICAL IMPLICATIONS

It has been noted that the links between psycholinguistic research on the nature of the mental lexicon in bilinguals or L2 acquirers, research on vocabulary learning and teaching, and actual pedagogical practices are not well forged (Carter, 1987; Channell, 1987; Harley, 1995; Meara, 1987, 1993).² Thus, it is important to spell out ways in which research on the nature of the L2 lexicon and lexical acquisition, as has been undertaken here, can inform pedagogy.

² Hatch and Brown's (1995) reference book for teachers, which aims to (i) elucidate theoretical and research issues pertaining to the mental lexicon and its acquisition, and (ii) show the applicability of theoretical issues to practice (i.e., vocabulary teaching and learning), is a notable exception.

8.4.1 “Verb Power”³ and Vocabulary Instruction

At this stage in L2 research, an argument can be made on theoretical and empirical grounds in favour of treating the lexicon as orderly rather than an “inherently messy part of our linguistic competence” (Meara, 1984, p. 230, citing a traditional view of the lexicon) and in favour of giving due importance to the verb lexicon, which can be seen as driving the syntax of a language to a great extent (see 3.1 for a comprehensive discussion of these issues). The importance of the lexicon, in particular the verb lexicon, has not only been highlighted by theoretical linguists in recent times, but has also gained some recognition in psycholinguistic circles. For example, it has been noted that speech error research involving speakers without speech disorders shows that verbs are rarely involved in semantic selection slips: “The explanation for this may be that when speakers produce a sentence, they pick the verb very early from a special verb store which gives them the syntactic framework for the rest of the sentence . . .” (Aitchison, 1994, p. 102). Conversely, aphasics tend to lose their verbs, but not their nouns (Allport & Funnell, 1981; Hand et al., 1979), perhaps also because of the heavy syntactic “work” performed by verbs, as suggested by Aitchison (1994) (see Footnote 5 in Chapter 3).

³ This phrase is based on the title of a chapter in Aitchison (1994), reflecting a new interest within psycholinguistics in verbs and their grammatical properties.

As discussed in Chapters 3 and 4, the meanings of verbs are seen as determining their syntactic behaviour. In general, verbs that share a behaviour also share a set of meaning components; those that differ from each other syntactically generally do so on account of a difference in their semantic compositions. Furthermore, meaning extensions, too, apply to entire conflation classes, for example, verbs of “sound expression” such as “whistle,” “grunt,” and “snort,” as has been pointed out by Levin (1991) and summarized by Atkins and Levin (1991, p. 243): “[V]erbs fall into classes on the basis of shared components of meanings, and the members of these classes have in common a variety of properties concerning the expression and interpretation of their arguments, as well as the extended meanings that they may take on.” Evidence based on psycholinguistic research, too, points to close links between words of the same class (e.g., verbs), especially items that are related in meaning, as discussed in Chapter 2. In addition, there is evidence in the empirical findings of the current study that there are varying levels of accuracy in verb use depending on the semantic classes in which verbs fall, even when these verbs are “known.” Moreover, the Test 4 results of this study indicate that at least at the advanced level, learners make some appropriate meaning-related connections between these verbs and previously known ones.

These theoretical and empirical findings have implications for grammar and vocabulary instruction in second language programmes. What still exists in

second language studies is an intuitive understanding of the connection between syntax and semantics. However, little *formal* second language acquisition or pedagogical research has focused on this issue. Correspondingly, in actual L2 pedagogical practice, this issue has been touched upon only briefly (e.g., Nation, 1990, p. 37), with just a few notable exceptions. Levin's (1993) book on English verb classes, for instance, classifies a wide range of common and uncommon verbs according to their syntactic behaviour (see 4.2.2.2 for examples), with an aim to serving second language instructors and learners, among others. Rudzka et al. (1985) show how componential analysis (breaking up lexical items into meaning components) may be used to highlight some of the subtle differences between semantically related vocabulary items.

The usual practice in second language pedagogy has been to teach grammar and vocabulary separately (Swain & Carroll, 1987). To demonstrate why there needs to be more interaction between these areas of instruction, let us consider "dative alternation," as in the following example:

Pandora sent the box to Heph.
 Pandora sent Heph the box.

Grammar textbooks, when they actually deal with this alternation, simply give the syntactic repercussions of the movement, for example, object 2 becomes object 1 and the preposition is dropped. Let us now consider just a few of the numerous fine-tuned semantic and morphophonological constraints on dative alternation. A

“ballistic” verb such as “throw” can qualify for alternation (“Penelope threw him the ball”) since it represents a change of possession and not just a change of location (Grimshaw, 1989), but a “continuous force verb” like “dribble,” “drag” or “deliver” does not qualify (*“Ulysses dribbled/dragged/delivered him the ball”) because of the restriction on agentive involvement to the outset of the activity in double object datives (Pinker, 1989a, pp. 64-5; Jackendoff, 1990a, pp. 138-9); the latter type of verb is thus seen as only involving change of location. In the case of the adjunctive *for*-dative, too, only a subclass of these verbs -- those involving creation and preparation, as in “Cecilia sang him an aria” -- can take the double object form (Jackendoff, 1990b). There are also morphophonological constraints on the dative alternation as well, but these apply only to *some* of the subclasses (Green, 1974; Grimshaw & Prince, 1985).

Thus it is clear that a syntactic rule for dativization in any grammar textbook would not be a particularly useful generalization since an enormous number of constructions so generated would be ungrammatical, e.g. *‘‘Could you explain me this sentence?’’ and *‘‘She said me this.’’ As pointed out by Ard and Gass (1987), this approach assumes that syntactic patterns and the lexicon are learned independently of each other and substitution exercises giving learner the basic syntactic patterns plus a list of lexical items that can be used interchangeably amount to ‘‘pattern practice.’’ It is possible that some L2 learners encountering a syntactic dativization rule would manipulate the structures as per instructions in a

grammar exercise but would sense that in actuality there are various constraints on the sorts of verbs on which the rule can operate. Thus it is possible that these learners would avoid using the rule altogether in real-life discourse in spite of flawless use in a guided exercise, a phenomenon that is often reported by L2 instructors.

While it would be neither possible nor pedagogically sound to attempt to give learners explicit instruction in all of the lexical constraints involved in the use of syntactic structures, there may be a place in certain pedagogical contexts for “input enhancement” (Sharwood Smith, 1993) or “form-focussed instruction and corrective feedback” (Lightbown & Spada, 1990) related to lexical use.⁴ In recent times, there has been a growing recognition that an “analytic” approach to teaching might be used to complement “experiential” teaching (Allen, 1983; Allen, 1989; Allen et al., 1990; Batstone, 1994; Ellis, 1994; Lapkin & Swain, 1989, pp. 21-25; Lightbown, 1991; Lightbown & Spada, 1990; Spada & Lightbown, 1993). Various reasons have been cited for the need to heighten language awareness in L2 learners, for example, the insufficiency of input in L2 pedagogical contexts (Rutherford, 1987), the possibility of accelerating the pace of acquisition via “triggering” input, or the indispensability of negative evidence

⁴ “Input enhancement” (Sharwood Smith, 1993) was originally referred to as “consciousness raising,” defined as “the deliberate attempt to draw the learner’s attention specifically to the formal properties of the target language” (Rutherford and Sharwood Smith, 1985, p. 274).

in certain L2 situations (see 2.4.1 for a discussion of White's work). Drawing the learner's attention to the structural regularities of language, guiding learners towards a rule or generalization through the presentation of pertinent linguistic data or through heuristic processes, teaching rules explicitly, and making explicit comparisons between the L1 and L2, are some examples of some of the strategies that have been proposed in recent times to enhance language awareness. Thus, vocabulary development could still be part of a curriculum in which a communicative syllabus is emphasized, and in which the teaching strategy is "experiential"; the expectation in such a situation would be that the learner could absorb the language intuitively through exposure to plenty of input, without reference to the L1 (Krashen and Terrell, 1983). Such a communicative-experiential approach, however, could be complemented by "consciousness raising," which would by definition allow for the use of cross-lingual teaching strategies.

If L2 lexical research points to interaction between the two lexicons, as do some of the findings of this study, this issue needs to be taken into consideration in L2 pedagogy (see Harley, 1995, for a similar recommendation, as well as Auerbach, 1993 and Lucas & Katz, 1994, for more general arguments in favour of involving learners' L1s in L2 pedagogy). To have full insight into what constitutes areas of lexical overlap between an L1 and an L2 and what does not, an instructor needs to be highly proficient in both the learner's target language

and L1. However, in the absence of such bilinguality, as is often the case in pedagogical contexts, an instructor's awareness of the connections between "vocabulary" and "grammar" and of possible ways in which the L1 and L2 lexicons interact could provide useful insights into the learner's needs vis-à-vis lexical instruction and feedback.

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Appendix 1

JUDGMENTS ON THE EQUIVALENCE OF ENGLISH AND HINDI-URDU CAUSATIVES

Summary of the Results

Five informants with native/near-native proficiency in English and Hindi-Urdu were asked to judge how similar or different a direct Hindi-Urdu causative was to (i) a related periphrastic English causative and, where relevant, (ii) a related direct English causative (see Items 1-12 below). The results revealed that:

1. Hindi-Urdu-English bilinguals found English direct causatives and Hindi-Urdu direct ("first") causatives to be equivalent in those cases where a grammatical direct stem-sharing causative exists in English. Thus, the informants considered "The man burned the letter," and not "The man made the letter burn," to be a translation equivalent of the Hindi-Urdu *aadmii ne chitthii jalaayii* (literally: man-ERG letter burn-CAUSATIVE AFFIX).
2. In those cases where direct stem-sharing causatives are prohibited in English, the Hindi-Urdu-English bilinguals judged the Hindi-Urdu direct causatives as being equivalent to the corresponding English periphrastic causatives. Thus *larkii ne bacche ko hāsaayaa* (literally: girl-ERG child laugh-CAUSATIVE AFFIX) was considered equivalent to "The girl made the baby laugh."

Tally of the Response Types

Mohan ne chitthii ko jalaayaa (jalaa diyaa)

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

1a. Mohan burned the letter.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

Mohan ne chitthii ko jalaayaa (jalaa diyaa)

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

1b. Mohan made the letter burn.

TALLY OF RESPONSES IN EACH CATEGORY: TWO TWO ONE

Larkii ne bacche ko rulaayaa

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

2. The girl made the baby cry.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

Daakiyaa ne kutte ko bhaunkaayaa

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

3. The letter-carrier made the dog bark.

TALLY OF RESPONSES IN EACH CATEGORY: FOUR ONE

Sunita ne makkhan ko pighlaayaa

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

4a. Sunita melted the butter.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

Sunita ne makkhan ko pighlaayaa

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

4b Sunita made the butter melt.

TALLY OF RESPONSES IN EACH CATEGORY: TWO THREE

Aurat ne pyaale ko giraayaa

5a. The woman dropped the cup.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

Aurat ne pyaale ko giraayaa

5b The woman made the cup fall.

TALLY OF RESPONSES IN EACH CATEGORY: ONE TWO TWO

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

Larkaa lattuu ko ghumaa rahaa he

6a. The boy is spinning the top.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

Larkaa lattuu ko ghumaa rahaa he

6b. The boy is making the top spin.

TALLY OF RESPONSES IN EACH CATEGORY: FOUR ONE

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

Aadmii ne paayle ko toraa (tor diyaa)

7a. The man broke the cup.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

Aadmii ne paayle ko toraa (tor diyaa)

7b. The man made the cup break.

TALLY OF RESPONSES IN EACH CATEGORY: ONE TWO TWO

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

Larkii ne bacche ko hansaayaa

8. The girl made the baby laugh.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

The same	Almost the same	Between same and different	Fairly different	Very different
----------	-----------------	----------------------------	------------------	----------------

Aadmi ne kamiiz ko jalaayaa (jalaa diyaa)

9a. The man burned the shirt.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

The same	Almost the same	Between same and different	Fairly different	Very different

Aadmi ne kamiiz ko jalaayaa (jalaa diyaa)

9b. The man made the shirt burn.

TALLY OF RESPONSES IN EACH CATEGORY: TWO THREE

The same	Almost the same	Between same and different	Fairly different	Very different

Adhyaapak ne siitii bajaayii

10a. The teacher blew the whistle.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

The same	Almost the same	Between same and different	Fairly different	Very different

Adhyaapak ne siitii bajaayii

10b. The teacher made the whistle blow.

TALLY OF RESPONSES IN EACH CATEGORY: ONE ONE THREE

The same	Almost the same	Between same and different	Fairly different	Very different

Giitaa ne ghanti bajaayii

11a. Gita rang the bell

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

The same	Almost the same	Between same and different	Fairly different	Very different

Giitaa ne ghanti bajaayii

11b. Gita made the bell ring.

TALLY OF RESPONSES IN EACH CATEGORY: THREE TWO

The same	Almost the same	Between same and different	Fairly different	Very different

Aadmii ne sher ko garjaayaa

12. The man made the lion roar.

TALLY OF RESPONSES IN EACH CATEGORY: FIVE

The same	Almost the same	Between same and different	Fairly different	Very different

Appendix 2

A LIST OF VERBS USED IN TESTS 1-4

CLASS A1: PHYSICAL-CHANGE-OF-STATE VERBS

Known verbs: Tests 1 and 2

MELT

CRACK

BURN (A LETTER)

New verbs: Test 4

RUPTURE

REKINDLE

DETONATE

A2: ACCIDENTAL CAUSATION

Known verbs: Tests 1 and 2

BREAK

BURN (A SHIRT)

FALL

B1: MANNER-OF-MOTION VERBS

Known verbs: Test 1

ROLL

SPIN

New verbs: Test 4

TWIRL

FLIP

GYRE

CLASS B2: DIRECTIONAL MOTION VERBS

Known verbs: Tests 1 & 2

RISE

FALL

New verbs: Test 4

PLUMMET

SOAR

RECEDE

CLASS D: BELLS-AND-WHISTLES VERBS*Known verbs: Tests 1 & 2*

RING

BLOW

CLASS E: FACILITATED/FORCED MOVEMENT VERBS

WALK (with PP)

RUN (with PP)

DANCE (with PP)

JUMP (with PP)

*JUMP (without PP)

??RUN (without PP)

*DANCE (without PP)

• CLIMB (with PP)

CLASS F: INTERNALLY CONTROLLED PROCESSES, GENERALLY INVOLVING ANIMATE ENTITIES ("UNERGATIVE" VERBS)**F1. VERBS OF EMOTIONAL EXPRESSION****F2. VERBS OF ANIMAL SOUNDS & MANNER OF SPEAKING****F4. INTERNALLY-CONTROLLED BODILY MECHANISMS***Known verbs: Tests 1 & 2*

LAUGH (F1)

CRY (F1)

BARK (F2)

ROAR (F2)

New verbs: Test 4

BRAY (F2)

WRITHE (F4)

SHRIEK (F2)

PANT (F4)

PURR (F2)

PALPITATE (F4)

F3. EMISSION-OF-SUBSTANCES VERBS (INANIMATE SUBJECTS)*New verbs: Test 4*

SEEP

OOZE

Appendix 3

THE CAUSATIVIZING BEHAVIOUR IN ENGLISH, HINDI-URDU, AND VIETNAMESE OF VERBS USED IN TESTS 1, 2, & 3¹

	ENGLISH	HINDI-URDU	VIETNAMESE
A1. PHYSICAL- CHANGE-OF- STATE			
CRACK (egg)			
BURN (letter)	Direct	Direct	Suppletive
MELT (butter)			
A2. ACCIDENTAL CAUSATION			
BURN (letter)			
	Direct	Direct	Commonly with ("make")
<i>lâm</i>			
BREAK (cup)			
B1. MANNER-OF- MOTION			
ROLL (barrel)			
	Direct	Direct	Direct
SPIN (top)			
B2. DIRECTIONAL MOTION			
RISE (kite)	<i>Make-type causative</i>	Direct	Suppletive
FALL (paint)	Suppletive	Direct	Suppletive or with <i>lâm</i> -type verb

¹ This summary account of the behaviour of the test verbs in English, Hindi-Urdu, and Vietnamese is restricted to the sentences used in the tests. For example, "fall" is being judged vis-à-vis the falling of cans of paint (since this is the context within which "fall" appears in the tests), but not the falling of babies or horses.

ENGLISH

HINDI-URDU

VIETNAMESE

D. BELLS-AND-WHISTLES

RING (bell)

Direct

Direct

Suppletive

BLOW (whistle)

E. FACILITATED/FORCED MOVEMENT

WALK (baby)

RUN (dog)

Suppletive

DANCE (person)

JUMP (horse)

Direct (with PP)

Direct

CLIMB (baby)

Periphrastic

Direct

Suppletive

F. ACTIONS MEDIATED BY INTERNAL MECHANISMS**F1. EMOTIONAL EXPRESSION**

LAUGH (baby)

Make-type causative

Direct

Làm-type causative

CRY (baby)

F2. ANIMAL SOUND

BARK (dog)

Make-type causative

Direct

Làm-type causative

ROAR (lion)

PRODUCTION BASED ON PICTURES

NAME _____

In this task you will be given pairs of pictures, one in which something happens and the other in which someone or something does something. You will be given a sentence that describes the first picture. You will then be asked to say *in a single sentence* what is happening in the second picture. PLEASE NOTE THAT SPELLING IS NOT IMPORTANT IN THIS TASK.



The letter is burning.



What is Alfred doing to the letter?

Answer this question in one sentence, using some form of the word "BURN":

Alfred is _____



The barrel is rolling down the hill.



**What is the man doing to the barrel?
Answer this question in one sentence,
using some form of the word "ROLL":**

The man _____



The baby cried.



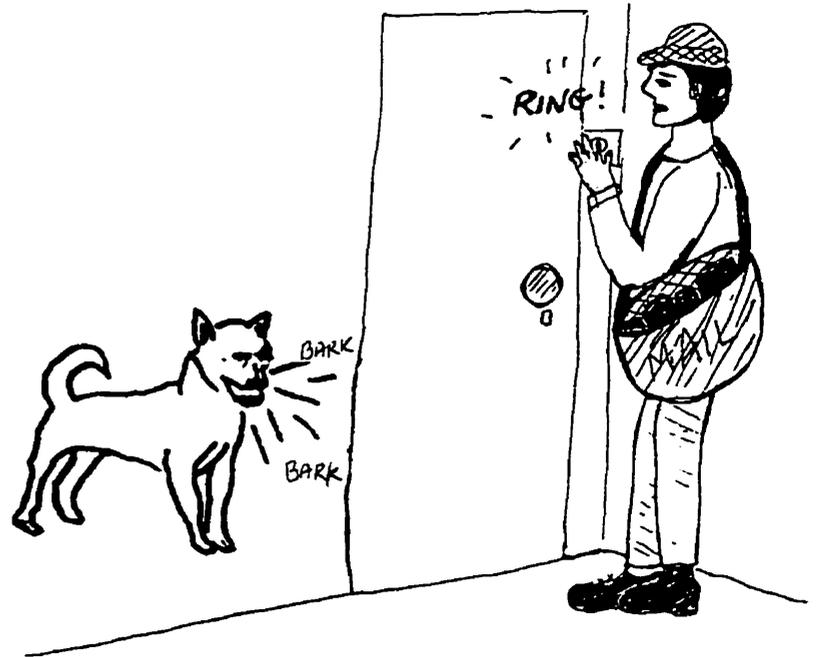
What did the girl do to the baby?

**Answer this question in one sentence,
using some form of the word "CRY":**

The girl _____



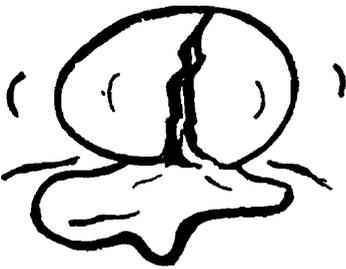
The dog barked when the doorbell rang.



What did the letter-carrier do to the dog?

Answer this question in one sentence, using some form of the word "BARK":

The letter-carrier _____



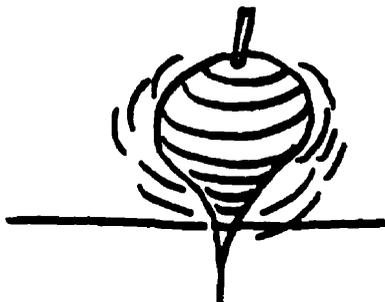
The egg cracked.



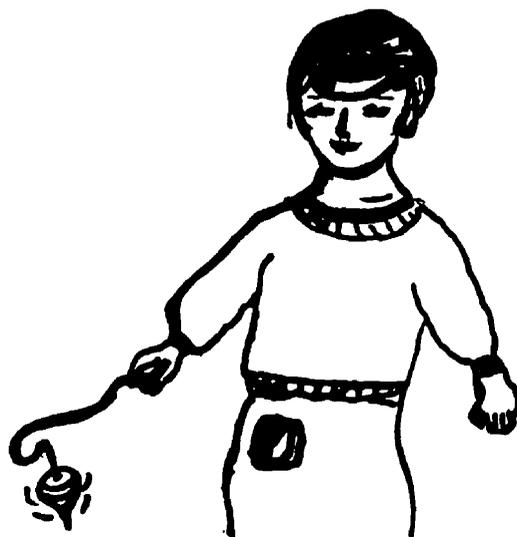
What did the man do to the egg?

Answer this question in one sentence, using some form of the word "CRACK":

The man _____



The top is spinning.



What is the boy doing to the top?
 Answer this question in one sentence,
 using some form of the word "SPIN":

The boy _____

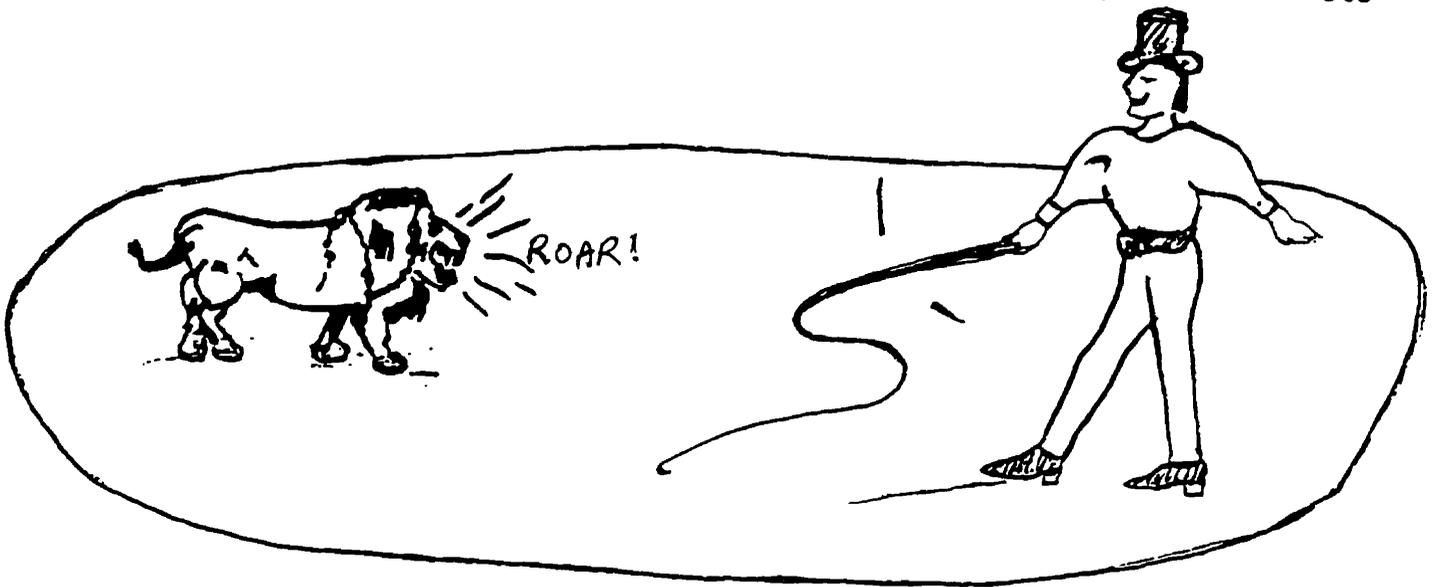


The cup broke.



What did the man do to the cup?
 Answer this question in one sentence,
 using some form of the word "BREAK":

The man _____



The lion roared.

What did the trainer do to the lion?
Answer this question in one sentence,
using some form of the word "ROAR":

The trainer _____



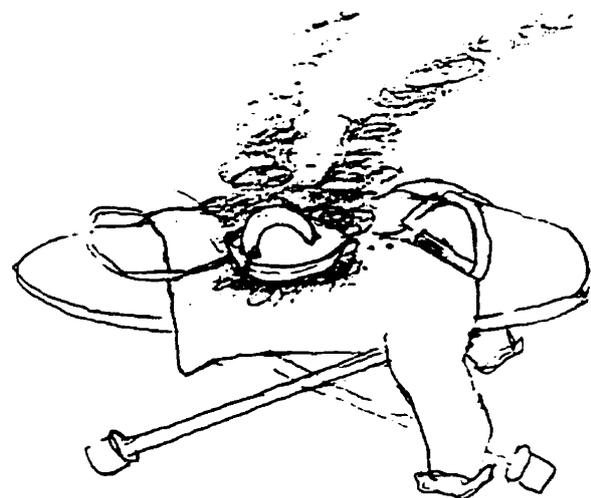
The baby laughed.



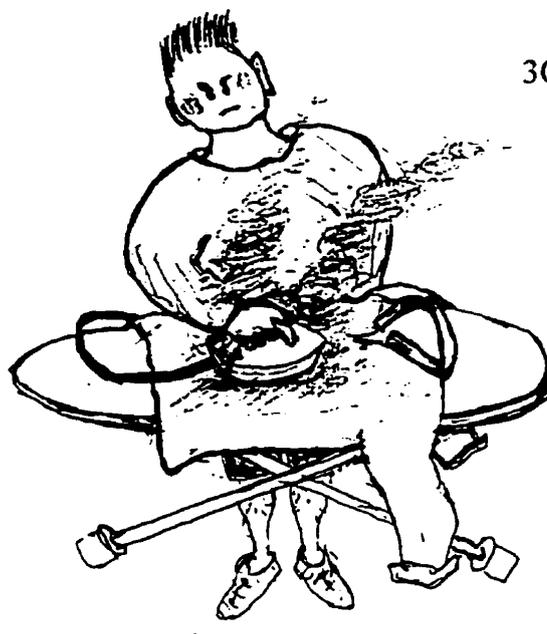
What did the girls do to the baby?

Answer this question in one sentence, using
some form of the word "LAUGH":

The girls _____

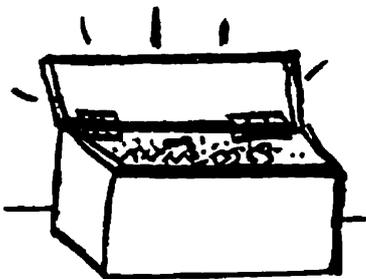


The shirt burned.

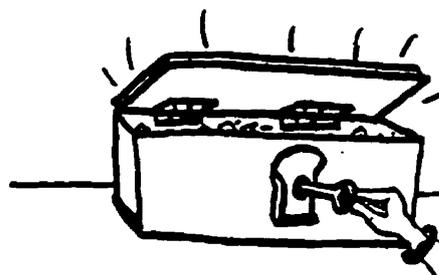


What did the man do to the shirt?
 Answer this question in one sentence,
 using some form of the word "BURN":

The man _____



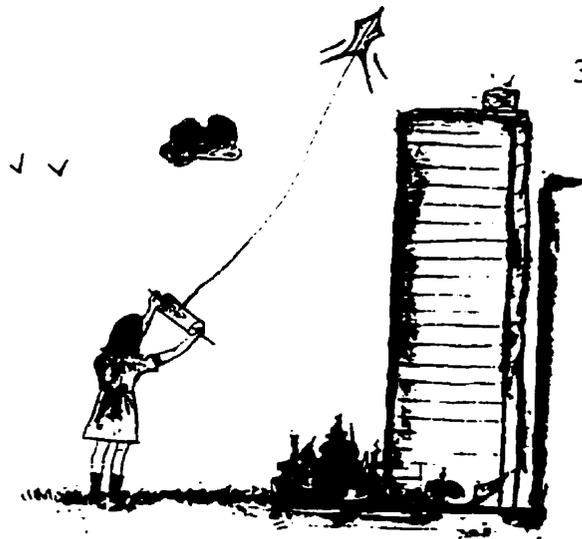
The wooden box opened.



What did the key do?
 Answer this question in one sentence,
 using some form of the word "OPEN":



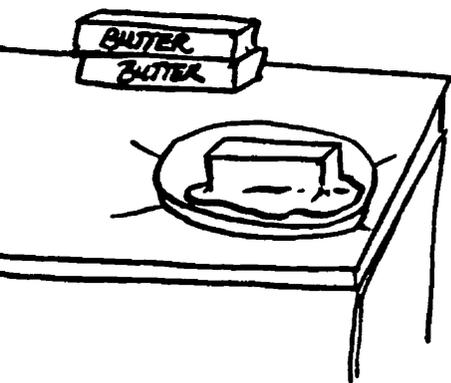
The kite has risen above the tallest buildings.



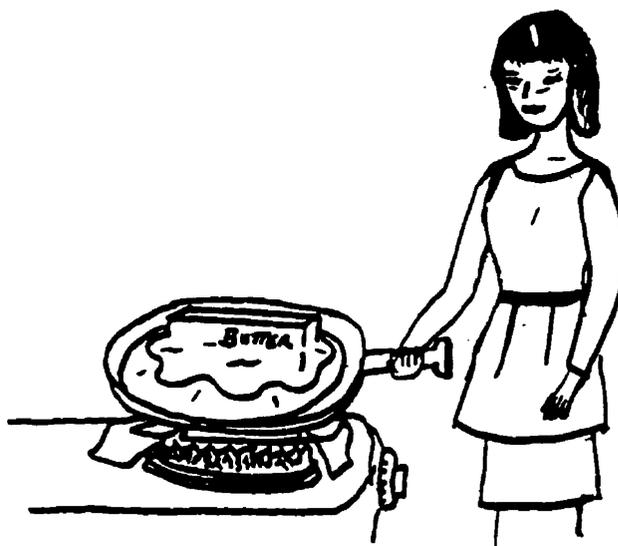
What has the girl managed to do to the kite?

Answer this question in one sentence, using the some form of the word "RISE":

She has managed to _____



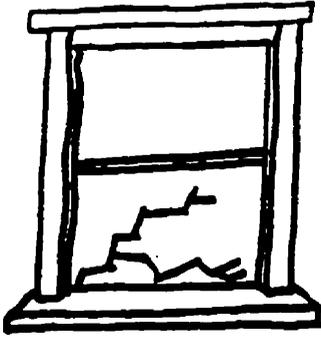
The butter melted.



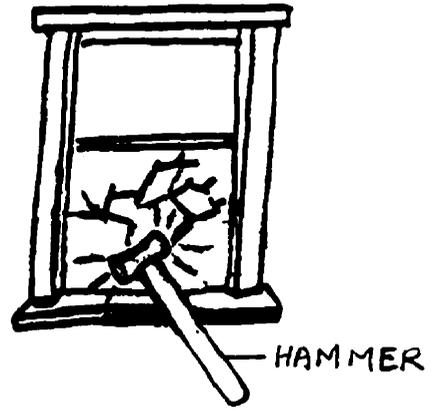
What did Suzie do to the butter?

Answer this question in one sentence, using some form of the word "MELT":

Suzie _____

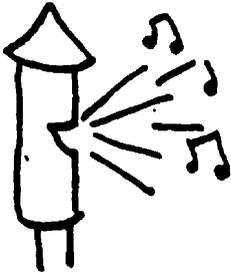


The window broke.



What did the hammer do?

Answer this question in one sentence, using some form of the word "BREAK":



The whistle blew.



What did the man do to the whistle?

Answer this question in one sentence, using some form of the word "BLOW":

The man _____



The bell rang.



What did Harry do to the bell?
Answer this question in one sentence:

Harry _____



The can of paint fell.



What did the man do to the can of paint?
Answer this question in one sentence:

The man _____

TEST 2**JUDGMENT TASK USING PICTURES**

NAME _____

In this task you will be given a question which asks what is happening in a particular picture and two or three answers to the question. You will be asked to say which of these answers is "best. "

BEST = MOST CORRECT IN TERMS OF GRAMMAR AND/OR MEANING

EXAMPLE:

What is the mother doing to the baby?

- ① She is yelling at the baby.
2. She look baby.

CIRCLE THE BEST ANSWER TO EACH QUESTION:



What is Alfred doing to the letter?

1. He is burning the letter.
2. He is making the letter burn.



What did the man do to the egg?

1. He cracked the egg.
2. He made the egg crack.



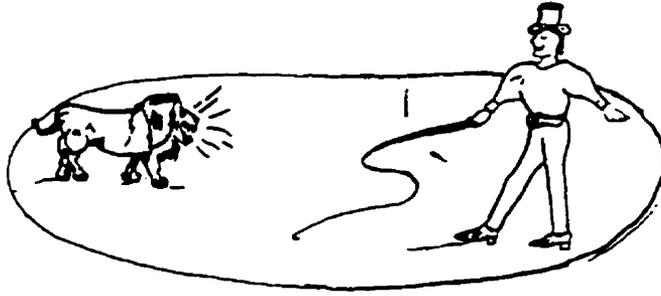
What did the girl do to the baby?

1. She cried the baby.
2. She made the baby cry.



What did the man do to the cup?

1. He broke it.
2. He made it break.



What did the trainer do to the lion?

1. He roared the lion.
2. He made the lion roar.



What did the girls do to the baby?

1. They laughed the baby.
2. They made the baby laugh.



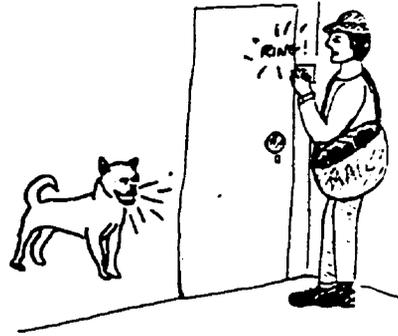
What did Harry do to the bell?

1. He rang the bell.
2. He made the bell ring.



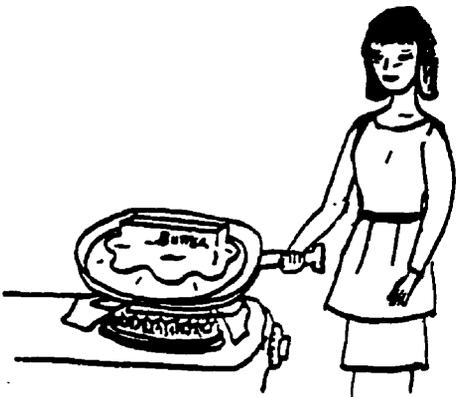
What did the man do to the whistle?

1. He blew the whistle.
2. He made the whistle blow.



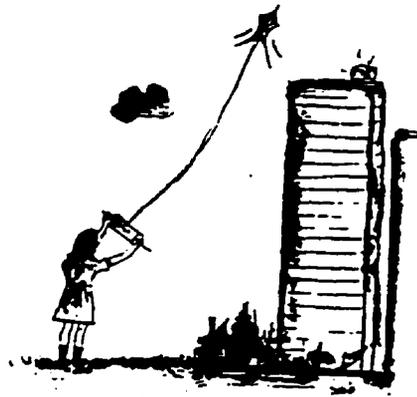
What did the letter-carrier do to the dog?

1. He barked the dog.
2. He made the dog bark.



What did Suzie do to the butter?

1. Suzie melted the butter.
2. Suzie made the butter melt.



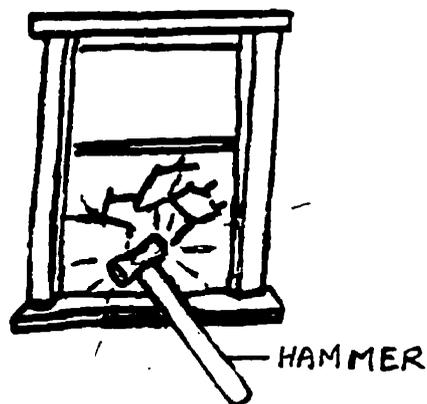
What did the girl manage to do to the kite ?

1. She rose the kite above the tallest buildings.
2. She made the kite rise above the tallest buildings.



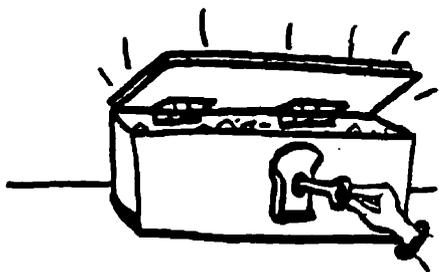
What did the man do to the can of paint?

1. He fell the can of paint.
2. He dropped the can of paint.
3. He made the can of paint fall.



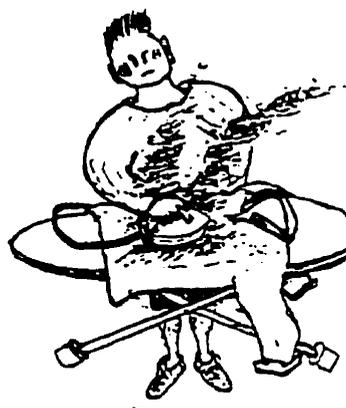
What did the hammer do?

1. The hammer broke the window.
2. The hammer made the window break.
3. The window was broken with the hammer.



What did the key do?

1. The key opened the box.
2. The key made the box open.
3. The box was opened with the key.



What did the man do to the shirt?

1. He burned it.
2. He made it burn.
3. He let it burn.

JUDGMENT TASK USING KNOWN VERBS NAME _____

In this exercise you will be given pairs of sentences. THE FIRST ONE WILL ALWAYS BE GOOD (GRAMMATICALLY CORRECT). You need to say whether the SECOND sentence is good or bad.

GOOD SENTENCE = THE GRAMMAR OF THE SENTENCE IS CORRECT

BAD SENTENCE = THE GRAMMAR OF THE SENTENCE IS NOT CORRECT

EXAMPLES:

My dog bites people. (GOOD SENTENCE)

MY DOG BITES.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

Samson likes Dahlia. (GOOD SENTENCE)

SAMSON LIKES.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

Hoa sent Neelam the letter. (GOOD SENTENCE)

1. HOA SENT THE LETTER TO NEELAM.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The baby walked around the park. (GOOD SENTENCE)

2. TARA WALKED THE BABY AROUND THE PARK.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

Sita coughed. (GOOD SENTENCE)

3. THE DOCTOR COUGHED SITA.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The horse jumped over the stone wall. (GOOD SENTENCE)

4. THE SOLDIER JUMPED THE HORSE OVER THE WALL.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The child climbed onto the table. (GOOD SENTENCE)

5. RICHARD CLIMBED THE CHILD ONTO THE TABLE.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

Could you polish my shoes for me? (GOOD SENTENCE)

6. COULD YOU POLISH ME MY SHOES?

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The people smiled. (GOOD SENTENCE)

7. THE FUNNY ACTOR SMILED THE PEOPLE.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The child danced a lot. (GOOD SENTENCE)

8. THE GRANDMOTHER DANCED THE CHILD A LOT.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

Rudolph returned Mimi the letter . (GOOD SENTENCE)

9. RUDOLPH RETURNED THE LETTER TO MIMI.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The dog ran. (GOOD SENTENCE)

10. MARCUS RAN THE DOG.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The baby slept this afternoon. (GOOD SENTENCE)

11. MARIA SLEPT THE BABY THIS AFTERNOON.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The baby kept jumping. (GOOD SENTENCE)

12. SHE KEPT JUMPING THE BABY.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

Ophelia baked a cake for Hamlet. (GOOD SENTENCE)

13. OPHELIA BAKED HAMLET A CAKE.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The little dog ran to the park. (GOOD SENTENCE)

14. CORDELIA RAN THE DOG TO THE PARK.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

She danced around the living room. (GOOD SENTENCE)

15. HE DANCED HER AROUND THE LIVING ROOM.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The man slipped. (GOOD SENTENCE)

16. THE CHILDREN SLIPPED THE MAN WITH A BANANA PEEL.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

4A. CHECKLIST OF UNCOMMON VERBS

The list below contains some UNUSUAL words. You may not know the meanings of most of them. However, in some cases you might have some idea as to what the word means. In that case, give its approximate meaning.

RUPTURE

a. I don't know what this word means.

b. This word means: _____

OSSIFY

a. I don't know what this word means.

b. This word means: _____

TWIRL

a. I don't know what this word means.

b. This word means: _____

FLIP

a. I don't know what this word means.

b. This word means: _____

DETONATE

a. I don't know what this word means.

b. This word means: _____

REKINDLE

a. I don't know what this word means.

b. This word means: _____

GYRE

a. I don't know what this word means.

b. This word means: _____

RECEDE

a. I don't know what this word means.

b. This word means: _____

SOAR

a. I don't know what this word means.

b. This word means: _____

PLUMMET

a. I don't know what this word means.

b. This word means: _____

WRITHE

a. I don't know what this word means.

b. This word means: _____

QUIVER

a. I don't know what this word means.

b. This word means: _____

PALPITATE

a. I don't know what this word means.

b. This word means: _____

BRAY

a. I don't know what this word means.

b. This word means: _____

PURR

a. I don't know what this word means.

b. This word means: _____

SHRIEK

a. I don't know what this word means.

b. This word means: _____

OOZE

a. I don't know what this word means.

b. This word means: _____

EXUDE

a. I don't know what this word means.

b. This word means: _____

PANT (VERB)

a. I don't know what this word means.

b. This word means: _____

JUDGMENT TASK INVOLVING UNUSUAL WORDS

Once again, in this exercise you will be given pairs of sentences. THE FIRST SENTENCE WILL ALWAYS BE GOOD (GRAMMATICALLY CORRECT). You need to say whether the SECOND sentence is good or bad.

GOOD SENTENCE = THE GRAMMAR OF THE SENTENCE IS CORRECT

BAD SENTENCE = THE GRAMMAR OF THE SENTENCE IS NOT CORRECT

Many of the words in this task are uncommon and you may not know what they mean. To help you decide whether the sentences are good or bad, the meanings of key words will be given to you.

The donkey brayed loudly. (GOOD SENTENCE)

1. THE ANIMAL TRAINER BRAYED THE DONKEY.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

BRAY = to make the sound that is made by a donkey (a small horse-like animal)

Tom's money problems began to recede. (GOOD SENTENCE)

2. TOM'S MOTHER RECEDED HIS MONEY PROBLEMS BY GIVING HIM \$3,000.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

RECEDE = to go backwards, to begin to disappear

The bomb detonated. (GOOD SENTENCE)

3. THE POLICEWOMAN DETONATED THE BOMB.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

DETONATE = to explode, to go off

**The silk umbrella kept twirling in the wind.
(GOOD SENTENCE)**

TWIRL = to go round
and round quickly

4. THE DANCER TWIRLED HER SILK UMBRELLA.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The coin flipped. (GOOD SENTENCE)

FLIP = to go up in the air quickly,
and come down again

5. THE PLAYER FLIPPED THE COIN IN THE AIR.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

**The dead plant exuded a strange smell.
(GOOD SENTENCE)**

EXUDE = when a smell escapes
(comes out) from something slowly
and steadily

6. THE SCIENTIST EXUDED A STRANGE SMELL FROM THE DEAD PLANT.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The substance ossified. (GOOD SENTENCE)

OSSIFY = to become hard, to
become like bone

7. THE SCIENTIST OSSIFIED THE SUBSTANCE.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The child quivered with fear. (GOOD SENTENCE)

QUIVER = to move without control, in a shivering type of movement

8. FEAR QUIVERED THE SMALL CHILD.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

The price of oil began to soar. (GOOD SENTENCE)

SOAR = to go up quickly

9. THE GOVERNMENT SOARED THE PRICE OF OIL.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

Her heart began to palpitate. (GOOD SENTENCE)

PALPITATE = to beat (move) very fast

10. HE PALPITATED HER HEART BY SHOUTING SUDDENLY.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

A few drops of blood oozed out of the cut in the woman's arm. (GOOD SENTENCE)

OOZE = to come out very very slowly, as when small drops of liquid escape (come out) one at a time through a surface.

11. THE DOCTOR OOZED A FEW DROPS OF BLOOD FROM THE CUT.

This sentence is good.

I don't know if this sentence is good or bad.

This sentence is bad.

Our cat purrs a lot. (GOOD SENTENCE)

PURR = to make the sound that a cat makes when it is happy (prrrrrr...)

12. WE CAN PURR OUR CAT EASILY.

This sentence is **good**.

I **don't know** if this sentence is good or bad.

This sentence is **bad**.

The runners panted. (GOOD SENTENCE)

PANT = to breathe loudly and fast

13. THE TRAINER PANTED THE RUNNERS BY FORCING THEM TO RUN TOO FAST.

This sentence is **good**.

I **don't know** if this sentence is good or bad.

This sentence is **bad**.

The fire rekindled. (GOOD SENTENCE)

REKINDLE = to light up again, to start burning again

14. TOAN REKINDLED THE FIRE.

This sentence is **good**.

I **don't know** if this sentence is good or bad.

This sentence is **bad**.

The war plane gyred rapidly. (GOOD SENTENCE)

GYRE = to move in a circle or a series of circles

15. THE PILOT GYRED THE WAR PLANE RAPIDLY.

This sentence is **good**.

I **don't know** if this sentence is good or bad.

This sentence is **bad**.

The animal writhed in pain. (GOOD SENTENCE)

WRITHE = when one's body
twists and turns because of pain

16. THE HUNTER WRITHED THE ANIMAL BY HITTING IT WITH A STICK.

This sentence is **good**.

I **don't know** if this sentence is good or bad.

This sentence is **bad**.

The rubber tube ruptured. (GOOD SENTENCE)

RUPTURE = to burst, to break
apart, to tear

1. THE DOCTOR RUPTURED THE RUBBER TUBE.

This sentence is **good**.

I **don't know** if this sentence is good or bad.

This sentence is **bad**.

Billy shrieked. (GOOD SENTENCE)

SHRIEK = to scream suddenly,
to make a loud, high sound

18. THE SCARY PERSON SHRIEKED BILLY.

This sentence is **good**.

I **don't know** if this sentence is good or bad.

This sentence is **bad**.

**The branch plummeted to the ground.
(GOOD SENTENCE)**

PLUMMET = to go downwards
very quickly

19. THE WOODCUTTER PLUMMETED THE BRANCH TO THE GROUND.

This sentence is **good**.

I **don't know** if this sentence is good or bad.

This sentence is **bad**.

QUESTIONNAIRE**NAME** _____

1. In addition to Hindi/Vietnamese and English, do you speak any other languages?

No _____ Yes _____

If yes, please say which languages: _____

2. How long have you lived in Canada? _____ years _____ months

3. Have you lived in any other English-speaking country?

No _____ Yes _____

If yes, please say how long: _____ years _____ months

4. How long have you studied English in an English/ESL class?

In Canada or another English-speaking country?

In your home country?

_____ years _____ months

_____ years _____ months

5. Which of these have you attended?

Elementary School

High School

College/University

(Grades 1 - 8)

(Grade 9 and up)

Yes _____

Yes _____

Yes _____

No _____

No _____

No _____

No. of years _____

No. of years _____

No. of years _____

6. Which age group do you fall into?

18-29

30-39

40-49

50 or above

Appendix 5

SCORING OF THE PRODUCTION DATA

Examples of errors which were ignored when responses were classified according to causative type

- Spelling mistakes.
- Tense or verb-form errors, as in “The man broked the cup.”
- Missing articles, as in “Man broke cup.”

Identification of Periphrastic Causatives

- Causatives with “make,” “let” and “cause” were included in the “periphrastic” category.
- Some minor deviations from the norm were allowed, as in “The man is making the lion to roar” and “The man is making the lion roaring.”

Identification of Direct Causatives

- Apart from the standard direct causatives, a few constructions were included in this category even when they showed SOV word order (as was the case with a few of the sentences produced by the Hindi-Urdu speakers, Hindi-Urdu being an SOV language). However, some caution was exercised here since what might seem like a direct causative with SOV order could very well be a repetition of the intransitive sentence as in:

The butter melted <-----> Suzie *the butter melted.*

It is possible that in instances like these some of the learners might have simply copied down the intransitive sentence for want of anything else to respond with. Therefore, only when there was a clear indication that some

analysis had take place was the SOV construction considered a direct causative:

The bell rang <-----> Harry the bell *is ringing with his hand*.

The whistle blew<-----> The man whistle *blow*.

Constructions which were excluded from the analysis

- Some responses were excluded because they could not be classified unambiguously, as in “The girls did the baby laughed.” While “do” here may correspond to the Vietnamese *làm* (= “make” or “do”), it may also stem from the “do” in the question, for example “What did the girl *do* to the baby?”
- Other responses were excluded because they could not help to validate or reject any of the hypotheses: This was the case when the learner used a verb that was different from the targeted one, as in:

“Suzie cooked the butter.” (“Cooked” was used instead of “melted.”)

“The letter-carrier tried to calm down the dog.” (“Calm down” was used instead of “make . . . bark.”)

In other cases, the action was attributed to the wrong entity or the construction was non-causative, throwing little light on whether the learner would have preferred to use a direct causative or a periphrastic causative in that particular context, as in:

“The girls laughed at the baby.”

“The letter-carrier barked.”

“The man was giving training to the lion when he roared.”

“The man is angry because the cup is broke.”

- Finally, certain responses had to be excluded because they were incomprehensible, as in “She managed to building the kite has risen” or “The man is fell out of the roll.”

Appendix 6

NATIVE SPEAKER JUDGMENTS

TESTS 1 AND 2: PICTURE-BASED PRODUCTION AND MULTIPLE-CHOICE TASKS RESPECTIVELY

A1: PHYSICAL CHANGE-OF-STATE VERBS

	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 1	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 2
<i>BURN (a letter)</i>	DIRECT CAUSATIVE: 5	DIRECT CAUSATIVE: 5
<i>MELT</i>	DIRECT CAUSATIVE: 5	DIRECT CAUSATIVE: 5
<i>CRACK</i>	DIRECT CAUSATIVE: 5	DIRECT CAUSATIVE: 5

A2: ACCIDENTAL CAUSATION

	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 1	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 2
<i>BURN (a shirt)</i>	DIRECT CAUSATIVE: 5	DIRECT CAUSATIVE: 5
<i>BREAK</i>	DIRECT CAUSATIVE: 5	DIRECT CAUSATIVE: 5

B1. MANNER-OF-MOTION VERBS

	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 1	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 2
<i>ROLL</i>	DIRECT CAUSATIVE: 5	DIRECT CAUSATIVE: 5
<i>SPIN</i>	DIRECT CAUSATIVE: 5	DIRECT CAUSATIVE: 5

CLASS D. BELLS-AND-WHISTLES VERBS

	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 1	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 2
<i>RING</i>	DIRECT CAUSATIVE: 5	DIRECT CAUSATIVE: 5
<i>BLOW</i>	DIRECT CAUSATIVE: 5	DIRECT CAUSATIVE: 5

CLASS B2: DIRECTIONAL MOTION

	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 1	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 2
<i>RISE</i>	PERIPHRASTIC CAUSATIVE: 5	PERIPHRASTIC CAUSATIVE: 5
<i>FALL</i>	SUPPLETIVE CAUSATIVE: 2 PERIPHRASTIC CAUSATIVE: 2 OTHER : 1	SUPPLETIVE CAUSATIVE: 5

**CLASS F: INTERNALLY CONTROLLED PROCESSES,
GENERALLY INVOLVING ANIMATE ENTITIES
("UNERGATIVE" VERBS)**

	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 1	TYPE & FREQUENCY OF NATIVE-SPEAKER RESPONSES: TASK 2
<i>LAUGH</i>	PERIPHRASTIC CAUSATIVE: 5	PERIPHRASTIC CAUSATIVE: 5
<i>CRY</i>	PERIPHRASTIC CAUSATIVE: 5	PERIPHRASTIC CAUSATIVE: 5
<i>BARK</i>	PERIPHRASTIC CAUSATIVE: 5	PERIPHRASTIC CAUSATIVE: 5
<i>ROAR</i>	PERIPHRASTIC CAUSATIVE: 5	PERIPHRASTIC CAUSATIVE: 5

TEST #3: JUDGMENT TASK WITH "KNOWN" VERBS

E1. FACILITATED/FORCED MOTION VERBS: IN A CERTAIN MANNER

Native speaker judgments

Matilda ran the dog to the park.

3 acceptances/1 rejection/
1 "in-between"

He danced her around the living room.

5 acceptances/0 rejections

The soldier jumped the horse over the wall.

4 acceptances/1 rejection

Tara walked the baby around the park.

5 acceptances/0 rejections

*The grandmother danced the child a lot.

0 acceptances/5 rejections

*She kept jumping the baby

0 acceptances/5 rejections

?Bart ran the dog.

2 acceptances/3 rejections

*Richard climbed the child onto the table.

0 acceptances/5 rejections

TEST #4: JUDGMENT TASK WITH "UNKNOWN" VERBS**NATIVE SPEAKER JUDGMENTS****A. PHYSICAL CHANGE-OF-STATE VERBS**

RUPTURE	Unanimous acceptance
DETONATE	Unanimous acceptance
REKINDLE	Unanimous acceptance
OSSIFY	1 acceptance/3 rejections/ 1 "in-between"

B1. MANNER-OF-MOTION VERBS

TWIRL	Unanimous acceptance
GYRE	4 acceptances/1 "in-between"
FLIP	Unanimous acceptance

B2. DIRECTIONAL MOTION

RECEDE	Unanimous rejection
SOAR	Unanimous rejection
PLUMMET	Unanimous rejection

F2. VERBS OF ANIMAL SOUNDS, MANNER OF SPEAKING (ANIMATE SUBJECTS)

BRAY	Unanimous rejection
PURR	Unanimous rejection
SHRIEK	Unanimous rejection

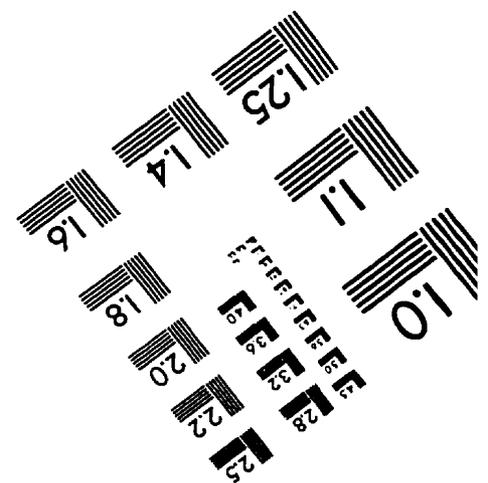
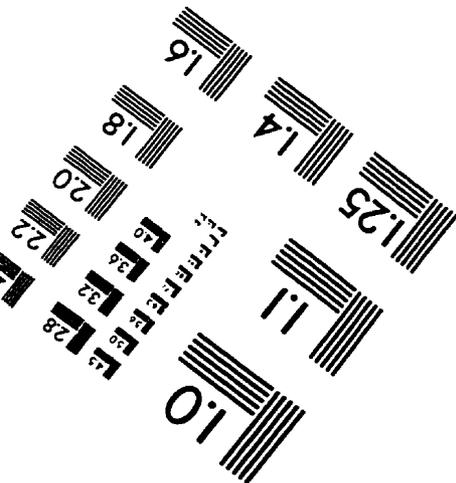
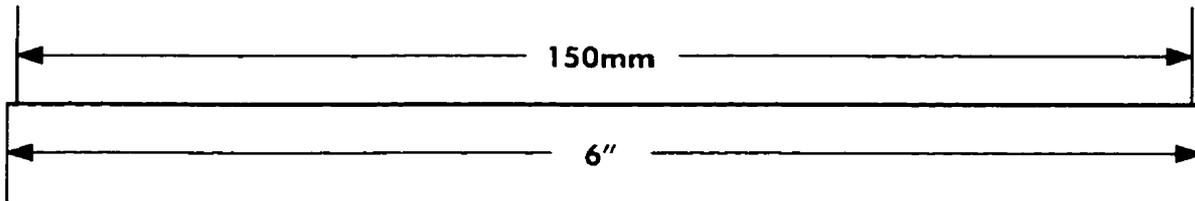
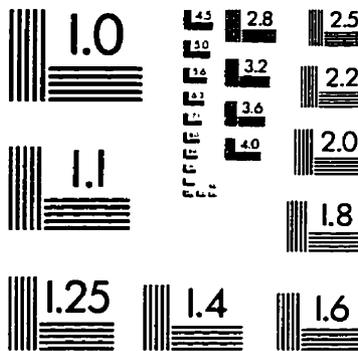
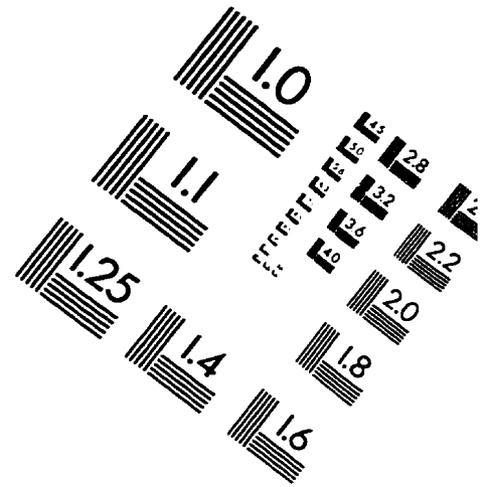
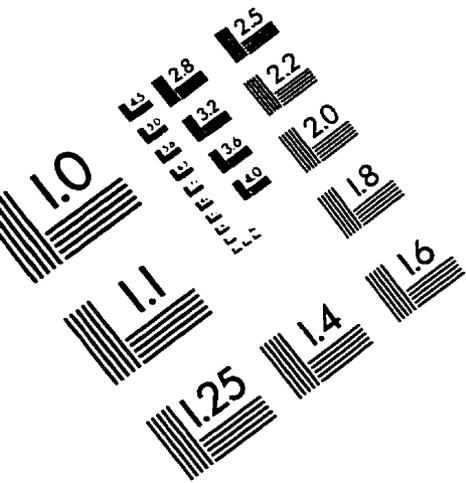
F4. INTERNALLY-CONTROLLED BODILY MECHANISMS (ANIMATE SUBJECTS)

QUIVER	Unanimous rejection
PALPITATE	Unanimous rejection
WRITHE	Unanimous rejection
PANT	Unanimous rejection

F3. EMISSION-OF-SUBSTANCES VERBS (INANIMATE SUBJECTS)

OOZE	Unanimous rejection
SEEP	Unanimous rejection

IMAGE EVALUATION TEST TARGET (QA-3)



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