be sought: any functions from these classes that enter into the convolution provide a result in S^*.

No assumptions are needed for existence of convolution and full generality of identification conditions in models 1,2 where the model assumptions imply that the functions represent generalized densities. For the other models including regression models convolution is not always defined in S^*. Zinde-Walsh (2012) defines the concept of convolution pairs of classes of functions in S^* where convolution can be applied.

To solve the convolution equations a Fourier transform is usually employed, so that e.g. one transforms generalized density functions into characteristic functions. Fourier transform is an isomorphism of the space S^*. The Fourier transform of a generalized function $a \in S^*$, $Ft(a)$, is defined as follows. For any $\psi \in S$, as usual $Ft(\psi)(s) = \int \psi(x) e^{isx} dx$; then the functional $Ft(a)$ is defined by

$$(Ft(a), \psi) \equiv (a, Ft(\psi)).$$

The advantage of applying Fourier transform is that integral convolution equations transform into algebraic equations when the "exchange formula" applies:

$$a * b = c \Longleftrightarrow Ft(a) \cdot Ft(b) = Ft(c). \tag{4}$$

In the space of generalized functions S^*, the Fourier transform and inverse Fourier transform always exist. As shown in Zinde-Walsh (2012) there is a dichotomy between convolution pairs of subspaces in S^* and the corresponding