

The Development of Children's Responses to
Questions—a Comparison of English and French

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Abstract

At a very early age, children recognize the need to respond to questions posed directly to them; the acquisition of appropriate response forms, however, is a more gradual process. This process of acquisition was studied in two children: one native English speaker and one native French speaker, both of whom were in their early twos at the onset of the study. By calculating the frequency of different types of responses in each child's speech, their abilities to form more complicated and correct responses were seen to progress in stages. Over the course of approximately 1.2 years, the recorded responses evolved from non-informational repetition to original, appropriate, and grammatically correct responses. Comparison of the responses in both languages indicate that the stages of response development are not language-specific.

1 Introduction

The ability to respond appropriately to a question is a difficult skill for the child speaker to acquire. Every language has a set of established parameters for socially acceptable adult responses, limiting the scope of acceptable responses [9]. With regard to yes/no (YN) questions, Steffenson points out that “In even a very simple question, the child must understand that there is an implicit choice involved and that this choice directly concerns the relationship of the predicate and the subject. [9]” This relationship is further complicated in the two languages used in this study, English and French, in that the positions of the subject and verb are reversed in some interrogative forms.

The first step in mastering responses to questions is recognizing when a response is necessary. Although children may not know how to respond appropriately, they are aware that a response is expected when questions are posed to them directly [9]. Children, therefore, begin responding to questions before they acquire the skills necessary to respond properly. From these premature attempts, the developmental stages of children’s responses can be easily observed as a child grows and develops into a more skilled speaker. Over the period of one to two years (depending on the individual child’s rate of acquisition) the child’s responses evolve from a mere repetition of words and phrases that provide no information to fully informative sentences with original, well-formed structures.

Although researchers have begun to look more closely at young children’s mechanisms of responding to questions, no developmental argument currently explains how children learn to respond in accordance with adult conventions. Steffenson has coined the term *pragmatic variation* to explain one of the earlier stages of response to YN questions. In pragmatic

variation, each child develops his own incorrect mechanism of response, because he does “not understand the semantics of the question form or the affirmative and negative particles.” [9] This assertion raises two questions: (1) in what manner does the child develop his system of response? and (2) how does the child eventually replace his system with the adult system? Anselmi, Tomasello, and Acunzo [1] suggest that children who respond to questions with one word or a dependent clause (the WH:N and YN:YN stages) comprehend that it is unnecessary, and even incorrect, by the standards of adult speech to provide the questioner with information he/she has already stated. The next logical step would be to determine whether the number of responses which repeat part of the question (RC and RX responses) abate when the child begins to use single word or clause responses (N and YN responses).

In the current study, speech of a French child and an American child accessed from the CHILDES database [6] are evaluated to determine their manners of response acquisition. The CLAN program is used to analyze the transcripts of parent-child interactions.

2 Materials and Methods

2.1 Subjects

The two children studied were selected because of their similar ages, MLU’s, and family backgrounds (see Tables 1 through 4, all Tables in Appendix A) ¹. Typical, uninterrupted, interactions between each subject and his parent(s) recorded regularly over a period of ap-

¹The mean length of utterance (MLU) is the ratio of number of morphemes (a linguistic unit which is the smallest meaningful part of a word) to number of utterances. The MLU indicates the child’s level of language development more accurately than age, since children begin speaking at different ages and learn at different rates [8].

proximately 1.2 years were evaluated ². The American child, Nathaniel, was 2;3 at the onset of the study and 3;7.14 at the end³. Phillippe was recorded regularly between the ages of 2;1.19 and 3;3.12. For the purpose of this study, sessions recorded at intervals as close to two weeks as possible were analyzed ⁴. Nathaniel’s MLU ranged from 2.670 to 4.457 and Phillippe’s ranged from 2.962 to 4.588 (see Tables 3 and 4). The MLU’s of each child generally increased with age, suggesting that the child acquired and sharpened his speaking skills over the span of time that he was studied(see Tables 3 and 4).

2.2 Procedure

Of the 29 transcribed observations (14 with Phillippe and 15 with Nathaniel), the first five hundred lines were analyzed (or as many lines as were available if the total interview contained fewer than five hundred lines). In the CLAN program, the key word and line command (kwal) (see Table 5) [6], questions posed to the child by either parent and the three lines of speech following the question were extracted from the full transcript. The three lines following the question encompassed the child’s response to the question. The target questions consisted of yes/no and all types of wh-questions (what, who(m), when, where, why, which, how) posed directly to the child by a parent. The child’s responses to the target questions were located and each response was coded into one of twelve possible categories (there were no YN or I responses for WH questions) (see Tables 6 through 8). Every response to a target question, including multiple responses to a single question, was

²Nathaniel’s age at the time of the tenth, eleventh, twelfth, and thirteenth sessions were unavailable. Therefore, each session was assigned a time evenly spaced between the ninth and fourteenth sessions

³Age notation: x;y.z = x years, y months, and z days.

⁴Sessions with fewer than 3 WH or YN questions posed were excluded from the study.

coded individually (see Table 5). The number of occurrences in each interview of each type of response was then counted using the CLAN frequency command (freq) (see Table 5). The percent of each type of response over frequency of the number of occurrences in the session was then calculated and graphed as a function of time.

3 Results and Data

Figures 1A through 1D show the frequencies of occurrences of each type of response given by Nathaniel to YN questions as a function of time measured from the beginning of the study. The percentage of RX responses, responses that repeat part of the question and provide no information in doing so, (Fig. 1A), peaked from the youngest age, 2;5.18, through the first 0.119 years, until the age of 2;7.1. The percentage then dropped to zero and stayed at zero with one small discrepancy (at 3.063 years of age, the percentage of RX responses was 3.57%, corresponding to one RX response). The percentage of RC responses, responses which repeat part of the question in answering it (Fig. 1A), peaked at $t=0.606$ years, but this peak was narrow. The second greatest percentage was a peak at $t=0.221$, at the age of 2;8.8. The percentage of YN:RC⁵ responses dropped sharply to 4% at $t=0.775$ years and finally dropped to zero at $t=0.925$ when Nathaniel was 3;4.21.

YN:YN, yes/no responses, and YN:I, yes/no responses plus additional information, (Fig. 1B) were both initially low or at zero. The first rise of both percentages occurred at around $t=0.1$ years, and reached nearly 30%, but both curves declined again around $t=0.2$ years, when Nathaniel was about 2;8.0 years of age. After $t=0.2$ years, the YN and I curves

⁵Questions-Answer notation—Type of Question:Type of Answer

were similar in shape, but the percent frequency of I responses was much lower than that of YN responses. The I curve does not rise above 20%, whereas the YN curve peaked at 78.57%. This peak occurred close to the middle of the study, at $t=0.6$ years when Nathaniel was 3;0.22, after which the curve begins a gradual decline, interrupted only by a small rise around $t=.09$ years.

The percentage of YN:N responses, single word or clause answers to a YN question, (Fig. 1C) fluctuated throughout the study. These percentages were negatively correlated with the percentages of YN:J responses, which are proper adult responses. The percentage of YN:J responses started at zero and remained there through the first 0.187 years of the study, until Nathaniel was 2;7.25. For the remainder of the study, there was an upward trend in this percentage, although some local maxima and minima were observed. The percentage of YN:XX responses (Fig. 1D) reached its peak at $t=0.083$ years at the age of 2;6.19. This percentage fluctuated until $t=0.569$ years at the age of 3;0.19, at which point it dropped to zero and then remained low for the rest of the interviews. The drop in the percentage of YN:XX, *non sequiturs*, responses directly corresponds to the rise of percentage of YN:J responses (Fig.1C and D), with only slight discrepancies.

As with Nathaniel, Phillippe's RX responses peaked when he was youngest(Fig. 2A). The percentage of RX responses remained high for the first 0.153 years of the study. Then, at the age of 2;3.14, the percentage of RX responses dropped to zero and remained close to zero for the rest of the study. The drop occurred at the same time in each study at $t=0.153$. The percentages of RC responses (Fig. 2A) fluctuate early, dropping to zero many times, but achieved lower and lower peaks as the study progresses. The frequency of occurrences

then dropped to zero after 0.611 years, when Phillippe was 2;8.29, and was consistently zero for the remainder of the study. The percentage of Nathaniel's RC responses (Fig. 1A) did not drop to zero until 0.925 years into the study, when Nathaniel was 3;4.21, much later than the drop for Phillippe.

Fig. 3A shows the WH:RC and WH:RX frequencies for Nathaniel. The percent frequency of RX was high for the first 0.255 years of the study, until the age of 2;8.20. The percentages then dropped sharply to zero and did not rise above 25% for the remainder of the study. The RC percentage fluctuated mostly between 18% and 30% until $t=0.221$ years of the study, when Nathaniel was 2;8.8. It peaked at 42.86%, at $t=.097$ years. The curve continued to fluctuate after this peak, but shows a downward trend. The curve dropped to zero at $t=0.187$ years, when Nathaniel was 2;7.25, after which it does not climb above 20%. Finally it reaches 0% at the close of the study, when Nathaniel was 3;7.14.

The curve displaying Phillippe's percentage of RX responses (Fig. 4A) is similar in shape to that of Nathaniel's, although the percentages are generally lower. The curve reached its maximum height of 42.86% at the onset of the study when Phillippe was 2;1.19. After some initial fluctuation, the net change was clearly negative. The curve dropped to zero at $t=0.4$ years, at the age of 2;6.13, and afterwards remained less than or equal to 16%. Phillippe's RC curve (Fig. 4A) is also similar in shape and range to that of Nathaniel. The widest peak comprises 3 points ranging between 25% and 30% and occurred at the onset of the study. Apart from one discrepancy at $t=0.497$ years, the rest of the curve declined, reaching zero at $t=0.706$ years, when Phillippe was 2;10.3, and remaining below 7.14%.

The N curve for Nathaniel's WH responses (Fig. 4B) showed minor fluctuations through-

out the study, but has a generally upward trend. The curve reaches its peak value of 64.71% at $t=0.596$ years at the age of 3;0.19. The WH:J curve increases steadily with only one discrepancy. For the first 0.255 years of the study, until Nathaniel was 2;8.20, the percent frequency did not rise above zero. Starting with the fourteenth session, the percentage of J responses increased almost linearly, achieving its maximum of 58.33% at the close of the study. There was a strong negative correlation between the N and J responses. The N and J trajectories for Phillippe are nearly identical in shape and range to Nathaniel's. The N curve in Fig. 3B fluctuates less than that in Fig. 4B, ranging mostly between 30% and 40%. Like that of Nathaniel, the curve peaked near the middle of the study, at $t=0.533$ years at the age of 2;8.01. The J curve started at its minimum of 3.53% and increased steadily with time. The initial increase at $t=0.114$, when Nathaniel was 2;3.0, years occurred much earlier than did Nathaniel's. However, the curve nearly levels off near the end, reaching its maximum value of 57.14% during the final session when $t=1.147$ at the age of 3;3.12. The N and J curves in Fig. 4B seem to have the same negative correlations as do those in Fig. 3B.

The percent frequencies of WH:XX responses for both Nathaniel and Phillippe stayed below 20%, often dropping to zero, for the entire study. (Figs. 3C and 4C)

4 Discussion

Between the four graphs, three well-defined stages can be observed (see Table 9). The earliest stage is dominated by repetitional responses, the next by simple, but informational responses, and the latest contains almost exclusively adult responses. These stages can be demarcated by the prevalence of RX responses, the prevalence of WH:N/YN:YN responses,

and the rise of J responses, respectively. According to this division, Nathaniel's Wh and YN and Phillippe's WH contained all three stages, while Phillippe's YN contained only the first two. These stages do not seem to be the arbitrary product of the divisions of response type, but rather to correspond to periods in which each child develops a specific question-answering skill.

The first stage was the same for WH and YN questions for both children, and comprises roughly the first 0.2 years of the study. At the first stage in the development of response skills, the child understands that he must answer the question, but he does not comprehend the question or know how to formulate an appropriate response [9]. Because of the lack of other options, the child merely repeats the question, or a part of the question. The repetition of the question often prompts the parent posing the question to repeat it. This repetition may not only clarify the question, but also gives it an extra emphasis, making it clear to the child that he must give an informative response.

This leads to itself to the second most frequent type of response in the first stage, RC [4] [5] [7]. RC responses repeat the words and structure of the question, or of a preceding response, but do provide information. XX responses are found, for the most part, solely in the first stage, but even then infrequently. Although children recognize the need to respond to questions, their response systems are not sufficiently developed at this stage to be completely consistent. The percentage of N responses in the first stage fluctuates over a wide range, at times even becoming more common than RX and RC, showing that the child possesses the ability to respond with the minimum amount of information possible, though not consistently. This may be because the child does not yet understand when it is

appropriate to deviate from the form of the question by responding to full sentences with single words or phrases. J responses have not yet appeared during the first stage.

The second stage began after about 0.2 years. For Phillippe's YN questions, this was the final stage. The second stage of Phillippe's responses to WH questions ended after about $t=0.6$, and this stage ended for both types of Nathaniel's responses at about $t=0.9$ years. At this point the child has learned that information is essential for the response. RX, RC, and XX responses all retain relatively steady paths during this period—the children still resort to these response forms on occasion, but infrequently. J responses first appear during this stage. The frequency of J responses rises slowly, but steadily, and appear negatively correlated with N responses. This is understandable in that N and J responses are the most correct response forms, and can both effectively answer any question, but J responses are preferable. J responses also require more skill than N responses, so they have not yet completely replaced N responses.

The third stage of the development of response mechanisms differed between the two subjects. For Nathaniel's responses, the third stage began with the penultimate session and ended with the close of the study. During this stage, nearly every question was answered with a J, N, or YN responses (corresponding to WH and YN questions respectively). Phillippe's responses to WH questions followed the same pattern as did Nathaniel's and reached similar percentages, but he entered the third stage much earlier (at about $t=0.6$ years). This could be explained by the acuteness of the child's learning abilities or the way in which the parents communicated with their child. J and N responses, or YN responses depending on the type of question posed, can be classified as appropriate adult responses. Once the child has acquired

the means for responding with both N and J responses, he comprehends adult conventions to the extent that he recognizes that all other forms of response are unacceptable. The child's skill in formulating his own responses is the greatest during this stage. He understands that in most cases the J response is the desirable one but that the N response is not redundant and can be the most useful to provide simple information [1].

Because the stages varied little between the two languages in this study, it seemed that the acquisition of proper response forms was dependent not on the syntactical structure of the language, but rather on interactive experiences. The first types of response that the child uses repeat part of the question or a previous response, indicating that he develops his responses from previously heard speech. Therefore, in theory, the stages of response development would be the same for native speakers of any language. Stage length may not be a good measure of response development, because children learn at different rates; however, this should not affect stage order.

To validate these conclusions, a larger sample of children should be studied. It may be important to control for variables such as individual rates of language acquisition and the individual communication style of the parents. There is value in doing two case studies in that each child can be analyzed rigorously to come to the conclusions made here, but a study of larger group would be the next logical step. For future projects, it would be interesting to study a native speaker of a language fundamentally different in structure from English and French, such as Korean or Chinese. Soonja Choi studied responses to YN questions in English, French, and Korean and found that in fact there was a difference between Korean and the other two [2]. Another study may incorporate children from different cultures upon

whom different expectations in terms of response formulation are placed. This investigation would deal closely with sociolinguistics and areal features.

5 Conclusion

Development of appropriate response forms progressed in three stages. With each new stage, the children acquired new skills allowing them to respond with more coherence and sophistication. The categorization and quantification of these stages helped further the understanding of how children learn the conventions of adult response in a relatively short period of time. The presence of the same stages in the speech of children speaking different languages indicates that the process for acquisition of response mechanisms is not language specific, but may also be independent of the syntactical structure of the language. Children seem to rely on learning that which is expected of them from examples—the questions and responses they hear on a daily basis.

6 Acknowledgments

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A Appendix

	Nathaniel	
SESSION	POINT IN STUDY	AGE
1B	0	2;5.18
4	0.033	2;6.0
6	0.083	2;6.19
8	0.102	2;6.25
9	0.119	2;7.1
10	0.153	2;7.13
12	0.187	2;7.25
13	0.221	2;8.8
14	0.255	2;8.20
15	0.596	3;0.19
16	0.606	3;0.22
18	0.775	3;2.27
20	0.889	3;4.8
26	0.925	3;4.21
28	1.155	3;7.14

Table 1: Nathaniel—Age

Phillippe		
SESSION	POINT IN STUDY	AGE
1	0	2;1.19
3	0.039	2;2.3
5	0.078	2;2.17
7	0.114	2;3.0
9	0.153	2;3.14
11	0.400	2;6.13
13	0.439	2;6.27
15	0.497	2;7.18
17	0.533	2;8.01
19	0.572	2;8.15
21	0.611	2;8.29
23	0.706	2;10.3
29	0.934	3;0.25
33	1.147	3;3.12

Table 2: Phillippe—Age

Nathaniel	
SESSION	MLU
1B	2.679
4	2.985
6	3.533
8	3.372
9	3.662
10	3.552
12	3.055
13	2.980
14	3.317
15	3.490
16	3.881
18	4.526
20	3.356
26	4.000
28	4.457

Table 3: Nathaniel—MLU

Phillippe	
SESSION	MLU
1	3.124
3	3.493
5	2.926
7	3.609
9	3.235
11	3.754
13	4.070
15	3.303
17	3.595
19	3.351
21	3.650
23	3.017
29	3.947
31	4.526

Table 4: Phillippe—MLU

COMMANDS	
kwal	kwal +s? +t*MOT +t*FAT +w3 +d1 +f filename
create list of codes	+b60 +d +10 +s1
ced	ced +t*child name filename
freq	freq +t%rsp -t* filename

Table 5: CHILDES Commands

CODE	DEFINITION
YN	yes/no response
I	yes/no reponse followed by information
N	word (or dependant clause) informational response
RC	response repeats part of question (or previous answer) and succeeds in answering question
RX	response repeats part of question (or previous answer) but fails to answer question
XX	non sequitur
J	full sentence informational proper adult response response pertains to the question but does not directly answer it

Table 6: Types of YN and WH Responses

CODE	EXAMPLE
YN:YN	Is it the very top? : yeah
YN:I	Oh, you wanna read the whole thing do ya? : yeah, you read the whole thing
YN:N	Can we bring this? : too big
YN:RC	Is applesauce yummy? : yummy
YN:RX	Don't you listen to them? : listen to them
YN:XX	It is not the same, is it? : read this one
YN:J	Know what this is? : what? Can you sing Dites-moi? : I don't wanna sing that song

Table 7: Examples of YN Questions and Responses

CODE	EXAMPLE
WH:N	Who has her room at the very top floor in her house? : Renee Where do you get a haircut? : at the barber shop
WH:RC	What is that on your board? : picture on my board
WH:RX	What kind of tool? : kind of tool Where is Mr. Bear? : where is Mr. Bear?
WH:XX	What are all the little kids doing? : that's owl
WH:J	And what is it gonna be tomorrow : what? When do you grow? : I grow in the winter too How do you sleep? : you just sleep

Table 8: Examples of WH Questions and Responses

STAGE	APPROXIMATE POINT IN STUDY	CRITERIA
1	0.2 years	mostly RX and RC responses
2	0.2 – 0.6, .9, or 1.2 depending on the question type and child	RX and RC responses drop N and YN responses are most prevalent Frequency of J responses begins to rise
3	0.6 or 0.9 – 1.2 depending on the question type and child	J responses are most prevalent

Table 9: Stages

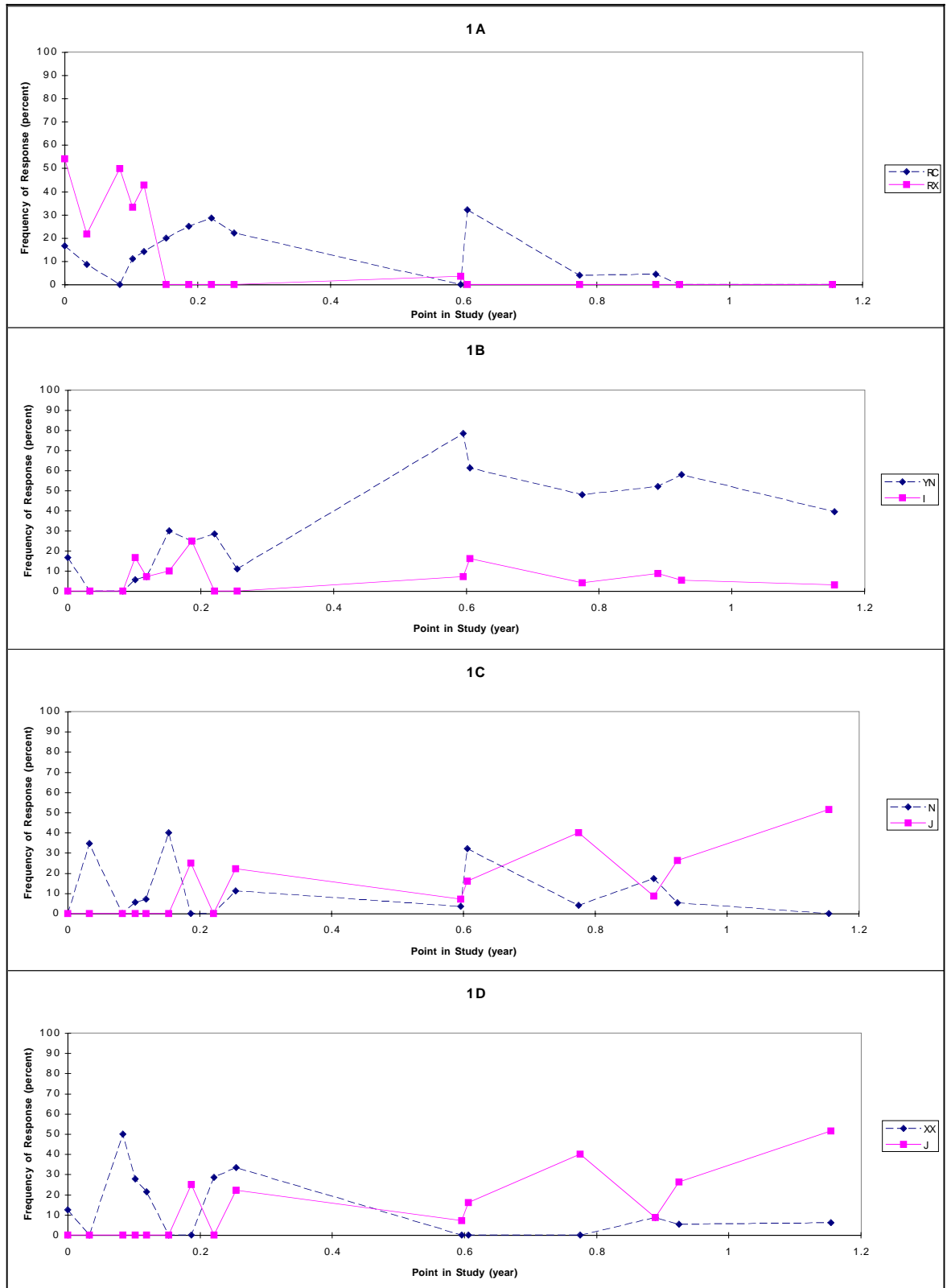


Figure 1: Nathaniel—Responses to YN Questions

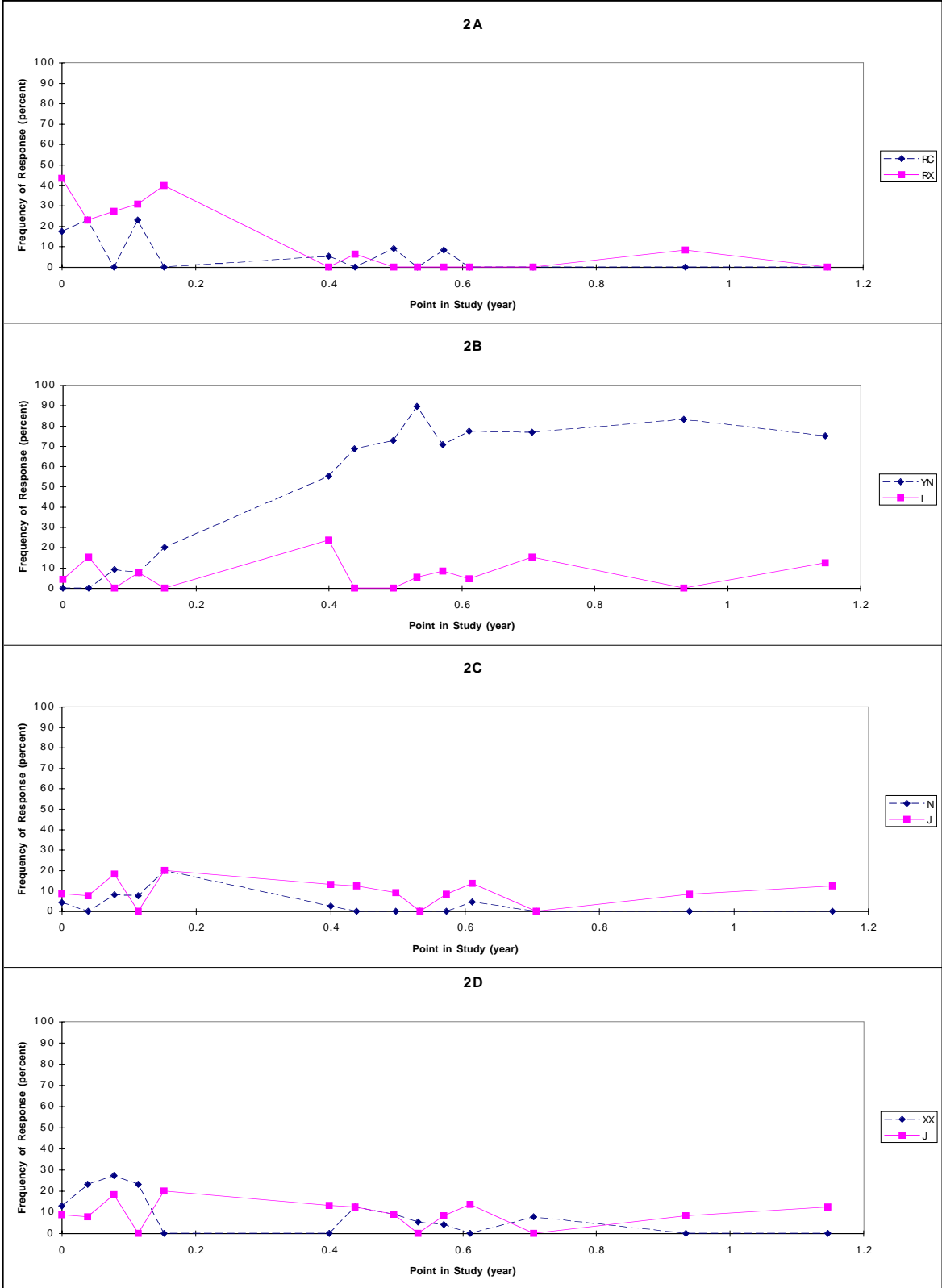


Figure 2: Phillippe—Responses to YN Questions

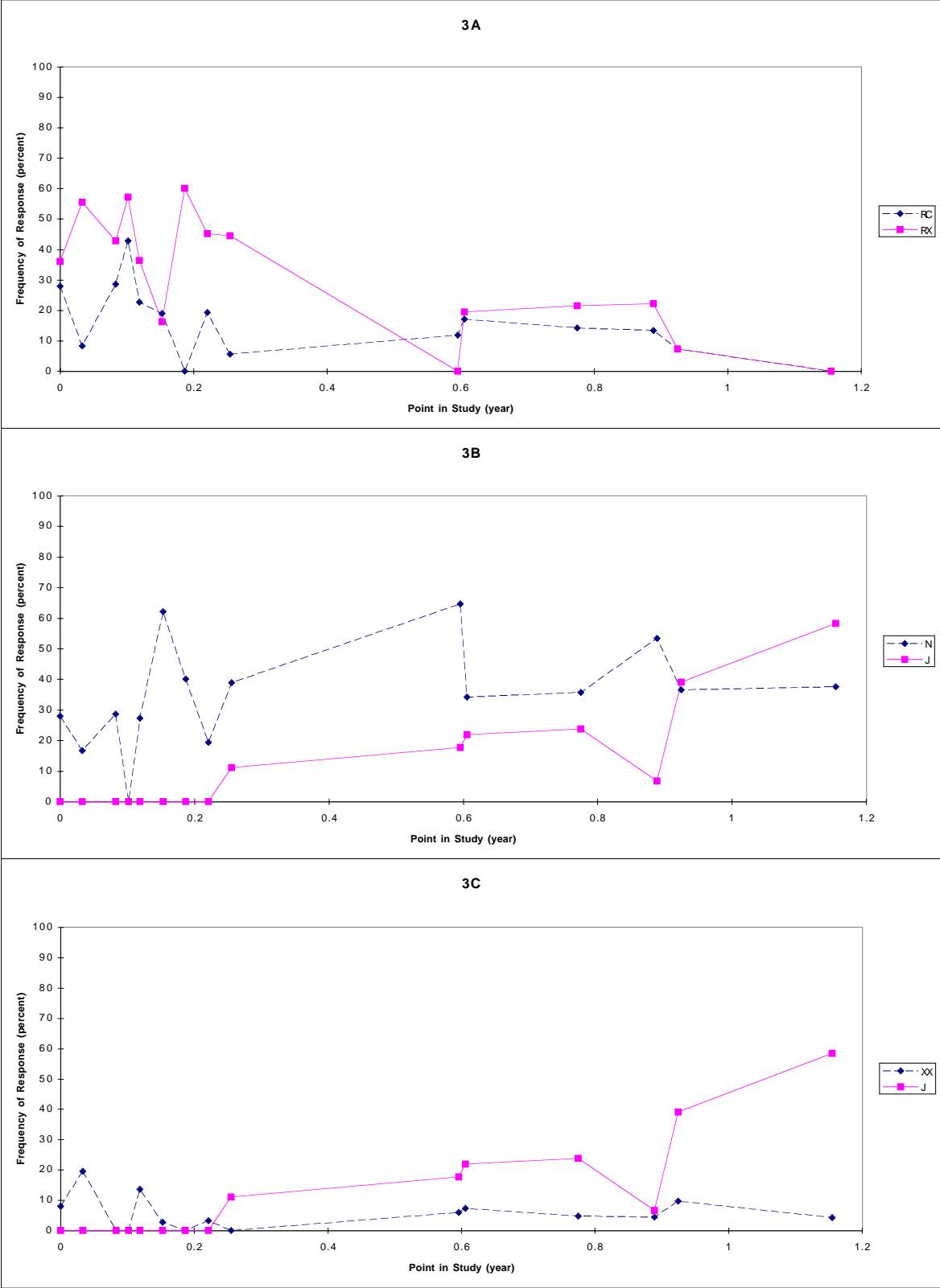


Figure 3: Nathaniel—Responses to WH Questions

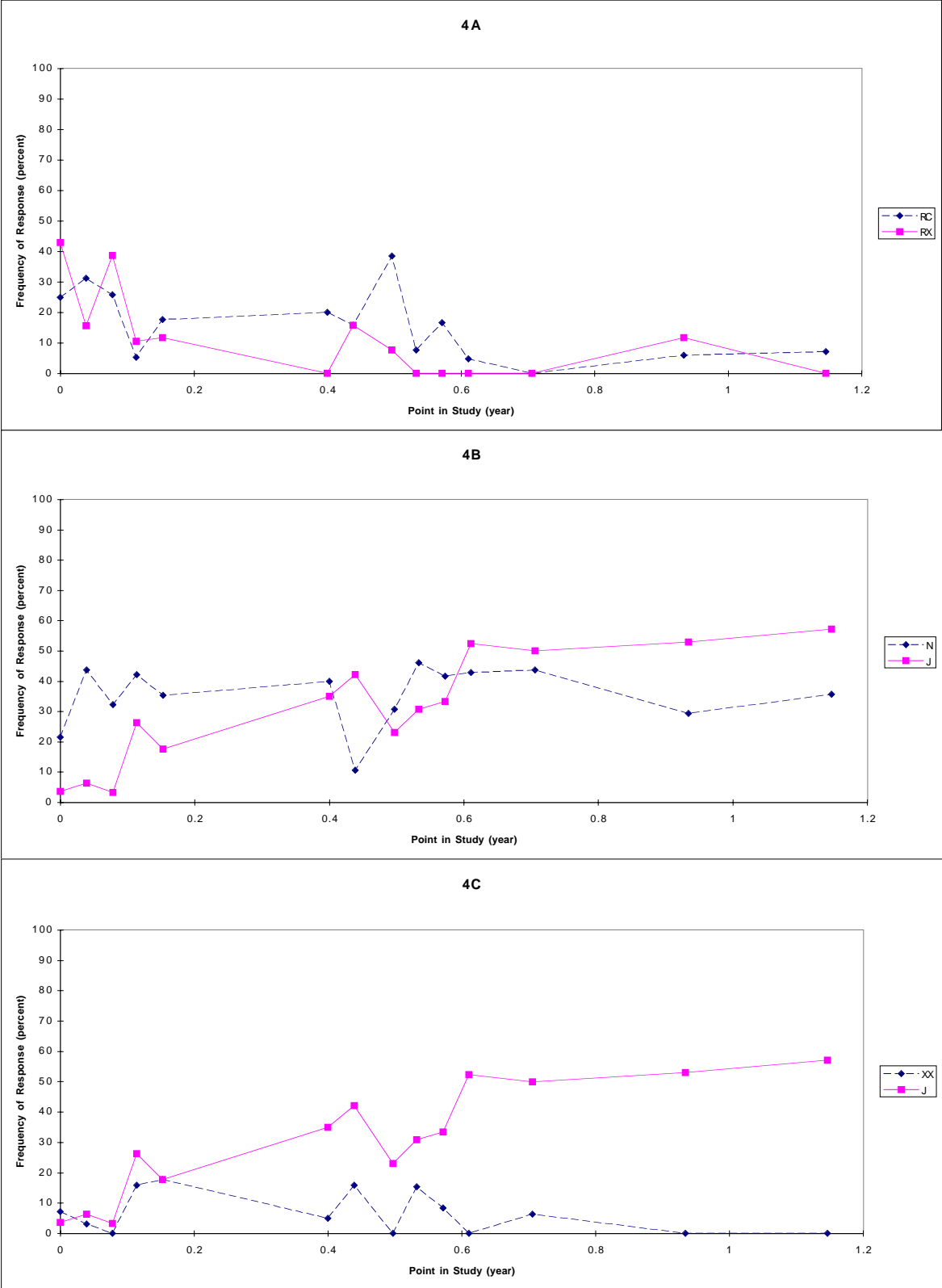


Figure 4: Phillippe—Responses to WH Questions

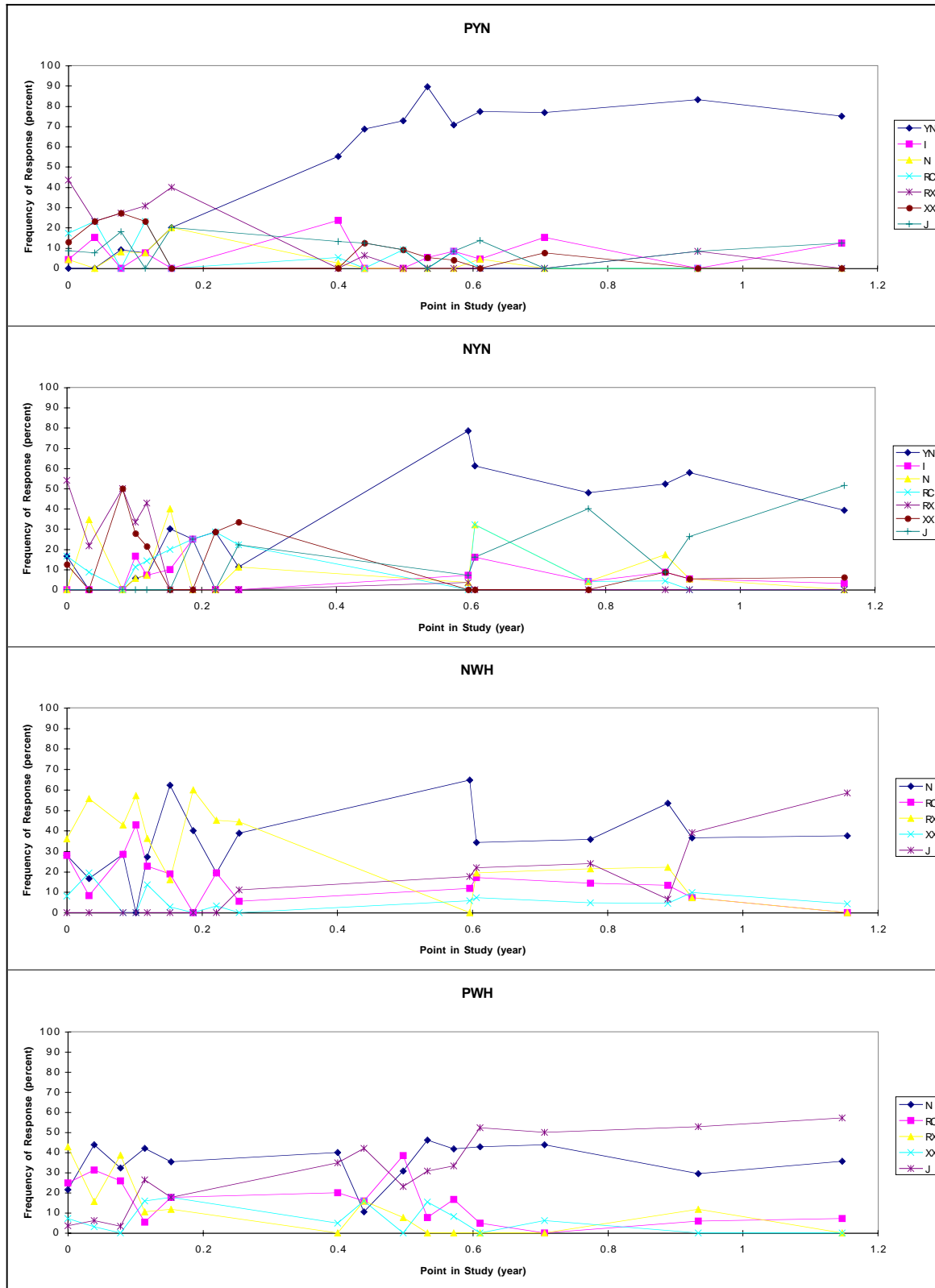


Figure 5: All Responses for Each Child

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