

# CHAPTER ONE

## WHAT I SAY, YOU SAY! ILLUSTRATION OF SYNTACTIC PRIMING IN CYPRIOT GREEK\*

### 1. INTRODUCTION

This chapter reports on work that was prompted by the first named author's doctoral research and the second named author's MRA.

The current chapter looks into error patterns in children's *wh*-question production as outlined in two experiments, namely Syntactic Priming Experiment in Cypriot Greek (henceforth, SPE-CG) (Papadopoulou in progress) and "Guess What Game" (henceforth, GWG) (Pavlou in progress). The two experiments were conducted in Cypriot Greek (henceforth, CG), a linguistically understudied variety of Standard Modern Greek (SMG) spoken in Cyprus; where the linguistic situation is not easy to define.

Cyprus since its declaration of independence in 1960 has two official languages, Greek and Turkish (Article 3, constitution of 1960). The linguistic reality of the island differs greatly from what is suggested by its constitution. Following Article 3 (constitution of 1960) Cyprus should have been by law a 'bilingual' state/republic with its inhabitants being native speakers of both Greek and Turkish. This is far from reality since the existence of such a bilingual population, low in percentage to begin with, has almost vanished since the military operations of 1974 where Greek Cypriots and Turkish Cypriots were forced to leave separately.

The linguistic situation of the Turkish speaking population in the northern part of the island which is no longer (since 1983) under the control of the Republic of Cyprus resembles the linguistic situation of the Greek speaking population in the south (Arvaniti 2006a:26). That is, since the self-declaration of independence of the northern territories in 1983, Turkish is said to be the official language with the population speaking a Cypriot variety of Turkish, namely Cypriot-Turkish, an unofficial language.

Similar to this Cypriot-Greek (the variety of Standard Modern Greek) is spoken in the rest of the island. Scholars and politicians have different opinions as to whether the linguistic reality of Greek-speaking Cyprus is bilingual, bidialectal, or diglossic (Ferguson, 1959) with a high and low variety (see, *inter alios*, Papapavlou 1998, Papapavlou & Pavlou 1998, Tsiplakou 2004). As it is pointed out Cyprus exhibits *de jure* bilingualism (Greek, Turkish; referring to the standard varieties in both cases) and *de facto* trilingualism in Greek, Turkish and English (Arvaniti 2002) or bilingualism in SMG and CG (Newton 1972, Vassiliou 1995) or Bidialectism in SMG and CG (e.g., Pavlou & Christodoulou 2001, Yiakoumetti et al. 2005).

Whichever the 'definition' applied the reality is that Cyprus exhibits a 'bi-x' (see Leivada & Grohmann 2010, Grohmann & Leivada 2011, in progress, Grohmann et al., to appear) situation a term proposed to cover any possible bi-mixing of language-dialect. By defining the linguistic environment as such it becomes clear that we have at least two linguistic codes (whatever their status) whose grammars are not clearly defined and with one code being affected by the other through television programs, books, and education.

Acknowledging the perplexed linguistic situation of Cyprus and that little work has been done on the CG morpho-syntactic description and analysis of the language (among others, Terzi 1999, Grohmann et al. 2006, Fotiou 2009) we try to compare the efficiency of the *Syntactic Priming Paradigm* when full pushing for priming occurs -where participants are asked to re-produce 5 sentences with the same underlying structure twice (as in SPE-CG) - and when only two warm ups/priming sentences are used (as in GWG). Issues relating to the existence or not of abstract syntactic representations in toddlers will not be dealt with here but rather issues relating to the analysis of the errors made. Results of adult control groups can be found in Pavlou (in progress) for 'GWG' and Papadopoulou (in progress) for SPE-CG.

Both Spe-CG and GWG, deal with the acquisition of *wh*-questions through the *Syntactic Priming Paradigm*. The study of *wh*-questions in the two experiments has led to the identification of movement operation difficulties varying across ages in children. Acquisition of certain constructions in need of the aforementioned

operation difficulties is assumed to be late (Bloom et al. 1982) and therefore production of these structures in languages similar to Cypriot Greek is late (Stavrakaki 2004, 2006).

A brief description of *wh*-question and cleft formation in CG, illustrating the existing literature is discussed in Section 2. Sections 3 and 4 involve the introduction of the Syntactic Priming literature followed by the description of SPE-CG and ‘GWG’. Section 5 involves the discussion deriving from the results obtained.

## 2. CG WH-SYNTAX

In this paper we explore syntactic priming effects between three types of questions, namely *Non-referential* (NR) *ti* ‘what’ ((1) below), *inda mbu* ‘what is-it-that’ and *Referential* (R) *pco* ‘which’ and *inda* ‘which’ questions ((2) below) as well as *inda/indambu* ‘why’ ((3) below).

- (1) *Ti/Indambu?*                      *diavazi*                      *o andras?*  
 What (is-it-that)                      reading-3SG                      the man-NOM  
 ‘What is the man reading?’
- (2) *Pco/Inda vivlio (embu) diavazi*                      *o andras?*  
 Which book (is-it-that)                      reading-3SG                      the man-  
 NOM  
 ‘Which book is the man reading?’
- (3) *Inda/ Inda mbu*                      *klei*                      *o andras?*  
 why                      cry-3SG                      the man-NOM  
 ‘Why is the man crying?’

Syntactic priming effects between object and subject cleft structures are also explored ((4) – (5) below).

- (4) *En ton antra pu ides*  
 Is the manACC that saw.2SG  
 ‘It is the man that you saw’.

- (5) En o andras pu pezi mappa  
 Is the man-NOM that play.2SG football  
 ‘It is the man who plays football’.

CG question and cleft formation bear morphological resemblance to SMG counterparts with minor pragmatic-semantic and morpho-phonological differences (Newton 1972; Arvaniti 2002) as well as substantial formation differences with respect to the *embu* ‘is-it-that’ strategy analysed further down and the different *wh*-words employed.

CG *wh*-words involve the quantifiers *pcos*<sup>1</sup> ‘who/which’, *posos* ‘how much/many’, *ti* ‘what’, and *inda* ‘what’ as well as the adverbs *pote* ‘when’, *pu* ‘where’, *jati* ‘why’, *pos* ‘how’, *inda* ‘why’, and *indalo(i)s* ‘how’ (Simeonidis 2006:217; cf. Holton et al. 1997 for SMG). The quantifier *inda* ‘what’, and the adverbs *inda* ‘why’ and *indalo(i)s* ‘how’, are dialect-specific to CG (for a more detailed description see Grohmann & Papadopoulou, 2010, 2011; Papadopoulou in progress) and as discussed in Simeonidis (2006:217), the *wh*-quantifier *inda* initially derived from the interrogative pronoun *tinda* ‘what’ used in Asizes<sup>2</sup>, literally *ti ine afta* ‘what are these’.

*Inda* ‘what’ and *inda* ‘why’ are invariant in gender, number, and case, with the *inda* ‘what’ pronoun used either pronominally (‘what/which NP’) or pronominally (simple ‘what’). Initially, *inda* was considered to have two phonologically reduced forms *a* and *nda*, which are still used rarely mainly in the village variety of the dialect known as “*xorkatika*” (Newton 1972:19). *Inda* can also mean ‘why’ in CG, suggesting that this *inda* must have originated from *gia inda logo* ‘for what reason’ (Papadopoulou, in progress). The third *inda*-derived *wh*-word is *indalo(i)s* ‘how’, literally *inda* ‘what’ + *logis* (in Ancient Greek *tropos*) ‘way/manner’, meaning ‘in what manner, how’, which also originated from the interrogative pronoun *tinda* ‘what’ (e.g., Papagelou 2001, Simeonides 2006).

Furthermore, when *inda* ‘what’ is adjoined to *embu* ‘is-it-that’, resulting in *indambu* ‘what is-it-that’<sup>3</sup> (Papadopoulou in progress) or *inda mbu* (Pavlou 2010) four other allomorphs are identified, namely *innambu*, *nambu*, *tambu* and *ambu* (Pavlou 2010). *Inda*-phrases and its four allomorphs identified appear to have different

properties than the aforementioned *inda mbu*, suggesting difference for the syntactic structure of the two (Pavlou 2010). The *wh*-phrases described above and their allomorphs are compared to cleft sentences because of their assumed decomposition to *ti ine pu* ‘what is that’ orders (lit. *ine ti pu* ‘is what that’) or *inda ine pu* ‘what is that’.

The so called *embu*-strategy (Grohmann et al. 2006), contrasted with Papadopoulou’s (in progress) claim for the fossilization of *embu* in questions brings together two opposing views on how *embu*-questions are formed. The *embu*-strategy, as suggested by Grohmann et al. (2006), involves a split-CP analysis with a focus projection (FocP) whose specifier is filled by the cleft and a C-projection, which takes the matrix clause as its complement deriving questions such as (6) and (7) below. On the other hand, Papadopoulou (in progress) argues for the existence of only the C-position, arguing for a fossilized *embu*<sup>4</sup>. The cleft-strategy follows the *embu*-strategy under a general approach of analyzing Cypriot *wh*-phrases as clefts.

(6) Ti            embu    diavazi    o   andras?  
 What        is-it-that read-3SG    the   man-NOM  
 ‘What is the man reading?’

(7) Pco        vivlio embu    diavazi    o   andras?  
 Which    book   is-it-that read-3SG the   man-NOM  
 ‘Which book is the man reading?’

To introduce briefly the Cypriot mechanisms that are studied here, it should be noted that *mbu* is assumed to be a variant of *embu* and appears in contexts where *embu* is not allowed (Grohmann et al. 2006, Pavlou 2010). *Inda* ‘what’ can be found in combination with *mbu* in contexts like (8) – (9); and of course with the different allomorphs deriving multiple questions (see Pavlou 2010 for a detailed description).

(8) Inda mbu        vasta            o   andras?  
 what            hold-3SG    the   man-NOM  
 ‘what is the man holding?’

- (9) Inda mbu fonazi o andras?  
 why shout-3SG the man-NOM  
 ‘Why is the man shouting?’

Clefts were firstly discussed by Jespersen (1927) who notes that the DP in the cleft is so definite that it cannot be further restricted so as to call the ‘that’-clause a relative clause. In later work, Jespersen (1937) analyzes this relative clause as a special kind of “parenthetic clause”, namely a cleft. Semantically, clefts express a single proposition in a bi-clausal structure. Jackendoff (1972) transforms Chomsky’s term of “natural” responses to utterances with meaning and defines them as “*focus*” and “*presupposition*”. Even though more specific and recent suggestions have been made in the literature illustrating syntactic explanations for clefts, we will not provide a theoretical analysis in this paper.

Cypriot clefts are analyzed as focus structures or existential clauses with a non-restrictive relative clause (Grohmann et al. 2006, Gryllia and Lekakou 2006, Fotiou 2009, Agouraki 2010). So, CG applies all the above by the use of cleft structures, where there is fronting of the focused constituent expressing either a person or an object or a concept and embedding a secondary clause introduced with *pu* ‘that’, as shown in (4) and (5) above, repeated as (10) and (11) below.

- (10) En ton andra pu ides  
 Is the man-ACC that saw.2SG  
 ‘It is the man that you saw’.

- (11) En o andras pu pezi mappa  
 Is the man-NOM that play.2SG football  
 ‘It is the man who plays football’.

While all these are very specific to the Cypriot variety, the possibility of diglossia, bilingualism (Newton, 1972) or Bi-X (Grohmann et al., 2010) comes to play a role in the data collected from the two experiments. Pavlou (2007) is one of the supporters of the idea that the Cypriot-Greek speech community is a bidialectal community, rather than diglossic, where two codes are used widely,

meaning SMG and CG. In addition, Moschonas (1996) and Papapavlou (1998) cited in Ioannidou (2007), characterize the wider sociolinguistic context of Cyprus as bidialectal. SMG is considered to be the ‘high’ variety spoken on the island hence it is also the language of instruction in school. Consequently, Greek Cypriot children switch to SMG when talking to strangers, engaging in official conversations or undertaking an oral test (Grohmann et al. 2010) as in the case of the two experiments discussed here.

### **3. SYNTACTIC PRIMING**

During the last few decades researchers have tried to unravel the mysteries of how people learn to speak one or more different languages. Since “language has sometimes been described as a “mirror of mind” ... the study of language should then give unique insight into human thought” (Chomsky, 1993:1). The study of language has though raised the main predicament of identifying the manner in which children acquire their first language and more specifically of whether children acquire their language depending on the linguistic input received in relation to the activation of some linguistic mechanisms endowed in the human brain or based merely on experience. The area under discussion that causes this great dichotomy within the field of psycholinguistics concerns the answer proposed to the question of how children acquire language specific syntactic constrains. That is, how children can assign syntactic operations and restrictions to words since they never receive in their input abstract syntactic formulae.

Main approaches, generative (among others Chomsky, 1965, 1986, 1995) and usage-based (Tomasello, 1998, 2000), disagree on the first stages of linguistic development, concerning the period from a child’s birth to the 5<sup>th</sup> year of age, but seem to embrace similar opinions when it comes to later stages of development; after the age of five. Nativists consider young children to be biologically endowed, as part of their genetic substance, with a “Universal Grammar” (Chomsky, 1965, 1975, 1986) identical to all adult grammars; with only minor differences since some aspects of the

grammar may be activated in different intervals. On the other hand usage-based accounts claim young children use their *cognitive* and *social cognitive* skills to merge mainly by analogy (Ninio, 2005) structures of individual linguistic expressions they hear around them (Tomasello, 2000)<sup>5</sup>.

Several studies in language acquisition have dealt with the issue of mental representation of linguistic knowledge and more specifically with priming. The focus of this paper restricts itself to syntactic priming effects observed during the acquisition of *wh*-questions and cleft sentences. Syntactic priming refers to the existence of activated abstract syntactic representations during sentence processing which affects the processing of a sentence with the same syntactic structure. It can be used to probe the representation of a certain syntactic structure and provide claims about how syntactic information is mentally organised; abstractly (among others, Savage et al. 2003, Huttenlocher et al. 2004, 2007) or lexically bound (among others, Tomasello, 2002; Tomasello & Aktar, 2003).

Numerous factors contribute to either expedite or delay language acquisition. According to the literature in cognitive psychology, repetition seems to affect linguistic development since it involves many underlying psychological mechanisms which can result in learning and development. When repeating an action or an utterance the person is not necessarily imitating, but when using the same utterance productively s/he re-produces it instead. Different views approaching the matter have resulted in a growing debate as to whether people repeat while ‘imitating’ or re-produce an action or utterance when used productively.

In linguistics repetition of particular linguistic components or levels, such as words previously said by an interlocutor can result in what is known as *lexical priming*, or repetition of partial or complete syntactic structures without the necessary repetition of the same words resulting in *syntactic priming*. Specifically, *priming* refers to the phenomenon where immediately preceding language input affects language production, whereas *syntactic priming* refers to the “tendency to repeat or better process a current sentence because of its structural similarity to a previously experienced sentence” (Bock, 1986:361). When people talk or write, they tend



to unconsciously repeat or re-use the underlying structure of sentences or utterances they have recently produced or experienced; suggesting that people can be primed either by other interlocutors or by themselves.

Even though syntactic priming seems to be present ubiquitously at all linguistic levels, it is a relatively recent area of research which has expanded in the last 20 years to three languages, namely English (Bock, 1986, etc), German (Levelt & Kelter, 1982) and Dutch (Hartsuiker & Kolk, 1998), different populations, and constructions, and in both comprehension and production. The first systematic investigation of *syntactic priming* in naturalistic context referred to the study of speech between burglars (Schenkein, 1980) whereas the first experimental one was conducted by Levelt & Kelter (1982) in Dutch; PP priming in shopkeepers. Numerous studies followed by Bock investigating *structural priming* in transitives and datives (among many others Bock, 1986). Other phenomena such as passive constructions (Bencini & Valian, 2008), and the optional complementizer 'that' (Ferreira, 2003), have also been studied.

Diversity occurs in the population studied which includes apart from adults, children (Savage et al., 2003), Broca's aphasics (Hartsuiker & Kolk, 1998), and bilinguals (McDonough & Kim, 2008). All studies have found strong priming effects across all phenomena studied suggesting the existence of abstract syntactic representations in adult grammar of typically and non-typically developing adults. When attempting to study syntactic priming in children a growing debate has arisen regarding the availability of abstract syntactic representations in child grammar. Syntactic priming effects for transitive and datives have been observed in 2-3 year olds (Huttenlocher et al., 2007) and for passive and active constructions for 3-4 year olds (Savage et al., 2003). However, these effects only occurred when prime and target sentences had the same verb, suggesting lexically based syntactic representations (Tomasello, 2000) whereas in studies with children aged 4;0 or older, syntactic priming was found even for sentences with different verbs, suggesting more abstract syntactic representations (Huttenlocher et al., 2004). If syntactic priming effects occur in studies with children, this suggests that children have syntactic

representations that can be activated. Hence, syntactic priming studies allow us to investigate the availability of (adult-like) syntactic representations in early language development.

#### **4. SYNTACTIC PRIMING EXPERIMENT IN CYPRIOT GREEK (SPE-CG)**

The Syntactic Priming Experiment in CG concerned the appearance of priming effects during *wh*-question production. Papadopoulou (in progress) aimed at investigating whether children would use productively and retain the syntactic structure of specific *wh*-questions after being prompted by the researcher. It was hypothesised that production of primed question would suggest the appearance of abstract syntactic representations in children.

As mentioned in Section 3 above current research in the field has revealed syntactic priming effects in a wide range of linguistic phenomena but mainly in intransitive and dative constructions (Bock, 1986, 1992, Huttenlocher et al 2004, 2007, Savage et al 2003). Subsequently, taking the possibility of observing priming effects to a wider range of constructions (among others Ferreira, 2003) such as *wh*-questions could prove the universality of the phenomenon and verify or discard the existence of abstract syntactic representations.

Taking into account the socio-cultural and linguistic distinctiveness of Cyprus, the influence of specific dialectal elements such as *embu* 'is-it-that' and *inda* 'what' were also considered. Accordingly, SPE-CG included structures such as (1), (2), (6) and (7) above. To be more precise, the three *wh*-words chosen facilitated the distinction between R and NR questions with inanimate patients. *Inda* 'what' served as a comparison between dialectal and non-dialectal elements, on top of the most CG-like word order (S-WH-V +*embu*) possible to the least CG word order (Wh-V-S-*embu*). For the construction-design of SPE-CG, information was mainly drawn from Savage et al (2003) and Huttenlocher et al. (2004, 2007) since these studies were allied with priming effects in children.

## 4.1 PARTICIPANTS

The experiment was conducted with a hundred three Greek Cypriot children aged 2; 8 - 6; 5. All children were monolingual native speakers of Cypriot Greek, attending kindergartens around the area of Larnaka and Limassol district. Participants were distributed in three age groups, with the first group consisting of twenty two children with mean age 3; 4 years (40 months), the second of twenty six children with mean age 4; 3 years (51 months) and the third of forty-five children with a mean age 5; 7 years (67 months) (Table x-1 below).

Age group	Age range	Number of participants	Mean age	Standard deviation
AG1	2;8-3;11	22	3;4	3 months
AG2	4;0-4;11	26	4;3	2 months
AG3	5;0-6;5	45	5;7	3 months

Table x-1: SPE-CG participants

## 4.2 MATERIAL AND DESIGN

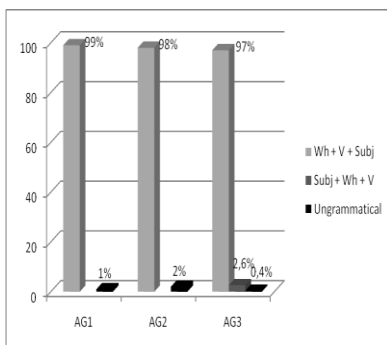
The experiment involved fifteen pairs of a prime (P) and a target (T), with different verbs, agents and patients for each pair divided into three blocks of five sentences. Each block represented one of the three *wh*-words tested, namely, *pco* ‘which’ referential (R1), *ti* ‘what’ non-referential (NR) and the dialectal element *inda* ‘which’ referential (R2). Test sentences were distributed across two main categories, namely word order and appearance of *embu* ‘is-it-that’. Word order refers to the distinction of topicalized or not structures following (12) and (13) below respectively; which in accordance with the appearance or not of *embu* ‘is-it-that’ result in four main conditions which were distributed in between groups.

- (12) O andras pco vivlio (**embu**) Økiavazi?  
*the man-NOM which book-ACC (is-it-that) read-3SG*  
 ‘Which book is the man reading?’
- (13) Pco vivlio (**embu**) Økiavazi o andras?  
*which book-ACC (is-it-that) read-3SG the man-NOM*  
 ‘Which book is the man reading?’

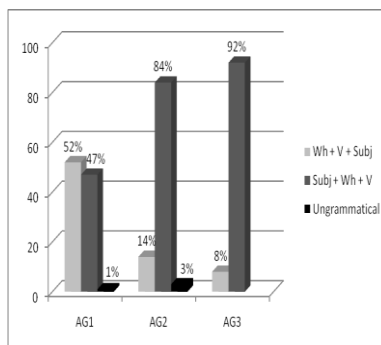
Balancing and randomizing the four conditions with the three types of *wh*-questions (blocks) six different combinations of presentation of the three blocks were created (see Papadopoulou in progress for an in depth analysis of the design).

### 4.3 RESULTS

As it has been mentioned in the introduction of the paper we will mainly deal with the error analysis and the different patterns (not only errors after all) rather than providing an in depth explanation of the results obtained. As depicted in Graph (X-1) below children perform at almost 100% when they are primed with the word order Wh + V + Subj. Age group three performs the same irrespective of the word order condition provided (Graphs X-1 and X-2). In contrast Age group two seems to perform slightly less (84%) when they are given the topicalized word order as prime; Subj + Wh + V. The younger group (AG1) seems to have great difficulty with the topicalized word order condition. They performed at 47% following the target word order and reversed to the non-topicalized word order at 52% of the cases.



Graph X-1: Wh+V+Subj



Graph X-2: Subj+Wh+V

Failing to be primed by the topicalized word order condition suggests possible difficulties to move the subject at a topic position for AG1 (see Papadopoulou, in progress and Papadopoulou & Pavlou, in progress for further information regarding possible movement difficulties). Results above do not refer to the priming effects or not of *embu* ‘is-it-that’, since generally priming effects of *embu* were relatively low across age groups (see again Papadopoulou in progress for an in depth investigation).

Overall, children across all age groups made a few ungrammatical errors, failing to obey the primed word order; only 9 utterances in total (see Appendix 1 for a full list of all mistakes). The majority of the errors made referred to the inability to obey pied-piping conditions ( (-)Pied Piping) resulting in a split DP with the *wh*-word correctly moved to Spec CP but, with the noun remaining VP-internally resulting in examples like (14) instead of providing the supposed target (15) below.

(14) \*Pco kaθarizi i kopela piato?  
*which clean-3SG the girl-NOM plate -ACC*  
 ‘Which plate is the girl cleaning?’

(15) Pco piato kaθarizi i kopela?  
*which plate-ACC clean-3SG the girl-NOM*  
 ‘Which plate is the girl cleaning?’

Relatively common was the inability to follow the pied piping condition (16) and, at the same time changing the *wh*-word (17) in the same sentence.

(16) \*I kopela ti troi milon?  
*the girl-NOM what eat-3SG apple-ACC*  
 ‘Which apple is the girl eating?’

(17) I kopela inda milon troi?  
*the girl-NOM which apple-ACC eat-3SG*  
 ‘Which apple is the girl eating?’

Children have also produced sentences with both the *wh*-object phrases and the overt object by moving on the one hand the *wh*-word to Spec, CP but at the same time pronouncing the NP in the VP as in (18) below rather than (19).

(18) \*O andras ti aniyi đoro?  
*the man-NOM what open-3SG present-ACC*  
 ‘Which present is the man opening?’

(19) O andras ti anigi?  
*the man-NOM what open-3SG*  
 ‘What is the man opening?’

## 5. GUESS WHAT GAME (GWG)

The second experiment discussed in this paper is the “Guess What” Game (GWG) which aimed at the extraction of Cypriot-specific *wh*-phrases in questions (underlined in questions (22) – (25) below) and clefts (examples (20) – (21) below) following an abstract hypothesis that the first are truly ‘fossilized’ clefts (Pavlou 2010).

(20) En ton andra pu ides  
*is-3SG the man-ACC that saw-2SG*  
 ‘It is the man that you saw’

- (21) En o andras pu pezi mappa  
*is-3SG the man-NOM that play.2SG football*  
 ‘It is the man who plays football’
- (22) Inda mbu vasta o andras?  
*what hold-3SG the man-NOM*  
 ‘what is the man holding?’
- (23) Inda mbu fonazi o andras?  
*why shout-3SG the man-NOM*  
 ‘Why is the man shouting?’
- (24) Inda klei o andras?  
*why cry-3SG the man-NOM*  
 ‘Why is the man crying?’
- (25) Inda vivlio θkiavazi o andras?  
*which book read-3SG the man-NOM*  
 ‘Which book is the man reading?’

It is assumed that a cleft-strategy underlies *inda (mbu)*-questions in CG, restricted to *wh*-objects, true adjuncts, and D(iscourse)-linked *wh*-phrases, outlined in Section 2 above. Some general claims about this hypothesis will be mentioned below but differences between primed and non-primed utterances will be discussed in depth instead, since this is the focus of the paper. Certain differences which arise from primed against non-primed items are also highlighted in accordance with certain errors appearing and the frequent shifts of the word order.

Stavarakaki (2004) reports greater difficulty in the syntactic comprehension of object clefts rather than subject clefts by normally developing Greek children (3;3-3;7). In subsequent work (Stavarakaki 2006), she also reports omission of NP in which-S and which-O questions in typically developing children (examples (26a) – (26b) below), while younger children aged 3;6-4;0 showed lack of movement to the CP producing Yes/No questions instead. Data collected from SLI children show that errors concentrate on the omission of NP, lack of movement to the CP resulting to Yes/No

questions as well as *gap-filing* errors where the NP would appear in its base position with an article instead of being pied-piped with the *wh*-phrase.

(26) **(target response)**

Pios rinokeros kinijise ton elefanta?  
*Who-rhino-nom- chased-3s- the-elephant-acc*  
'Which rhino chased the elephant?'

**(child's response)**

Pios kinijise ton elefanta?  
*Who-nom- chased-3s- the-elephant-acc*  
'Who chased the elephant?' (Stavrakaki, 2006)

The relevance of clefts and *wh*-questions has been pursued in different ways in many studies. Many VSO languages use a “cleft-like” pattern to form *wh*-questions. Oda (2002) proposes that optional fronting languages, and thus languages that show a relevance of questions with clefts, are VP-movement languages. Another source of information is given by Soares (2003) who reports that *é que* clefts appear in children at a stage when *wh*-focalized questions are already used. What is being investigated in this study is the age of acquisition of clefts and Cypriot-specific *inda*-phrases, which are expected to have a “cleft-like” pattern.

## 5.1 PARTICIPANTS

Similarly to SPE-CG, data were collected from Greek Cypriot children who were attending either public or private kindergartens in Limassol, the southern town in Cyprus. All participants did not show any signs of developmental delay or general difficulties as ensured by their teachers during school time. The experiment was conducted during kindergarten time, in a one-to-one 15-minute session with the researcher, in the presence of a video-camera. Participants were distributed in four age groups namely, age group 1 (AG1) 3;0-3;11 with mean age 3;8, age group 2 (AG2) 4;0-4;11, with mean age 4;6, age group 3 (AG3) 5;0-5;11 with mean age 5;5 and age group 4 (AG4) 6;0-6;4, with mean age 6;2



(see Table X-2 below for the exact numbers of participants in each age group).

Age group	Age range	Number of participants	Mean age	Standard deviation
AG1	3;0– 3;11	11	3;8	3 months
AG2	4;0– 4;11	16	4;6	2 months
AG3	5;0– 5;11	22	5;5	3 months
AG4	6;0– 6;11	13	6;2	3 months

Table X-2: GWG participants

As it can be inferred from Table X-2 above number of participants is not balanced between different groups since this is an ongoing research and data collected from 2-year-old children were not included in this analysis. The first group consisted of eleven children aged 3;0-3;11 and the fourth group had thirteen 6-year-old children. Second and third group were kept distinct even though they could all ‘potentially’ attend the same class at school namely pre-primary (see section 2 above) highlighting in the way some of their differences. Some of the children that belong to the second group were expected to attend pre-primary school along with the majority of the third group since in accordance with the Cypriot educational system which determines the ages of entry into different school years, a child who has reached 4;8 by the beginning of the school year should attend pre-primary education.

## 5.2 MATERIALS AND DESIGN

During GWG children were requested to ask two supposedly ignorant puppets questions related to pictures presented to them. Each picture had two persons and two objects, with only one person

performing an action with one object; the other functioning as a distracter. Motivation for children to ask questions was given since the puppet who gave the correct answer would be awarded a chicken from the coop guarded by a dog and presented to the child before the beginning of the experiment. Eventually, the winner is the one who has more chickens in his box creating a competitive feeling to the child (Eisenbeiss 2009).

The experiment was divided in 6 blocks with each block focusing on a certain syntactic structure. The structures targeted were questions with the Cypriot-specific *wh*-object *inda mbu*, *wh*-adjuncts *inda* and *inda mbu* ‘why’, D(iscourse)-linked *wh*-phrase *inda*, subject and object clefts, (see examples (20) –(25) above). All were randomized within each block. Each block consisted of two trials in the primed session and four target sentences in the non-primed session.

The game starts with the researcher asking one of the puppets the first primed question of the first block. The puppet refuses to play with the researcher and the researcher asks the help of the child, who needs to ask again the same question to the puppet. The puppet answers and the same process is repeated in the second primed sentence of the second picture (Figure X-2 below). Once the primed session is over, the researcher stops asking questions and directly tells the child to ask the question for the pictures that follow.

**Experimenter:** Inda mbu vasta o andras? what is the man holding?  
(Puppet refuses to play and the researcher asks from the child to ask the question)

**Child:** Inda mbu vasta o andras? what is the man holding?  
(Puppet gives an answer)

**Experimenter:** Inda mbu fori i kopela? what is the woman wearing?  
(Puppet refuses to play and the researcher asks from the child to ask the question)

**Child:** Inda mbu fori i kopela what is the woman wearing?  
(Puppet gives an answer)

**Child:** Inda mbu anii o andras? What is the man opening?

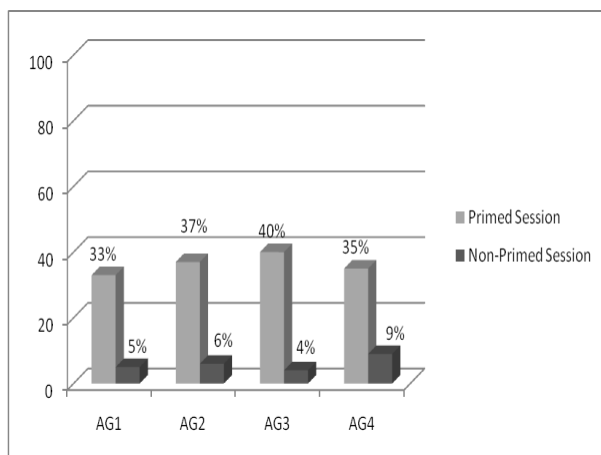
Figure X-2: Sample of the experiment

The researcher always asks the questions in every primed session of the 6 different blocks. The puppets are not looking at the pictures but rather need to guess the answer. In this way the child has an excuse for asking the questions and checking which puppet is the smartest. The game finishes when the child goes through all pictures.

### 5.3 RESULTS

Results will be presented in 3 stages for the four age groups illustrating the great difference between primed and non-primed sessions. As mentioned above claims about acquisition stages of *wh*-questions and clefts as well as further analysis of error patterns produced by children in both experiments will not be discussed in this paper but rather in forthcoming work; only analysis of priming effects of this experiment will be discussed.

Children's overall successful targeted production was generally low and even lower in non-primed sessions (Graph X-3 below) with AG 1 at 5%, AG2 at 6%, AG3 at 4% and AG4 at 9%.



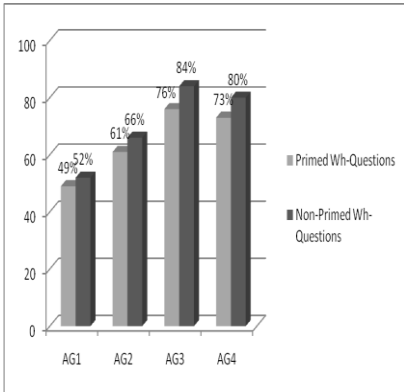
Graph X-3: Overall Production in Primed and non-Primed sessions

Three year olds (group 1) successfully produced primed questions and clefts during the primed section (warm up) at 33% (four year olds at 37%, six year olds at 35%), with five year olds having the highest targeted production at 40%.

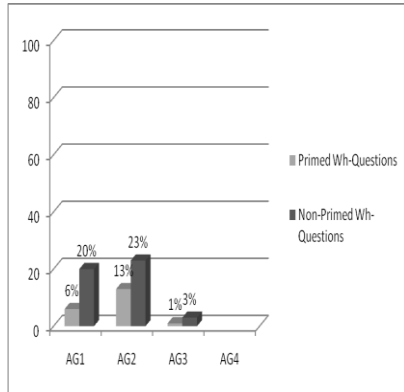
Low overall targeted performance was not considered to be a consequence of the methodology and design. Factors that cannot be controlled with methodological tools affected production. The ‘Cypriot context’ is taken to be diglossic or bilingual (see section 2 above for references and discussion) where Greek Cypriot speakers usually switch to SMG when talking to strangers. Accordingly, since the experiment was testing very *Cypriot-specific* items, these were low in production. Low production was not due to children’s inability to respond to the experiment but rather to the fact that they used the immediate ‘translation’ and produced SMG-like *wh*-phrases instead. This may imply that these children felt like undertaking a test or talking to a stranger (since the researcher did not know them) and therefore needed to talk in a more ‘polite’ way.

A solution proposed for experiments in diglossic contexts would be to set them up in such a way that they are part of children’s daily routine. That is, to design an experiment that would make the child feel it is a game played every day during his/her break at school. The reasoning derives from the observation that some of the children who used SMG-like *wh*-phrases in the experiment used CG (*wh*-phrases) during their break and conversation with the experimenter after the end of the experiment.

When calculating the production of questions with the SMG-like *wh*-phrases, similar scores appear in both the primed and non-primed session. This can be explained from the fact that these phrases were not included in the target sentences, but were simply the personal choice of each child. Their production was kept throughout the experiment in all AGs, with AG3 and AG4 performing in higher scores (Graph X-4 below) and possibly indicating the effects of school environment and language (Grohmann, in press).

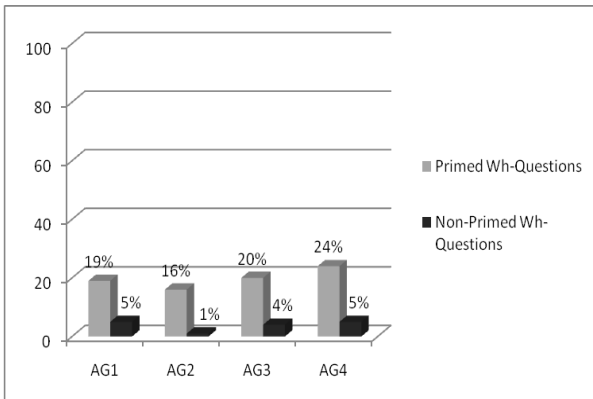


Graph X-4: Grammatical Non-Target Sentences (SMG-like)



Graph X-5: Non-Target(-Q) Grammatical Sentences(CG)

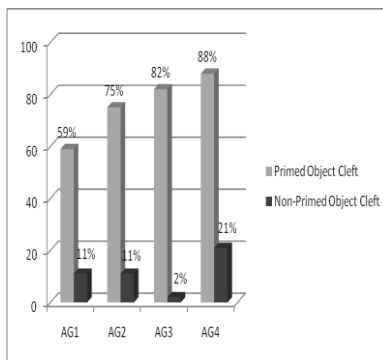
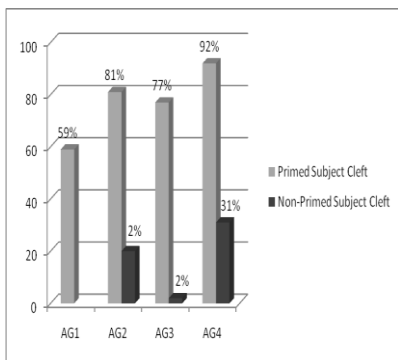
In some instances children failed to produce wh-questions or any other type of question but responded to the game with a declarative sentence. Without engaging into a discussion concerning the different types of different sentences (simple vs. embedded), Graph X-5 shows the relatively increased number of these responses in the non-primed sessions. This suggests young children (AG1 and AG2) are more likely to use a question when they are primed by a question and produced something completely different when they are not. However, this effect fades out in the older age groups.



Graph X-6: Successful target responses in CG

The successful target responses with Cypriot Greek wh-phrases are presented in Graph X-6, where there is an obvious difference between the primed and the non-primed session of the experiment. That is, all age groups produced a CG wh-phrase at 15% and higher with the target wh-phrases in the primed session, which was reduced to 5% and below in the non-primed session.

When looking at cleft production both subject and object clefts seem to follow similar but not exactly identical patterns (Graphs X-7 and X-8 below). To be more precise all groups performed alike during the priming session with more than 50% production for both subject and object clefts, with a stably incremental rise across age groups. In contrast, the maximum production of subject clefts was 31% by AG4, whereas only up to 21% by AG4 for object clefts during the non-primed session.



Graph X-7: Production of Subject Clefts Graph X-8: Production of Object Clefts

Production of clefts in the primed session was over 50% with 6-year-old children scoring close to ceiling (Graph X-8 below). On the contrary, production of clefts in the non-primed session was very restricted.

The same effect can be observed in the production of object clefts where production was high in the primed session but very low in the target session. Priming holds only for a low percentage of the responses in the non-primed session and restriction of priming effect in the non-primed session can be attributed to the complexity

of cleft sentences and the difficulty children show when attempting to produce them. It is therefore inferred that if children are primed with a particular structure they are more likely to re-use the same structure when the same verb appears in both the prime and the target whereas find it hard to retain the underlined syntactic structure; at least for this particular experiment.

When avoiding the production of clefts, children develop other strategies (Pavlou, 2010) namely producing declarative sentences with different word order patterns. Table X-3 below provides the percentages only for the production of declarative sentences in the non-primed session and more specifically the word order followed when there was no production of cleft sentences. SVO word order was more frequent in subject clefts following the SMG-way of expressing focus in the sentence.

Age Group	SVO %		VSO %		VOS %		V or VO %		OVS %	
	S	O	S	O	S	O	S	O	S	O
AG1	34	23	2	7	27	32	18	5	2	0
AG2	34	22	5	2	14	25	19	14	0	2
AG3	26	18	1	1	10	11	2	0	0	6
AG4	29	15	2	2	25	6	4	4	2	0

Key: S = Subject Cleft

O = Object Cleft

Table X-3: Production of declarative sentences

Some examples of the children's responses in declarative sentences, as illustrated in Table X-3 can be viewed below (27a-e):

(27) a. SVO:

O andras krata kokkinon aftokinito  
*the man-NOM hold-3SG red car-ACC*  
 'The man is holding a red car'

b. VSO:

Troi o andras psomi  
*eat-3SG the man-NOM bread-ACC*  
 'The man is eating the bread'

**c. VOS:**

Krata to doraki I kopela  
*hold-3SG the present-ACC the woman-NOM*  
'The woman is holding the present'

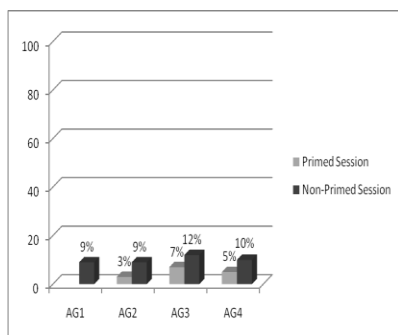
**d. V(O)**

Kovi milo  
*cut-3SG apple-ACC*  
'(She/he) is cutting the apple'

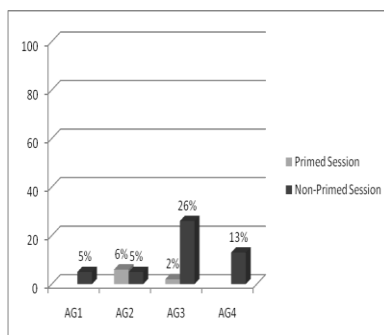
**e. OVS**

Aftokinito krata I kopela  
*car-ACC hold-3SG the woman-NOM*  
'The woman is holding a car'

The third group of data examined error production in D-linked questions. Errors observed are related to pied piping difficulties where the NP was pronounced in its base position and not higher up in the CP. A second error observed is the complete omission of the NP from D-linked questions, consequently turning them to *wh*-object questions (Graph X-9).



Graph X-9: (-) Pied Piping Error



Graph X-10: NP omission

The errors observed in the primed session were fewer rather than the errors observed in the non-primed session. All groups showed lack of movement of the NP in D-linked questions more frequently than observed in the trials (Graph 10). While the errors identified in



the primed sessions were restricted in number and were more frequent in the non-primed session, great difference was observed in 5-year-old children, where the errors were much more frequent in the non-primed session.

## 6. DISCUSSION

Both experiments used priming to trigger mental representation of grammatical knowledge employed in children's production. SPE-CG pushed for three stages of priming, but GWG only one stage. Both experiments were testing *wh*-questions with GWG using additional sections for production of clefts.

Priming in SPE-CG was much more effective and resulted in (almost) the same behaviour by all AGs. Mental representations are assumed to trigger the *wh*-structures and were kept throughout the experiment. *Wh*-questions following 'normal' word order with the subject remaining at a VP internal position in CG were kept strictly, whereas constructions with a topicalized NP revealed that the AG1 had difficulties performing the necessary movement. While the success of the priming effect and the completion of all stages was satisfying for the experiment, children's errors were not absent from the overall utterances. Report of a small number of errors shows certain difficulties in movement-related issues in *wh*-questions that are aligned with a completely different experiment on relevant matters; such as GWG.

Production of Cypriot-specific *wh*-questions and clefts in GWG was relatively low for several reasons. *Wh*-questions in general were mostly produced with a minor percentage of errors, but production of the targeted *wh*-phrases was dramatically low. It should be pointed out that the aforementioned *wh*-phrases are assumed to be complex fused forms of cleft-like sentences. For example, *inda mbu* 'what' would have the cleft-like form of *ine ti pu* 'it is that'. Utterances found in the data give another phonological adaptation of it with the Cypriot copula *en* 'is' as *enda mbu* 'what', which would represent *en ti pu* 'it is that'. However, the conclusions drawn explaining the low production of the Cypriot-specific *wh*-phrases are mostly based on the current

sociolinguistic status of the Cypriot linguistic society, but at the same time it is assumed that cleft production was low based on the difficulty of the bi-clausal structure. Following the traces of SPE-CG error analysis, the percentages appearing in this experiment track down NP movement and omission as the possible and most common Greek Cypriot errors children make in *wh*-question production.

GWG and SPE-CG vary highly suggesting this difference is a result of the different amount of priming provided. In GWG, habituation was applied in the primed session and successfully provided desired results but these immediately decreased as soon as children proceeded to the non-primed session. As presented above in Graph (2) overall production was much higher in the primed session than in the non-primed session. Accordingly, children in general completed habituation stage, but dropped primed structures when habituation stage was eliminated. Priming effect is therefore weak and fades away in the GWG experiment suggesting that in order for priming effects to take place strong pushing should be maintained throughout the experiment (at least in syntactically complex structures such as *wh*-questions and clefts). Contrastively, all structures were followed as given in SPE-CG because of the high priming effect in the experiment.

Great difference in successful production of clefts was clear at instances where economy seems to play a role. In other words, clefts were produced successfully mostly in the primed session but were soon replaced by simple clause structures of different orders in the non-primed session. It appears to be the case that because the priming was not so strong, children finally produced what was 'easier' hence more economical for them. Accordingly, habituation stage can affect production of syntactically difficult structures.

Errors, however, increased with the drop of habituation stage in structures. Omission of the NP was extremely obvious since there was no apparent restriction for children to avoid turning a D-linked question into an argument question since phonologically the SMG/CG *wh*-phrase *ti* 'what/which' is the same.

## 7. CONCLUSION

This paper discussed and compared the results of two elicitation production experiments on the acquisition of *wh*-phrases in CG. While these two experiments had in common similar items for testing, the procedure was different. Different amount of priming pushing was used in the two experiments. SPE-CG made use of stronger priming procedures with a habituation, repetition and target phase in an attempt to attest Greek Cypriot children's performance in creating mental representations for *wh*-questions. The results appeared to confirm the initial hypothesis with the different age groups following the primed structures of the experiments. GWG on the other hand, initially aimed at gathering data supporting a completely different hypothesis, which is not discussed in this paper; hence the consideration did not lie on the effect of priming, only two utterances for each block were used as primes. In fact, the primed session given was only 1/3 of each block tested in the experiment. This was considered to be the main reason for the great difference in the results between the two experiments, where most children would drop the primed structures once the priming stages would stop taking place.

The aim of this paper was to compare the two experiments with respect to priming effects, investigating the actual environments for successful priming. Several questions, however, were raised after this comparative study and relate on the one hand to the slow pace of acquisition, but quick pace of acquisition based on syntactic structure input and formulation of rules on the other. Even though, the populations of the two experiments were quite similar the difference in *wh*-question production cannot be ignored. Taking into consideration that the order children participating were 6 year olds, it is assumed that acquisition of *wh*-questions has taken place long before the time of testing. However, not even the oldest children in the GWG experiment scored as well as 4 year olds in SPE-CG. It appears that maximum pushing for priming of a structure can affect overall performance as previous studies have suggested (Savage et al. 2003, Huttenlocher et al. 2004, 2005) in contrast to minimum pushing for priming, as in GWG. Improvement on performance depended directly on 'concentrated'

exposure which resulted in the activation of syntactic regularities. The answer to the question is not clear yet since most possibly frequency of exposure could also cause the difference in the results obtained. Even though at risk it is possible that frequency of exposure gave more time to children for full processing and rule generalization after input utilization, even in situations where certain sociolinguistic restrictions exist; as in CG. Accordingly, error production is expected to appear in greater percentages in experiments like GWG, where priming was not so strong and the time of exposure restricted.

A second question to be posed is born out of the results for cleft sentences in GWG. Why do children take so long to master clefts, but improve their performance when being primed? A possible answer derives from the errors/alternatives children produced. Precisely, this structure can be easily replaced by certain other structures, with similar pragmatic notion; namely, focus. Assuming children do not receive the same amount of input for all structures, it could be the case that the complexity and the low frequency of a cleft make production of this structure very difficult. It is then ignored during the first years of acquisition, and only after the semantic and pragmatic import of clefts is acquired, production of clefts is observed. Accordingly, different structures can be used to express the aforementioned pragmatic notion and actual production of complex clefts can take several years to be mastered.

As observed, priming is ideal for calculating the actual pace of learning of specific syntactic structures in experiments, but different amount of priming can result in different targeted production by children especially when concerned with syntactically complex structures.

## NOTES

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<sup>1</sup> Pcos 'who/which' is also found as pjos in literature (Grohmann et al., 2010)

<sup>2</sup> Asizes is a dialect which used to be spoken on the island around the 10<sup>th</sup>-11<sup>th</sup> century (see Simeonidis 2006:150 for further details).

<sup>3</sup> Refer to Papadopoulou (in progress) and Pavlou (2010) for a further discussion of whether *indambu* 'what is-it-that' has been fossilized in present day CG.

<sup>4</sup> See Grohmann et al. 2006 and Papadopoulou (in progress) for further discussion.

<sup>5</sup> Discussion on how the two experiments contribute to the debate can be found in Papadopoulou (in progress) and Pavlou (in progress).

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