Type	Details
I	All strings are charged under an SO(32) gauge symmetry
IIA	Chiral, meaning that parity is a good symmetry. No gauge symmetry either, so theory only contains gravity
IIB	Non-chiral, both in the fermionic sector and the gauge sector
HO	Heterotic, meaning that the left-movers are bosonic, and the right-movers are fermionic. Has an SO(32) gauge symmetry
HE	Heterotic, with an $E_8 \times E_8$ gauge symmetry

Table 1.1: The five consistent types of superstring theory

only consider closed strings (open strings enter when we consider D-branes in section 1.4.3). We can choose to make our strings orientable or non-orientable. If a string is orientable, we can tell which way we are travelling along a string. If it is non-orientable, we can't. There are further choices we can make with respect to the fermionic boundary conditions, and in fact going through every possibility took researchers a lot of time. In the end, there are five consistent superstring theories, summarised in table 1.1.

What is the spectrum of closed string theory? This is a detailed and complex subject that is visited by many sources (see [9,11,42–45] for example) so here we just briefly summarise the results.

The spectrum contains the metric, $G_{\mu\nu}$, the scalar dilaton Φ, and a two index antisymmetric tensor $B_{\mu\nu}$:

- The metric needs little explanation, and plays the usual role as the device for measuring distance and angles.

- The dilaton is a very important field in string theory: it generically appears in the action as e^{Φ}, and measures the Euler characteristic (the number of holes and handles) of the string worldsheet. Hence the quantity e^{Φ} plays the role of the theory's coupling. When open