In this chapter, we present analyses that address the questions of how extendable first verb uses are in terms of function and meaning. The model of the child as a conservative language learner suggests that children should restrict the functions of their first verbs to those they have heard in input and thus, to the degree that input illustrates only some functions children’s verb uses, should show a restricted range of functions for each verb when it is first used (Golinkoff et al., 1995; Maguire et al., 2006; Tomasello, 1992). The conservative-child model also suggests that children should initially use some verbs with reference to only the event that verb was first paired with. The evidence that verb use in maternal speech to children is frequently tied to particular settings (Naigles & Hoff, 2006) suggests that a conservative language learner would be similarly restrictive in verb production. Such a conservative child might, for example, use “throw” only as a command to throw a ball or “eat” only in reference to eating cookies but not pizza, or only in reference to themselves eating but not their parents. If children’s initial uses of their early verbs are underextended in the same fashion as early noun uses, we should expect to find the diary records of the children’s initial verb instances replete with identical entries down the 10 rows. In contrast, if verb meanings and functions are extended almost from the beginning, then we should expect to find the diary records containing a varied set of entries even within the first 10 uses of children’s very early verbs.

To test these predictions, we describe the pragmatic, semantic, and action flexibility that the children demonstrated in their first 10 uses of the target verbs they produced during the course of this study, and we compare the measures of flexibility for light and heavy verbs, and for transitive, intransitive, and alternating verbs.
PRAGMATIC FLEXIBILITY

Commands and Descriptions

The pragmatic categories of “command” and “description” together account for 98.6% of the verb-containing utterances in the diary records; 45.4% of verb uses were in commands and 53.2% were in descriptions. These proportions are in line with other findings for this age group (e.g., Vasilyeva, Waterfall, & Huttenlocher, 2008). All of the children used at least one verb in both sorts of utterances. On average, the children produced both commands and descriptions with 53% of their verbs ($SD = 13\%$); the range was from 33% (Stacey) to 71% (Carl). They produced commands only with an average of 21% of their verbs ($SD = 16\%$) and descriptions only with an average of 25% of their verbs ($SD = 14\%$). Four children used more verbs only in commands than only in descriptions, three children used more verbs only in descriptions than only with commands, and one child used the same number of verbs only with commands and only in descriptions (see Figure 2). Thus, different children tended to use language for different communicative functions; however, all children were able to use at least some of their verbs in utterances serving different functions.

Some verbs were more likely to be used in commands and others in descriptions; the average percent of children using a verb in both utterance types within their first 10 instances was 53% ($SD = 27\%$). Some verbs were used in both utterance types by all of the children (bring, take), whereas

![Figure 2](image)

**Figure 2.**—Communicative functions of early verb uses.
others never were (*fall* and *drop* were used only in descriptions). Seven verbs (*bite, bring, kiss, pull, push, take, and walk*) were used both as commands and descriptions by 80% of the children or more, *stop* was used only in commands by 80% of the children, and *like* was used only in descriptions by 80% of the children. These findings seem to follow from the meanings and typical usages of these verbs: *Fall* and *drop* were used most commonly in reference to the actions of inanimate objects, which are not likely to respond well to commands; moreover, as *like* is a verb of internal volition, it is not likely to be the subject of commands (children do not tell adults to like things). Thus, where verbs were tied to specific functions the restricted use seems explicable in terms of the verb’s meaning rather reflecting context bound representation on the part of the child. The majority of verbs were used as both commands and descriptions by the majority of children, and when verbs were used to serve both functions, the second function appeared on average by the fourth instance of use of that verb (*M* = 4.32, *SD* = 0.89) and within 16.91 days (*SD* = 11.83).

Some differences emerged between light and heavy verbs in terms of these pragmatic properties. The children were more likely to use light verbs only as commands than heavy verbs, *M* = 0.39 (0.30) and 0.14 (0.12), respectively, *t*(7) = 3.01, *p* = .05, Cohen’s *d* = 1.09, and less likely to use light verbs only as descriptions, *M* (light) = 0.08 (0.13), *M* (heavy) = 0.30 (0.17), *t*(7) = −3.00, *p* = .05, Cohen’s *d* = 1.92. Similarly, light verbs tended to be used more frequently than heavy verbs only as commands, *M* = 0.33 (0.27) and 0.16 (0.25), respectively, *t*(32) = 1.66, *p* = .10, Cohen’s *d* = 0.67, and less frequently only as descriptions, *M* (light) = 0.10 (0.09), *M* (heavy) = 0.32 (0.31), *t*(32) = −1.92, *p* = .10, Cohen’s *d* = 0.79.

**Addressee Flexibility (For Command Utterances Only)**

When using verbs to command, all children used at least one verb with more than one addressee; however, again, there was considerable variability among children in the addressee flexibility they demonstrated. Figures 3a and 3b show the mean percent of verbs with which the children used more than one addressee and the mean instance at which the first change in addressee took place. On average, the children displayed addressee flexibility with 50% of their verbs (*SD* = 21%). For those verbs that were used flexibly, the children did so on average before the fifth instance (*M* = 4.72, *SD* = 0.58), and on average within 13.29 days (*SD* = 10.03 days) of the first instance. Within the first 10 instances of a verb’s use, the number of addressees ranged from 1 to 4 (*M* = 1.86, *SD* = 0.66). Most of the verbs (81.25%) were used with more than one addressee from at least one child; however, six verbs (*wave, like, jump, cry, clap*, and *bring*) were used with only one addressee by each child. Verbs on average were used with addressee
flexibility by 41% of the children \((SD = 26\%)\). Verbs in commands were used with a different addressee from the first instance within, on average, 14.47 days of the first use \((SD = 19.96\) days\) and by the fifth instance of the use of that verb \((M = 4.36, SD = 1.25\)\). When the measures of addressee flexibility are compared for the light and heavy subclasses, none of the analyses by child yielded significant differences. The analyses by verb yielded one difference: Light verbs were used with significantly more addressees than heavy verbs, \(M\) (light) = 2.04 (.55), \(M\) (heavy) = 1.58 (.44), \(t(30) = 2.36, p = .05\), Cohen’s \(d = 0.98\).

In sum, when verbs first enter children’s productive lexicons, children do not seem to uniformly restrict these verbs to a single utterance function, nor to a single addressee. They use about half of their verbs in both commands and descriptions, and they direct their commands, with about half of their verbs, to multiple addressees. One limitation of change of addressee as a measure of children’s flexibility of verb use is that, over the course of a day,
these children have only a limited number of possible addressees: mother, sibling, pet, and father. Thus, children who reach their 10 instances of a given verb quickly might be less likely to demonstrate addressee flexibility because fewer different addressees are available.

SEMANTIC FLEXIBILITY

Action Flexibility

Figures 4a and 4b show for each child the percent of verbs used in reference to more than one action and the mean instance at which the first change in action referent occurred. On average, children made reference to more than one action with 38% of their verbs (SD = 19%). For those verbs

![Bar chart showing action flexibility](image)

**Figure 4.**—(a) Percent of verbs used with action flexibility and (b) onset of action flexibility in early verb use.
showing action flexibility, children’s first new action use occurred on average before the fifth instance \((M = 4.6, SD = 0.85)\) and within 15.54 days \((SD = 13.50)\) after the first instance. The number of actions per verb within the first 10 instances ranged from one to four; six of the eight children referred to at least three different actions with at least one verb. Across verbs, an average of 33\% of the children \((SD = 20\%)\) referred to more than one action within the first 10 instances of producing a verb. *Come* was used to refer to more than one action by six of the children; *put* and *open* were used to refer to more than one action by five of the children. The first change in action reference occurred on average by the fifth instance \((M = 5.1, SD = 1.99)\) and on average within 27.14 days of the first use \((SD = 35.77)\).

**Actor Flexibility**

Figures 5a and 5b show for each child the percent of verbs used in reference to more than one actor and the mean instance at which the first change in actor occurred. All children used at least 50\% of their verbs in

![Figure 5](image-url)

**Figure 5.**—(a) Percent of verbs used with actor flexibility and (b) onset of actor flexibility in early verb use.
reference to more one actor. On average, children made reference to more than one actor with 73% of their verbs (SD = 13%). For those verbs showing actor flexibility, the first new actor use occurred on average before the fourth instance (M = 3.9, SD = 0.77) and within 15.79 days (SD = 12.06) after the first instance. The number of actors per verb within the first 10 instances ranged from 1 to 5 (M = 2.68, SD = 1.0). Across verbs, an average of 76% of the children (SD = 20%) referred to more than one actor within the first 10 instances of producing a verb; eight of the verbs were used with different actors by all the children. The first change in actor reference occurred on average before the fourth instance (M = 3.85, SD = 1.01) and on average within 16.91 days of the first use (SD = 13.91).

The percent of children’s verb uses that referred to themselves as actors ranged from 11% (Stacey) to 70% (Carl). On average, 51% (SD = 18.1%) of children’s first 10 uses of these early verbs concerned themselves as actors. Among verbs, the percent of uses that referred to self as actors ranged from 0% for the verbs cry, look, move, open, and pull (the latter four primarily in commands) to 100% for the verbs clap, like, and want. Cry was used exclusively in reference to infant siblings or fictional characters. Mean percent of self as actor uses calculated across verbs was 50.8% (SD = 30%).

Affected Object Flexibility

Figures 6a and 6b show the percent of transitive and alternating verbs used in reference to more than one affected object and the mean instance at which the children produced their first change in affected object reference. (Intransitive verbs, of course, do not have affected objects.) Children referred to different affected objects on average with 89% of their verbs (SD = 9.8%). For those verbs that were used flexibly, the children referred to a new affected object on average before the fourth instance (M = 3.33, SD = 0.79) and within 11.68 days (SD = 7.93) of the first instance. The number of affected objects referred to within the first 10 instances ranged from 1 to 8 (M = 4.69, SD = 1.77). The proportion of children who made reference to more than one affected object averaged 79% across verbs (SD = 31). Twelve of the transitive and alternating verbs were used with different affected objects by all children, whereas only two verbs (jump, lay) appeared with only one affected object in every child’s productions. The first change in affected object reference occurred on average before the fourth instance (M = 3.34, SD = 0.97) and within 12.40 days (SD = 7.61).

The above descriptions (and compare Figures 5a, 5b and 6a, 6b) suggest that the children displayed a higher degree of affected object flexibility than actor flexibility. Paired t tests confirmed this difference for two of the three flexibility measures: By children, the t tests revealed a significant difference in the percent of verbs showing actor compared with affected
object flexibility, $t(7) = 6.02, p = .0005$, Cohen’s $d = 1.39$, and a significant difference in when the first different actor was produced compared with when the first different affected object was produced, $t(7) = 3.42, p = .01$, $d = 0.73$. Comparison of the number of days to actor and affected object change showed a trend in the same direction, $t(7) = 1.599, p < .10, d = 0.40$. By verbs (only the transitive and alternating verbs are included), the $t$ tests revealed significant differences for the mean instance of change measure, $t(22) = 2.16, p = .04, d = 0.62$, and the number of days to first change measure, $t(22) = 2.78, p = .01, d = 0.37$, but not for the percent of children showing flexibility, $t(24) < 1, ns$. (The degrees of freedom differ in these analyses because two verbs displayed no affected object flexibility.)

We next compared the different verb subclasses in terms of actor and affected object flexibility. Children produced a significantly higher percent
of their light verbs with reference to different affected objects than that they
did for heavy verbs, $M$ (light) = 0.98, $SD = 0.06$, $M$ (heavy) = 0.81,
$SD = 0.20$, $t(7) = 2.29$, $p = .055$, Cohen’s $d = 1.15$, and light verbs tended
to be produced with different actors by a higher percent of children than
did heavy verbs, $M$ (light) = 0.87, $SD = 0.18$, $M$ (heavy) = 0.72, $SD = 0.19$,
$t(32) = 1.88$, $p = .068$, Cohen’s $d = 0.80$. There were no differences among
the categories of transitive, intransitive, and alternating verbs in actor flex-
ibility and no difference between transitive and alternating verbs in affected
object flexibility.

These data reveal a picture of pragmatic and semantic flexibility in early
verb use. For example, these children were very likely to use eat in reference
to multiple foods and multiple eaters. Eating, for them, was not a restricted
category that applied to a single type of situation but one that applied across
(at least) different foods being eaten (which are, of course, eaten in different
ways—cookies are chewed, ice cream is licked, cereal is slurped) and dif-
ferent people and animals doing the eating (showing that the children were
able to generalize across different mouth motions to an inclusive rather than
restricted meaning for eat). This picture suggests that children’s first verb
uses differ from their first noun uses, which can be quite inflexible (Dromi,
1987; Harris et al., 1988).

The present findings also differ from other descriptions of early verb
use in the literature. Contrary to the predictions of Huttenlocher et al.
(1983), children’s very first verb uses were not consistently in reference to
their own actions or relations; children were just as likely to talk about
someone else’s actions as their own. Interestingly, more flexibility was ob-
served with affected objects than with actors; we conjecture that this is be-
cause there is a greater range of possible affected objects in a child’s home
(e.g., toys, food, household items) than of possible actors (e.g., animates).
Light verbs were produced with more varied affected objects than heavy
verbs, which is consistent with the notion that light verbs apply to a wider
range of items (one can bring just about anything) than heavy verbs (usually,
one eats only food, kisses only animates, and rolls only round things; see also
Goodman & Sethuraman, 2006; Snedeker & Gleitman, 2004; Valian et al.,
2006). Overall, then, these analyses of the functions and semantics of early
verb use suggest that when verbs enter children’s productive lexicons they
are not tied to particular uses but are available to serve multiple commu-
nicative functions, to refer to a variety of actions, and to refer to the actions
and relations they denote with multiple agents and affected objects.