Parallel Programming
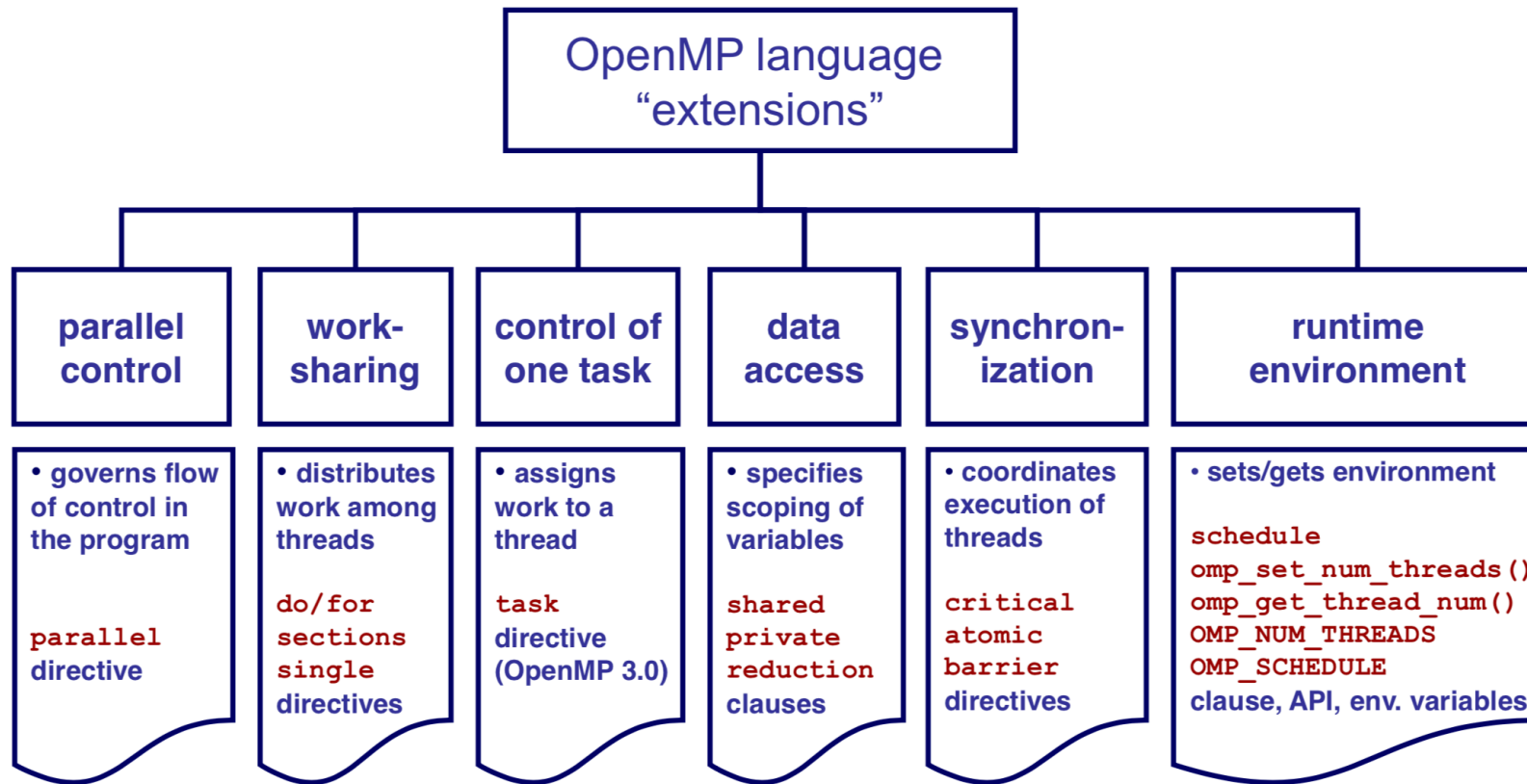
ACSE-6: Lecture OpenMP-3

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Overview of OpenMP constructs

OpenMP Constructs

OpenMP language "extensions"

parallel control	work-sharing	control of one task	data access	synchron-ization	runtime environment
• governs flow of control in the program **parallel** **directive**	• distributes work among threads **do/for** **sections** **single** **directives**	• assigns work to a thread **task** **directive** **(OpenMP 3.0)**	• specifies scoping of variables **shared** **private** **reduction** **clauses**	• coordinates execution of threads **critical** **atomic** **barrier** **directives**	• sets/gets environment **schedule** **omp_set_num_threads()** **omp_get_thread_num()** **OMP_NUM_THREADS** **OMP_SCHEDULE** **clause, API, env. variables**

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Overview of OpenMP constructs

OpenMP Constructs

OpenMP language "extensions"

parallel control	work-sharing	control of one task	data access	synchron-ization	runtime environment
• governs flow of control in the program parallel directive	• distributes work among threads do/for sections single directives	• assigns work to a thread task directive (OpenMP 3.0)	• specifies scoping of variables shared private reduction clauses	• coordinates execution of threads critical atomic barrier directives	• sets/gets environment schedule omp_set_num_threads() omp_get_thread_num() OMP_NUM_THREADS OMP_SCHEDULE clause, API, env. variables

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