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A Male Monozygotic Twinship Discordant for Homosexuality

A Repertory Grid Study

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The relative contribution of genetic and environmental factors to the development of homosexual behaviour is a controversial subject. The original suggestion that homosexuality is a purely inherited trait has been attributed to Krafft-Ebing (Kallmann, 1952). Perhaps the strongest support for this view was Kallmann's series of 40 male monozygotic twin pairs showing 100 per cent concordance for the overt practice and quantitative rating of homosexual behaviour (Kallmann, 1952). This report has been criticized, and Kallmann later conceded that the 100 per cent concordance was possibly a statistical artefact (Kallmann, 1960). Habel (1950), who obtained the index twins from a prison population, found concordant homosexuality in 3 out of 5 monozygotic pairs (60 per cent), but none of 5 dizygotic pairs. In a more recent study, Heston and Shields (1968) found concordant homosexuality in 2 out of 5 monozygotic pairs (40 per cent) and 1 out of 7 dizygotic pairs (14 per cent). Heston and Shields (1968) also report a family with a sibship of 14 which included 3 pairs of male monozygotic twins, in two of which both twins were homosexual and in the third both heterosexual; no environmental factors which differentiated the homosexual from the heterosexual sibs could be detected. These workers also refute the suggestion that the tendency for monozygotic twins to be more alike with regard to homosexuality than dizygotic twins is related not to genetic factors but to problems of sexual identification which predispose to homosexuality (Money, 1962) by pointing out that there is no evidence that monozygotic twins per se are especially prone to become homosexual.

There have been several reports of monozygotic twins discordant for homosexuality, both male (Lange, 1930; Sanders, 1934; Rainer *et al.*, 1960; Mesnikoff *et al.*, 1963; Klintworth, 1962; Parker, 1964) and female (Rainer *et al.*, 1960; Mesnikoff *et al.*, 1963). Rainer *et al.* (1960) point out that the occurrence of such cases by no means invalidates the genetic hypothesis, as they can be explained in terms of incomplete penetrance or even differential cytoplasmic inheritance. Nevertheless, on the most likely assumption that homosexuality is based on the interaction of both genetic and environmental factors (Freud, 1910; Heston and Shields, 1968), discordant monozygotic twins provide a situation in which, because of their identical heredity, environmental factors are likely to be particularly significant.

The following report describes a repertory grid investigation of the attitudes and relationships of a male monozygotic twin pair, one of whom was overtly homosexual, and their parents, before and after treatment of the homosexual twin by faradic aversion therapy.

Case Report

The presenting twin, Paul (a pseudonym), was aged 18½ years at the time of referral. He was a youth of effeminate appearance and sibilant voice who wore three finger rings. He had importuned a man in a public toilet who proved to be an off-duty policeman. His parents were informed and medical advice was sought.

Paul had an identical twin brother, Michael (also a pseudonym) but no other sibs. The twins were born in hospital, and the hospital notes clearly record that there was a single placenta described as 'of uni-ovular type'.

Paul was born twenty minutes after Michael, a spontaneous vertex delivery, weight 4 lbs. 2 oz. (1·87 Kg.). A few days after birth he developed a gastro-intestinal infection and for three weeks he was fed through a nasal tube. His mother referred to him as 'the miracle baby', because she had been told that he was not expected to survive.

After recovery Paul was breast-fed for six months, and

his subsequent physical development was normal. He suffered from a chest infection at age 6 months and also at 3 years, but there was no threat to life. He underwent appendicectomy at age 16 years.

He attended a Council Primary School from age 5 to 11 years and a Secondary Modern School from 11 to 15 years. He attended regularly, but was academically below average and had no special interest. He disliked sport and avoided rough play.

After leaving school he became a trainee chef and was in this occupation at the time of referral. He enjoyed the work, but he was obliged to live away from home in various hotels. He was always extremely fastidious about cleanliness, tidiness and personal appearance, and was described by his parents as shy and rather nervous.

At school Paul associated with girls rather than boys and was often teased and called 'cissy'. He began to masturbate at age 14 years to the accompaniment of homosexual fantasies. At age 15 years he was approached by an older man and allowed anal coitus to occur and this happened subsequently with several different men. At age 17 years he developed an intense relationship with a man of 30 but broke it off after three months. His fantasies were usually of men of about 30 who were manly and protective. He always adopted the passive role, both in fantasy and in reality. Although when at home he shared a bedroom, but not a bed, with Michael, Paul denied any homosexual attraction for or activity with him. Paul had one female acquaintance but denied any heterosexual feelings towards her.

Paul and his family were regular churchgoers, and he admitted to considerable conflict over the morality of his behaviour; he often felt depressed and guilty about his inability to control his aberrant impulses.

Michael, the co-twin, was first-born, a spontaneous breech delivery, weight 4 lbs. 2½ oz. (1·9 Kg.). His early weeks of life were uneventful. Like his brother, he was breast-fed for six months and developed normally, and he suffered only minor childhood illnesses. In appearance he was almost indistinguishable from Paul, but he lacked the effeminate manner. He attended the same schools, and his scholastic performance was similar. He protected Paul at school and often fought on his behalf. Michael liked to play football and enjoyed the rough and tumble of boys' play. He was interested in cars and engines, and on leaving school became an apprentice mechanic. Paul remarked about Michael, 'I like to be clean and he likes to be dirty.'

Michael appeared to be well-adjusted, socially active and interested in his work. He had a regular girl friend and denied ever having homosexual feelings or fantasies.

Father was aged 39 at the time of the twins' birth. He was in good health and described himself as 'easy-going'. He gave the impression of a mild submissive man who was dominated by his wife. He stated that he had always found difficulty in getting on to close terms with Paul, whereas he had no such difficulty with Michael. For most of his life he was employed as an insurance agent.

Mother was aged 34 and had been married for 13 years at the time of the twins' birth. When interviewed she had been in poor health for 15 years; she claimed to suffer from 'arthritis, gall-bladder disease and nerves'. She was always anxious and easily upset, but had never received formal psychiatric treatment. She admitted over-protecting Paul throughout his childhood, largely because of his almost-fatal illness in infancy. She regarded Paul as the weaker of the twins and Michael as robust and 'able to fend for himself'.

Physical data and investigations

	Paul	*Michael*
Height	68 ins. (173 cms.)	67 ins (170 cms.)
Weight	162 lbs. (87·6 Kg.)	154 lbs. (70 Kg.)
Eye colour	Green	Green
Handedness (on 10 tests)	Right	Right
Chromosome analysis	46,XY	46,XY
*Androgyny score	90·4	82·8
Fingerprint comparison:	91·5 per cent probability of monozygosity (Slater, 1963)	
Serum W.R.	Negative	Negative
EEG	Normal	—

Blood groups

Both were O, R_1r, MS, P_1-, Lu(a–), K–, Fy(a+), Yt(a+b+).

Estimated probability of monozygosity 96 per cent (Smith and Penrose, 1955).

Psychological tests

Cattell 16PF test (Fig. 1)	Introverted, anxious and serious-minded	Relatively less introverted and anxious, more lively, carefree, persevering and conscientious than Paul
Terman—Miles Attitude—Interest Test	−11 (mean score for male homosexuals −19)	+44 (mean score for motor mechanics +46)

*Androgyny is femininity of build in males or masculinity of build in females. The Androgyny score is calculated by the formula 2× bi-acromial + 0·53 × subischial minus 1·25 × bi-iliac lengths in cms. (Tanner, 1951).

Norms are Males 87·9 S.D. 4·07.
Females 76·8 S.D. 3·95.

Treatment and follow-up

Paul commenced treatment by aversion therapy as an in-patient. A simple anxiety-conditioning programme was used employing projected pictures of men chosen by Paul as being typical of the homosexuals with whom he had associated. A low level of faradic shock was used as an aversive stimulus in a schedule

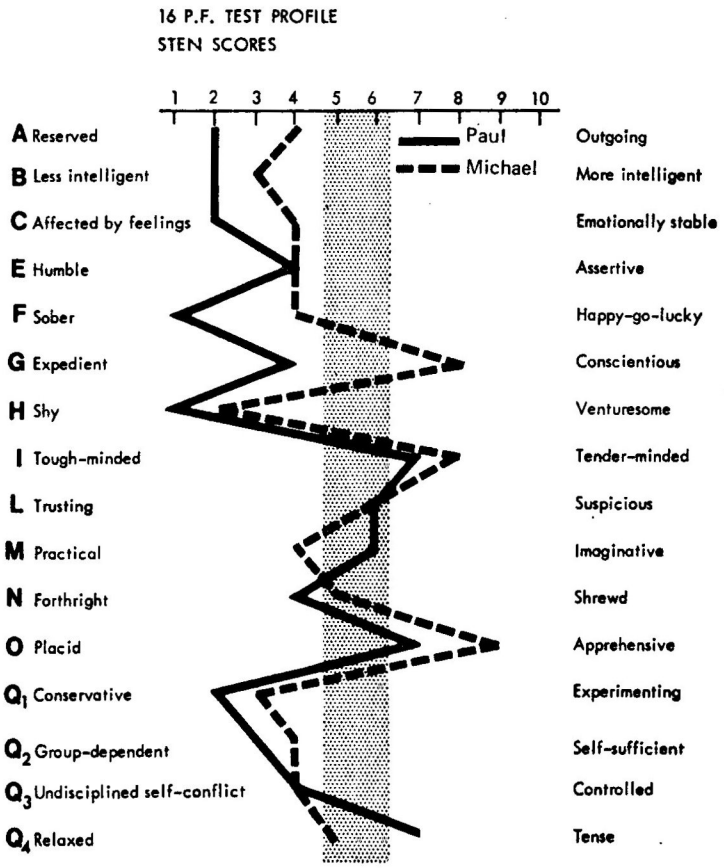

FIG. 1.—Cattell 16 P.F. test profiles of Paul and Michael.

employing intermittent and varying delay reinforcement. Treatment was continued on an out-patient basis over a period of eight months, by which time he claimed to have lost his homosexual desires. Shortly afterwards he became engaged to a girl he had known for some time, but he broke it off three months later after a commonplace disagreement with her mother. He was discharged from the clinic one year after his initial referral, when his sexual orientation seemed to be heterosexual and his general adjustment was greatly improved.

He was seen for review two years later when he still claimed to be free from homosexual impulses and to have normal heterosexual interests. His physical appearance had become more masculine and even more like his twin, Michael. He was then working as a van driver.

Repertory grid study of family relationships

The repertory grid technique provides a means of examining an individual's private universe and hence his system of private relationships (Slater, 1965).

A group of ten relevant figures (elements) was selected in order to elicit a wide range of constructs from the whole family. These figures were 'Mother', 'Father', 'Paul', 'Michael', 'Police constable', 'Doctor', 'Vicar', 'Pop Star', (one attractive to many homosexuals) 'Teacher', and 'Vandal'. For each subject a card 'Me' was substituted for the appropriate named element card.

The cards were presented for each of the ten elements randomly in triads to each twin and their parents with the question: 'How are two of these people alike but different

from the third?' In this way constructs were obtained. The grids were then formed from each subject's rankings of all elements on all constructs produced by that subject. As identical elements occurred in the grids of each member of the family it was possible to prepare from all the constructs obtained from all the subjects a 40 × 10 grid representing the family construct system. After completing his treatment Paul, using the same elements and method, produced a new set of constructs. These six grids (Paul, Michael, Mother, Father and Combined Family before Paul's treatment, and Paul after treatment) were analysed by means of the MRC computer programme with the kind assistance of Dr. Patrick Slater. Dr. Slater (1965) has commented on the large amount of material contained in a single grid, and this study is no exception. However only those aspects of immediate relevance are discussed here.*

Results

Family grid

Figure 2 shows the elements as dispersed in a space defined by components I and III from the family grid. Component I appears to be related to emotional dependence. Component III is perhaps best described as an obsessoid/extravert—normal dimension. Constructs such as 'worrying', 'clean', and 'timid' appear at one extreme, and 'easy-going' and 'entertaining' appear at the other. This grid clearly differentiates Paul and Mother in the obsessoid/needed quadrant from Michael and Father in the extravert-normal/needed quadrant. Component II in the family grid appeared to contrast the family as humble and religious with other elements seen as intelligent and authoritative, but it failed to differentiate the family members.

Father's grid

This elucidates Father's relationship with the twins. Paul had a low loading on Components I and II, i.e. his position was not very clearly defined by Father's construct system at this stage. However, in Fig. 3, showing components II and III, the formality of Paul's relationship with Father appears. Component III appears to be related to the quality of relationship so that Paul is located on the opposite side of the elements 'Star', 'Teacher',

* The authors are willing to loan the complete data to interested workers.

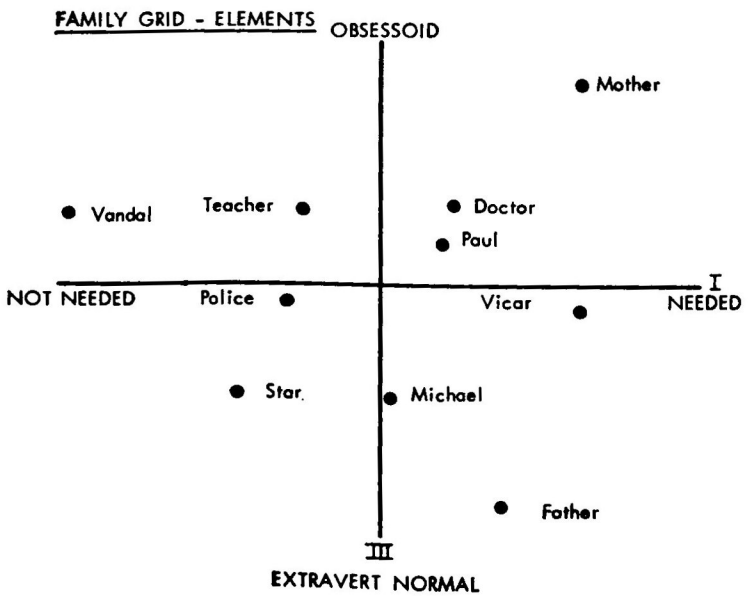

Fig. 2.—Family grid—components I and III.

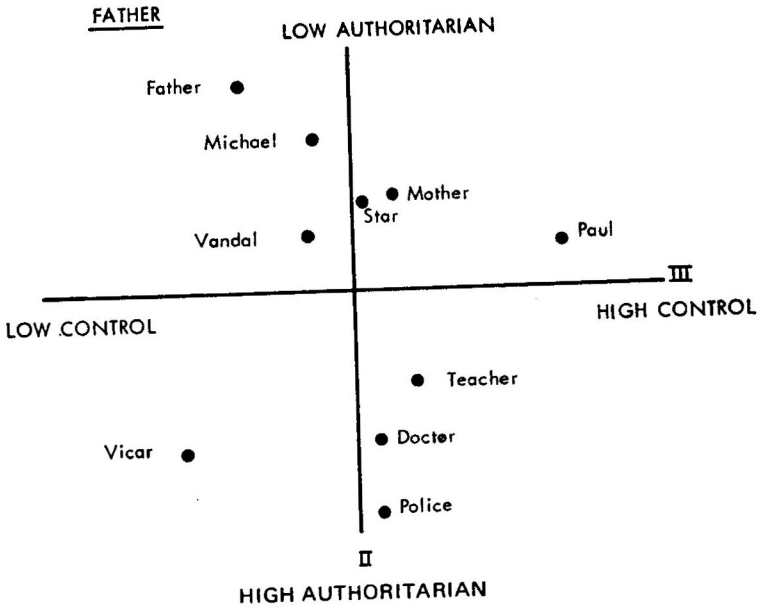

FIG. 3.—Father's grid—components II and III.

'Doctor' and Police Constable' to Michael and Father. This is in accord with Father's acknowledged difficulty in getting onto close terms with Paul. Mother also shows some formality in her relationship with Father, which fits his comment that he found it difficult to understand her.

Paul's grids

Paul's pre-treatment grid is shown in Fig. 4. Component I is clearly related to social acceptability, whereas Component II is more akin to personal acceptability. Paul distinctly depicts himself as a black sheep at the extreme of the low personal acceptability dimension but with average social acceptability. He appears in the same quadrant as Mother, whereas both Michael and Father are closely adjacent at the opposite pole of personal acceptability.

Paul's post-treatment grid (Fig. 5) was obtained at the conclusion of aversion therapy, when he appeared to have made some response and denied being troubled by homosexual thoughts. Components I and II in the post-treatment grid are no longer related to social and personal acceptability but can be better described as likeability and helpfulness. Comparison of Figs. 4 and 5 shows clearly that in terms of the first two components Paul now occupies a similar position to Michael. Father is now in the quadrant occupied by the helpful but official elements i.e. 'Police Constable', 'Teacher' and 'Doctor'.

Comparative element distances

Table I compares the element distances (Slater, 1964) between each twin and the parents. In general this group of grids suggests that the twins are both rather closer to Father than to Mother. The exceptions to this are in

TABLE I

Ratio of distances of elements 'Paul' and 'Michael' from 'Father' and 'Mother' in each grid

Grid	Element distance ratio* Paul	Michael
Paul before treatment ..	·93	·61
Paul after treatment ..	·86	·79
Michael	1·23	1·09
Father	1·08	·41
Mother	·52	·54
Family	·96	·78

*Element distance ratio $= \frac{\text{Distance from 'father'}}{\text{Distance from 'mother'}}$ so that a ratio of < 1 indicates an element position closer to father and > 1 closer to mother.

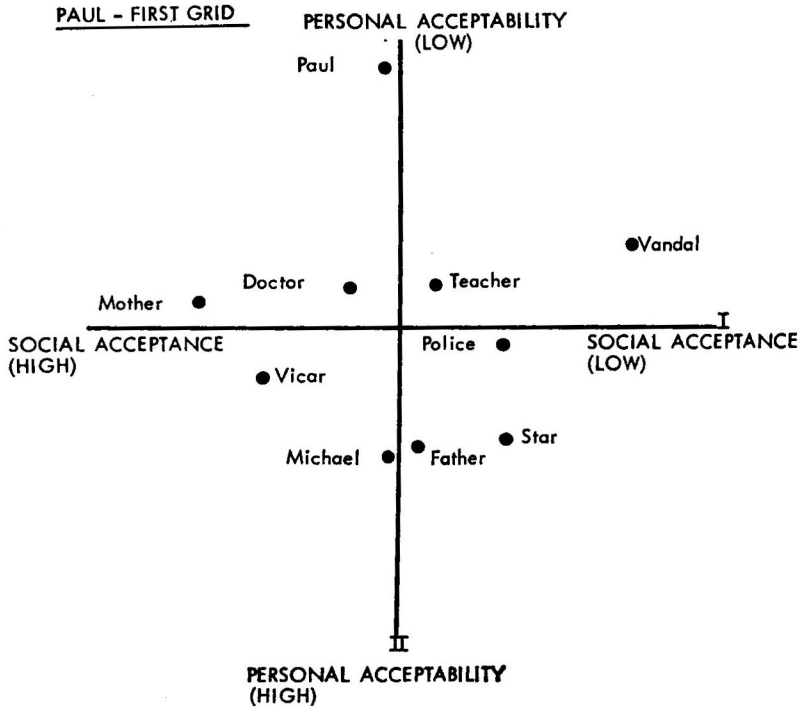

FIG. 4.—Paul's grid before treatment—components I and II.

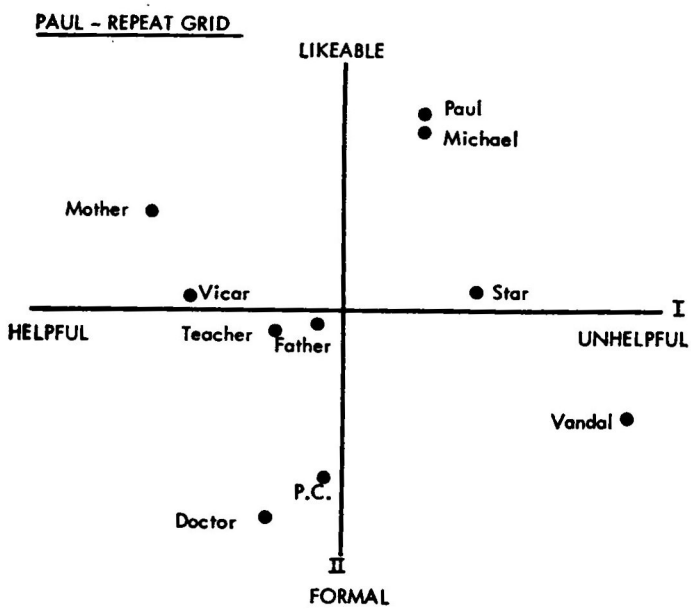

FIG. 5.—Paul's grid after treatment—components I and II.

Michael's grid, where he depicts both himself and Paul as closer to Mother than to Father, and in Father's grid which sharply differentiates Paul as being closer to Mother and Michael as being closer to Father. In all grids except Mother's Paul is placed relatively closer to Mother and Michael to Father. Mother responded rather curiously when performing the tests, as she refused to separate the twins in almost every rating by collecting and handing over both element cards together as if to avoid disclosure of any difference in relationships.

Discussion

The close similarity in the twins' appearance and the fingerprint (Slater, 1963) and blood group (Smith and Penrose, 1955) analyses leave no doubt that these twins were monozygotic. The difference in their overt sexual orientation can therefore be assumed to be almost entirely a consequence of differential environmental influences. Brain damage in the abnormal twin has been implicated as an aetiological factor in some reports of monozygotic twins discordant for homosexuality (Lange, 1930; Sanders, 1934), but there is no evidence for it in the present instance. This leaves the parent-child relationship as the most probable aetiological agent, and any detectable differences in the status of the twins relative to each parent are likely to be highly significant.

Several studies of groups of male homosexuals have claimed to detect unusually dominant and over-indulgent mothers (Fenichel, 1945), ineffectual passive or hostile fathers (Bene, 1965; O'Connor, 1964) or a combination of the two (West, 1959; Bieber *et al.*, 1962; Brown, 1963). Psycho-analytic theory postulates that an exaggerated emotional attachment to the mother induces male homosexuality by making heterosexual adjustment impossible because of its unconscious incestuous significance (Fenichel, 1945). A disturbed paternal relationship might be expected to impair the process of masculine role differentiation and identity (Bene, 1965), the critical period for which appears to be the first three years of life (Brown, 1958; Bieber *et al.*, 1962).

Mesnikoff, Rainer, Kolb and Carr (1963) studied three sets of male and one of female monozygotic twins discordant for homosexuality and detected parental attitudes which appeared to influence subsequent psychosexual role definition. These included pre-natal fantasies concerning the sex of the expected child, greater maternal interest and care for the weaker twin, and difficulties in parturition leading to the rejection of one twin. Mesnikoff *et al.* maintain that these attitudes set in motion a series of transactions leading to the preference for one twin by one parent and the other twin by the other parent. The role attribution was often associated with the names allocated to the twins; a twin named after father invariably adopted the masculine role. The male twins who became homosexual were most closely associated with mother. Confirmatory observations were made by Parker (1964).

In the family reported here the mother denied hoping for a female child, and there was no particular significance in the names allotted to the twins. Paul, however, suffered an almost fatal illness in the first few weeks of life, and this seems to have concentrated mother's attention on him and thus led to maternal over-protection throughout childhood. It is probable that the process described by Mesnikoff *et al.* (1963) was set in train, with the result that eventually Paul became identified with Mother and Michael with Father, with consequent effects on their respective sexual orientation.

A paradoxical finding is that the androgyny score of the homosexual twin was more masculine than that of the heterosexual twin. The same observation was made by Parker (1964), who regarded it as confirmatory evidence that the homosexual behaviour of his patient was not constitutionally based. Any constitutional predisposition in the present case is unlikely to have been marked in view of the successful response to treatment and the absence of any 'latent' homosexuality in the heterosexual co-twin.

The position of each twin within the family was clearly demonstrated by the repertory grid study, in particular the closer relationship of the homosexual twin with Mother. After a period of aversion therapy the changes in this twin's grid showed that he had begun to adopt a position more closely aligned with his heterosexual co-twin and a relationship with his parents

suggesting a more masculine identification.

Although the grid results are consistent with the patient's history and provide a measure of therapeutic change, they are evidence only of the state of affairs at the times they were taken. They do not prove either that Paul became homosexual because of the particular pattern of family relationships or conversely, that the family structure was modified by Paul's homosexuality.

Summary

A pair of 18 year old male monozygotic twins discordant for overt homosexuality is reported. A repertory grid study of the twins and their parents revealed intrafamilial relationships which were thought to be significant in the genesis of the opposing sexual orientation of the twins. Changes in the deviant twin's position within the family were demonstrated after an apparently successful course of aversion therapy.

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