PRAGMATICS, COGNITION AND ASYMMETRICALLY ACQUIRED EVIDENTIALS¹

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Abstract

This paper examines the development of a variety of evidential lexical items in Modern Greek from a longitudinal perspective involving 4;6 – 11;7 year olds. The main question to be addressed concerns parallel or asynchronous order of acquisition: Does the ability to use evidentials emerge for all items under investigation synchronically or does such an ability emerge earlier on for certain items while later for others? If the latter holds, how can this developmental lag be explained? An answer to these questions will draw on the pragmatic-cognitive abilities engaged by different types of evidential markers, and in particular, on the complexity of metarepresentations (Sperber 1994; Wilson 2000, 2005) different evidential markers rely on in order to be used by young children.

Keywords: Evidentials; Acquisition; Pragmatic sophistication; Conceptual complexity; Metarepresentation

1. Introduction

Most studies on the acquisition of evidentials have aimed at earliest occurrences (2;0 – 3;3) in children's verbal competence (Wells 1985; Smoczynska 1993; Aksu-Koç 1988; Choi 1995). By contrast, others have emphasized on a late but still underdeveloped evidential capacity at 8 or 12 years (Piéaut-Le Bonniec 1980; Perkins 1983; Coates 1988; Booth and Hall 1995; Bascelli and Barbieri 2002). Despite the contradictory picture emerging from early competencies and late shortcomings in children's ability to use evidentials (e.g. the case of modals), no systematic attempt has been made to reconcile the findings. Notwithstanding occasional reference to more conceptually demanding as opposed to less conceptually demanding lexical items (Booth and Hall 1995, on cognitive verbs), or acknowledgment of explicit links between linguistic and conceptual capacities affecting acquisition (Papafragou 1998, 2001, on modals), no unified explanatory answer on pragmatic and cognitive grounds has yet been provided for the prolonged and asymmetrical development of evidential markers.

The issue to be addressed in this paper is: Why are certain types of evidentials, such as modals or 'mental state' verbs, reliably used or interpreted by preschool children, whereas adverbials, syntactically more complex evidential expressions or

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particles are not until school years? Within the same category, why are verbs such as *know* or *think* appropriately used by preschool children, whereas *suppose* is not? These are questions that have hardly been raised, let alone answered in the developmental literature.

I believe that examining the development of a variety of evidential items for a wide range of children (4-12 year-olds) may offer useful insights into whether asymmetries occur or not, and if so, into why they do. An explanation will draw on how asymmetries and generally order of acquisition may help track down correlations with stages in cognitive growth. Linking stages of linguistic competence to stages of cognitive growth can show how stages in cognitive growth may predict or even guarantee, stages in the acquisition of lexical items. And this could be an explanation in its own right for why certain evidentials are acquired earlier than others.

Most authors agree that evidentials have two main functions: They indicate the source of information (observation/hearsay/inference/memory), and the speaker's degree of certainty or commitment to the information conveyed (weak/strong) (for examples and references, see Ifantidou 2001: 1-8). For this study, a variety of evidential lexical items has been used to trace differentiating semantic/stylistic, pragmatic or cognitive factors affecting acquisition. Three verbs, the commonly occurring and extensively studied *νομίζω* (*think*) (1st and 3rd person), the rarely occurring (in child speech) and hardly examined *υποθέτω* (*suppose*), and the hardly occurring (in child speech) *θαρρώ* (*ween*) (literary form of *think*), the syntactically complex construction *(μου) φαίνεται ότι* (*it seems that/to me*) (affirmative and negative) and three adverbials *προφανώς* (*evidently*), *ασφαλώς* (*certainly*), *πιθανώς* (*possibly*) have been tested in story reading and comprehension activities run in the form of interviews for the younger children and in the form of written tasks for the older ones. The evidentials have been selected on the basis of contrasting patterns along the lines of frequent vs. less frequent occurrence (*think* vs. *suppose* vs. *ween*)², syntactic complexity (main-clause construction *it seems that* vs. parenthetical *I think*)³ and semantic/stylistic complexity (informal *think* vs. poetic *ween*). Results will be contrasted with previous findings on Modern Greek hearsay particles *τάχα/δήθεν* (*supposedly/as if*) (Ifantidou 2005a, 2005b) in terms of syntactic complexity (main-clause construction *it seems that* vs. parenthetical *taha/dithen*)⁴ and pragmatic complexity (*think* vs. *taha/dithen*)⁵.

The intriguing question is: What may possibly trigger an earlier, and possibly easier, acquisition for certain types of evidentials but a later, and possibly more

² As in Modern Greek natural child-speech corpus (see Ifantidou 2005c. Paper delivered at the 9th IPrA Conference, Riva del Garda, Italy; to appear in C. Paradis and L. Ekberg (eds.) *Evidentiality: theoretical and applied*).

³ Constructions consisting of a main clause and a subordinate/complement clause (e.g. *I think that/it seems that* John is coming) are syntactically complex; hence the movement or extraction of any elements out of such a complex syntactic construction is barred. Genuine parenthetical constructions, however, (e.g. John is coming, *I think/it seems*) are syntactically less complex since they are syntactically independent of their host clauses, and hence they escape a variety of syntactic constraints, such as relative clause island, wh-island, complex NP constraint (e.g. Who *do you think that/does it seem that* is coming vs. who, *do you think/does it seem*, is coming) (for analysis and references, see Ifantidou 2001: 132-134).

⁴ *Taha/dithen* are genuine parenthetical particles, and as such, are considered as syntactically less complex (see footnote 2): They can freely move in the sentence, i.e. they can modify the whole clause by occurring either in the beginning or in the middle or at the end of the sentence (e.g. *taha*, they were innocent/they were, *taha*, innocent/they were innocent, *taha*) (see Ifantidou 2005a, 2005b).

⁵ *Taha/dithen* are considered to be pragmatically complex evidentials on the assumption that they are standardly used to communicate *hearsay* information *ironically* intended (see Ifantidou 2005a).

effortful, acquisition for other types? Frequency in natural language input, syntactic or semantic complexity, pragmatic or cognitive sophistication, or a combination of these are a few plausible factors affecting acquisition. The working hypothesis here is that pragmatic-cognitive sophistication required for a fully-fledged communicative ability of certain evidentials delays their acquisition. Evidential items requiring simpler pragmatic-cognitive inferencing are easier to acquire and as a consequence, are reliably used at early ages. Simpler or more complex inferencing is, for the purposes of this work, a matter of more or less complex metarepresentations involved in understanding evidential items (Sperber 1994). I will show that the fewer the layers of metarepresentation required, the easier and earlier for evidentials are acquired, whereas the more the layers of metarepresentation required, the harder and later for evidentials are acquired.

2. Evidentials and order of acquisition

Research on the acquisition of evidentials has been selectively directed at modals (*can, must, may*) (Hirst and Weil 1982; Stephany 1986; Byrnes and Duff 1989; Noveck, Ho and Sera 1996; Bascelli and Barbieri 2002) or at cognition verbs (*think, know, guess*) (Johnson and Maratsos 1977; Johnson and Wellman 1980; Bretherton and Beeghly 1982; Shatz, Wellman and Silber 1983; Booth and Hall 1995; Schwanenflugel, Fabricius and Noyes 1996). Interestingly, other types of evidential markers, such as adverbials (*evidently, obviously, allegedly*) or more complex syntactic constructions (*it appears that, it seems that/to me, she is reported to, he is supposed to*) or verbs other than *think* or *know* (*suppose, suspect*) have been sidetracked in developmental research. Presumably, modals and 'mental state' verbs provide straightforward evidence for earliest occurrences in child speech, whereas adverbials and syntactically more complex evidential markers do not. Notwithstanding the importance of assessing the occurrence of modals or 'mental state' verbs in early child speech, other types of evidentials may be worth examining too for they may offer further insights into children's developing mind. In fact, the more complex the pragmatics of evidentials, the more intriguing their development seems to be, and so does the issue of accounting for what these evidentials may rest on in order to be acquired.

Research on evidential verbs – referred to as 'cognitive' or 'mental state' verbs – suggests that children acquire the commonest of these between 2 – 4 years of age (Johnson and Wellman 1980; Miscione et al. 1978; Shatz, Wellman and Silber 1983; Moore, Bryant and Furrow 1989; Moore and Davidge 1989; Moore, Pure and Furrow 1990; Astington and Jenkins 1995). Shatz, Wellman and Silber (1983: 311) report first evidential uses of *know* and *think* at 2;4 (see also Bretherton and Beeghly 1982: 914). Evidence for a clear-cut distinction between *know* and *think* occurs at 4 when children are shown to distinguish between the implications of *know* (as presupposing truth) and *think* (as implicating the possibility of falsity): Children correctly judge the character who hides the object as *knowing* (not thinking) the truth, i.e. knowing that the hidden toy is under box B, but the character who seeks the object as *thinking* (not knowing) what is false, i.e. thinking that the hidden toy is under box A (Johnson and Maratsos 1977). And although at 4 children lack refined semantic differences between *know* and *guess*, they appropriately use them to modify the reliability of statements (Johnson and Wellman 1980). By 4, the presuppositions of *know* and *think* – namely, that *know*

presupposes the truth of its complement whereas *think* does not – are acquired, whereas at 7 the presuppositions of *believe*⁶ are not as yet (Abbeduto and Rosenberg 1985). Bassano's study (1983) confirmed the 4 and 5-year-olds' understanding of *savoir* (80% correctly attributed the utterance "*I know* that I have a fish" to the doll who has a fish in its box and can see it). The same children showed a less clear-cut interpretation of *croire* (40% correctly attributed the utterance "*I think* I have a fish" to the blindfolded dolls). Worth mentioning is children's difficulty with the negation of *know*: Only 45% correctly attributed the utterance "I know that I do not have a fish" to the doll who had a bird and could see it, and only 40% correctly attributed the utterance "I do not know if I have a fish" to the blindfolded dolls (vs. 80% for the respective affirmative). Such differences between affirmative vs. negative evidentials may be worth more consideration than standardly assumed. In section 4, the issue of pursuing negation as another factor possibly affecting the lexical acquisition of evidentials is raised.

Later work on the development of *know* and *think* was based on an explicit distinction between semantic vs. pragmatic uses (Frank and Hall 1991). Frank and Hall excluded 'pragmatic' uses, i.e. conversational fillers, rhetorical/exam questions, to focus exclusively on semantic meanings. This is how the authors distinguished between the two:

Semantic utterances were those in which the literal internal state meaning of *know* contributed directly to the intended meaning of those utterances. *Pragmatic* utterances were those in which the literal internal state meaning of *know* did not contribute directly to the intended meaning of those utterances. (Frank and Hall 1991: 289)

It is not clear what the authors mean by "direct contribution to the intended meaning of an utterance". If, as claimed, they are interested in semantic meaning, then they must mean 'contribution to the truth conditional meaning of the utterance'. But surely the semantic contribution of lexical items cannot preclude their pragmatic contribution. For example, *I know* may contribute to the truth conditions of the utterance containing it, as in 'I know that Susan has won the elections', or it may not contribute to the truth conditions of the utterance containing it, as in 'Susan has won the elections, I know', without this affecting its pragmatic function as a *strengthening* evidential marker in either case. Similarly, *I think* may contribute to the truth conditions of the utterance containing it, as in 'I think that Susan has won the elections', or it may not contribute to the truth conditions of the utterance containing it, as in 'Susan has won the elections, I think', without this affecting its pragmatic function as a *weakening* evidential marker in either case (Ifantidou 2001). If 'pragmatic use' has been loosely used by Frank and Hall to refer to 'conversational fillers', such as *I think so*, *I guess so*, which would be one way of delimiting the data, then this does not become clear from either their definition or their examples. For example, conversational fillers may have a pragmatic function that needs to be considered too, as in Peter's reply to Mary – e.g. Mary: *I think so*, Peter: *I know so*. Overall, a semantic/pragmatic distinction may be misleading for the following reasons. Firstly, excluding 'pragmatic' uses on the basis of hazy distinctions runs the risk of ruling out part of relevant data. Secondly, child understanding and child use does not rely on selectively drawing on the semantic meaning of lexical items. A full appreciation of the developmental trajectory of evidentials requires consideration of

⁶ *Believe* does not normally presuppose the truth of its complement but it may do so if the speaker calls upon faith rather than evidence.

pragmatic uses too (with the exception of genuine conversational fillers such as *you know*) since pragmatic uses may depend on the semantic meaning of the lexical items in question, or vice versa (Moore, Bryant and Furrow 1989: 170).

Another problem with Frank and Hall's account, which carries over to Booth and Hall (1995), concerns the hierarchization of cognitive verbs into levels of meaning, with apparently increasing difficulty of acquisition (*ibid.*: 533) and descending frequency of use (*ibid.*: 541) from perceptual types (e.g. *hear*, *see*) to cognitive types (e.g. *know*, *guess*). A careful look at the six levels of meaning, namely:

1. Perception: The speaker reports the act of perception (e.g., "I heard your story").
2. Recognition: The speaker acknowledges familiarity with some person or concept (e.g., "I know that face").
3. Recall: The speaker refers to factual information that he or she remembers (e.g., "I know his phone number").
4. Understanding: The speaker refers to a conceptual framework or reasoning (e.g., "I know why he did that").
5. Metacognition: The speaker focuses on discussing the awareness of mental acts (e.g., "Pretending can be fun").
6. Evaluation: The speaker refers to attitudes and beliefs about the truth of statements (e.g., "He guessed the answer, but I know it"). (Booth and Hall 1995: 532).

shows that all refer to essentially evidential functions: They either indicate the source of knowledge (observation, hearsay, memory) – levels 1, 3 – or indicate the speaker's degree of certainty – levels 2, 4, 6. And even though the specific metacognition example in 5 does not include an evidential verb, other examples the authors cite under this category do, e.g. "I would like to know more than I do", "I am thinking about it" (Frank and Hall 1991: 290, 295).

Despite the unclear boundaries between overlapping levels (as suggested above, 1, 2, 3 and 4 seem to straightforwardly fit under 6 – the overarching evidential category), some interesting indications as to the acquisition of evidentials were obtained. First, the hierarchy of evidentials in terms of increasing difficulty (from level 1 to level 6) correlating with falling frequency of occurrence was not quite borne out by the data. As expected, children used "evaluation" *know* and *think* proportionately less compared to all other categories except for "perception". However, Frank and Hall's 1991 study revealed an unexpected preference specifically for "evaluation" *think* that exceeded all other levels. Booth and Hall's 1995 study dealt specifically with *know*, still percentages for children's comprehension of *know* disrupted the suggested '1→6' hierarchy of categories for all ages. For example, 6- and 9-year olds used *know* to refer mostly to an act of "understanding", whereas 12-year-olds used *know* to refer mostly to an act of "recognition". These results are interesting because they suggest that the developmental trajectory of evidentials does not necessarily follow a hierarchy from "concrete" to more "abstract", or from "lower levels" (1 – 4) to "higher levels" (5 – 6) (Booth and Hall 1995: 531, 533, 541). Moreover, it is not clear why "evaluation" *know*, as in (a)

- (a) Tester: How come Jackie does not know (who will win the race to the pool)?
 Answer: She may have a good idea but she doesn't know for sure.

is more "conceptually demanding" than "metacognition" *know*, as in (b):

- (b) Tester: How does Maria know (that she must ask Jackie in order to actually race her?)

Answer: First she pretends, then she asks to race. (Booth and Hall 1995: 532, 549).

The two uses of *know* seem to be equally demanding in cognitive effort, because in both examples the child has to provide an answer by interpreting Jackie's and Maria's thoughts respectively. Similarly, it is not clear why "evaluation" *know* – e.g. "He guessed the answer, but I know it" – is of "increased conceptual difficulty" compared to "understanding" *know* – e.g. "I know why he did that". If there is an issue of "conceptual demands" or "increasing conceptual difficulty" incurred by evidential items, we ought to be able to specify exactly how this is determined and show how it affects their order of acquisition.

In fact, most of the studies referred to above focused on how the semantics of cognitive verbs is acquired, rather than on how children draw on the pragmatics of cognitive verbs to use them. Moore, Bryant and Furrow (1989) and Moore, Pure and Furrow (1990) were the first to conduct experimental work on specifically testing children's use of mental verbs and modals to indicate degrees of speaker certainty. As already suggested, it is not at all clear if children need have fully mastered the semantic nuances (entailments, presuppositions, implications) of these verbs in order to be able to appropriately use them as evidential markers. As Moore, Bryant and Furrow point out:

Children's understanding of the pragmatic function of marking relative certainty might be based on the semantic understanding of the properties of factive and nonfactive mental verbs. However, the opposite is equally possible. (1989: 170)

Their work suggests that by 4 years of age children distinguish between *know* vs. *think*, between *know* vs. *guess*, and between *know* vs. *think/guess*, with *know* expressing certainty and *think/guess* expressing uncertainty. Moore, Pure and Furrow obtained similar results with modals: Between 3-4 years of age, children mastered degrees of certainty as encoded by the *must-might*, *must-could*, *probably-maybe* contrasts, whereas by 5-6 years of age, understanding of the *probably-possibly* contrast had considerably improved. Further contrasts between pairs of modals expressing uncertainty, e.g. *possibly* vs. *maybe*, *could* vs. *might*, were shaky at 5-6 years of age, but granting adults' lack of unanimity on these, children's reaction may not be too surprising.

Despite extensive experimental work on the comprehension of 'mental' state verbs, the use of these terms in children's spontaneous speech has been marginally studied. Interestingly, the results obtained so far (Shatz, Wellman and Silber 1983; Bretherton and Beeghly 1982; Bloom et al. 1988) pull us to a different direction. First uses to indicate the speaker's degree of certainty ("modulation of assertion") occur between 2;4 – 2;8 (Bretherton and Beeghly 1982; Shatz, Wellman and Silber 1983). These results were confirmed by further work on children's spontaneous speech by Bloom et al. 1988, who showed that children between 2 – 3 years of age use *think* and *know* to specifically modify speaker's degree of commitment to the complement clause. *Think* expressed uncertainty, and this was backed up by a number of observations, e.g. *think* largely drew on prior discourse, indicating that the children were not yet fully committed to the truth of the information (in the prior discourse), it co-occurred with modals in complement position (indicating uncertainty) but hardly with complementizer 'that' (indicating certainty when complementing *think*). *Know*, on the other hand, was less used to refer to prior discourse but mostly to introduce new discourse initiated by the child herself (ibid. 118). The authors concluded by suggesting that children's ability

to “modify the reliability of statements” by *know* and *think* precedes the acquisition of their “truly cognitive meanings” (ibid. 119). Which seems to further question the role of a rigid semantic/pragmatic distinction in studies of early lexical development and more importantly, to redirect emphasis on their pragmatic use. The developmental evidence presented in the next section rests on the assumption that children draw on their conflated semantic/pragmatic knowledge of evidential lexical items to assess their meaning/use.

3. Experimental evidence

3.1. Method and design

Rationale

This study examines 4;6 – 11;7 year-old children’s understanding of seven evidential items. Evidentials were tested in the context of twelve different extracts selected from seven stories appearing in children’s illustrated readers. The stories and respective extracts were selected on the basis of the following criteria: Firstly, evidential items had to occur originally in non-adapted children’s narratives, secondly, the relevant scenes had to be illustrated originally by coloured drawings, and thirdly, where the same evidential item was tested more than once, the context of occurrence had to vary. For example, *think* was tested in four different extracts/contexts: (a) speaker’s thought concerning hearsay knowledge (Linguistic task 1⁷), (b) speaker’s thought concerning hearer’s thought (Linguistic task 5), (c) writer’s inference of a character’s thought (3rd person narrative preceded by *guess*) (Linguistic task 3) and (d) speaker’s thought concerning his own state of being (Linguistic task 9). Similarly, *it seems (that/to me)* was tested in three different extracts/contexts: (a) speaker’s own first-hand knowledge (Linguistic task 2), (b) inference drawn on observed (other’s) behaviour (Linguistic task 4) and (c) inference drawn on facts (Linguistic task 6). Different contexts and functions were purposely chosen to encourage children’s use of their semantic/pragmatic resources in interpreting the evidential item in question. Each story was read aloud from the beginning to the end to ensure a better understanding of the plot, the setting, the circumstances and the characters involved. Stories were chosen for including more than one occurrence of evidential items in an attempt to reduce the number of stories children would have to be familiarized with through reading sessions. Thus, twelve forms of seven evidential items were tested in the context provided by seven stories. Table 1 presents the testing order of evidentials/linguistic tasks and the respective sources they originally appear in.

⁷ For Linguistic tasks 1 – 12, see Appendix.

νομίζω (I think)	1	<i>Bananas in pyjamas: Invitation to dinner</i>
μου φάνηκε (it seemed to me)	2	<i>The two friends</i>
νομίζει (she thinks)	3	<i>What's that shape?</i>
Φαίνεται πως (it seems that)	4	<i>What's that shape?</i>
νομίζω (I think)	5	<i>Bananas in pyjamas: an amazing toy</i>
δε φαίνεται να (it doesn't seem that)	6	<i>A piece of cake</i>
Υποθέτω (I suppose)	7	<i>Pinnocchio in Athens</i>
προφανώς (evidently)	8	<i>Bananas in pyjamas: an amazing toy</i>
νομίζω (I think)	9	<i>Pinnocchio in Athens</i>
πιθανώς (possibly)	10	<i>Bananas in pyjamas: an amazing toy</i>
θαρρώ (I ween)	11	<i>Pinnocchio in Athens</i>
Ασφαλώς (certainly)	12	<i>The shapes</i>

Table 1: Evidentials, linguistics tasks and readers (for references, see Appendix) in testing order.

Evidential items were tested in assumed ascending levels of difficulty so that children were not initially discouraged by effortful answers. Feedback was not provided during the testing session because of the facilitating effect this would have on items tested more than once. Coloured drawings were attached to all extracts, followed by an open-ended question format (see Appendix). The order of activities was counterbalanced by successively alternating evidential categories (Table 1).

Participants

Participants were 291 children recruited from two urban kindergartens in Athens, 3rd nursery of N. Smyrni and 6th nursery of Pireas, and two primary schools in Athens, 3rd and 16th primary schools of Ilioupoli, serving middle-class families. In particular, the primary school children were twenty one 6-year-olds (range = 5;5-6;7), thirty two 7-year-olds (range = 6;4-7;10), sixty one 8-year-olds (range = 7;2-8;1), thirty seven 9-year-olds (range = 8;6-9;10), forty six 10-year-olds (range = 9;6-10;3) and fifty three 11-year-olds (10;6-11;7). The nursery children were twenty pre-nursery 4-year-olds (range 4;6-5;6) and twenty one nursery 5-year-olds (range 5;7-6;2). Thirty 4th semester undergraduates of the English Department served as the piloting group for monitoring questions and expected answers. All children were monolingual, native speakers of modern Greek, except for two bi-lingual girls, who were excluded from analysis. The groups included approximately equal numbers of boys and girls.

Instruments of assessment

Linguistic tasks handed out to primary school 6-12 year-old children came with coloured drawings of the scene described in the narrative. Each linguistic extract fitted in an A4 sheet of paper which included a 0,20cm×0,20cm size coloured drawing. The scene depicted in the drawing helped to infer the correct answer but provided no clear-cut indication of the intended interpretation of the evidential item in question. Linguistic tasks run with the younger 4-5 year olds were read out and the respective coloured drawings were simultaneously shown by the experimenter. All drawings were extracted and reproduced from the original story books. Linguistic tasks were handed out to 6-7 year-old primary school beginners after a lapse of five-month schooling, in order for children to be able to handle the linguistic tasks on their own.

Procedure

Linguistic tasks were run as classwork at school. Reading sessions on different days

served children's familiarization with every story. Each story was read out in class by the teacher. Children were told that at the end of the seven reading sessions, they would have to answer short questions on the meaning of words used in the stories. On the day after the last story was heard, each child received her/his answer sheet, which included twelve drawings and twelve extracts to allow individual access to the evidential item in question and its linguistic context. Linguistic tasks were handed out to primary school children of the six grades and were completed in class while the children were supervised by their teachers. Linguistic tasks were read out individually to the younger 4-5 year olds while the relevant coloured drawings were shown by the experimenter. For the pre-nursery and nursery children, questions were sometimes rephrased (see Appendix) or enacted to enhance children's concentration and facilitate their uptake. All questions were presented in an open-ended format, with two possible interpretations provided and a third open option, to be specified by the child if s/he wished to. The order of questions was counterbalanced by successively alternating the three options (see Appendix). Nursery children were tested individually in quiet areas of their kindergartens by the author herself. Each session lasted a total of 15 minutes.

3.2. Results and discussion

Evidential	Linguistic task	√	×
<i>I think</i>	1	71,42%	28,57%
<i>it seemed to me</i>	2	55,23%	44,77%
<i>he thinks</i>	3	51,42%	58,57%
<i>it seems that</i>	4	42,63%	57,37%
<i>I think</i>	5	71,42%	28,57%
<i>it doesn't seem that</i>	6	71,42%	28,57%
<i>I suppose</i>	7	62,85%	37,14%
<i>evidently</i>	8	28,57%	71,42%
<i>I think</i>	9	64,28%	35,71%
<i>Possibly</i>	10	35,71%	64,28%
<i>I ween (literary)</i>	11	64,28%	35,71%
<i>Certainly</i>	12	35,71%	64,28%

Table 2: Percentages of evidential interpretation by **pre-nursery/ 4-5 year-old** passers (√) and failers (×).
Number of subjects: **20**.

		√	×
<i>I think</i>	1	61,90%	38,09%
<i>it seemed to me</i>	2	71,28%	28,72%
<i>he thinks</i>	3	66,66%	33,33%
<i>it seems that</i>	4	38,09%	61,90%
<i>I think</i>	5	80%	20%
<i>it doesn't seem that</i>	6	63,42%	36,58%
<i>I suppose</i>	7	68,57%	31,42%
<i>evidently</i>	8	23,42%	76,58%
<i>I think</i>	9	74,32%	25,68%
<i>Possibly</i>	10	13,45%	86,55%
<i>I think (literary)</i>	11	67,34%	32,66%
<i>Certainly</i>	12	28,15%	71,85%

Table 3: Percentages of evidential interpretation by **nursery/ 5-6 year-old** passers (√) and failers (×).
Number of subjects: **21**.

Prenursery children exhibited a clear-cut confidence in interpreting *think* regardless of context. The same children showed a clear-cut difficulty in interpreting the adverbials *possibly*, *evidently*, *certainly*. Given previous findings on early use of *think* and the elusiveness of evidential adverbials in the developmental literature (section 2), both results were quite expected. A considerable number scored rather poorly in the case of affirmative *it seems that*, but scored quite successfully in the case of negative *it does not seem that*, which were both unexpected results. The children's reaction is quite puzzling because both the affirmative and the negative forms are quite commonly used evidential items⁸. Equally surprising was their correct interpretation of poetic *ween*.

A possible misleading factor in the case of *it seems that* is the literal meaning of *fenete*='can be seen'/*de fenete*='cannot be seen' in Modern Greek, which may have led children to mistakenly consider it as a 'certainty' marker in the affirmative ('seeing makes one certain') and to correctly consider it as an 'uncertainty' marker in the negative ('not seeing makes one uncertain'). A possible explanation of children's ability to interpret the uncommon poetic form of *think* is the linguistic preceding context (as underlined below) priming a weakening evidential reading:

- Mouse:* "I'm ashamed to say this, but, you see, my mouth waters. Can I have a candy?" he asked impatiently.
Snail Gary: "The candies are for Pinocchio" Snail Gary explained, "but I ween they are enough for you and fifty more clockwork mice to eat".

The underlined assertion raises the implication 'you cannot have a candy' which is next, however, contradicted and eliminated by the conjunction 'but'.

These results seem to suggest that children rely on a combination of semantic/pragmatic meaning when interpreting the evidentials in question. In the case of the commonly occurring and semantically/stylistically unmarked *it seems that*, purely semantic knowledge – i.e. *fenete*/'it can be seen' in Modern Greek – interfered with the pragmatic function of a weakening evidential marker resulting in the wrong answer. In the case of *it does not seem that*, purely semantic knowledge – *de fenete*/'it can not be seen' in Modern Greek – interfered with the pragmatic function of the same weakening evidential marker resulting in the correct answer. Which means that in the latter case, children answered correctly for the wrong reasons. In the case of the rarely occurring and semantically/stylistically marked *ween*, the pragmatic function of a weakening evidential marker was enhanced by the context and hence triggered the correct interpretation despite children's lack of knowledge of the verb's semantic meaning. Similarly, in the case of the hardly occurring *suppose* (footnote 8), its pragmatic function as a weakening evidential marker was primed by the preceding context (knowing who Pinocchio is – an Italian newcomer in Athens – King Snail *assumes* that he has not visited Akropolis before; Appendix, Linguistic task 7) to trigger the correct interpretation, regardless of children's loose grasp of the verb's semantic meaning. These indications confirm reservations (section 2) about developmental studies on

⁸ In children's natural language speech, *it seems/does not seem that/to me* occurrences amount to 56%, *certainly* occurrences amount to 55,5% and *possibly* occurrences amount to 59% contrasted with zero occurrences of *suppose* (Modern Greek child language corpus, Ifantidou 2005c. Paper delivered at the 9th IPrA Conference, Riva del Garda, Italy; to appear in C. Paradis and L. Ekberg (eds.) *Evidentiality: theoretical and applied*).

evidentials conducted along the lines of a rigid distinction between ‘semantic meaning’ vs. ‘pragmatic use’. Children seem to be drawing on any resources available, whether semantic or pragmatic, when processing incoming lexical items⁹, especially where new lexical items are presented, as in the case of *ween* or *evidently*. It would be interesting to identify the factors that help them succeed or cause them to fail in doing so. The results so far show that children are flexible at relying on either semantic or pragmatic aspects of the interpretation process depending on which one they can (less effortfully) have access to. Only when their semantic and pragmatic knowledge level off can children reliably retrieve the intended interpretation.

Worth mentioning is children’s interpretation of the various occurrences of *think*. Children provided easier, relatively straightforward answers for 1st person *think* (Linguistic task 1) compared with shaky, more effortful answers for 3rd person *think* (Linguistic task 3). Even more intriguing is the close parallel between *think* and *suppose*: *think* was only marginally better received than *suppose*, which, given the frequent occurrence of *think* (as standardly reported in the developmental literature, (section 2) and the absence of *suppose* in child-speech (Ifantidou 2005c), contradicts anticipated results. Finally, *suppose* was by far better received than *evidently*, *possibly*, *certainly*. The question is: Why do these differences in children’s interpretative abilities of evidentials occur?

A first observation towards an explanation concerns the distinction between facilitating 1st person verbs vs. 3rd person verbs or adverbials. Children seemed to generally tune in quickly with 1st person evidential verbs – even where the items were less familiar, e.g. *suppose*, *ween*. Consequently, children willingly risked an answer on pragmatic grounds and were mostly successful. On the contrary, children were genuinely puzzled with adverbials *evidently*, *possibly*, *certainly*, and less so with 3rd person *think*. Table 4 presents scoring mean percentages in descending order.

Succeeding in interpreting	<i>I think</i>	67,67%
	<i>it does not seem that</i>	67,42%
	<i>I ween</i>	65,81%
	<i>I suppose</i>	65,71%
	<i>it seemed to me</i>	63,25%
	<i>she thinks</i>	59,04%
	<i>it seems that</i>	40,36%
Failing in interpreting	<i>evidently, possibly, certainly</i>	36,13%

Table 4: Mean percentages of tested evidentials in descending order of **successful** interpretation by **prenursery** and **nursery** children. Number of subjects: 41.

These findings seem to suggest that the less the source of information was explicitly stated, the more children risked their answers, and the more they ended up with the wrong ones. For example, children showed more confidence with *it seems to me* than with *it seems that*. This trend peaked with adverbials, where it is not clear who the source of the information provided is, i.e. ‘whom is it evident to’, ‘whom is it possible to’, ‘whom is it certain to’, in which case the hearer, or reader, has to infer it. The next question then is: Does inferential processing affect the interpretation of evidentials in any significant way?

⁹ The assumption being that in natural-language production too children use the evidentials in question guided by a similar holistic approach to lexical meaning with syntactic/semantic/pragmatic/stylistic/prosodic features contributing to the way words are used.

Identifying the source of information is one of the functions evidentials may have. Retrieving (for hearers) or encoding (for speakers) one's own or other's beliefs (in the form of utterances or thoughts) with varying degrees of certainty is another function that evidentials typically serve. What seems to have been underestimated in the developmental literature is that both can be highly inferential processes, engaging the speaker or the hearer in different levels of representational complexity. Table 5 shows how evidentials may get increasingly more sophisticated.

(1)	Pinnocchio: <i>I think</i> I'm falling asleep.
(2)	It's the first time, <i>I suppose</i> , you're visiting Athens.
(3)	The triangle has, <i>certainly</i> , three angles.
(on seeing the bear leaning over the Bunny)
(4)	Ferret: <i>It seems to me that</i> I've seen the bear whispering in your ear.
(5)	Banana 1: <i>I think</i> he said he is a cart.
(6)	Banana 1: <i>I think</i> I am thinking what you're thinking.
(7)	<i>Efi thinks</i> she knows.
(8)	<i>It seems</i> the baby likes Sarah's new toy boat.
(9)	<i>It doesn't seem that</i> we've lost any weight, dear.
(10)	<i>Evidently</i> it doesn't look like a slide, it looks like a see-saw, Eimy said.
(11)	You <i>possibly</i> made a bed, Loulou said.

Table 5: Tested evidentials in increasing order of pragmatic sophistication.

The utterances in (1 – 3) involve two levels of representation: They represent the speaker's thought about his own state of being (1), and the speaker's belief about a state of affairs (2, 3). The utterances in (4 – 11) involve three levels of representation: (4) represents the speaker's belief about his first-hand (visual) information regarding a state of affairs. (5) represents the speaker's thought about another's utterance regarding a state of affairs. (6) represents the speaker's thought about his own thought regarding the hearer's thought. (7) represents the writer's belief about Efi's thought regarding Efi's own belief. (8) represents the writer's thought about another's (baby) desire regarding a state of affairs. (9) represents the speaker's (father-elephant) dissociative attitude regarding the hearer's (mother-elephant) belief regarding a state of affairs (losing weight through dieting). (10) represents the speaker's belief about her own dissociative thought regarding a state of affairs. (11) represents the speaker's dissociative thought about the hearer's thought regarding a state of affairs.

A comparison of Tables 4 and 5 shows that the two run parallel except for two incompatibilities. Firstly, (3) involves two levels of representation, yet children failed to correctly interpret the evidential function of *certainly* as a strengthening marker. Lack of explicit linguistic clues as to how the evidential information is to be metarepresented may raise inferencing demands children are not up to yet. Particularly for evidential adverbials (*certainly*, *possibly*, *evidently*) or impersonal constructions (*it seems that*), children may be confused about who to attribute evidential information to without any explicit linguistic guidance (in the form of pronouns, proper names, inflectional suffixes or morphemes, prepositional phrases): 'is it certain according to the story-character ...?', 'is it certain according to the narrator/writer ...?', 'is it certain according to the experimenter ...?'. The missing information-giving bound or free morphological marking fails to guide children to an overall consistent interpretation. Secondly, (9) involves three levels of representation, yet children seem to have successfully interpreted *it does not seem that* as a weakening evidential marker. As already

suggested, the literal meaning of *fenete*='can be seen', and particularly, the negative *de fenete*='cannot be seen', in Modern Greek might have led children to correctly consider it as a weakening marker on the assumption that 'what cannot be seen, cannot be evidenced with a strengthened degree of certainty'.

Results obtained from primary school children indicated little improvement for the 1st and 2nd graders. Evidential understanding seemed to level off at the 4th grade while peaking at the 6th grade (Graphs 1, 2, 3).

Evidential	Linguistic task	√	×
<i>I think</i>	1	70,43%	29,57%
<i>it seemed to me</i>	2	42,8%	57,1%
<i>she thinks</i>	3	57,1%	42,8%
<i>it seems that</i>	4	33,33%	66,66%
<i>I think</i>	5	73,56%	26,44%
<i>it doesn't seem that</i>	6	52,3%	47,6%
<i>I suppose</i>	7	47,6%	52,3%
<i>evidently</i>	8	28,57%	71,42%
<i>I think</i>	9	76,19%	23,81%
<i>Possibly</i>	10	9,52%	90,47%
<i>I think (literary)</i>	11	57,1%	42,8%
<i>Certainly</i>	12	19,04%	80,95%

Table 6: Percentages of evidential interpretation by 1st graders/6-7 year-old passers (√) and failers (×).
Number of subjects: 21.

		√	×
<i>I think</i>	1	76,43%	23,57%
<i>it seemed to me</i>	2	62,5%	37,5%
<i>she thinks</i>	3	84,37%	15,62%
<i>it seems that</i>	4	34,37%	65,62%
<i>I think</i>	5	83,98%	16,02%
<i>it doesn't seem that</i>	6	40,62%	59,37%
<i>I suppose</i>	7	37,5%	62,5%
<i>Evidently</i>	8	28,12%	71,87%
<i>I think</i>	9	71,87%	28,12%
<i>Possibly</i>	10	37,5%	62,5%
<i>I think (literary)</i>	11	53,12%	46,87%
<i>Certainly</i>	12	68,75%	31,25%

Table 7: Percentages of evidential interpretation by 2nd graders/7-8 year-old passers (√) and failers (×).
Number of subjects: 32.

		√	×
<i>I think</i>	1	73,01%	26,99%
<i>it seemed to me</i>	2	65,57%	34,42%
<i>she thinks</i>	3	91,80%	8,19%
<i>it seems that</i>	4	52,45%	47,54%
<i>I think</i>	5	55,73%	44,26%
<i>it doesn't seem that</i>	6	44,26%	55,73%
<i>I suppose</i>	7	63,93%	36,06%
<i>Evidently</i>	8	31,14%	68,85%
<i>I think</i>	9	70,49%	29,50%
<i>Possibly</i>	10	54,09%	45,90%
<i>I think (literary)</i>	11	49,18%	50,81%
<i>Certainly</i>	12	68,85%	31,14%

Table 8: Percentages of evidential interpretation by 3rd graders/8-9 year-old passers (√) and failers (×).

Number of subjects: **61.**

		√	×
<i>I think</i>	1	83,78%	16,21%
<i>it seemed to me</i>	2	81,08%	18,91%
<i>she thinks</i>	3	89,18%	10,81%
<i>it seems that</i>	4	72,97%	27,02%
<i>I think</i>	5	72,97%	27,02%
<i>it doesn't seem that</i>	6	70,27%	29,72%
<i>I suppose</i>	7	75,67%	24,32%
<i>Evidently</i>	8	62,16%	37,83%
<i>I think</i>	9	81,08%	18,91%
<i>Possibly</i>	10	64,86%	35,13%
<i>I think (literary)</i>	11	67,56%	32,43%
<i>Certainly</i>	12	81,08%	18,91%

Table 9: Percentages of evidential interpretation by **4th graders/9-10 year-old** passers (√) and failers (×).
Number of subjects: **37.**

		√	×
<i>I think</i>	1	87,43%	12,57%
<i>it seemed to me</i>	2	82,33%	17,67%
<i>she thinks</i>	3	83,21%	16,79%
<i>it seems that</i>	4	77,28%	22,72%
<i>I think</i>	5	63,04%	36,95%
<i>it doesn't seem that</i>	6	67,39%	32,60%
<i>I suppose</i>	7	71,73%	28,26%
<i>Evidently</i>	8	32,60%	67,39%
<i>I think</i>	9	84,78%	15,21%
<i>Possibly</i>	10	71,73%	28,26%
<i>I think (literary)</i>	11	67,39%	32,60%
<i>Certainly</i>	12	86,95%	13,04%

Table 10: Percentages of evidential interpretation by **5th graders/10-11 year-old** passers (√) and failers (×).
Number of subjects: **46.**

		√	×
<i>I think</i>	1	94,12%	5,88%
<i>it seemed to me</i>	2	89,66%	10,34%
<i>she thinks</i>	3	88,47%	11,53%
<i>it seems that</i>	4	76,28%	23,72%
<i>I think</i>	5	77,35%	12,64%
<i>it doesn't seem that</i>	6	90,56%	9,43%
<i>I suppose</i>	7	90,56%	9,43%
<i>Evidently</i>	8	60,37%	39,62%
<i>I think</i>	9	92,45%	7,54%
<i>Possibly</i>	10	77,35%	22,64%
<i>I think (literary)</i>	11	77,35%	22,64%
<i>Certainly</i>	12	88,67%	11,32%

Table 11: Percentages of evidential interpretation by **6th graders/11-12 year-old** passers (√) and failers (×).
Number of subjects: **53.**

Succeeding in interpreting	<i>I think</i>	80,86%
	<i>she thinks</i>	82,35%
	<i>it seemed to me</i>	70,65%
	<i>I suppose</i>	64,49%
	<i>I ween</i>	61,95%
	<i>it does not seem that</i>	60,9%
	<i>it seems that</i>	57,78%
Failing in interpreting	<i>evidently, possibly, certainly</i>	53,96%

Table 12: Mean percentages of tested evidentials in descending order of **successful** interpretation by primary school children. Number of subjects: 250.

Comparing the mean scores for pre-school children (Table 4) with mean results obtained from primary school children (Table 12), it is observed that top-scoring and bottom-scoring evidential items remain constant (*I think* vs. *it seems that*, *evidently*, *possibly*, *certainly*). In-between evidentials have been slightly reordered in terms of scoring percentages. Worth mentioning is how results for 3rd person *think* and *it doesn't seem that* have been reversed. Primary school children exhibit improved understanding of 3rd person *think* and a poorer understanding of *it doesn't seem that*. This confirms the reservations expressed earlier about preschoolers' successful interpretation of *it doesn't seem that* being a side-effect of its semantic meaning in Modern Greek rather than a genuine indication of correct evidential interpretation. Overall, the results (Graphs 1, 2, 3) confirm the long period of gradually developing evidential vocabulary. Moreover, they suggest a variation among the developmental trajectories of evidential verbs, the syntactically more complex construction *it seems that/to me* and adverbials, where verbs seem to be the first and easier to be acquired with through-age higher scores (Graph 1) and adverbials the last and more demanding with early-age low scores and a sharp rise around 6/7 years of age, peaking at 11/12 years of age (Graph 3). *It seems that/to me* exhibits a through-age moderate but relatively steady competence with an upward trend, peaking at 9-12 years of age (Graph 2). The question is how can so graded an acquisition be explained?

Graph 1: Developmental trend for understanding of evidential verbs for 4-12 year-olds

Graph 2: Developmental trend for understanding of evidential construction *it seems that/to me* for 4-12 year-olds

Graph 3: Developmental trend for understanding of evidential adverbials for 4-12 year-olds

3.3. Interpreting the evidence

One way to explain the findings is to associate the development of 4;6 – 11;7 children's sequential understanding of evidentials (Tables 4 and 12) with ordered layers of metarepresentation (Sperber 1994; Wilson 2000, 2005). In this framework, the order of acquisition sketched in Tables 4 and 12 is predicted by Sperber's three levels of metarepresentational sophistication.

Sperber (1994) described three stages in pragmatic development which correlate with stages in the development of metarepresentational skills. Each stage is determined by one interpretation strategy that the hearer may employ: A naively optimistic, a cautiously optimistic and a sophisticated strategy, with successive stages (and respective strategies) growing in sophistication. Next I will show how the stages I have sketched in my data run parallel to Sperber's strategies and enable speakers and hearers to become increasingly more competent communicators.

A naively optimistic speaker is benevolent and competent enough to realize what is relevant and salient for her hearer at the time. A naively optimistic hearer looks for an interpretation that seems relevant enough, and as long as he finds one, he assumes this is the speaker's meaning; if he does not, he can reason no further, and communication will fail. If I tell my 3;6 year old son:

(12) Your sister is in your room.

he will be able to interpret my utterance in a number of ways: *Your sister is hiding from you, your sister is looking for you, your sister is meddling with your bike*. As long as the first interpretation my son retrieves is relevant enough, it is the intended one, and I have spoken competently; as long as the first interpretation my son retrieves not only seems relevant but is genuinely so (e.g. I have not been lying or trying to distract him from something happening elsewhere) I have spoken benevolently too. As Wilson points out:

A Naively Optimistic hearer has no need to think about the speaker's mental states in order to identify her meaning: the only time he needs to represent the speaker's thoughts is when, having found an acceptable interpretation, he concludes that it is the intended one. (Wilson 2005: 391).

There is little need to think about the speaker's mental states, because as Sperber points out, naively optimistic children

easily believe that one is talking about what happens to be foremost on their mind (and conversely that what they want to talk about is foremost in the minds of their listeners). (Sperber 1994: 191).

A cautiously optimistic speaker is benevolent, but not necessarily competent. A cautiously optimistic hearer is capable of avoiding misunderstandings by rejecting the first interpretation he finds relevant enough and by asking himself on what interpretation the speaker *might have thought* her utterance would be relevant enough to him. Suppose I say (12) knowing that Sophia is willing to play with her younger brother. (12) might be *accidentally relevant* if my son, who had a row with his sister over who will ride the bike, finds the first relevant enough interpretation to be the one on which I am saying that his sister is meddling with his bike. A naively optimistic hearer would accept this as the intended interpretation. A cautiously optimistic hearer would be able to consider whether I could have expected my utterance, on this interpretation, to be relevant enough to him. An utterance may also be *accidentally irrelevant*. To use Deirdre Wilson's example (2005: 392), if on asking my son to bring me the book on the kitchen table, he finds no book on the kitchen table, there are two alternatives: If he is a naively optimistic hearer, he will not look beyond the linguistically encoded meaning, he will fail in finding an acceptable interpretation and communication will fail. If he is a cautiously optimistic hearer, he will ask himself which book I *might have thought* was on the kitchen table and he will succeed in identifying the intended interpretation by bringing me the book lying near the table on the floor. In other words, a cautiously optimistic communicator can distinguish others' false beliefs (here, my wrong assumption that the book is on the kitchen table) from his own beliefs and reality (here, the fact that the book is on the floor).

A sophisticated speaker can successfully engage herself in complex full-fledged communicative patterns, such as deception, hearsay, irony. In deception, for example, she may be trying to mislead the hearer by intending an interpretation to *seem* relevant enough without being so. A sophisticated hearer must retrieve the interpretation that the speaker might have thought would *seem* relevant enough to him. In (12), the mother may be trying to distract her child from something else. If capable of using the strategy of sophisticated understanding, the child may identify his mother's meaning on which she *might have thought he would think* her utterance was relevant enough and as a consequence, he will not get deceived. In hearsay, a sophisticated speaker may be

reporting on others' beliefs about others' beliefs that differ from his own. A sophisticated hearer should be able to identify the speaker's attributing others' beliefs to others' *and* her dissociative attitude to the attributed beliefs.

The move from naive optimism to cautious optimism marks the acquisition of first-order theory of mind, i.e. the ability to attribute to others beliefs that differ from our own. The move from cautious optimism to sophisticated understanding marks the acquisition of second-order theory of mind, i.e. the ability to attribute to others beliefs about the beliefs of others that differ from our own (Wilson 2000, 2005). As a consequence, this framework predicts that a naively optimistic child would be able to interpret evidentials along the lines of (1 – 6) and (8) (Table 5), because these encode the speaker's complying belief with others' beliefs. A cautiously optimistic child would be able to interpret evidentials along the lines of (7), because this encodes the writer's dissociative belief about Efi's belief (that she knows). Having mastered sophisticated understanding, a child would be able to interpret evidentials along the lines of (9), (10) and (11), because these encode others' beliefs about the beliefs of others that differ from her own. In (9), the child should be able to interpret father-elephant's dissociative belief regarding his wife's belief (that elephants can lose weight through dieting). In (10), the child should be able to interpret Eimy's dissociative belief regarding Bananas' belief (that they have made a slide). In (11), the child should be able to interpret Loulou's dissociative belief regarding Bananas' belief (that they have made a slide). Generally, in the third, sophisticated strategy, the child would be able to interpret evidentials relying on complex dissociative hearsay, irony and deceitful pretence, by encoding (and interpreting) the beliefs of others about the beliefs of others that differ from her own, as in (13), (14) and (15):

- (13) *Allegedly/apparently*, the little polar bear was drifted along by the storm.
(adapted from *Little polar bear*)
- (14) Mr Wolf was well-meant, *supposedly*!
(adapted from *The little red-riding hood*)
- (15) The cat's master was *supposedly* drowning.
(adapted from *Puss in boots*)

In (13), hearsay information is reported by a speaker who is dissociating himself from the writer's belief about father-bear's belief regarding the little bear lost in the storm (who had in fact safely reached the South Pole). In (14), the speaker is ironically implying that the wolf was not well-meant, by dissociating himself from the writer's belief about the wolf's benevolent thoughts regarding Red Riding Hood. In (15), the speaker is able to identify the cat's master intention to deceive by pretending to be drowning.

Such pragmatically complex evidential items are only acquired once children have mastered the strategy of sophisticated understanding. In this direction, it has been shown (Ifantidou 2005a, 2005b) that two hearsay particles in Modern Greek, (*taha*, *dithen*), are not fully acquired until late primary school years because they rely on complex metarepresentational reasoning, i.e. on ironical hearsay interpretation. This is predicted by Sperber's strategy of sophisticated understanding which coincides with "fully-fledged communicative competence" involving irony and multi-layered hearsay (Sperber 1994: 197). On co-interpreting previous findings on *taha/dithen* (Ifantidou 2005a, 2005b) with results obtained in this study, a number of interesting observations can be made. First, syntactically more complex evidentials, such as *it seems that/to me*,

are acquired earlier than syntactically less complex evidentials, such as *taha/dithen* (Introduction, footnotes 3 and 4). Secondly, the semantically/stylistically marked *ween* is appropriately interpreted by preschoolers similarly to unmarked *think* or highly infrequent *suppose*. Thirdly, the pragmatically simpler *think* is acquired earlier than the pragmatically sophisticated *taha/dithen* (footnote 5) and earlier than the pragmatically ambiguous adverbials (section 3.2). These findings may be indications as to what guides the development of evidentials, suggesting that syntactic or semantic/stylistic sophistication does not affect the acquisition process to the extent that pragmatic complexity does. This is explained in Sperber's framework, where as the child develops from naive optimism to cautious optimism to sophisticated understanding, she is progressively able to retrieve extra levels of metarepresentation and as a consequence, cope with evidentials of increasing pragmatic and cognitive complexity.

4. Conclusions

In this study, I have suggested that the acquisition of the evidential lexicon in Modern Greek is firstly, extended (in time of development) and secondly, ordered (in sequence of development). More importantly, I hope to have shown that both time and order of acquisition are cognitively-driven. Sperber's framework on how pragmatic abilities draw on developing mind-reading abilities helps explain how evidentials follow a 3-stage pattern of growing pragmatic and cognitive complexity. In the first stage, evidential items are easily and early acquired because the metarepresentational reasoning required is least complex as determined by the naively optimistic strategy (approximately 2 – 4-5 year-olds). In the second stage, evidential items are later and less easily acquired because the metarepresentational reasoning required is more complex as determined by the cautiously optimistic strategy (approximately 4 – 7 year olds). In the final stage, evidential items are later still and more effortfully acquired because the metarepresentational reasoning required is most complex as determined by the strategy of sophisticated understanding (approximately 7 – 12 year olds). Follow-up work, for example, on negative evidential items – *I don't suppose, I don't think, it doesn't sound, it can't be true* – or other less common types of evidentials – *I suspect, I conclude, I predict, I wonder, allegedly, apparently* – may reveal further interesting links with Sperber's interpretation strategies.

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Appendix

The linguistic tasks, the question format, correct answers (underlined) for the twelve evidential items tested and references for children's readers.

Linguistic task 1

(DRAWING: Little mouse staring at his reflection in the mirror, fixing his bow tie)

Little mouse admired himself at the mirror and said:

"I am so smart!"

"What did little mouse say he is, Banana 1?" Banana 2 asked.

"*I think* he said he is a cart, Banana 2!" Banana 1 said.

What is the meaning of *I think*?

Banana 1:

- A. is not certain that the little mouse said *cart*.
- B. knows and is certain that the little mouse said *cart*.
- C. (other)

Linguistic task 2

The rabbit and the ferret were taking a walk to the woods, when they saw, terrified, a huge bear getting close. The ferret climbed up a tree nearby.

(DRAWING: The rabbit lying on the ground, pretending to be dead, the bear sniffing onto his face)

After the bear left, the ferret came down the tree and asked the rabbit:

"*It seemed to me* that I saw the bear whispering at your ear. What was he saying?"

What does the ferret mean by saying *it seemed to me*?

- A. I am certain, I saw the bear whispering to you.
- B. I am not sure the bear was whispering to you or not.
- C. (other)

Linguistic task 3

It is Sarah's birthday. She is now opening her presents with the other kids. But none of them can guess what is in the big packet. Efi *thinks* she knows. Do you?

(DRAWING: Sarah and her friends sitting on the floor among presents, trying to open them up)

When Sarah '*thinks* she knows':

- A. (other)
- B. knows and is certain about what there is in the box.
- C. has doubts about what is in the box.

Linguistic task 4

The baby is the first to get to the swimming pool.

(DRAWING: A swimming pool, a toy-boat floating, the baby crawling, and five older kids running after him)

It seems that the baby likes Sarah's new toy-boat floating in the pool.

Do you understand *it seems that* as:

- A. maybe (I can tell from his eagerness to get there) the baby likes Sarah's new toy-boat.
- B. it is definite that the baby likes Sarah's new toy boat.
- C. (other)

Linguistic task 5

The two bananas tried again and again to assemble their new slide but they could not quite make it. This is what they made instead.

(DRAWING: The two bananas sitting on a roughly made, funny type of bed)

Tired, after many fails, they said:

B2: "Are you thinking what I am thinking Banana 1?"

B1: "*I think* I do Banana 2. Time to sleep!"

- A. B1 imagines but is not certain that Bs wants to go to bed.
- B. B1 is certain that B2 wants to go to bed.
- C. (other)

Linguistic task 6

(DRAWING: In the bathroom, father-elephant on the scales staring down on the weight measurement, the rest of the family standing around him)

Being forced to diet for many days by his wife, to live on healthy food and exercise, Mr Elephant said:

"*It doesn't seem that* we have lost any weight, dear!"

"Maybe elephants have to be fat", said Louki.

"Nonsense!" Mrs Elephant said. "We must not give up now".

By saying *it does not seem that* ..., Mr Elephant means that

- A. (other)
- B. he is certain that they have not lost any weight.
- C. maybe they have lost a bit of weight, but so little that it's not worth it.

Linguistic task 7

(DRAWING: King Snail standing on an ancient ruin-column of Parthenon, talking to Pinnochio)

Pinnochio travelled from his country Italy to Greece to find a strange cyclamen growing in Athens. His adventures begin in Akropolis, where he meets King Snail.

"May I take you on a tour to the ruins of Akropolis?" said he in a formal tone "It is your first visit, *I suppose*, in Athens"

Do you understand *I suppose* as:

King Snail

- A. knows and is certain that it is Pinnochio's first visit in Athens.
- B. (other)
- C. imagines and is not certain that it is Pinnochio's first visit in Athens.

Linguistic task 8

The two bananas tried again and again to assemble their new slide but they could not quite make it. This is what they made instead.

(DRAWING: The two bananas sitting on a roughly made, quite odd type of see-saw)

At that point, Eimy showed up.

"What's this?" she asked.

"It's a fix-it-yourself slide", Banana 2 said. "We fixed it ourselves twice ..."

"But it still does not look like a slide", Banana 2 said.

"Well. *Evidently* it does not look like a slide, it's more like a see saw" Eimy said.

Do you understand the word *evidently* as:

- A. (other)
- B. it is obvious that what you made does not look like a slide.
- C. it is doubtful whether what you made does not look like a slide.

Linguistic task 9

(DRAWING: The statue of a poet, letters of the alphabet and words flowing from his hands down onto Pinnochio, who is lying at the statue's foot)

It got dark and Pinnochio felt so tired. He looked around, further down there was the statue of Odiseas Elitis. With one leap he settled at his feet.

"Mr poet, I feel cold"

And the poet leaned over and gently covered him with two of his poems.

"My eyes are heavy, Mr poet. *I think* I am falling asleep.

When Pinnochio says *I think* ..., he:

- A. knows and is certain that he is falling asleep.
- B. feels and is not quite certain that he is falling asleep.
- C. (other)

Linguistic task 10

The two bananas tried again and again to assemble their new slide but they could not quite make it. This is what they made instead.

(DRAWING: The two bananas sitting on a roughly made bed)

At that point, Loulou showed up.

"What's this?" she asked.

"It's a fix-it-yourself slide", Banana 2 said. "We fixed it ourselves twice ..."

"But it still does not look like a slide", Banana 2 said.

“Well. You *possibly* made a bed” Eimy said.

Do you understand the word *possibly* as:

- A. maybe what you made is a bed.
- B. it is likely that what you made is a bed.
- C. (other)

Linguistic task 11

(DRAWING: In a garden, many snails in a row, waving Greek flags, followed by Little mouse, all heading for Pinnocchio)

All the snails in the National Gardens heard about the strange cyclamen Pinnocchio was looking for, but no one had neither seen it nor heard of it. They were so sorry – what could they do – they would disappoint him, but to soothe his sorrow, they would offer him candies and sweet-smelling cinnamon biscuits. Little mouse is getting closer to the sweets.

“I am ashamed to admit it, but you see, my mouth waters. Can I get a candy?” he asked impatiently.

“The sweets are for Pinnocchio” snail Gary explained, “but *I ween* they are enough for you and fifty more clockwork mice to eat”.

Do you understand the word *I ween* as:

Gary:

- A. (other)
- B. is not certain that the sweets are enough for little mouse too.
- C. is certain that the sweets are enough for little mouse too.

Linguistic task 12

(DRAWING: A boat, with two triangular sails)

The triangle has, *certainly*, three angles.

The word *certainly* means:

- A. it is definite that the triangle has three angles.
- B. (other)
- C. it is safe that the triangle has three angles.

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