1. INTRODUCTION

This chapter is an initial report of research in progress. It addresses a topic of considerable interest in recent psycholinguistics: the process by which humans locate Wh-traces in the course of word-by-word parsing of incoming sentences (Fodor, 1978; Stowe, 1986; Carlson and Tanenhaus, 1988; Clifton and Frazier, 1989).

Following most current work, the research reported here focuses on traces that occupy noun phrase (NP) positions within English verb phrases (VPs). It is already known that locating traces in English subject positions is easily accomplished by the human parsing mechanism (Hakes, Evans, and Brannon, 1976; Ford, 1983; Stowe, 1986). That is not surprising, because the cues to subject traces are clear: basically, if there is no overt subject preceding an auxiliary or finite verb, then that subject must be occupied by a Wh-trace. (It is assumed here that a Wh-trace is located only if a fronted Wh-phrase has already been identified.) By contrast, the cues to traces within VPs are not always so clear, due to the variety of possible VP structures and of NP positions within those VP structures.

Also following current work, this research examines the parsing mechanism's initial hypotheses concerning trace location within the VP, i.e., the hypotheses that arise immediately upon recognition of the verb. We already know from intuition that the correct trace location will eventually be determined for virtually any sentence (unless it is difficult to parse for independent reasons); if the trace were not correctly located, then the sentence could not be comprehended. By identifying the parser's initial hypotheses, we can gain insight into the processing principles and the types of information which lead to its determination of the correct location of the trace.

Recent evidence suggests a role for two processing principles, both of which were first clearly formulated by Fodor (1978): the First-Resort Principle and the Lexical Expectation Principle. According to the First-
Resort Principle (in pure form), a trace is hypothesized as occurring at the leftmost position that is grammatically permissible.

Thus, upon recognition of a verb that either obligatorily or optionally takes an NP immediately following it, an NP is hypothesized and it is further hypothesized that this NP is occupied by the trace. According to the Lexical Expectation Principle (pure form), the trace is hypothesized to occur at a position that is specified within the psychologically 'preferred' frame of the verb (usually taken to be the most frequently used frame). Thus, only upon recognition of a verb whose preferred frame specifies an NP is an NP hypothesized with a trace occupying it. If the verb's preferred frame does not specify an NP, then no NP is hypothesized. It is evident that these proposed principles govern not only the hypothesis concerning trace location but also the hypothesis concerning the structure of the VP.

Unfortunately, the Lexical Expectation Principle has generally been presented in an insufficiently elaborated form. The principle has usually been described as concerned only with the specification of an immediately postverbal NP; it is not clear whether a preferred frame may specify the occurrence of additional complements (such as a PP, an S, or another NP). And, then, if the preferred frame did specify more than one complement, it is not clear whether the trace would be hypothesized at the immediately postverbal NP, or within another complement, or at more than one position in parallel. It might appear that Fodor's (1978) supplementary Try-the-Next-Constituent Principle deals with this issue. That principle imposes a delay on hypothesizing the trace at any position until after the parser has checked that the position is not occupied by an overt constituent. But Fodor described the effects of the principle only for the immediately post-verbal position; it is uncertain whether it is intended to apply to subsequent positions. In fact, there is little reason for it to apply at the rightmost position specified by a verb frame, for the trace must occur at that position if it has not occurred at any preceding position.¹

Carlson, Tanenhaus and their colleagues (Carlson and Tanenhaus, 1988; Tanenhaus, Garnsey, and Boland, 1991) have offered evidence that supports the Lexical Expectation Principle as it applies to immediately post-verbal NPs. Their more recent evidence (Boland, Tanenhaus, Carlson, and Garnsey, 1989) suggests further that for verbs whose preferred frame specifies both an immediately postverbal NP and another complement, the default hypothesis is that the trace occupies the earlier