4 Vocal Behaviour and the Origins of Speech

The Cry

The newborn child's first spontaneous behaviour is heard rather than seen, and the cry is eagerly awaited as an indicator of the onset of normal respiration and of independent existence. Once established the cry is such a commonplace behaviour it is easily dismissed as being unimportant, and not worthy of serious study. It has however attracted a certain amount of interest by for instance Lynip (1951) and Eisenson, Auer, and Irwin (1963). Wasz-Höckert and his colleagues (1968) have also studied the features of the cry in certain disorders such as brain-damage at birth, and chromosomal abnormalities resulting in particular clinical states such as the “cri du chat” syndrome. Wolff (1969) studied the cry of children during the first six months of life, motivated by his interest in the development of the various forms of human affective expression. He identified four main types of cry. The most frequently occurring “basic” cry has a predominant fundamental frequency of 350–400 Hz and is often called the hunger cry, though Wolff considers that this term is misleading if it is used to imply a causal connection between hunger and a particular pattern of crying. Other cries are the “mad” or angry cry, and the cry caused by pain. This latter is characterized by a sudden onset of loud crying without any preliminary fussing, an initial long cry lasting 3–4 seconds, and a subsequent long period of breath-holding in the expiratory phase before the next cry. He concluded that “the range of causal conditions sufficient to provoke crying in the neonate is greater than has been taken for granted, and that very early in development the infant cries in response to environmental conditions which should be viewed as having a global psychological significance since they cannot be analyzed in physical—physiological terms alone” (Wolff, 1969, p. 108, his italics). Muller, Hollien, and Murry (1974) in a follow-up study of earlier work carried out by Wasz-Höckert, Partanen et al., (1964) found that mothers of young children were not able to identify specific features of tape-recorded cries which would enable them to distinguish between pain, loud auditory stimulation or startle, and hunger as the determinant of the onset of the cry. This was true whether
the mother was listening to her own or the other infants in the series, all tending to
over-interpret the cries as due to hunger. They had very little difficulty in recog-
nizing which cries were produced by their own child. In a later study, Murry,
Amundson, and Hollien (1977) found that the mean fundamental frequency of the
hunger cry was 438.5 Hz, of the pain cry 441 Hz and of the startle cry 421.3 Hz, for
four boys and four girls aged 3—6 months. From the data as reported one may
calculate the standard deviation (SD) of the cry frequency; this is ± 48.4 Hz for the
hunger cry, and clearly the perceived pitch of a sequence of cries cannot help the
listener determine the reason for the cry. This is amply confirmed by the results of
other investigations of the frequency of the cry. Wasz-Höckert, Lind et al. (1968)
found the mean to be 530 Hz for pain (SD 80 Hz) and 500 Hz for hunger cries (SD
70 Hz) during the period from 1—7 months old.

There is a notable tendency to interpret cries and all the child’s earlier vocaliza-
tion as being due to one of a small range of causes, including hunger, pain, comfort
and discomfort. This approach overlooks the possibility that such terms may not
have the meaning for the infant which they hold for the adult observer. We need a
great deal more information on the structure and sequential arrangement of cries
and other non-linguistic vocal behaviours before turning to the “semantics” or
significance of such behaviours.

The duration of the sound of each individual cry shows considerable variation,
as may be seen in Fig. 4.1 a. The histogram represents the cries of seven children, boy
and girl, African and English, aged 0—41 days, without regard to the type of cry. The

![Duration of cry segments for seven children 0—41 days](image)

![Inter-cry duration for seven children aged 0—41 days](image)

Fig. 4.1. a Duration of cry segments for seven children 0—41 days, b Inter-cry duration for seven
children aged 0—41 days