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Boundary Identities: Rethinking Interdisciplinarity in Archaeology

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Abstract

In this paper I focus on the way in which identity is framed in the context of multi-disciplinary work and explore this concept alongside that of interdisciplinarity. The reason for doing so is that many multidisciplinary studies claim that they are interdisciplinary, which they are not. But interdisciplinarity remains a desideratum. When trying to combine different datasets, there are several challenges inherent in the fact that the data are very different in nature: (1) each discipline might have its own ontological reading of the studied object, and (2) the scale the data operates on differs. Thus, instead of viewing interdisciplinarity as a framework that can integrate different strands of data, a "meta-model" that can be applied across cases, I propose that the solution is to see interdisciplinarity in looser terms as the creation of "trading zones," to use Peter Galison's concept. As an example, I will focus on the use of DNA data alongside other kinds of data when trying to reconstruct past identities.

Keywords

Identity, aDNA, archaeology, interdisciplinarity, trading zone

Zusammenfassung

Dieser Beitrag konzentriert sich auf die Art und Weise, wie Identität im Kontext multidisziplinärer Arbeit gestaltet wird, und dieses Konzept wird zusammen mit der Interdisziplinarität untersucht. Der Grund dafür ist, dass viele multidisziplinäre Studien behaupten, dass sie interdisziplinär seien, obwohl dies nicht der Fall ist. Dennoch bleibt Interdisziplinarität ein Desiderat. Bei dem Versuch, verschiedene Datensätze zu kombinieren, ergeben sich mehrere Herausforderungen aus der Tatsache, dass die Daten sehr unterschiedlicher Natur sind: (1) jede Disziplin könnte ihre eigene ontologische Lesart des untersuchten Objekts haben; (2) der Maßstab, auf dem die Daten wirken, ist unterschiedlich. Anstatt Interdisziplinarität als einen Rahmen zu betrachten, der verschiedene Datenstränge integrieren kann, als ein „Meta-Modell", das fallübergreifend angewandt werden kann, schlage ich vor, dass die Lösung darin besteht, Interdisziplinarität in einem weiteren Sinne als die Schaffung von „trading zones" zu sehen, um das Konzept von Peter Galison zu verwenden. Als Beispiel konzentriere ich mich auf die Verwendung von DNA-Daten zusammen mit anderen Datenarten, wenn es darum geht, vergangene Identitäten zu rekonstruieren.

Schlagwörter

Identität, aDNA, Archäologie, Interdisziplinarität, *trading zone*

Introduction

In a recent paper Joanna Brück (2021) analyses the relationship between identity and ancient DNA narratives. While researchers have already critiqued the use of genetic data to reconstruct cultural or ethnic identities (see Hofmann 2015; Heyd 2017; Furholt 2019), Brück focuses on the role of these data for the reconstruction of prehistoric kinship systems. By using anthropological insights, she points to the fact that kinship can take many forms around the world, which need not be grounded in biological relatedness. Her argument is valid, but I think we can take it further: how can we incorporate different strands of data in order to imagine past identities?

In this paper I would like to focus on the way in which identity is framed in the context of multi-disciplinary work, and explore this concept alongside that of interdisciplinarity. Without delving too much into details, as there is already a consistent body of literature on this (see Klein 2010, but also Jacobs and Frickel 2009), I take as a point of departure Julie Klein's distinction between multidisciplinarity – "the juxtaposition of disciplines. It is essentially additive" (Klein 1990: 56) – and interdisciplinarity, which is supposed to be an integration of various datasets from different disciplines. In archaeology we mostly see multidisciplinary studies, although interdisciplinarity remains a desideratum (see also Ion 2017).

How can we make different datasets work together? Should we even attempt to do so? I propose that the solution is to see interdisciplinarity in looser terms as the creation of "trading zones," to use Peter Galison's concept. I take as two premises the fact that science works best when it is "disunified" (Galison 1999) and that each discipline – archaeology, genetics, isotope studies, cultural anthropology – brings their own ontological commitment to the table. If we want to obtain a complex, nuanced interpretation of past identities we can employ the metaphor of trading zones:

> "in the highly local context of the trading zone, despite the differences in classification, significance, and standards of demonstration, the two groups can collaborate. They can come to a consensus about the procedure of exchange, about the mechanisms to determine when the goods are 'equal' to one another. They can even both understand that the continuation of exchange is a prerequisite to the survival of the larger culture of which they are part." (Galison 1999: 146)

Group Identities in Archaeology

In the ancient DNA papers that Brück refers to, we see different kinds of data brought together to answer the question "who were people X whose remains were discovered at site Y?" The interpretations offered in the papers tie individual skeletons to a group. This group can be: (a) a genetic population – individuals bearing haplogroup X; (b) a cultural population – Starcevo-Cris / LBK / Gumelnita individuals; or (c) kin / a family. New methods that can contribute to creating an individual's profile – genetics or isotopic studies (what food someone ate, the water they drank, where they were from) – have now been added to the toolkit from which archaeologists can choose when interpreting past identities.

As an example, in a 2015 article by Montserrat Hervella and colleagues, several individuals discovered at the Neolithic site of Cârcea in Romania were selected for sampling. Along with others from the sites of Gura Baciului and Negrileşti, these comprised the "Early Neolithic" sample. Then they were grouped in

> "four European haplogroups (H, HV, J and T1a) (Table 2). The haplogroup H is the most frequent in the present-day European populations and the haplogroups J and T1 are suggested to be as markers of the Neolithic diffusion from Near East [5]." (Hervella et al. 2015)

Cultural identities are drawn based on material cultural similarities, while kin relations can now be based on genetic data, corroborated with proximity. For example, at Pietrele-Gorgana, a Late Neolithic-Eneolithic site in Romania dated between 5200–4250 BC (Hansen 2015), in one of the areas (surface F) among the debris of a burnt dwelling were found the remains of nine individuals. A subsequent DNA analysis revealed that they were biologically related (Wahl 2008, 2010). The interpretation then was that these were part of a family "caught by fire and killed under the debris" (Hansen and Toderas 2007: 13).

However, bringing together genetic data and cultural readings has only exposed the cracks in the theoretical toolkit when it comes to imagining identities in archaeology. At least in the beginning, most of the genetics and isotope papers employed a cultural archaeology approach to identity (Heyd 2017). This model has deep roots in the history of the discipline. In the old days of the cultural-historical paradigm, the observable patterns in material culture were grouped in clusters identified with "cultures," and it was assumed that archaeologists dealt with races, types, and ethnicities. When these ethnicities came into contact with each other, they would transmit cultural elements through diffusion and acculturation. This would have been seen as a historical reconstruction, and in this way the patterns in the data were explained. Later on, processualist authors answered the question of who past peoples were by focusing on societies functioning as systems in which certain cultural expressions played a role in terms of functional adaptation or symbolic representation of the social persona. Post-processualist research critiqued the idea of clear-cut boundaries, and brought forth the idea of constructed and performed identities. As a consequence, certain topics (migrations, change on a large scale) fell out of general interest, while the focus moved to the individual or small scale (see Trigger 1989 for an in-depth discussion of all these interpretative models and Barrett 2021 for a more recent review).

But now, with genetic or isotopic data, the interest in migrations alongside the access to large sets of individual profiles from across the continent again bring the question of identity to the fore. The challenge I see is how we frame collective identities in these narratives, what kind of imagined communities do we end up with, and what are the relationships between them (see also Ion 2020 for a discussion of prehistoric materials)?

Identity can mean many things – your sex, your gender, if you have blue eyes or dark eyes, your skin color, whose child you are, what family you belong to, or what ethnicity or religion you subscribe to. Some are physical characteristics, others are performed. There is also a new set of literature focusing on relational identities (Fowler 2016; Crellin and Harris 2020; Brück 2021). Each of these elements can place you in a "group." Through time your identity might change and shift. Genetic analysis, osteology, cultural anthropology, isotope studies, and so on each have their own ontological view ascribed to a person's identity. So how can we make these different datasets work together?

I take two examples where the authors propose successful models and which share the same approach: a multi-factor analysis. The first is a paper by Claudio Cavazzuti and colleagues (2019) on "Flows of people in villages and large centres in Bronze Age Italy through strontium and oxygen isotopes." Here they used one kind of data to calibrate the rest. The team brings together geology, isotopes, funerary data, space/distance, and social identities in order to interpret mobility and dietary patterns in three prehistoric communities. The way this works is by reflecting on each factor through the lens of the others. For example, the concept of local is calibrated by looking at (1) space in km, (2) space at a human scale – space is divided between close proximity/more than a day's walk, (3) cultural markers of identity – funerary customs, and (4) diet. In turn, diet and isotope signatures are linked to spatial distribution maps on a wide area (50 km) and to cultural readings of these data:

> "Theoretically, an incidence of 'exotic' food might also have an impact on isotopic ratios. It seems unlikely, though, that Bronze Age communities in Northern Italy traded in staple food, considering the high production capacity reached by intensive agriculture [11,111]. More plausibly, in this historical phase, strontium isotope ratios reflect the movement of people and not of the vast majority of the ordinarily consumed food." (Cavazzuti et al. 2019: 44)

Another example is by Martin Furholt (2019), where different parameters work in parallel and create a continuum. Furholt uses a polythetic approach inspired by David Clarke to provide a more refined interpretation of DNA data, archaeological data, and the migration grand narratives, applied to the case of 3rd millennium European materials. As Furholt rightly highlights, social phenomena cannot be treated as being homogenous and a coherent unit. Instead, in Furholt's (2019: 1) words, "A unit would thus be defined by a frequent but variable co-occurrence of a set of traits present in its individuals, not excluding their occurrence in other units." For this, he breaks down different cultural traits, such as type of burial, position of the body, orientation, gender, types of material culture, distribution map of archaeological traits, and distribution map of genetic traits. All of these are then analysed through the lens of "social integration" strategies and mechanisms of change (Furholt 2019: 10).

More recently there have been other attempts to shift between scales of analysis and types of data which offer refined arguments (Gregoricka 2021; Novak 2022; Yasur-Landau 2022).

Towards Interdisciplinarity?

Both of these examples are viable options when trying to move towards an interdisciplinary approach, one that in a fruitful way can use the multiple strands of evidence available. But there might be two main challenges inherent in the fact that the data are very different in nature: (1) each discipline might have its own ontological reading of the studied object; (2) the scale the data operates on differs. For these reasons, when different disciplines meet on the same territory, either tensions or misunderstandings might arise (examples of this can be found in the article on terminology by Eisenmann et al. 2018). In the cases of genetic analysis, osteology, cultural anthropology, isotope studies, etc., each has its own ontological view ascribed to "a person's identity."

In a paper published in 2017 in the *Current Swedish Archaeology* journal, I wrote:

> "It is often taken for granted that interdisciplinarity is valuable for archaeology – but why should it be? [..] concerns are bound to appear given that interdisciplinarity is not a process of spontaneous generation (see Klein 1990:116) resulting from putting together archaeologists, geneticists and others. Rather, this should be understood as a synthetic process, in which 'individuals must work to overcome problems created by differences in disciplinary language and world-view' (Klein 1990:188). Surprisingly though, it seems that precisely this complex process of negotiation and of finding a 'meta-language' is almost absent at present." (Ion 2017: 177, 189)

At the time, several things were taking place simultaneously: (1) technical and methodological advances in archaeology and the related disciplines (genetics, isotope studies), which were bringing in a wealth of new data; (2) a resurgence of the interest in grand narratives (especially in large-scale migrations); (3) a power play between the disciplines regarding which one draws "the best" picture of humanity's past (see Ion 2017, 2020). In particular, I was interested in the use of aDNA data in archaeology and its challenges. The main point of contention was the way in which different datasets were combined in an overarching narrative, and the fact that this integration rarely led to a meaningful narrative about the past.

Two years later, the question of how we should tackle multiple strands of data in archaeology is more relevant than ever. But we have also seen more refined approaches being introduced (e.g., Cavazzuti et al. 2019; Furholt 2019, 2021; Manninen et al. 2021). Similarly, critical discourses have added valuable observations to the topic (Frieman and Hofmann 2019; Crellin and Harris 2020; Brück 2021; Jones and Bösl 2021). Looking back, I think that the initial concerns I had about interdisciplinarity in archaeology need a more nuanced phrasing and that collaborations are possible if we rethink what we expect from interdisciplinarity.

In current academic discourses there is a trend toward fetishizing interdisciplinarity, both in jobs and grant applications. But as Robert Frodeman writes in his introduction to *The Oxford Handbook of Interdisciplinarity*:

> "'Interdisciplinarity' should not be treated as a shibboleth or a sign of one's advanced thinking. Neither is it an incantation that will magically solve our problems. Interdisciplinarity is simply a means. But to what end?" (Frodeman 2010: xxxii)

Indeed, what are we trying to achieve with interdisciplinarity in archaeology? Going back to the 2019 article, I was rigidly proposing to view interdisciplinarity as a framework that should integrate different strands of data, a "meta-model" that could be applied across cases – a framework of combining different data sets to support an interpretation. Similar perspectives are discussed in the review by Jerry Jacobs and Scott Frickel, who mention scholars for whom interdisciplinarity is synonymous with integration, which in turn can have different degrees of interconnectedness – low, moderate, and high (Jacobs and Frickel 2009: 45). Instead, it might be more fruitful to focus on understanding the concept either as a complex problem-solving strategy or as a heuristic tool of discovery.

In their critical review of interdisciplinarity, Jacobs and Frickel (2009: 47) observe that, "Whether basic or applied, interdisciplinarity is supposed to integrate knowledge and solve problems that individual disciplines cannot solve alone." But how do we define what a "problem" is? We are living in a world that is marked by the effects of globalization, climate change, the Anthropocene, with complex issues created by the new digital and virtual connections. All these redefine the nature of "problem solving." Consequently, our old concepts, taken in isolation, might not work in a complex and interconnected new world. Hence, we need a language adapted to grasping problem solving in complex and intertwined networks, at the crossroads of multiple temporal and spatial scales.

Following Emma Uprichard and Leila Dawney (2016), I would propose that due to the "mess of reality" we should not even strive for achieving this integration in a universal sense. Instead, we can understand interdisciplinarity as taking place in trading zones, where new objects of inquiry are born: boundary objects.

Uprichard and Dawney convincingly wrote that by trying to integrate datasets we might actually end up with a Frankenstein-like creature:

> "After all, we tend to assume that one method depicts one part or aspect of the object of study and if another method presents a different part or aspect, then the methods have together shown different parts or aspects of the same thing. But what if one method captures the 'ear of the elephant' and another method captures the 'tail of a mouse'? What if mixed methods, very successfully, capture multiple aspects of multiple parts that are entangled together instead of revealing some (singular) 'thing' as 'more' whole?" (Uprichard and Dawney 2016: 22)

Instead, we might rethink interdisciplinarity and see it as a point of convergence, where interpretation and speculation meet strands of datasets and empirical objects and where boundary objects are born. But how can we achieve this? Philosopher of science Galison (1999) compared scientific collaborations to encounters between different anthropological cultures. Exchanges can take place in trading zones, similarly to how anthropological cultures manage to agree on rules to exchange goods or ideas (1999: 138). By coming together, different disciplines can work towards rethinking the object of study.

In order to find ways of thinking about successful collaborations across disciplines, Susan Leigh Star and James Griesemer introduced the concept of boundary objects: "objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites" (1989: 393). But what is interesting about this concept is that it does not require consensus, according to them. Each discipline can retain its own reading of a particular object, but there is room for cooperation and exchange between disciplines: "boundary objects, like marginal people, exist at the intersection of two (or more) disparate social worlds without fully belonging to any of them" (Star and Griesemer 1989: 411). Under the term object one can find people, concepts, material culture objects.

Philosophers of science have written extensively about epistemic confrontations and ways of dealing with ontological differences. Alison Wylie talks about one such epistemic confrontation, which affects the "substance of the science" (Wylie 2015: 196), namely collaboration with indigenous communities. When it comes to contentious issues or relics that involve local or descendant communities, researchers often hold scientific worldviews as being the only legitimate knowledge about the topic in question. In her analysis, Wylie talks about a project involving Champagne and Aishihik First Nations (CAFN), a project meant to analyse the remains of a young man discovered in northern British Columbia in 1999. In this case, different kinds of knowledge and perspectives of the given topic were proposed.

Through her example, she showed how different kinds of knowledge can inform each other and model research agendas. In this case, the existence of different ontological framings of the subject led to the creation of a collaborative practice, a "dynamic pluralism" (Wylie 2015: 196). Contrary to other cases that Wylie labels as "limited cross-fertilisation," where non-archaeological interpretation and knowledge were added on to the scientific text and did not affect the episteme, this was a true "epistemic engagement." By this she means an encounter that affected both parties and led to reflexive engagements on what constitutes expertise and how this might drive or enforce the research agenda. In the particular case she is discussing, DNA tests on human remains belonging to a native community corroborated oral traditions regarding identity ties between inland and coastal communities, and specialists and non-specialists worked together towards a narrative that was meaningful for both parties.

Such epistemic collaborations take many shapes, but they can even lead to a critical rethinking of archaeological practice, as in my own previous experience (Ion 2016). In that case, osteologists were called in to analyse the bones of a bishop killed by the communists in order to turn him into a martyr saint. While for the community in question and the Church his body was a testimony of the sufferings and the choices he had made in virtue of his faith, a lived and experienced body, the osteological report was focused on identifying the signs inscribed on the bones to point out traces of past agencies in the materiality of the body. As a participant, this difference struck me, raising the question of how an osteoarchaeologist might be able to better recognize and express humanity through a "procedure or language that would acknowledge it without seemingly losing what is deemed as scientific objectivity" (Ion 2016: 165).

What both these cases highlight is what happens when there are different ontological understandings of what an object of study stands for (in this case a body), and how collaborative projects can lead to a breaking down of disciplinary boundaries (Wylie 2019).

Another good example is that of the microhistorical paradigm which shows us how differences in scale can be mitigated. The term microhistory refers to a historiographic school of thought that focuses on the seemingly unimportant details, the small scale, like a single event, but through this lens it manages to recover the *Zeitgeist* of a wider context. Among its most famous proponents were Carlo Ginzburg, Giovanni Levi and Natalie Zemon Davis. These authors shared an interest in the discontinuous and heterogeneous, a special attention given to narrative devices and a focus on context (Ginzburg 1993). Microhistorians offered ways of moving between scales of analysis, between local contexts and global issues. At the same time, they manage to ground their narrative in local contexts, avoiding what Lara Putnam (2016, cited in Ghobrial 2019) calls the risk to gloss over the local in favour of connections.

While microhistory has been popular with historians, there are not many attempts in archaeology. However, an echo of their methods is found in agency studies. One example can be found in osteobiographical narratives (e.g., Robb et al. 2019). An example of an attempted biography of an individual comes from a Cambridge medieval cemetery, part of the *After the Plague* project:

> "F958's genetic heritage is completely unremarkable for the region. While higher-resolution scans are ongoing, his mtDNA lineage is H2A, which is extremely common for the British Isles. […] Although the Hospital of St. John may have housed a few paying inmates (corrodians), and a few non-inmates may have been buried in its cemetery, the overwhelming probability is that F958 was an inmate of the hospital. How might he have ended up there? The hospital housed a heterogeneous population, including a mixture of young, chronically ill people and older people who presumably needed shelter due to a combination of age, infirmity, and lack of family support. It may also have contained a few aged and indigent scholars. We have built a picture of F958 as a robust, physically active person who formerly may have pursued a specialized manual craft or trade, and most of his health problems were common in older age. General indicators of decrepitude—particularly tooth loss, back problems evidenced in stooping, and disability—were recognized as signs of advancing age, for instance in visual characterizations of the later "ages of man" […]. It is possible that he became an inmate of the hospital because of age-related inability to work, lack of family networks, and the resulting indigence rather than because of any specific medical problem. There is no indication of what caused F958's death. […] As a chosen recipient of generous institutional charity in a sea of the urban needy, he must have been seen as deserving and conventionally religious. (This selection, incidentally, gives us some guarantee that his sex and the gender ascribed to him coincided conventionally; it is unlikely that a charitable religious institution would have admitted someone not conforming to gender norms.)" (Robb et al. 2019: 26)

By bringing together data in a story with some sort of temporal dimension, with causes and consequences, and with a link between the particular and the general cultural and social context, the reader is left with the feeling of a better-integrated narrative with a meaningful story. This structure allows for the bringing in of different strands of data and weaving them together into a coherent story. The result is also more than the sum of its parts.

Boundary Objects, DNA and Archaeology

In the previous sections we saw strategies for successful integration of multiple data obtained from archaeological contexts. A human skeleton can become such a boundary object. A tell can be a boundary object. Other examples of boundary objects can be "an assemblage" or "a dwelling," as are concepts such as identity, migration, or time. Each discipline can bring its data and propose a certain reading of each of these contexts. Then, instead of defining interdisciplinarity in narrow terms of providing better-supported interpretations to the questions we already have, we should see interdisciplinarity as tying the lines of data together to generate new perspectives, possible connections, and speculative outcomes. Only when the evidence at hand transforms our concepts and categories and takes us towards finding alternative interpretation might we say we are moving towards interdisciplinarity. This requires crossing our conventional boundaries between objects and between disciplines.

For example, a more fine-grained look at the archaeological evidence from Pietrele paints a more complex story than "a family caught by fire and killed under the debris" (Hansen and Toderas 2007: 13). Genetic data can reveal biological kinship between individuals but can say little about its cultural interpretation or about why those

individuals ended up deposited in the dwelling (together). One way forward is to look at the relationship between the bodies and the construction they are part of and to rethink what "tells" or "burnt dwellings" are. Thus, an alternative interpretation that I have suggested elsewhere (Ion 2020) was that what we have here is a group of individuals, a burnt dwelling, a tell, and a series of fragmentation practices linking material culture and human remains. Each of which could only be interpreted in relation to the other. We know that not all remains are present, with "a striking lack of cranial and leg bones (harder to destroy), not all human remains display heat marks from the presumed fire, some bones were found outside the dwelling, and a chisel made of a human bone found among the remains" (Ion 2020: 364). This suggests intentional selection and deposition of material. At the same time, numerous studies have associated the intentional burning of dwellings with the "ritualized killings" of houses, which are sealed afterwards.

If we look around this context, we find at Pietrele numerous depositions of body parts in "odd" contexts (to a modern eye). One example is a pit on the margins of the tell (dated 4610–4530 BC), L273, which was interpreted as a "mass grave" (Hansen et al. 2012). Here archaeologists found five individuals in "poor health," four of whom were females. One individual showed signs of physical disability. It is not clear from the report if all bodies were complete, but it seems that at least some of them were. At first glance, it looked as if the bones had been placed in a heap. Being layered on top of one another and next to a large deposit of mussel shells might suggest a different kind of ritualized killing – individuals denied the usual funerary rites and instead being "thrown away" on the margins of the tell (boundary). The bending backwards of one of the individuals (the lower legs were discovered first, under them were his thighs, with the individual resting on his stomach – Hansen et al. 2012) might also suggest, based on ethnographic analogies, that it could be an action taken to make sure the individual will not come back.

If we take all these elements together, they start to paint a picture at Pietrele of practices of "unmaking of personhood" (Ion 2020: 364) and the transitioning of people to the status of ancestors, or, on the contrary, to cancelling their memory. More importantly, the human bodies become part of mixed assemblages in a world where there are fluid boundaries between the domestic and the funerary area: a dwelling can become a ritual context through the deposition of human remains and then burning down, followed by the deposition of other material culture. As we have more data, we can unravel more of the threads of the story, going out into the landscape and also deeper into the history of the Pietrele community, each thread opening new questions and avenues of research.

In this case, the concept of identity can be approached from multiple angles: DNA evidence can be used to help shape the biography of the individuals, but to this there is an added layer of cultural readings of those identities, followed by the translation of identities in death and the afterworld.

Final Thoughts

We live in a complex world in which we have come to understand and appreciate the interconnectedness of things, animals, plants, and humans. While social theory and philosophical inquiry have offered us several concepts that can help us grasp these connections, relations, and networks, our methodological toolkit is still lacking when it comes to interpreting past contexts. We find ourselves oscillating between the local and the global, the thing and its context, the assemblage and its network. With the advancement of science, new data come to light, adding new pieces to our interpretation of the past. However, the way in which we combine these various pieces is still a matter of reflection. In this text I proposed that instead of finding ways to fit different datasets which might never fit together, we should accept scientific pluralism. Instead of focusing on the datasets, to rethink the objects we study and place them at the crossroads of these various disciplines. To explore the potential of trading zones and boundary objects as multi-dimensional objects of study that open several venues of research at the same time. Someone's identity is multi-layered and it acquires characteristics depending on the context where they perform. Therefore, framing past identities follows a similar logic and invites us to construct a multi-layered narrative. There is no single path to achieve this, but there are already thought-provoking models available that can inspire us to make different datasets to work together in a meaningful way.

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