

Deaf Utopias? Reviewing the Sociocultural Literature on the World's "Martha's Vineyard Situations"

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Martha's Vineyard—an island off the East Coast of the United States—is known as a community where “everyone signed” for several hundred years, a utopia in the eyes of many Deaf people. Currently, there exist around the world a number of small similar “shared signing communities,” for example, in Mexico, Bali, Israel, and Ghana. A few studies about these have emerged, which give some information about the social and cultural patterns in such communities. Deaf studies researchers have begun the process of “synthesizing” and theorizing this information, and have developed typologies based on “traditional” Western urban Deaf communities. This article critically reviews the existing literature and raises new questions regarding the study and theorizing of such communities.

“Martha's Vineyard Situations”

Martha's Vineyard—an island off the East Coast of the United States—is well known as a community where “everyone signed” (Groce, 1985). Due to a “recessive pattern” of genetic deafness, circulated through endogamous marriage patterns,¹ the rate of deafness on this island averaged 1:155 and peaked in the town of Chilmark where the rate was 1:4. The community featured a dense social and kin network and this close contact between deaf and hearing people resulted in the evolution of a sign language that was widely used by both on a daily basis down the generations. Indeed, Sacks (1989) observed that hearing people still occasionally used it long after the last deaf person had passed away. The deaf people reportedly were “fully integrated” into the hearing community

and did not behave differently culturally, or socially, to the hearing community members. After undertaking interviews with older surviving members of the community, Groce reported that being deaf was seen as “pretty normal.”

This Martha's Vineyard story, when recounted, often sounds like a paradise or a utopia for deaf people, who are disappointed when they learn that this situation ceased to exist after the mid-20th century. As Groce's research is “post-factum”, it is not clear as to what extent signing was present in daily life and to what extent the deaf and hearing interacted in the community. However, recent research reveals that there are still several similar communities in the world. These can be found on islands like Providence Island near Columbia (Washabaugh, 1979, 1986; Woodward, 1978), Grand Cayman Island in the Caribbean (Washabaugh, 1981), and Amami Island near Japan (Osugi, Supalla, & Webb, 1999). They are also found in villages like Bengkala (Desa Kolok) in Bali (Branson, Miller, & Marsaja, 1999; Branson, Miller, Marsaja, & Negara, 1996; Hinnant, 2000; Marsaja, 2003, 2008), Adamorobe in Ghana (Nyst, 2007), Nohya (Yucatec Mayas) in Mexico (Escobedo-Delgado, 2008; Johnson, 1991, 1994; Shuman, 1980), Ban Khor in Thailand (Nonaka, 2004; Woodward, 2003), Kosindo in Surinam (Van den Bogaerde, 2005), and Saint Elizabeth in Jamaica (Cumberbatch, 2008; Dolman, 1986). They also exist among social groups like the Al-Sayyid Bedouins in Israel (Kisch, 2004, 2007, 2008), the Urubu tribe in Brazil (Ferreira-Brito, 1984), and the Enga of Papua New Guinea (Kendon, 1980). Groce (1985) mentioned several older texts about communities in,

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for example, Honduras, Switzerland, and the Netherlands; and recently, there was mention of the existence of similar communities in India (Panda, 2008). There are probably communities that have never been reported or only spotted by travelers, as mentioned by Johnson (1991)—who had learned about the existence of similar communities in Venezuela and among the Navajo—and Tervoort (1978) who observed a group of signing Indians in Surinam.

The literature concerning several of these communities is quite old and most of them are only introductory texts following a brief visit, and as a result, their current situation is no longer clear. It is not known which of these still exist, nor how many there really are or how to define them.² Likewise, it is unclear whether one can really compare these communities with Martha's Vineyard.

Research in Such Communities

Although such communities get a lot of attention from audiologists and geneticists, most of the previously authors cited were linguists with an interest in the sign languages used in the communities. Nowadays, these are a "hot topic," even leading to specialized linguistic gatherings, such as a workshop in Nijmegen in 2006 and a conference in Preston, held in 2008. These sign languages seemed to have different structural characteristics from the sign languages used by large (often national) Deaf communities. Such variations are probably due to the large number of second language (hearing) users and the particular sociolinguistic settings of emergence. Investigating the sign languages used in these places therefore seems promising for a broader understanding of (sign) linguistics (Fox, 2007).

Fox (2007) opines that these communities are not so much requiring further anthropological investigation, as linguistic attention. However, Deaf studies scholars might feel that more anthropological research is essential. They would point out that sociocultural data on these communities largely come from observations by these linguists, who were not focused on conducting in-depth sociocultural research. A well-known example is Johnson's (1994) short article with cultural observations about the Yucatec village.

Nevertheless, although anthropology has paid minimal attention to such communities, sociocultural research on these communities is not wholly absent.

An example is the village Bengkala in Bali, initially investigated by Branson et al. (1996, 1999). This was further researched by Marsaja (2003, 2008), who originated from a nearby village and wrote on sociocultural, sociolinguistic, and linguistic patterns in the village. The Al-Sayyid Bedouins have been investigated by a female Israeli anthropologist (Kisch, 2004, 2007, 2008). Nyst's (2007) account—although linguistic—was based on a long period of fieldwork and thereby provides us with some historical information and recent background data on Adamorobe village.

This review will focus mostly on these more recent and significant studies and consequently there will only be occasional reference to the literature on the other communities listed previously, including Martha's Vineyard. Questions will be asked regarding deaf people's level of village participation and actual linguistic access in such communities, and also about the ways deaf people gather and associate with each other. Subsequently, the article offers some beginnings of theories about these communities, which rightly state that one cannot compare these too readily to Western Deaf communities, although several weaknesses in these initial interpretations will be highlighted. Attempts have been made to classify Western Deaf communities and shared signing communities in typologies, but these categorizations should be based on more research or abandoned altogether. The article concludes with an argument for a closer examination of the communities, more specifically the daily interactions and experiences of deaf people with each other and with hearing people.

Bahan and Nash (1995) use the term "signing communities" for such "Martha's Vineyard situations," focusing on the overall prevalence of signing in those places. However, as Deaf communities in general can be called signing communities, this term is not specific enough. Kisch (2008) suggests tentatively calling them "shared signing communities," utilizing "shared" to emphasize that in these communities, a sign language and experiential knowledge is shared among deaf and hearing people. Because one can argue that in *all* signing communities or groups, experiences and sign language use are shared between people, whether they are deaf or hearing; this term also does not specifically cover the

particular communities we are discussing here. Nevertheless, lacking a better one, this term will be adopted for this article.

The Origins of Shared Signing Communities

Bahan and Nash (1995) list some conditions for the arising of shared signing communities: the first is the *high prevalence of deafness*.

The normal ratio of babies born deaf in the West is between 0.1% and 0.2% (Spencer & Marschark, in press), although this is believed to be higher in developing countries due to poor hygienic and medical conditions (United Nations International Children's Emergency Fund, 1985). Figures (at given moments in time) from the shared signing communities indicate an incidence of 13 deaf people among the 400 Yucatec Maya villagers (3.25%; Johnson, 1994), 35 of 1,345 (2.6%) in Adamorobe (Nyst, 2007), and 47 of 2,180 (2.1%) in Bengkala (Marsaja, 2003), with the Al-Sayyid Bedouins achieving an incidence of 100 of 3,000 (3.3%; Kisch, 2004).³ Martha's Vineyard contained a total of 72 deaf people from the 18th to mid-20th century in a population counting between 400 and 3,100 people (Groce, 1985). Other situations seem very small scaled, like Kosindo, a small Maroon village in the Surinam rainforest containing only five deaf people (Van den Bogaerde, 2005).

Furthermore, this high rate of deafness is not incidental but prevailing: It has to be present for *several generations*, arising from a gene for deafness circulating through endogamous marriage patterns, caused by *geographical isolation* (Bahan & Nash, 1995). This condition of isolation is criticized by Kisch (2008) and Nyst (2007). The latter emphasizes the "mobile and fluctuating demographic pattern" of Adamorobe, and although Marsaja (2008) asserts that Bengkala is geographically and socially isolated, it seems to be a village having mutual kinship and marriage links with neighboring villages and towns (Branson et al., 1999). Isolation is often overemphasized: Ever throughout the history of mankind, there have been migration patterns, trading relations, alliances between groups through marriage, and so on. But more importantly, in many African, South American, and Asian communities, various forms of endogamy are common kinship patterns (Fox, 1967).

In such a way, a "deaf gene" can be passed on in a community and because of the dense social and kin organization and the collective cultures in these locations, the deaf and hearing people are likely to have considerable contact with each other, thus circulating the evolving sign language throughout the community and transmitting it down through the generations (Bahan & Nash, 1995). This process has been analyzed in detail with regard to Martha's Vineyard (e.g., Groce, 1985; Lane, Pillard, & French, 2000). Marsaja (2008) closely describes the sociolinguistic situation in Bengkala, locating a generational depth of at least 12 generations.

The Sociocultural Construction of Deafness

In some instances, the high rate and generational depth of deafness has become a cultural phenomenon that has been "explained" by the communities themselves. Nyst (2007) lists six different legends about the cause of deafness in Adamorobe; and Bengkala has an originating story about a deaf signing god and a deaf ghost (Marsaja, 2008). Among the Al-Sayyid, several explanations exist: Deafness was brought into the families by brides from outside the community (and therefore "caused by" women), or is due to variation in men's seed, or it is "from Allah" (Kisch, 2004).

In Adamorobe, Bengkala, and among the Al-Sayyid, those sociocultural constructions of deafness differ from the perspectives of the surrounding communities where deafness often is regarded more negatively or at least as a less accepted state of being. According to most authors, in shared signing communities the relatively high rate of deafness and the widespread presence and acceptance of signing have facilitated deaf people's integration. "Integration" is a very widely used term in the literature about shared signing communities. Examples range from "completely integrated" (Groce, 1985), "fully integrated" (Branson et al., 1999) to "almost fully integrated" (Johnson, 1991), a "high degree of integration" (Nonaka, 2004), "well integrated" (Hinnant, 2000), or just "integrated" (Kisch, 2007).

In these contexts, integration seems to mean that deaf people participate in the village economies in mostly the same ways as hearing people do, through employment activities often dominated by agriculture or fishing. Educational backgrounds generally seemed

not to be very influential in making distinctions between deaf and hearing people because scholarly education was either absent or not significantly important in such settings (although this is changing now—see further).

Because of this integration, Deaf as well as hearing people tend to see such communities as if these were “representing an idyllic opposite to the Deaf communities of Europe and North America” (Woll & Ladd, 2003, p. 157)—in other words: utopias—especially because Western societies have struggled for a long time to achieve successful inclusion of deaf and disabled people within mainstream society. This has also fed imagination. Indeed, deaf people have been imagining full deaf environments such as Flourney’s deaf-mute commonwealth (Booth & Flourney, 1858). Recently, there were plans to establish a signing town: Laurent in South Dakota in the United States, where the language of communication would be American Sign Language. It is therefore not surprising that some accounts tend to “romanticize” life in shared signing communities (such as Fox, 2007; Van den Bogaerde, 2005).

Nevertheless, questions arise about what integration might mean: Is all communications really accessible for deaf people? Does everyone know sign? Are deaf and hearing people actually occupied in the same ways? Such questions—and others—will be addressed in the following sections.

Integration?

Does Everyone Sign?

Apparently, not *only* sign language is used in these communities. Marsaja (2008) describes Bengkala as a multilingual village where signing is “just one of the ways of communication.” Hearing people in shared signing communities naturally use one or more spoken languages, and there are variations in hearing people’s signing proficiency (Johnson, 1991; Nyst, 2007; Washabaugh, 1979; Woodward, 1978). Hearing individuals with close deaf family members are often reported to be the most fluent signers. Apart from this, Marsaja (2008) found that in Bengkala the proficiency was generally higher among male adults than among women or children because the former need

sign language to communicate with deaf men in the male-oriented public village life. This runs counter to the reality in most Western societies where it is predominantly women who learn sign language probably because sign language is often associated with the social service sector or humanities.

In addition, there are variations in the actual accessibility of public events and discourses, such as meetings and ceremonies, or informal village conversations—which, for example, were mostly in spoken Mayan in the Yucatec village (Johnson, 1994). Marsaja, in contrast, reported situations of spontaneous and flexible interpretation of official and religious affairs and Kisch (2008) describes many different forms of translation and mediation among the Bedouins. Still, it seems too hasty to claim that anytime in all such communities, “if a deaf person arrives, the hearing people unconsciously shift to signing without missing a beat” (Bahan & Nash, 1995, p. 20).

The use of signing is not necessarily restricted to communication among or with deaf people. Marsaja (2003) and Kisch (2008) report that—just like at the Vineyard (Groce, 1985)—sign language is used in certain situations when only hearing people are present, for example, when communicating at a distance, when it is not permissible to use sound (during school or during town meetings), or when people want to say something they do not want other people to hear.

Nevertheless, we must not forget that the first language of most hearing people is a spoken language that is inaccessible for deaf people. Deaf people in those communities are not reported to use hearing amplification technology (although this is changing among the Bedouins where cochlear implant was introduced, as portrayed in the recent documentary movie *A Snail in the Desert: Voices From El-Sayed*). Nowadays, deaf people in such communities are not necessarily monolingual: Especially when they are schooled, they might, for example, know a national sign language and at least one written language (see further). Kisch (2008) described how a young deaf man, having learned written Hebrew at the deaf school, translated documents into signs for a hearing person who could not read Hebrew. Still, the reality of the communication patterns in shared signing

communities may result in an asymmetry between deaf and hearing signers as hearing signers have access to more languages that are in use in daily village interactions. It is unclear to what extent discourses are signed—or translated in sign—in shared signing communities other than Bengkala or the Bedouins, and if and to what extent deaf people felt disadvantaged through lacking auditory access to spoken languages and the cultural activities they engendered.

Participation in Village Activities

Deaf people in shared signing communities are reported to participate in village life in (largely) the same ways as hearing people do. This does not mean that deaf and hearing people do simple egalitarian jobs where cooperation is more important than competition. Groce (1985), for example, portrays Martha's Vineyard as a location where everyone—deaf and hearing—was responsible for themselves; trading, paying bills, mortgages and taxes, and so on. Kisch's (2007) account gives the impression that the deaf Bedouins engage themselves in a rather wide range of different employment activities. Marsaja (2008) states that deaf people in Bengkala are present in committees and fulfill relatively important functions, like guard work.

In contrast, Marsaja (2003) reports that deaf people belong to the poorest of Bengkala, and because of the lack of occupational training, they do day-to-day labor rather than more fixed occupations. In addition, most authors writing about shared signing communities admit that deaf people did not occupy positions on the highest governing levels. Marsaja, for example, repeatedly emphasizes that the deaf people fully participate at all levels and are "equally active" and as normal as hearing people, whereas in some parts of his text it appears that the deaf people are in fact not equally involved in the council of household heads (also see Hinnant, 2000). On the Vineyard, there were no deaf people present in the governing board (Groce, 1985) and none of the reports on the communities mentions a (former) deaf village or town leader, although both Groce and Marsaja point out that this can be said to be statistically insignificant, given the smaller numbers of deaf people in comparison with the numbers of hearing people.

Differences in the roles that deaf people take up in communities inevitably are linked to age, gender, and marital status, and must always be understood and situated within the larger village context. In Bengkala, only married men may attend official village meetings, where spontaneous interpreting is then provided for the deaf attendants (Marsaja, 2008). Kisch (2008) pays attention to deaf and hearing women and children and their specific roles in discourses and mediations.

Differences in Marriage Rates and Choices

In examining gender and marriage, significant differences between deaf and hearing people appear. Although on the Vineyard the marriage rate was supposedly the same for deaf and hearing people (Groce, 1985), several authors (Hinnant, 2000; Johnson, 1994; Kisch, 2007; Nyst, 2007) report that deaf people typically have more problems than hearing people in finding a marriage partner and that the rate of marriage among deaf people is either slightly or significantly lower than among hearing people. It is interesting to note that in the Yucatec village, it is the women who had the most problems with finding a partner, but in Adamorobe, it is the men. Such differences in marriage rates cannot be seen as a small detail as marriage is an essential feature of participation in community life. Kisch offers an exploration of marriage patterns and the consequences of deaf people staying unmarried among the Bedouins.

Also with regard to marriage *choices*, there are differences between the communities. In Adamorobe and Bengkala, most deaf people have married other deaf people over a long period of time, whereas now there are also marriages between deaf and hearing people in Adamorobe (Marsaja, 2008; Nyst, 2007). By contrast, in the Yucatec Maya village, the married deaf people had hearing partners (Johnson, 1994). It is not yet clear why deaf people tend to marry other deaf people in some communities and to wed hearing people in other communities. It may be that deaf–deaf marriages are motivated by a feeling of "deaf belonging," by cultural expectations within the community, or for other reasons, yet undetermined. Sometimes the choice for a deaf–deaf marriage seems to be influenced by deaf schooling.

Deaf Education and Its Effects on the Communities

To summarize the above sections so far, from the evidence it seems an oversimplification to call deaf people in these communities fully integrated. Before discussing this issue in further depth, I want to indicate another area of interest: the ways deaf people are “singled out.”

One very clear and important way in which a distinction is made between deaf and hearing people are the schools for the deaf. Unlike Martha’s Vineyard’s deaf children, who attended the first American school for the deaf in Hartford in the 19th century, in most shared signing communities, deaf schooling is rather recent. Because of the separate schooling of deaf and hearing people, they may not receive the same amount or degree of training, although education and literacy have become increasingly important. In the Vineyard, deaf children went to school for a longer period than the hearing children because the state provided funding for the deaf people’s education, which resulted in a higher rate of literacy among deaf than hearing people (Groce, 1985). Among the Al-Sayyid Bedouins, in contrast, there is the possibility of a growing gap between deaf and hearing people’s literacy rates (Kisch, 2007). Kisch also indicates differences between deaf men and women in the amount of schooling gained as deaf boys pursued their education for a longer time: Unlike the girls, they attend a vocational residential school. Schooling can also contribute to generational differences: Nyst (2007) describes how deaf adults in Adamorobe are illiterate, whereas the younger deaf people go to a residential deaf school and are trained in English literacy. With regard to the Bedouins, Kisch wondered what the results of educational mainstreaming will be.

Several consequences of deaf schooling have been reported. For example, through such schools the introduction of medical and disability discourses can be further promoted to the deaf and hearing villagers (Branson & Miller, 2004; Kisch, 2004). Perhaps more importantly are the effects on language use. Nyst (2007) observed that Adamorobe’s deaf children who came home only in school holidays and were beginning to use Ghanaian Sign Language as their primary language. Kisch (2007) reports that most Al-Sayyid

children who learn Israeli Sign Language at school use this language among each other. In this respect, several authors, such as Fox (2007), Kisch (2007), Nonaka (2004), and Nyst have pointed at the consequent potential endangerment of the local sign languages.

Another result of schooling is that deaf children are introduced to a sense of deaf people belonging to a wider national Deaf society. Among the Al-Sayyid Bedouins, deaf schooling has resulted in deaf men going to deaf clubs, resulted in deaf men getting involved in Israel’s national Deaf community, and recently also influenced marriage patterns, resulting in the first deaf–deaf marriage among the Bedouins (Kisch, 2007). In Martha’s Vineyard, about 35% of all marriages that took place before the deaf children were schooling on the mainland were between deaf people. After attending this deaf school in Hartford, students did not seem to maintain links with their classmates and returned to the island. However, this seems to be contradicted by the fact that one of the reasons that the Vineyard’s deafness vanished was because of marriages with these deaf classmates on the mainland.

Deaf Subcommunities?

Other evidence suggests feelings of deaf belonging or “singling out of the deaf” that are seemingly not directly introduced by deaf schools.

With regard to Bengkala, Branson et al. (1996) mention that some deaf children attended a deaf school outside the village, but Kanta (2007) explained that Bengkala’s deaf children currently get private education in the village itself. So the fact that deaf people in Bengkala are said to have their own “alliance,” signed as “DEAF-TOGETHER,” does not seem to result from the influence of the deaf school. This “deaf alliance” is according to Marsaja (2008) a “forum for unification and solidarity,” organizing deaf-specific performances such as dance and martial arts, as well as other deaf-specific tasks in the village. This means that—apart from the shared set of roles previously listed in the sections about integration, to which deaf people do not always have full access—deaf and hearing people also carry out different roles in Bengkala.

For example, digging graves for the deceased is a task for the deaf people, who are believed to be able to sign with supernatural beings and to be braver. Because of this acclaimed bravery, there are also more deaf than hearing people present in the civil defense of the village. Marsaja lists other small tasks specific to deaf people such as catching and butchering animals for family celebrations and guarding and maintaining water pipelines.

Deaf people also attend each other's family-based celebrations, even if they are not family. In addition, they gather for storytelling, for exchanging information (e.g., about work and business), and for banquet feasts. Hinnant (2000) reports that the deaf inhabitants are happy to leave behind the hearing people and to be together, to sign quickly, to gossip about the hearing, and so on. He also notes that name signs are given by a deaf leader in the village and that the deaf people visit the families of deaf babies. Branson et al. (1999) state that in Bengkala "a clear Deaf community" exists, recognized by the hearing as well as the deaf people of the village, whereas Marsaja (2003) speaks of a "Deaf subculture."

The literature on the other communities mainly reports that there are no activities specifically for deaf people, although Johnson (1994) reports that deaf people, mostly men, formed a "strong ethnic group" who preferred to interact with each other rather than with hearing people, and Nyst (2007) reports the same in Adamorobe with regard to a Deaf subcommunity with an emerging "Deaf identity" in which a particular family with many deaf members plays an important role.

Nyst (2007) mentions that this is a recent phenomenon that probably has to do with the accumulation of several ways of singling out the deaf through different discourses. Some of these discourses seem to originate outside the communities, such as medical, scientific, welfare, and other discourses. These include genetic, anthropological, and linguistic research programs; charity, missionary work, financial support, and aid programs to serve the deaf people; and art forms linked with the deaf, media attention, and tourism. It is clearly very important to examine what influence these have had on both the deaf peoples' social behavior and their self-image. Kisch (2004, 2007, 2008)

begins this process for the Bedouins, but Marsaja's (2003) account does not explore the possible impact of these in Bengkala, although Kanta (2007) mentions that the deaf people questioned why all those researchers came to their village and that they wondered whether all deaf people in the world share the same experiences.

The Development of Theories About These Communities

Endeavors to Reduce Ethnocentrism

Although there appears to exist a "deaf alliance" in Bengkala, Branson et al. (1999) state that we have to be careful not to compare this too readily to the dynamics and features of Western Deaf cultures. For example, several authors stressed that deaf people in shared signing communities are not likely to connect with deaf people from outside the village or from abroad. In this context, Johnson's words are often cited: "It appears, then, that identity for the deaf people of the village is first with the family and the village, then Maya society" (1994, p. 107). This would contradict the discourse that asserts that it is typical for deaf people with a Deaf identity to be eager to meet deaf people (coming from) beyond local and national boundaries. Another finding that is often stressed is that "deaf gatherings" in shared signing communities also contain hearing people; in other words that "Deaf-only" events are nonexistent in such communities.

Branson et al. (1999, p. 134) remark that such observations raise "important questions about the social conditions required for the development of communal links based in deafness." In their book-length volume on deaf history, Branson and Miller (2002, p. 244) criticize the view that all deaf people automatically would possess a common Deaf identity, "as though that identity must, in all cultural circumstances, override any other identity." They suggest that "having a Deaf identity" might be linked to the recent achievement of linguistic recognition after decennia of suppression and to the establishment of national and international Deaf organizations. They criticize the idea that "deaf people become conceptualized simply as deaf individuals, no matter where they come from,

rather than as cultural human beings” (Branson & Miller, 2002, p. 243), calling this a form of symbolic violence: “the denial of difference,” a new but unconscious cultural imperialism that is not recognized as such. So with regard to Bengkala, Branson et al. (1999, pp. 112–113) assert that

it is vital that we move beyond the ethnocentrism of Western notions of community and identity, and of obligations associated with ties of friendship and the like, orientations that are associated with the breakdown of community and the emergence of individualism as the dominant value in capitalist societies.

As they summarize, to be deaf in Bengkala “is to share an identity integral to the identity of the village as a whole” (1999, p. 115).

In my opinion, Branson and Miller (2002), Johnson (1994), and Marsaja (2008) make a very important point when stressing the localized cultural specificity of deaf people’s experiences and the fact that the communities *as a whole* have been shaped and affected by the presence of deaf people. For this reason also the discontinuation of the term “integration” could be considered. Integration is a term that has been criticized in disability and minority discourses because it suggests the “assimilation” of an “abnormal” person in a “normal” community—the denial of differences indeed. Terms like “inclusion” have been suggested, indicating that a whole group should change and adapt itself in a particular dialectical way when a disabled person or a foreigner joins. In the context of shared signing communities, instead of using integration one could point at the strong “cohesion”—a more neutral term Rathmann (2007) has used in this context—of deaf and hearing people in such communities.

Nevertheless, although the endeavors to reduce or avoid ethnocentrism should be applauded, the ways in which the deaf-specific experiences and behavior were portrayed and interpreted are problematic.

Problems With Interpretations of Available Evidence

As mentioned previously, several authors stressed that the village identity “comes first.” Johnson (1994) reported that deaf people in the Mayan village com-

munity tend to gather with each other but that they apparently took no interest in associating with deaf people from other villages or from abroad. Branson et al. (1999, p. 134) describe Bengkala as a place where “links on the basis of deafness were seen as completely meaningless If other people were beyond the bounds of kinship and clerkship, there was no more reason to contact them than there was to contact anyone else outside the bounds of normal face-to-face interaction.”

The desire to make contact and develop communication with deaf people from “other places” based on the experience of being deaf may indeed be more a feature of our highly mobilized Western urban Deaf communities. However, we should note that Ladd (2003) depicts this as a “potential” present in all deaf people, rather than a “compulsory condition for having a Deaf identity.” Indeed, we should also note that not all “Western” deaf people engage to the same extent with deaf people outside their local area.

Furthermore, a close reading of the available texts reveals that in the shared signing communities there do seem to be links with deaf people in other villages after all.

Johnson mentioned that Yucatec Maya Sign Language emerged from contacts between deaf people from different villages, whereas Branson et al. (1999) and Hinnant (2000) both report that deaf people from neighboring villages were linked to Bengkala through deaf-deaf marriages. Fox (2007) describes how in her eyes Carol Padden, a deaf linguist, easily could connect with the deaf people among the Al-Sayyid Bedouins and I had the same impression when meeting deaf people in Adamorobe. This all indicates a potential flexibility in deaf people to move beyond village interactions to a certain extent, at least in some of the communities.

In addition to stressing that the deaf people showed little interest in meeting other deaf people, all these authors assert that in these communities, *deaf-only* organizations or activities did not exist. Marsaja (2003), for example, emphasized the fact that hearing people also attend the Bengkala deaf feasts and Johnson (1994) mentioned that when deaf people in the Maya village gather, hearing people are always present. Because of the minimal “polarization” during

deaf and hearing people's everyday contact, Nyst (2007, p. 210) concluded about Adamorobe as follows: "Deaf and hearing people have more shared experiences than non-shared experiences. There are too few non-shared experiences for a separate Deaf community to arise."

The question is whether it is important to focus on *exclusivity* as marker for the existence of a deaf-centered group or community, as especially most modern Deaf communities also contain hearing people who sign more or less fluently, such as children of deaf adults, parents, friends, interpreters, and so on.

A more important issue, however, is that by looking for deaf exclusivity the authors tend to get diverted from what is really happening in the communities. A good example can be found in Marsaja's (2003) account. When Marsaja talks about the deaf alliance and stresses that there are also hearing people present, he concludes that "this is another social activity through which the kolok and the hearing people in the village improve and maintain their relationship with one another" (Marsaja, 2003, p. 162). As such, he labels these gatherings as a case in point of assimilation—the word that he uses along with integration. At the same time however, he reveals that the hearing people present are fluent signers who appear to "have all identified themselves as Deaf in a socio-cultural sense; they rely on their signing expertise and avoid talking with other hearing people" (Marsaja, 2008, p. 76). To interpret this, Marsaja uses the word subculture: "The [specific] use of Kata Kolok signing during any kolok gatherings here can be considered as ... [a] subculture that relates more towards the life of the Deaf people rather than to the hearing people" (Marsaja, 2003, p. 164). Later in his account he even writes that "the Deaf villagers have a sense of their own separate identity as kolok, do things in their way" (Marsaja, 2003, p. 454).

This description of the events shows that these—although they may not be *deaf only*—they seem to be *deaf centered* after all. However, Marsaja concludes that "the Deaf people do not see their Deaf identity as *primary or even as necessarily important*" (Marsaja, 2003, p. 454, emphasis added). So what is happening here is that Marsaja and others state that there is indeed a sense of Deaf identity, Deaf (sub-)culture, or

Deaf (sub-)community present in several of the shared signing communities. At the same time, while recording such information, the authors repeatedly tend to minimize these features, appearing to place emphasis on the similarities between the deaf and the hearing experiences and on deaf people's integration in the communities.

Nevertheless, if we really want to try to avoid the trap of ethnocentrism we should not try to match the reality in shared signing communities to theories about Western Deaf communities, looking for the existence or nonexistence of "identities" that can be "hierarchized" or minimized indeed. Although Branson and Miller (2002, p. 244) state that an overriding Deaf identity is "often meaningless where kin- and community-based identities are primary," it could be questioned whether such a d/Deaf identity—and indeed identities in general—has to be overriding at all, and whether identities can be generalized in a static hierarchy where one identity is subordinated to another. It appears that identities are not fixed, intersect with each other, and that "primary identity" is often situational. As a consequence, the concept of having a "d/Deaf identity" could still be useful if it is not linked to "participating in a separate/regional/national/transnational Deaf community." When applying this perspective to the shared signing communities, Kisch's (2007) approach to the experiences of young female deaf Al-Sayyid Bedouins is valuable because she depicts how the features of being female, deaf, educated, and Bedouin intersect. In conclusion, one should avoid statements such as "deafness does not define a person's identity and therefore does not link one deaf person to another" (Branson et al., 1999, p. 134).

Typologies

The reports about reality in shared signing communities have given rise to typologies in which they are classified as a kind of d/Deaf community different from Western Deaf communities. First, it should be emphasized that Kisch (2008) and Senghas and Monaghan (2002) wonder whether the use of the term "d/Deaf communities" is adequate with regard to the "signing villages," as these are not Deaf communities

but village communities with (more hearing than) deaf people in them. The local labeling regarding this is also confusing because in fact Adamorobe and Bengkala were known as “deaf village” (*mumfo krow* and *desa kolok*) with a sign language called “deaf language” (*mumu kasa*; Nyst, 2007) and “deaf talking” (*kata kolok*; Marsaja, 2008).

Bahan and Nash (1995) call the Western societies “suppressing communities” where deaf people and their sign languages are suppressed and where they—as a result—yearn for a separate community and identity. In so doing, they appear to mark Deaf communities as ones that only exist in reaction to suppression, in contrast to the “assimilated” communities where according to them, deaf people were “totally assimilated” and where “being deaf is irrelevant.” Although the discussion in the previous sections should have made clear that this is too simplified a typology, Marsaja (2008) adopts this one. In another account, Lane et al. (2000) distinguish between “assimilating” and “differentiating” communities. “Differentiating” is not much more adequate than “suppressing” because it suggests that deaf and hearing people in assimilating communities do not differentiate at all. Realizing that the complex situation in Bengkala did not fit into their dichotomy, Lane et al. label this case as an “intermediate situation.”

Woll and Ladd (2003) try to avoid these binary oppositions, proposing a multidimensional model based on the size of the deaf population, the life choices of deaf and hearing people, and general attitudes in the majority society. According to them, most Deaf communities in Europe and North America are “oppositional” and some Deaf communities in the world, with similar opportunities for deaf and hearing people, are “integrated.” They call the shared signing communities “single communities.” Because most of these communities in fact do not fit in this simple characterization, they labeled the Al-Sayyid Bedouin situation as “intermediate” and Bengkala as “moving toward an oppositional one.” Their general characterization of some shared signing communities (Bengkala and the Al-Sayyid) seems to need revision in the light of subsequent research, as their summaries conflict with the accounts of these communities.

Another multidimensional model—this time from a sociolinguistic viewpoint—is offered by Woodward (2003). He links a typology of four different kinds of sign languages (“indigenous,” “link,” “modern,” and “national” sign languages) and their sociolinguistic environment to the existence of a separate Deaf linguistic identity, a separate Deaf social identity (based in institutions), separate Deaf-only events, and a national Deaf identity (Woodward, 2003, p. 294):

- The existence of a separate national identity implies the existence of separate Deaf-only events ..., but not vice versa (other modern sign languages).
- The existence of separate Deaf-only events implies the existence of separate Deaf institutions (all the modern sign languages), but not vice versa (link sign languages).
- The existence of separate Deaf institutions implies the existence of a separate linguistic identity for Deaf people (link and modern sign languages), but not vice versa (original sign languages).
- Finally, ... the existence of a sign language does not imply the existence of a separate Deaf linguistic identity (indigenous sign languages).

Woodward (2003) bases this classification on an investigation of the sign languages used in Thailand and Vietnam, but the sociocultural world in the different shared signing communities (using indigenous sign languages) seems too complex to fit in his description of the deaf people using “indigenous sign languages.” According to him, such people typically do not go to school, do not participate in associations, and so forth. Also, as pointed out previously, having a kind of d/Deaf identity perhaps does not need to be linked to “separate” events or organizations.

Ordering “kinds” of Deaf/signing communities along with the structural characteristics of the sign languages used there seems to be a trend among linguists. Nyst (2007) and Zeshan (2006) link characteristics of sign languages with their sociolinguistic setting. They contrast largely, often urban Deaf communities whose sign language evolved in educational settings and deaf associations, with villages where a sign language has arisen as a result of a high rate of hereditary deafness and is used by more hearing than deaf people. At this point in time, a bridge is needed between sign

sociolinguistics and anthropology to refine and reevaluate these suggestions for classifications.

Most of the proposed typologies clearly seem too simplified and give the impression of being theories in search of data instead of the other way round, or as Kisch (2008, p. 286) words it: the authors “impose the logic of these typologies on the above cases, overlooking many of their unique social features.” This is exemplified by several authors’ attempt to classify as “intermediary” those communities that do not fit in their categories. The models are thus clearly in need of revision and the question might be whether such communities can and should be classified in typologies at all.

Suggestions for Further Research

In all the aforementioned literature, two characteristics stand out—the near absence of interviews with deaf villagers and the total absence of deaf sociocultural researchers. Several authors mention hearing people’s attitudes regarding deaf people’s presence in the communities. The most important example in this respect is Groce (1985) who retrospectively interviewed the remaining hearing people on Martha’s Vineyard. Other examples can be found in the accounts of Woodward (1978) and Washabaugh (1986) who investigated Providence Island. The latter mentions that hearing people behave very paternalistically toward the deaf. Finally, Branson et al. (1996) stated that hearing people did not regard the deaf villagers as less intelligent but also that the deaf people were teased because of their deafness.

Seemingly, only Kisch (2007, 2008) and Hinnant (2000) explicitly report *deaf* people’s attitudes and experiences of being deaf. I already gave clues about what Kisch’ work contains. Hinnant states that the deaf people wanted to hear because deafness limited their employment options, that several of them felt that hearing people laughed at them, and that they were happy if they could sign more quickly among each other. He also mentions a boy who signed that he liked being deaf because it makes him special.

So before more sustained research is available, we should avoid conclusions such as the following: “in the assimilated communities, being deaf itself is *irrelevant*,

as deaf people have access to everyone in the village” (Bahan & Nash, 1995, p. 20, emphasis added). Woll and Ladd (2003, p. 157) state that defining deaf people only as linguistic groups (who “just have access” in shared signing communities) is “to overlook the very real sensory characteristics of their existence, both positive (a unique visual apprehension of the world ...), and negative (communication barriers are not simply linguistic, but auditory too).”

In respect of “negative characteristics,” the deaf people may experience subtle or more obvious discriminations and barriers in such communities. In terms of “positive characteristics” while discussing deaf people’s “special” visual experience, Bahan (2008) emphasizes that this goes beyond the use of a visual language as it encompasses specific brain patterns and distinctive visual-cultural behaviors. He wonders how a group of deaf people who were not suppressed in their development of these features might evolve.

We could all compare this with the experiences of women: Although in Western society, women and men do not polarize that much (anymore), there still are physical, social, and psychological experiences specific or typical for being a woman. Likewise, there are physical, social, and psychological experiences specific for being deaf: also called “Deafhood,” a term coined by Ladd (2003). Consequently, the question is as follows: In what does this Deafhood experience consist in shared signing communities, and are these experiences shared through social relationships between deaf people? Ladd (2008) observes that processes of Deafhood do seem to occur in slightly different ways across nations (e.g., British vs. American)—therefore, it stands to reason that these processes could occur on more localized levels such as these signing village communities. As aforementioned, Nyst (2007) presumed that the “new” sense of “Deaf identity” in Adamorobe had probably to do with ways of singling out the deaf originating *outside* the communities. One could expect that a kind of dialectical process exists, between such “outer” discourses and perspectives, and an *inner* experience of deaf being in the world.

What is therefore especially needed are more in-depth studies showing how deaf people actually lead their life in these communities. It is necessary to

investigate what deaf people say, how they say it, what they say that they do and what they actually do, how they behave and interact in relationships with both deaf and hearing people, and how they construct their thoughts and feel their feelings, in short: their “mode of being.” One should investigate the rights, dominances, and values in such communities along with the discourses and practices linked with deafness in the respect of the intersections of gender and age, and all without expecting to locate the existence of a separate Deaf identity, culture, or community that may even transcend village borders. Indeed, the overall focus on the rather abstract concept of “(Deaf) identity” has obviously lead researchers into overhasty and premature theories and has distracted them from what is really happening in the communities. Thus, until more bottom-up inductive research work has been undertaken, it is too early to theorize about “identity” in such communities, or to use it as a “lens” to look at the communities.

As shared signing communities are mostly located in settings traditionally investigated by anthropologists, they invite us to form a bridge between the disciplines of Deaf studies and anthropology, using theoretical frames and research methods developed by the latter. The research goals described in the previous paragraph can be achieved through conducting ethnographies, using participant observation and ethnographic interviewing as main method. They can then begin to situate the everyday realities within the historical context of the village and its wider environment. The latter would include schools for the deaf, regional/national Deaf communities, medical and welfare activities, and other ever-changing factors and discourses. These too influence the experience of being deaf in such a community and the ways that the deaf people deal with these experiences. Hence, one can inductively arrive at further theories. So far, Kisch (2004, 2007, 2008) seems to be the only person who has represented the life in the community studied through depictions of situations, case studies, and interview quotes.

Possibly the positive and negative deaf-specific experiences mentioned previously are not always recognized by the researchers whom to my knowledge were all hearing. Recently, some deaf linguists have

become active in sign language research among the Bedouins, and in Yucatán, India, and Bengkala but deaf-led anthropologic research has been absent in respect of these communities, until my recent entry in Adamorobe.

In such research projects, it is important to pay attention to proper ethical procedures to obtain informed consent. As mentioned previously, Kanta (2007) stresses that the deaf people from Bengkala had questions about the researchers coming to the village and suggests that researchers should invest in long-term relationships and reciprocity with the people they study.

Conclusions

The study of shared signing communities is not just the study of odd, idyllic, utopian places. We need to go beyond comparisons between Western Deaf communities and shared signing communities and to investigate the latter in more depth because what the snippets of evidence about deaf-specific experiences and relationships seem to show is that we are dealing with dynamic complex realities. The results of more sustained fieldwork and thus more reliable data, cross-compared with the existing research findings, would enable us to broaden and deepen the Deaf studies field and promote an awareness of the wide range of variations between deaf-deaf and deaf-hearing interactions and of variations in deaf people's life worlds.

Notes

1. In anthropological theory, endogamy generally refers to marriage within one's social group (Fox, 1967). In other words, it might mean the mating of individuals who are genetically related such as first cousins (offspring of uncle/aunt).

2. It is also not clear if and how to draw a line between these “shared signing communities” and villages where (e.g., two or three) deaf inhabitants communicate rather well with their hearing environment through signs/gestures. With regard to India, Jepson (1991) called this form of communicating “rural sign language.” Perhaps we should conceive such different sociolinguistic settings as existing on a continuum rather than whole different kinds of communities.

3. In Adamorobe, at least a part of the deaf people became deaf through illness, and some deaf-born people did not have the hereditary form of deafness (Osei-Sekyerh, 1971). So with regard to all these communities, it has to be noted that the

number of babies born deaf through a “deaf gene” might be lower than the actual incidence of deafness.

References

- Bahan, B. (2008). Upon the formation of a visual variety of the human race. In H. -D. L. Bauman (Ed.), *Open your eyes: Deaf Studies talking* (pp. 83–99). Minneapolis: University of Minnesota Press.
- Bahan, B., & Nash, J. (1995). The formation of signing communities. In J. Mann (Ed.), *Deaf Studies IV conference proceedings* (pp. 1–16). Washington, DC: Gallaudet University College of Continuing Education.
- Booth, E., & Flournoy, J. J. (1858). Plan for a deaf-mute commonwealth. *American Annals of the Deaf and Dumb*, 10(1), 40–46.
- Branson, J., & Miller, D. (2002). *Damned for their difference: The cultural construction of deaf people as disabled*. Washington, DC: Gallaudet University Press.
- Branson, J., & Miller, D. (2004). The cultural construction of linguistic incompetence through schooling: Deaf education and the transformation of the linguistic environment in Bali, Indonesia. *Sign Language Studies*, 5, 6–38.
- Branson, J., Miller, D., & Marsaja, I. G. (1999). Sign languages as natural part of the linguistic mosaic: The impact of deaf people on discourse forms in North Bali, Indonesia. In E. Winston (Ed.), *Storytelling and conversation: Discourse in Deaf communities. Sociolinguistics in Deaf communities series* (Vol. 5, pp. 109–148). Washington, DC: Gallaudet University Press.
- Branson, J., Miller, D., Marsaja, I. G., & Negara, I. W. (1996). Everyone here speaks sign language too: A deaf village in Bali, Indonesia. In C. Lucas (Ed.), *Multicultural aspects of sociolinguistics in deaf communities* (pp. 39–57). Washington, DC: Gallaudet University Press.
- Cumberbatch, K. (2008, February). *Country sign: Jamaica*. Paper presented at the 3rd conference for Cross-Linguistic Research and International Cooperation in Sign Language Linguistics, Preston, England.
- Dolman, D. (1986). Sign languages in Jamaica. *Sign Language Studies*, 52, 235–242.
- Escobedo-Delgado, C. E. (2008, February). *Culture and sign language in a Mexican Mayan deaf community*. Paper presented at the 3rd conference for Cross-Linguistic Research and International Cooperation in Sign Language Linguistics, Preston, England.
- Ferreira-Brito, L. (1984). Similarities and differences in two Brazilian sign languages. *Sign Language Studies*, 13, 45–56.
- Fox, R. (1967). *Kinship and marriage: An anthropological perspective*. Harmondsworth, England: Penguin.
- Fox, M. (2007). *Talking hands: What sign language reveals about the mind*. New York: Simon and Schuster.
- Groce, N. (1985). *Everyone here spoke sign language: Hereditary deafness on Martha's Vineyard*. Cambridge, MA: Harvard University Press.
- Hinnant, J. T. (2000). Adaptation to deafness in a Balinese community. In I. Berlin & B. J. B. Keats (Eds.), *Genetics and hearing loss* (pp. 111–123). San Diego, CA: Singular Publishing Group.
- Johnson, R. (1991). Sign language, culture & community in a traditional Yucatec Maya village. *Sign Language Studies*, 73, 461–474.
- Johnson, R. (1994). Sign language and the concept of deafness in a traditional Yucatec Mayan village. In C. Erting, R. Johnson, D. Smith, & B. Snider (Eds.), *The Deaf way: Perspectives from the international conference on Deaf culture* (pp. 103–109). Washington, DC: Gallaudet University Press.
- Kanta, K. (2007, April). *The presence of researchers in a “deaf village” in Bali: Consequences for the village community*. Paper presented at the 2nd conference for Cross-Linguistic Research and International Cooperation in Sign Language Linguistics, Nijmegen, The Netherlands.
- Kendon, A. (1980). A description of a deaf-mute sign language from the Enga Province of Papua New Guinea with some comparative discussion. *Semiotica*, 31. 32, 1–34, 81–117, 245–313.
- Kisch, S. (2004). Negotiating (genetic) deafness in a Bedouin community. In J. V. Van Cleve (Ed.), *Genetics, disability, and deafness* (pp. 148–173). Washington, DC: Gallaudet University Press.
- Kisch, S. (2007). Disabling, gender and Deafhood among the Negev Arab-Bedouin. *Disability Studies Quarterly*, 27(4), from <http://www.dsquds.org/article/view/45/45>.
- Kisch, S. (2008). ‘Deaf discourse’: The social construction of deafness in a Bedouin community in the Negev. *Medical Anthropology*, 27, 283–313.
- Ladd, P. (2003). *Understanding Deaf culture: In search of Deafhood*. Clevedon, England: Multilingual Matters.
- Ladd, P. (2008). Colonialism and resistance: A brief history of Deafhood. In H. -D. L. Bauman (Ed.), *Open your eyes: Deaf Studies talking* (pp. 42–59). Minneapolis: University of Minnesota Press.
- Lane, H., Pillard, R., & French, M. (2000). Origins of the American Deaf-World: Assimilating and differentiating societies and their relation to genetic patterning. *Sign Language Studies*, 1, 17–44.
- Marsaja, I. G. (2003). *Sociocultural, sociolinguistic and linguistic patterns in a Deaf community: An ethnographic study of a Deaf village in North Bali*. Melbourne: Unpublished doctoral dissertation, La Trobe University.
- Marsaja, I. G. (2008). *Desa Kolok. A deaf village and its sign language in Bali, Indonesia*. Nijmegen, The Netherlands: Ishara Press.
- Nonaka, A. M. (2004). The forgotten endangered languages: Lessons on the importance of remembering from Thailand's Ban Khor Sign Language. *Language in Society*, 33, 737–767.
- Nyst, V. (2007). *A descriptive analysis of Adamorobe Sign Language (Ghana)*. Utrecht, The Netherlands: LOT.
- Osei-Sekyerh, P. (1971, June). *Adamorobe research report*. Paper presented at the Scientific and Educational Conference of the Ghana Association of Audiology, Rehabilitation and Education of the Deaf, Mampong-Akwapim, Ghana.
- Osugi, Y., Supalla, T., & Webb, R. (1999). The use of word elicitation to identify distinctive gestural systems on Amami Island. *Sign Language and Linguistics*, 2, 87–112.
- Panda, S. (2008, February). *Minority sign languages in India: The research priorities, methodologies and future directions*. Paper presented at the 3rd conference for Cross-Linguistic

- Research and International Cooperation in Sign Language Linguistics, Preston, England.
- Rathmann, C. (2007, November). *Young Deaf communities and sign languages*. Paper presented at the Centre for Deaf Studies, Bristol, England.
- Sacks, O. (1989). *Seeing voices*. London: Picador.
- Senghas, R. J., & Monaghan, L. (2002). Signs of their times: Deaf communities and the culture of language. *Annual Review of Anthropology*, 31, 69–97.
- Shuman, M. (1980). The sound of silence in Nohya: A preliminary account of sign language use by the deaf in a Maya community in Yucatan, Mexico. *Language Sciences*, 51, 144–173.
- Spencer, P. E., & Marschark, M. (in press). *Evidence-based practice in educating deaf and hard-of-hearing students*. New York: Oxford University Press.
- Tervoort, B. (1978). Bilingual interference. In I. M. Schlesinger & L. Namir (Eds.), *Sign language of the deaf: Psychological, linguistic, and sociological perspectives* (pp. 169–240). New York: Academic Press.
- United Nations International Children's Emergency Fund. (1985). *UNICEF report on prevention of deafness: Hearing aids*. London: Author.
- Van den Bogaerde, B. (2005). Everybody signs in Kosindo also? *Deaf Worlds*, 21, 103–107.
- Washabaugh, W. (1979). Hearing and deaf signers on Providence Island. *Sign Language Studies*, 24, 191–214.
- Washabaugh, W. (1981). The deaf of Grand Cayman, B.W.I. *Sign Language Studies*, 31, 117–134.
- Washabaugh, W. (1986). *Five fingers for survival: The Galapagos of signing*. Ann Arbor, MI: Karoma Publishers.
- Woll, B., & Ladd, P. (2003). Deaf communities. In M. Marschark & P. E. Spencer (Eds.), *Deaf studies, language and education* (pp. 151–163). Oxford, England: Oxford University Press.
- Woodward, J. C. (1978). Attitudes toward deaf people on Providence Island. *Sign Language Studies*, 18, 49–68.
- Woodward, J. C. (2003). Sign languages and Deaf identities in Thailand and Vietnam. In L. Monaghan, C. Schmaling, K. Nakamura, & G. H. Turner (Eds.), *Many ways to be deaf: International variation in Deaf communities* (pp. 283–301). Washington, DC: Gallaudet University Press.
- Zeshan, U. (2006, December). *Roots, leaves and branches: The typology of sign languages*. Paper presented at the 9th Theoretical Issues in Sign Language Research Conference, Florianopolis, Brazil.

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