**Disambiguation Effect Studies – Merriman lab**

**Merriman & Bowman (‘89) - Experiment 1**

Three age groups: 2-0, 3-0, and 4-0. N = 12 per group.

Child played with 8 novel objects for five minutes. Later these appeared in some of the test trials. We refer to these as familiar tokens of novel kinds.

Child then received 16 trials in which they were asked to select the referent of a novel label from a pair of objects. Four types of object pairs were presented (4 instances of each, intermixed):

Familiar kind vs. Novel kind (FK vs NK)[2]

Familiar kind vs. Novel kind (familiar token) (FK vs. NK\*)[1]

Novel kind vs. Novel kind (NK vs. NK)[3]

Novel kind vs. Novel kind (familiar token) (NK vs. NK\*) [On these trials the novel label was the

name for the NK\*.][4]

Results: Proportion Correct. Note that the label was a name for the NK\* in the trials in which these appeared

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pair Type | Age Mos. | Mean | Std. Deviation | N |
| FK vs. NK | 24 | .6042 | .27091 | 12 |
| 36 | .7084 | .29821 | 12 |
| 48 | .9583 | .09731 | 12 |
| Total | .7570 | .27696 | 36 |
| FK vs. NK\* | 24 | .2917 | .31683 | 12 |
| 36 | .6667 | .38925 | 12 |
| 48 | .9167 | .16283 | 12 |
| Total | .6250 | .39415 | 36 |
| NK vs. NK | 24 | .4583 | .17944 | 12 |
| 36 | .5625 | .21651 | 12 |
| 48 | .5208 | .16714 | 12 |
| Total | .5139 | .18846 | 36 |
| NK vs. NK\* | 24 | .3369 | .19350 | 12 |
| 36 | .3125 | .32201 | 12 |
| 48 | .3817 | .26940 | 12 |
| Total | .3437 | .26079 | 36 |

\* denotes familiarized token

**Merriman & Bowman (‘89) - Experiment 2**

Three age groups: 2-1, 2-8, and 3-5. N = 16 per group.

Child was shown 50 colored drawings of objects and asked to name each object. The ones the child named correctly were considered familiar kinds and the ones the child could not name were considered novel kinds.

Child then received two types of word mapping trials (6 instances of each, intermixed):

FK vs. NK\* - Had to select the referent of a novel label from a pair of drawings. One of the drawings depicted a familiar kind of object. They had not seen this picture during the naming phase of the experiment, so it was a novel token of a familiar kind (FK). The other choice was one of the drawings they had seen during the naming phase and had not been able to name. So it was a familiar token of a novel kind (NK\*).

FK vs. FK\* - Had to select the referent of a familiar label from a pair of drawings. One depicted a familiar kind that had not been presented during the naming phase (FK). The other was one of the drawings they had seen during the naming phase and had named them correctly (FK\*). The test label on these trials was always the name for this object. Children had no problem with these trials. Even the youngest group got 97% of these trials correct.

Results for FK vs. NK\*:

|  |  |  |  |
| --- | --- | --- | --- |
| AgeMos | Mean | Std. Deviation | N |
| 25 | .5031 | .23479 | 16 |
| 32 | .8489 | .15025 | 16 |
| 41 | .8971 | .14161 | 16 |
| Total | .7497 | .24938 | 48 |

**Merriman & Bowman (‘89) - Experiment 4**

Two age groups: 2-9 and 4-4. N = 18 per group.

Child played with three novel kinds of objects for 2 minutes.

Child received three trials in they had to select the referent of a novel label from a pair of objects. Each pair consisted of a novel kind that they had played with (NK\*) and a familiar kind that they had not seen before the test (FK).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pair Type | AgeMos | N | Mean | Std. Deviation | Std. Error Mean |
| FK vs. NK\* | 52 | 18 | .9815 | .07849 | .01850 |
| 33 | 18 | .8059 | .23747 | .05597 |

\* denotes familiarized token

**Merriman & Schuster (‘89) –**

Two age groups: 2-0 and 4-0. N = 48 per group.

Each age group divided into three groups: Distinctive Word, Similar Word, No Word

Distinctive Word: Children were asked to select the referent of a novel word from pairs of objects. All pairs involved a choice between an FK and an NK. For half of the pairs, the FK was a typical exemplar, and for the other pairs, the FK was an atypical-looking exemplar of its kind. Crossed with that variable, for a half of the pairs, the token of the NK was familiar (familiarized before the test, NK\*), and for the other pairs, it was novel.

Similar Word: Same as Distinctive Word except that the novel word always sounded similar to the name for the FK (Which one is a japple? re an apple and a novel kind)

No Word: Same four types of object pairs as the other conditions, but children were only instructed to pick one. Both condition showed a preference to pick the FK over NK (.60 in 4 yos. and .69 in 2 yos) and to pick the FK over NK\* (.73 in 4 yos. and .85 in 2 yos.) Typicality of the FK did not affect their selections.

Results for Distinctive Word Condition

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pair Type | AgeYrs | Mean | Std. Deviation | N |
| FK (typical) vs. NK | 2.0 | .6777 | .30175 | 16 |
| 4.0 | .8963 | .20056 | 16 |
| Total | .7870 | .27541 | 32 |
| FK (typical) vs. NK\* | 2.0 | .4256 | .35998 | 16 |
| 4.0 | .7700 | .31696 | 16 |
| Total | .5978 | .37672 | 32 |
| FK (atypical) vs. NK | 2.0 | .5844 | .19487 | 16 |
| 4.0 | .6669 | .36576 | 16 |
| Total | .6256 | .29131 | 32 |
| FK (atypical) vs. NK\* | 2.0 | .3751 | .37775 | 16 |
| 4.0 | .6669 | .32296 | 16 |
| Total | .5210 | .37615 | 32 |

\* denotes familiarized token

Main Effect of Age:

AgeYrs Mean Std. Error

2.0 .516 .055

4.0 .750 .055

Age x Typicality of FK:

AgeYrs Typicality Mean Std. Error

2.0 Typical .552 .060

Atypical .480 .066

4.0 Typical .833 .060

Atypical .667 .066

Age x Token Novelty of NK:

AgeYrs Token Mean Std. Error

2.0 Novel .631 .060

Fam .400 .070

4.0 Novel .782 .060

Fam .718 .070

Results for Similar Word Condition

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pair Type | AgeYrs | Mean | Std. Deviation | N |
| FK (typical) vs. NK | 2.0 | .4794 | .31657 | 16 |
| 4.0 | .4788 | .29884 | 16 |
| Total | .4791 | .30283 | 32 |
| FK (typical) vs. NK\* | 2.0 | .3331 | .29890 | 16 |
| 4.0 | .3338 | .38567 | 16 |
| Total | .3334 | .33941 | 32 |
| FK (atypical) vs. NK | 2.0 | .4893 | .34701 | 16 |
| 4.0 | .3331 | .27354 | 16 |
| Total | .4112 | .31744 | 32 |
| FK (atypical) vs. NK\* | 2.0 | .3021 | .31222 | 16 |
| 4.0 | .2288 | .26508 | 16 |
| Total | .2654 | .28732 | 32 |

\* denotes familiarized token

Main Effect of Age:

AgeYrs Mean Std. Error

2.0 .401 .052

4.0 .344 .052

Age x Typicality of FK:

AgeYrs Typicality Mean Std. Error

2.0 Typical .406 .063

Atypical .396 .056

4.0 Typical .406 .063

Atypical .281 .056

Age x Token Novelty of NK:

AgeYrs Token Mean Std. Error

2.0 Novel .484 .060

Fam .318 .068

4.0 Novel .406 .060

Fam .281 .068

**Merriman, Marazita, & Jarvis (’93) – Experiment 1 Disamabiguation Effect for Verbs**

Just one age group: 4-1. N = 32. Divided into two conditions: Novel Word and No Word. Two children in the Novel Word condition were dropped because in a post-test they name

Novel Word: Children viewed 12 pairs of videos. Each pair consisted of a person performing a novel kind of action and the same person performing a familiar kind of action. Children were asked to point to the action that was the referent of a novel verb. Four types of action pairs (3 of each, intermixed) were presented, representing a 2 (Focus of action: Self vs. Object) x 2 (Token novelty of the NK: Familiar vs. Novel) factorial design. Self-focused actions were not addressed to an external object (e.g., man whirling forearm in the horizontal plane in front of him vs. man running). The request to choose the referent from these involved an intransitive verb phrase (e.g., “Can you point to the one of the man jeggering?”) Object-focused actions were addressed to an external object (e.g., woman drinking orange juice vs. woman bobbing fist up and down in orange juice). The request for these involved a transitive verb phrase (e.g., “Can you point to the one of the woman jeggering orange juice?”)

(Note that two children in this condition were dropped because in a post-test they named nearly every novel action. So N = 14 in this condition.)

No Word: Saw the same pairs of videos as the other condition, but were merely asked to pick one of them. Children’s selections were not affected by focus of action. On trials in which the NK was a novel token, they selected it on .50 trials. On trials in which the NK was a familiar token (seen before the test), they selected it on .40 trials.

Results for the Novel Word Condition

|  |  |  |  |
| --- | --- | --- | --- |
| Pair Type | Mean | Std. Deviation | N |
| FK vs. NK | .7686 | .21382 | 14 |
| FK vs. NK\* | .5545 | .30349 | 14 |

\* denotes familiarized token

Overall Mean : .662 SD = .210

**Merriman, Marazita, & Jarvis (’93) – Experiment 2 Disambiguation Effect for Object Labels**

One age group – 4:1. N = 64

The disambiguation effect in Exp. 1 was quite a bit weaker than the one that 4-year-olds have shown for object labels. However, there were other features of Experiment 1 that were unique, such as the use of simultaneous videotapes and the grammatical complexity of the test questions. So we tested the disambiguation effect for novel object labels in two conditions. We also tested children response to the No Word control instructions in these conditions as well.

Object in Action Context: Children were shown 12 pairs of videos. Each pair consisted of a person performing a familiar kind of action on a familiar kind of object and the same person performing the same action on a novel kind of object. For example, one presented a man patting a book and the same man patting a pizza cutter. In the Novel Word condition, children were asked, “Can you point to the one of the man patting the jegger (or whatever the novel label was)?” In the No Word condition, they were simply asked to “pick one of these.” As in Experiment 1, half of the novel kinds were familiarized tokens and half were novel tokens.

Object in Static Context: Same procedures, except that the objects were presented (via video) in static contexts. There was no actor or action portrayed in the videos. In the Novel Word condition, children were asked, “Can you point to the jegger (or whatever the novel label was)?” In the No Word condition, they were simply asked to “pick one of these.”

Results for the No Word conditions: Children showed a preference for the familiar kinds, selecting them on .66 of the trials. This preference was not affected by the token familiarity/novelty of the novel kind.

Results for the Novel Word conditions: Children’s mapping of the novel words was unaffected by type of context or by token novelty. They showed a strong disambiguation effect (M proportion = .85). Unfortunately, I could not find the original data sheets or computer files. So I don’t know the SD for this proportion. A simple effects test did indicate the mean proportion in Experiment 2 (i.e., for object labels) was greater than that in Experiment 1 (i.e., for action verbs), F (1,86) = 9.62, p < .005.