



**Centre for Developmental
Language Disorders
& Cognitive Neuroscience**

Opening Workshop

SLI, Genes, Development & Cognitive Neuroscience

18th - 20th October 2002

**Department of Human Communication Science
University College London**

Workshop sponsored by:

The Wellcome Trust, Friends of UCL, Department of Human
Communication Science, Trends in Cognitive Sciences.
UCL Faculty of Life Sciences

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SLI, Genes, Development & Cognitive Neuroscience

Background to the Workshop

The genetic identification of two novel loci involved in specific language impairment in children (SLI Consortium 2000) along with the earlier findings of the FoxP2 gene implicated in this disorder, has propelled SLI to centre stage for its potential for facilitating our understanding of the relations between genes and cognition (Pinker, 2001).

The workshop brings together a multidisciplinary group to disseminate and discuss recent research findings from genetics to cognitive neuroscience in SLI/developmental disorders and related areas of language and cognitive development. It raises the controversial issues of the development of specialised cognitive systems, in our search for understanding cognitive development. It is clear that in order for us to advance in this area, theoretical unification between neuroscience, linguistics, psycholinguistics, and cognitive science is required.

There are two main aims of the workshop: First, to bring current knowledge and technical advances in genetic and cognitive neuroscience investigations of language, cognition and developmental disorders to the participants. Second, to provide an informal forum where, in our quest for knowledge about genomics and cognition, controversial issues can be aired concerning the inter-related areas of the genetic and cognitive heterogeneity of SLI and other disorders; domain-specificity and dissociation versus co-morbidity of specialised cognitive systems in normal and atypical development.

PROGRAMME

Friday 18th October 2002

2pm	Introduction <i>Heather van der Lely, University College London</i>
	<i>Chair: Stewart Rosen</i>
2.15 - 2.55pm	The genetic basis of a severe speech & language disorder <i>Simon Fisher, University of Oxford</i>
2.55 - 3.15pm	Discussion
3.15 - 3.55pm	Genetics of language and cognitive impairment: GLI (general language impairment) in addition to SLI (specific language impairment) <i>Robert Plomin, King's College London</i>
3.55 - 4.15pm	Discussion
4.15 - 4.40pm	<i>Break (refreshments in room G23)</i>
	<i>Chair: Frank Ramus</i>
4.40 - 5.20pm	The heritability of language and language disorders <i>Karin Stromswold, Rutgers University</i>
5.20 - 5.40	Discussion
5.40 - 6.20pm	SLI and dyslexia: same or different? Evidence from neurobiological and genetic studies <i>Dorothy Bishop, University of Oxford</i>
6.20 - 6.40pm	Discussion
8pm	<i>Dinner at British Museum (if booked in advance) Meet at Chandler House or Goodenough Club at 7.30pm, or meet at restaurant</i>

Programme

Saturday 19th October 2002

Chair: Dorothy Bishop

- 9 - 9.40am What developmental biology can tell us about innateness
Gary Marcus, New York University
- 9.40 - 10am Discussion
- 10.00 - 10.40am Evidence for and implications of a domain-specific grammatical deficit
Heather van der Lely, University College London
- 10.40 - 11am Discussion
- 11 - 11.30am *Break (refreshments in room G23)*

Chair: John Harris

- 11.30 - 12.10am Recent studies using normal and backward speech: behavioral and optical topographical measures in infants and adults
Jacques Mehler, SISSA, Trieste
- 12.10 - 12.30am Discussion
- 12.30 - 1.30pm *Buffet lunch served in room G23*

Chair: John Harris

- 1.30 - 2.10pm The way to syntax: The prosody/lexicon/syntax interface in German infants
Jürgen Weissenborn, University of Potsdam
Barbara Höhle, University of Potsdam
- 2.10 - 2.30pm Discussion

Programme

Chair: Neil Smith

- 2.30 - 3.10pm Language acquisition is language change
Stephen Crain, University of Maryland
- 3.10 - 3.30pm Discussion
- 3.30 - 4pm *Break (refreshments in room G23)*

Chair: Celia Jakubowicz

- 4 - 4.30pm Selective versus general delays in language acquisition of children with SLI: Refining the phenotype
Mabel Rice, University of Kansas
- 4.30 - 5pm The exact model of specific language impairment and the explanation of why SLI presents differently in different languages: Quantitative tests of precise predictions
Ken Wexler, MIT
- 5 - 5.30pm Discussion
- 5.30 - 5.40pm 10 minute break

Chair: Cornelia Hamann

- 5.40 - 6.20pm Language learning without maturation
Lila Gleitman, University of Pennsylvania
- 6.20 - 6.40pm Discussion
- 7- 9pm *Reception in Chandler House*
Nicole Tibbels - short recital of contemporary vocal music

Sunday 20th October 2002

Chair: Uli Frauenfelder

9 - 9.40am Grammatical processing in second language learners
Harald Clahsen, University of Essex

9.40 - 10am Discussion

10 - 10.40am Psychogrammar
Colin Phillips, University of Maryland

10.40 - 11am Discussion

11 - 11.30am *Break (refreshments in room G23)*

Chair: Karin Stromswold

11.30 - 12.10am Syntactic processing in the brain
Angela Friederici, Max-Planck-Institut für neuropsychologische

12.10 - 12.30am Discussion

12.30 - 12.50pm Discussants: Robert Plomin, Emmanuel Dupoux, Gary Marcus, Uli Frauenfelder

12.50 - 1.25pm Open discussion

1.25 - 1.30pm Closing remarks

The genetic basis of a severe speech & language disorder

Simon Fisher, Wellcome Trust Centre for Human Genetics, University of Oxford

Individuals affected with developmental disorders of speech and language have substantial difficulty acquiring expressive and/or receptive language despite adequate intelligence and opportunity, and in the absence of any profound sensory or neurological impairment. Although twin studies consistently demonstrate a significant genetic component, the majority of families segregating speech and language deficits show complex patterns of inheritance, and until recently no gene predisposing to such disorders had been identified. Molecular genetic studies of the unique three-generation pedigree, KE, in which a severe speech and language disorder is transmitted as a monogenic trait, allowed mapping of the locus responsible to a small interval of chromosome 7. Exploiting data from genomic sequencing efforts, a novel gene from this interval was identified (FOXP2) which encodes a new member of the forkhead/winged-helix family of transcription factors. This gene was found to be directly disrupted by a chromosomal rearrangement in an unrelated patient who has a language disorder that is strikingly similar to that of the KE family. Moreover, a point mutation is present in all affected members of the KE family, which alters an invariant amino-acid residue in the DNA-binding domain encoded by FOXP2. These data, plus observations from additional patients with chromosome 7 abnormalities, suggest that insufficient FOXP2 protein during embryogenesis may lead to abnormal development of neural structures that are important for speech and language. It appears likely that FOXP2 coding variants only account for a small proportion of cases of speech and language disorder. Nevertheless, this is the first gene to have been directly implicated in these kinds of pathways. Gene targeting experiments and expression profiling are being used to identify the downstream targets of FOXP2 in developing neuronal tissue. Such studies may offer novel insights into the molecular processes mediating speech and language development.

**Genetics of language & cognitive impairment:
GLI (general language impairment) in addition to
SLI (specific language impairment)**

*Robert Plomin, Institute of Psychiatry,
King's College London*

To what extent do genetic effects on language abilities and disabilities overlap with genetic effects on nonverbal cognitive abilities and disabilities? We addressed this question in the Twins Early Development Study (TEDS), a study of 10,000 pairs of UK twins born 1994-96 and assessed by their parents at 2, 3 and 4 years. At 4½ years, 400 low-language pairs and 300 control pairs were selected for testing in their homes on a battery of diverse tests of language and nonverbal cognitive measures. These data yield a strong general language factor that correlates .63 with a general nonverbal cognitive factor. Multivariate genetic research indicates substantial genetic overlap between the language factor and the cognitive factors for both the normal range of variation and for low-language children. We conclude that language problems for many children involve general cognitive problems and that genetic factors are substantially responsible for this overlap. For this reason, genetic research on language problems should consider general language impairment (GLI) that includes cognitive impairment, in addition to specific language impairment (SLI) that excludes cognitive impairment. Based on these findings, our current molecular genetic research focuses on GLI in addition to SLI.

**The heritability of language and language
disorders**

*Karin Stromswold, Dept of Psychology & Center for
Cognitive Science (RUCCS), Rutgers University*

Some researchers argue that the ability to acquire and use language is largely the result of innate predispositions that are specific to language (the innateness hypothesis). If the innateness hypothesis is correct, these predispositions must be encoded for in our DNA. In my talk, I will review the results of metaanalyses performed on over 100 genetic studies of language. The results of these twin, adoption & linkage studies strongly suggest that genetic factors play a role in the variation in the rate of language acquisition and linguistic proficiency attained by children and adults. Genetic factors account for much of the variance in linguistic abilities among people with written or spoken language disorders, and some of the variance in linguistic abilities among normal people. In addition to heritable factors that influence both nonverbal and verbal abilities, there appear to be genetic factors that specifically influence linguistic abilities. Furthermore, some studies suggest that different genetic factors are involved in different aspects of language (e.g. written language vs. spoken language; lexical vs. syntactic abilities).

**SLI and dyslexia: same or different?
Evidence from neurobiological and genetic studies**

*D. V. M. Bishop, Oxford Study of Children's
Communication Impairments, Department of
Experimental Psychology, University of Oxford*

Although research on specific language impairment (SLI) and developmental dyslexia have traditionally followed separate paths, there has been growing recognition that there are several commonalities between these disorders. When formal diagnostic criteria are applied, around 50% of children with SLI meet criteria for dyslexia, and around 50% of those with dyslexia meet criteria for SLI. Furthermore, many children who have oral language difficulties early in development appear to improve, but then have literacy problems in middle childhood. This has been termed ‘illusory recovery’ by Scarborough, who suggested that the same underlying deficit manifests differently depending on the child’s age. This viewpoint is consistent with current mainstream opinion that regards dyslexia as a phonological disorder, possibly caused by low level auditory perceptual impairment. Indeed, the same theory of ‘auditory temporal processing deficit’ has been used to account for both disorders. Thus over the years, there has been a loosening of the boundaries between SLI and dyslexia, and some researchers now use a general terms such as ‘language learning disability’ to refer to both oral and written language problems.

In this paper I shall use evidence from both genetic studies and neurobiological investigations to argue that, while we may want to move away from the traditional categories of SLI vs dyslexia, we should not simply collapse the two together.

**What developmental biology can tell us about
innateness**

*Gary Marcus, Department of Psychology, New York
University*

Recent research in brain development and cognitive development leads to an apparent paradox. One set of recent experiments suggests that infants are well-endowed with sophisticated mechanisms for learning language and analyzing the world; another set of recent experiments suggests that brain development is extremely flexible. In this talk, I review various ways of resolving the implicit tension between the two, and close with a proposal for a novel computational approach to reconciling nativism with developmental flexibility.

Evidence for and implications of a domain-specific grammatical deficit

Heather K. J. van der Lely, Centre for Developmental Language Disorders & Cognitive Neuroscience, University College London

There are few cognitive abilities that are uniquely human, but grammar is one. Therefore, the existence of a domain-specific grammatical deficit in just those aspects of language that are core to the human language faculty (e.g., agreement, recursion) that non-humans do not achieve, as I will argue is found in Grammatical(G)-SLI, is highly controversial. This is because these data directly challenge the view that cognitive systems underlying grammar are important for language but are not restricted to language acquisition. Such evidence has more general implications for how the brain is organised and the ongoing role of genes and experience in determining the development course of specialised cognitive systems. I will argue that heterogeneous SLI phenotypes evincing variable and/or multiple deficits across the language system, variable non-verbal abilities, secondary affects in non-grammatical language abilities (lexical development), or potential complex patterns of genetic inheritance do not militate against the existence of developmentally domain specific cognitive systems as claimed by some cognitive scientists. However, variation in the SLI disorder could further facilitate our understanding of the relations between genes and cognition. Moreover, I will argue that equally important is fine-grained linguistic analysis differentiating language profiles of SLI subgroups, which might (one day) be linked to particular genetic profiles. I will present evidence from the G-SLI subgroup showing a broad but discrete and predictable grammatical deficit in the structural computational language system affecting grammatical complexity. Within syntax this deficit is characterised by a deficit in syntactic movement, which is optionally applied (The RDDR hypothesis). This accounts for the broad range of deficits found in SLI in English and cross-linguistic data. Within phonology, I will discuss recent findings that reveal the deficit extends to prosodic complexity, characterised by the degree of “markedness” of syllabic and metrical structure.

Recent studies using normal and backward speech: behavioral and optical topographical measures in infants and adults

Jacques Mehler, International School for Advanced Studies, Cognitive Neuroscience, Trieste

Infants and adults discriminate a change from one language to some other languages when tokens are presented as relatively brief normal utterances. However, after the utterances have been delexicalized by resynthesis infants picked up the switch only if the paired languages belong to different rhythmic classes. If utterances are played backwards a language switch usually goes undetected and performance becomes random when the delexicalized utterances are played backwards. We used the above results to explore the existence of a language specific processing structure in the brain of normal neonates. Using a 24-channel Optical Topography device we studied how the brain of neonates responds to normal and backward speech. Our findings show that normal speech yields greater activation than backward speech. Moreover, normal speech results in a more asymmetrical pattern of stimulation than backward speech. All in all, these results suggest that the infant's brain is more attuned to normal speech stimuli before having acquired great experience with it.

The way to syntax: The prosody/lexicon/ syntax interface in German infants

*Jürgen Weissenborn & Barbara Höhle,
Department of Linguistics, University of Potsdam*

There is increasing evidence that interface relations between and within different domains of knowledge play an important role in language acquisition. They are the basis for the so-called bootstrapping mechanisms which allow the child to acquire language specific knowledge in one linguistic domain on the basis of already existing knowledge in another one. In our contribution we will provide new evidence that children use such bootstrapping mechanisms on their way to the syntax of the target language. We will present findings from our on-going research with German infants which focuses on the role of the lexicon-syntax and the prosody-syntax interfaces in language acquisition during the first and second year of life. Our studies show that from early on prosodic as well as lexical and morphological knowledge about bound and free grammatical morphemes helps the child to identify and categorize the syntactic units in the speech input, e.g. clauses, phrases and words. Furthermore, we will present additional evidence that the acquisition of internal syntactic properties of clauses and phrases, like word order regularities, as has been suggested, is related to regularities of the prosodic domain.

Language acquisition is language change

*Stephen Crain, Department of Linguistics, University
of Maryland*

In the normal course of events, children manifest linguistic competence equivalent to that of local adults in just a few years. Experience appears to dramatically underdetermine the competence children so rapidly achieve, even given optimistic assumptions about children's nonlinguistic capacities to extract information and form generalizations on the basis of statistical regularities in the data they receive. Of course, children do not immediately advance to a grammar that generates and interprets constructions in the same way as adults. There is considerable disagreement, however, about the possible differences between child language and adult language. The question is to what degree is human language acquisition "data driven," and to what degree is it determined by the human genome. On a data-driven approach to language learning, the pattern of children's non-adult linguistic behavior would be expected to be simply less articulated versions of the constructions produced by adults in the same linguistic community (e.g., missing certain classes of words or word-endings).

An alternative perspective is based on the continuity hypothesis, which supposes that child and adult languages can differ only in ways that adult languages can differ from each other (cf. Pinker, 1984; Crain 1991). From this perspective, children are expected to project beyond their experience in ways that are attested in natural languages, but children are not expected to match the input. Experience matters, of course. The input guides children through an innately specified space of hypotheses made available by Universal Grammar. But children are free to roam within boundaries imposed by UG, until they hit upon a grammar that is equivalent to that of other speakers of the local language; at that point, language change is no longer initiated by the input. Evidence in favor of the continuity hypothesis comes from the kinds of non-adult constructions children produce. When child language diverges from the local language, the differences appear to follow the natural seams (or parameters) of natural languages. The pattern of adult and non-adult Wh-questions produced by English-speaking children will be used to illustrate these points.

**Selective versus general delays in language acquisition of children with SLI:
Refining the phenotype**

*Mabel L. Rice, The Merill Advanced Studies Center,
University of Kansas*

The nature of affectedness is a central issue in the study of children with SLI, and of crucial importance in etiological investigations. This paper will examine the issue with respect to elements of language that are generally delayed in SLI versus those that are selectively delayed beyond the general delay, grammatical elements that are weak compared to those that are robust, and the associations versus dissociations between language and nonverbal IQ. The main point is that precise specification of the phenotype is essential for the ultimate clarification of etiological contributions to the condition.

The exact model of specific language impairment and the explanation for why SLI presents differently in different languages

*Ken Wexler, Dept of Brain and Cognitive Sciences,
Dept of Linguistics and Philosophy, MIT*

In this talk I review some of the substantial new research in early grammatical development in the last decade, that show why we expect and find strikingly different behaviors in the development of different languages, results that have been confirmed in striking quantitative form, going beyond traditional more impressionistic studies of language development. The same predictions concerning major differences across languages are made for Specific Language Impairment. I will review some major cases concerning tense and concentrate on some quite new cases concerning clitics. In particular, the prediction of a unified theory of grammatical development (the Unique Checking Constraint) is that children learning Italian and French will omit large numbers of object clitics, a well-known empirical result, and that children learning Spanish and Greek will omit also no object clitics (a completely new result). Moreover, Catalan is predicted to show clitic omission, and it does. I will review what is known about SLI in these domains, showing, for example, that Italian children do not produce the same kinds of tense errors as French, German, Dutch, English children, exactly as predicted. Italian and French SLI children omit large numbers of clitics, as predicted by the UCC and the general results of more than a decade of new research in early grammatical development. One conclusion is that there is no way to understand the nature of Specific Language Impairment without probing exact details of linguistic structure, paralleling how biology works in other areas. Another conclusion is that extensive evidence now exists that shows that SLI is specific to certain types of grammar and not to others, in particular that what develops late if it all in SLI children is the type of construction/ability that matures in normal children, the kinds of constructions, for example, studied as the *Optional Infinitive* stage. SLI is not a learning disorder; SLI children are brilliant learners of language-particular material, for example, processes of Verb Second in Dutch, an example I'll show extensive data from. SLI *is* a genetically induced maturational delay in certain types of computations, but not in others.

Language learning without maturation

*Lila Gleitman, Dept of Psychology, Institute for
Research in Cognitive Science (IRSC),
University of Pennsylvania*

Infants learn to name objects (e.g., SPOON or BALL) well before they label events (e.g., RUN or EAT). Why should this be so? They hear both kinds of words from their caregivers all the time. This mismatch between input and output can provide some insight into the process by which children acquire their native tongue. The dominant approach to this issue in the psychological literature is that the timing differences have to do with conceptual change in the learners. According to this view, nouns by and large describe "simpler" ideas than verbs and so the conceptually primitive infant can learn only the former type of lexical item. A contrasting view that I will defend in this talk is that infants' failure with abstract words is caused not by conceptual primitiveness but rather by informational constraints that necessarily obtain early in the acquisition process. To investigate these opposed positions, the experimental work investigates adults learning words under different informational conditions. It is shown that if adults are by experimental artifice restricted to the data naturally available to infants, their learning becomes correspondingly infantile. As we give the adults access to language-internal information resources, their learning function becomes more adultlike. I discuss these results as consistent with an arm-over-arm learning procedure in which the infants' early difficulties have to do with the nature of their task: They have to build the learning ladder, so to speak, while they are climbing it. A subsidiary issue that I will mention is whether aspects of the learning procedure for words is more via the gradual accretion of information (e.g., Hume 1739; Pinker, 1984) or by blinding insight.

Grammatical processing in second language learners

*Harald Clahsen, Department of Language &
Linguistics, University of Essex*

Previous language acquisition studies have focussed on linguistic *knowledge* in language learners. By contrast, relatively little is known about the mechanisms language learners employ in grammatical processing. How do parsing mechanisms emerge in L2 learners? Are adult L2 learners able to acquire the parsing mechanisms employed by native speakers of the language? Do L2 learners transfer parsing mechanisms from their first language to the foreign language? Answers to these questions are important for understanding L2 development, and yet the details of how language learners parse sentences and morphologically complex words are still largely unknown. In this talk, I will present results from two studies. The first examines how advanced L2 learners parse temporarily ambiguous sentences. The second study addresses the question of how advanced L2 learners process morphologically complex word forms.

We conducted both off-line and on-line experiments with different groups of L2 learners and native speaker controls: (i) acceptability judgement tasks, (ii) self-paced reading experiments, (iii) event-related brain potentials (ERPs). Three linguistic phenomena were examined: (i) relative clause attachment preferences in L2 Greek, (ii) verb inflection (participles) in L2 German, (iii) noun plurals in L2 German.

The ERP results indicate that L2 learners make use of similar brain structures as native speakers for grammatical processing. In particular, anterior ERP components known to be associated with grammatical computation in native speakers were also present in L2 processing, albeit in more restricted ways than in native speakers.

The results also show that L2 learners integrate information relevant for parsing differently from native speakers, with the L2 learners relying more on lexical cues than the native speakers and less on purely structurally-based parsing strategies.

Psychogrammar

*Colin Phillips, Department of Linguistics,
University of Maryland*

In this talk I discuss how to bridge the gap between time-independent models of linguistic knowledge and language development on the one hand, and time-dependent models of language found in psycholinguistics and cognitive neuroscience. It has been widely assumed since the 1960s that human language abilities are partitioned into separate time-dependent and time-independent subsystems. Time-independent ‘grammatical knowledge’ has been viewed as slow but accurate. Time-dependent ‘processing systems’ have been viewed as fast but less than perfectly accurate. This division of labour has proven to be an obstacle to the development of explicit linking hypotheses in the cognitive neuroscience of language.

I present an alternative view, in which grammatical knowledge is understood as heavily time-dependent, and is hence more amenable to development of a detailed linking hypothesis. In this talk I focus on one step of the argument, involving the question of how grammatically accurate real-time language comprehension processes are. If real-time processes are fully grammatically accurate, then the need for an independent ‘off-line’ grammatical system is called into question. To this end, I present results from studies on the comprehension of a number of different long-distance dependencies in adults and children, including *wh*-questions, coreference and ellipsis, and covering a number of different languages (English, Japanese, Russian, Spanish).

Syntactic processing in the brain

*Angela D. Friederici, Max-Planck-Institut für
neuropsychologische*

There is the long standing view that Broca's area (BA 44/45) is the brain area that houses syntax. A more recent debate concerned the issue of whether this area represents syntactic knowledge or rather syntactic procedures. The present paper will specify the particular functional role of Broca's area during sentence processing by means of fMRI. The data indicate that on-line syntactic processes are supported by a temporo-frontal network including the anterior portion of the superior temporal gyrus and the deep frontal operculum (adjacent to Broca's area). Broca's area, in particular the pars opercularis (BA 44), comes into play when more demanding syntactic processes, e.g., those requiring working memory are to be performed. Interestingly, Broca's area proper also activates during the processing of syntactically less demanding sentences in cases in which syntactic processes are not yet established as automatic procedures, e.g., in second language learning. Thus, it appears that more demanding, less automatic syntactic processes are supported by BA 44 and that highly automatic syntactic procedures are supported by the adjacent, more medially located deep frontal operculum. Both structures are usually affected by brain lesions causing Broca's aphasia and their specific functional roles can, therefore, only be defined on the basis of fMRI data like those presented here.

Speakers, Chairs & Discussants

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DLDCN website www.ucl.ac.uk/DLDCN



WELCOME TO CHANDLER HOUSE

ADMINISTRATION

The Workshop administrator, Claire Lister, will be present for most of the weekend, based in room G10, and will be happy to help with any problems.

REFRESHMENTS

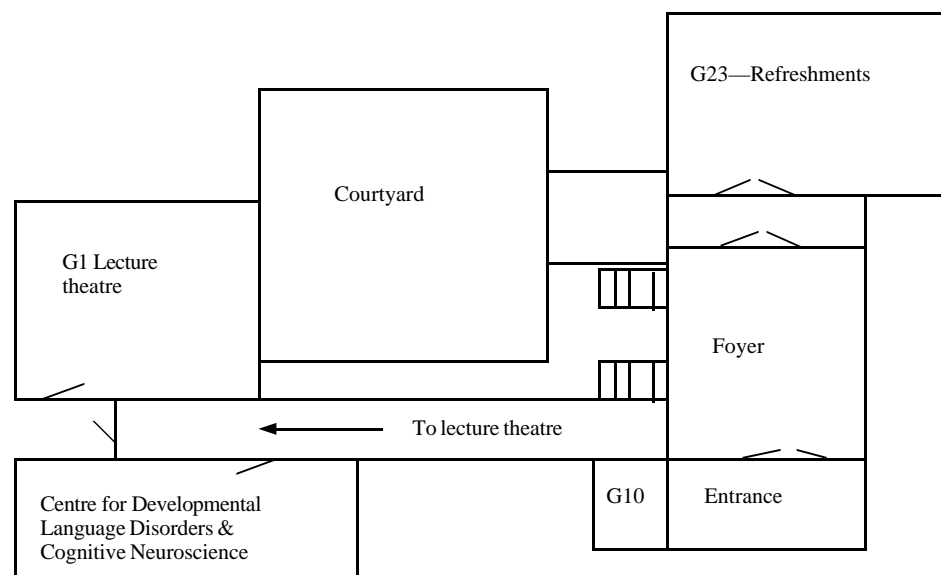
During breaks refreshments will be served in Room G23, through the double doors opposite the main entrance. You are also welcome to use the courtyard during breaks.

TELEPHONE

There is a public pay phone in the basement.

TOILETS

There are toilets on the first floor and in the basement, and a toilet for disabled visitors on the ground floor and in the basement.



IN CASE OF FIRE

1. **Raise the alarm - break glass of nearest callpoint**
2. **Evacuate, closing doors & windows if possible.**
Do not use lifts. Do not go to courtyard - there is no exit from there.
1. **Assemble away from building - in the park at the corner of Wakefield St and Handel St**
2. **Do not re-enter until instructed**

This is fire zone 74

CONTACT TELEPHONE NUMBERS

DLDCN, Chandler House	(020) 7679 4049
Workshop Administrator	0798 485 8897
Goodenough Club	(020) 7837 8831
Taxi company (Swiss Cottage Cabs)	(020) 7372 6767
Rail enquiries	0845 748 4950
Hotelink airport taxi service	01293 532244
Heathrow Airport	0870 000 0123
Gatwick Airport	0870 000 2468
Stansted Airport	0870 000 0303
Luton Airport	01582 405100
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LOCAL RESTAURANTS

CLOSE BY

- small restaurants in immediate area

Sheng's Tea House (Chinese)

68 Millman St (off Guilford St) - inexpensive

Giao Bella (Italian)

Guilford Place - inexpensive

Tutti's (Italian snack bar)

Corner of Lamb's Conduit St & Gt Ormond St - inexpensive

Hare & Tortoise (Dumpling & Noodle Bar)

Brunswick Centre (next to Renoir Cinema) - inexpensive

BLOOMSBURY AREA

- 10-15 minutes walk

Abeno (Japanese)

(020) 7405 3211

47 Museum Street - inexpensive

Le Bistro Savoir Faire (French)

(020) 7436 0707

42 New Oxford Street - inexpensive

BLOOMSBURY/COVENT GARDEN

- 15-20 minutes walk, past British Museum

Mon Plaisir (French)

(020) 7836 7243

21 Monmouth Street—quite expensive

Giovanni's (Italian)

(020) 7240 2877

10 Goodwin's Court—quite expensive

SOHO

- 20-30 minutes walk, or tube from Russell Sq to Leicester Sq

Alastair Little (Nouvelle cuisine/British)

(020) 7299 2949

49 Frith Street—expensive but good

Chiang Mai (Thai)

(020) 7437 7444

Frith Street—inexpensive

The French House (French/British)

(020) 7437 2477

49 Dean Street—expensive

Mildreds (wholefood vegetarian)

(020) 7494 1634

58 Greek Street—inexpensive