**Further Development of HS Field Theory** ABDULMAJEED AB-
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vania, MAHMOUD GASSEM, American University in London — We present a
systematic treatment of the HS Field theory of the open bosonic string and discuss
its relationship to other full string field theories of the open bosonic string such as
Wittens theory and the CVS theory. In the development of the HS field theory we
encounter infinite dimensional matrices arising from the change of representation
between the two theories, i.e., the HS field theory and the full string field theory.
We give a general procedure of how to invert these gigantic matrices. The inversion
of these matrices involves the computation of many infinite sums. We give the values
of these sums and state their generalizations arising from considering higher order
vertices (i.e., more than three strings) in string field theory. Moreover, we give a
general procedure, on how to evaluate the generalized sums, that can be extended
to many generic sums of similar properties. We also discuss the conformal operator
connecting the HS field theory to that of the CVS string field theory.

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