

# De-contaminating the aDNA–Archaeology Dialogue on Mobility and Migration

## Discussing the Culture-Historical Legacy

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### Abstract

While the newly available ancient DNA data have shaken a lot of archaeological debates, they have, despite their enormous potential, not yet had any meaningful impact on the way we view prehistory. Instead of using this new data-source to explore new questions, or at least to re-assess the old ones, aDNA results have been tacked onto some of the most outdated narratives in European prehistory, stemming from the early twentieth century. The simplified Steppe migration narrative builds upon long-outdated culture-historical concepts, sloppy classification work, and a reliance on a monothetic culture concept which was convincingly deconstructed 50 years ago by David Clarke. In this paper, a polythetic approach to the material of the third millennium BC presents a different picture of the period. Additionally relying on a practice-based approach to how new transregional objects and practices are integrated into local contexts, it is argued that these two adjustments to our approach to the archaeological material can significantly improve the aDNA–archaeology dialogue, and better integrate the different datasets.

*Keywords: migration debate, third millennium BC in Europe, genetics, culture historian legacy, polythetic classification*

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## Introduction

In the last few years new aDNA studies on prehistoric skeletons have started to dominate research on the early prehistory of Europe. The new datasets being produced have the potential to alter fundamentally the ways we perceive prehistoric social organization and processes of social change. They have brought human mobility and migration back onto the agenda, and re-emphasized the importance of these phenomena for social and cultural change. However, the potential these new datasets offer for a better understanding of prehistory has not been realized to the degree it deserves. Crucially, there has not really been any novel conceptual impact based on the new possibilities offered. We can now explore biological relations independently from patterns of cultural choices and the production of material objects, we can trace relations of biological kinship, or at least genetic proximity between humans on an individual basis, as well as by tracing biological lineages through the ages. This opens up for investigations into social group composition, the relation between kinship and co-residence, individual and collective mobilities, the connection between cultural similarities and social group affiliations, and much more. Yet aDNA research has instead been tacked on to traditional, outdated and flawed archaeological concepts of social organization and migration, which fall short of the level of discourse already achieved in archaeology and social anthropology: closed culturally and biologically coherent groups of people collectively move from region A to region B, and migration is portrayed in terms of the romantic migration period-style movements of peoples, without any real arguments supporting those images. There is obviously a yet unsolved disjunct between the archaeological and the molecular biological perspectives on prehistory (Müller 2013; Hofmann 2015; Vander Linden 2016; Johannsen et al. 2017; Ion 2017; Furholt 2018). This is a problem for all prehistoric periods and regions, but here the third millennium BC in Europe will be used as a case study to discuss some major issues which have become virulent in the models built around the new aDNA evidence. Here, the simplified narrative, re-popularized in 2015 (Haak et al. 2015; Allentoft et al. 2015) is more or less this one: Steppe pastoralists represented by the Eastern European ‘Yamnaya Culture’ migrate around 2900 BC into Central Europe and Southern Scandinavia, thus forming the ‘Corded Ware Culture’, and at 2500 BC continuing further West (Olalde et al. 2018), to England and Scotland, here constituting the ‘Beaker folk’. This mass migration is also seen as spreading Indo-European languages into these regions (Allentoft et al. 2015). This model has been refined and elaborated since (Kristiansen et al. 2017), but the main issues, I would like to argue, remain unsolved.

## Identifying conceptual problems

The discussions surrounding the new third millennium steppe migration theory (Brandt et al. 2013; Haak et al. 2015; Allentoft et al. 2015; Olalde et al. 2018) are a good example of how aDNA evidence has not been taken as an opportunity to gain new knowledge about social processes of historical developments. Instead, these new studies were used to pick one of several old, fundamentally flawed models from the early days of culture-historical archaeology. This was done in spite of the fact that archaeological discourse had otherwise moved away from simplistic questions of migration, diffusion, or autochthonous developments as causes for social change; it had moved away from the use of archaeological cultures as expressions of closed social groups, or biological populations; and it had questioned the validity of monothetic classifications – the idea of block-like, clearly bounded units displaying coherent sets of traits (Clarke 1968).

Of course, to talk about ‘archaeological discourse’ is a blatant misrepresentation of reality, and herein lies an important clue to understand what went wrong in the last few years with the integration of archaeology and molecular biology. Obviously, there are multiple discourses, national, regional and departmental schools of thought, and a disjunct between theoretical archaeologists and field archaeologists. In the ages supposedly dominated by processual and post-processual archaeologies, culture-historical archaeology in different variants has remained dominant in most parts of Europe, while the deconstruction of archaeological cultures and their ethnic interpretations has not been of much interest for many colleagues working in rescue archaeology or heritage management, or university departments. Many tropes from the early days of European prehistoric archaeology have remained alive and popular, and they have an enormous power to inform, consciously or unconsciously, more recent prehistoric studies. One of the most obvious cases here is the idea that archaeological cultures reflect specific, mutually exclusive social groups. This idea has been refuted successfully again and again for more than 50 years (just to name a few Clarke 1968; Lüning 1972; Hodder 1982; Shennan, S. 1989; Veit 1989; Müller 2001; Furholt 2008a; Roberts & Vander Linden eds 2011), yet the practice of characterizing these cultures as representing specific social groups, even ‘peoples’, of giving them collective agency, as having distinct burial rituals, house forms, physical anthropological traits and so forth remains highly popular. This is also due to the fact that those archaeologists who have been educated in a processual or post-processual environment – mostly concentrated in Western Europe and Northern America – have lost interest in the issue of cultures, or more generally the classification of material culture in terms of temporal and spatial units, and thus are less aware of the

problem. In Central and Eastern Europe, but also among many Western and Northern European colleagues, culture history is still dominant, and the existence of block-like cultures representing distinct social groups is, while often challenged (Lüning 1972; Eggert 1978; Veit 1989; Wotzka 1993; Müller 2001), still a mainstream position, and it is thus not surprising that such concepts were implemented into the first aDNA studies. But it poses a major problem, because many premises used for defining the units of study, and thus their implications, are highly misleading and prevent us from taking full advantage of our new datasets.

## How traditional culture history infected the aDNA discourse

As argued above, traditional culture-historical archaeological discourse about the third millennium BC in Europe informed the way in which the aDNA data were interpreted, much more so than the new data had an impact on our models. It is thus important to briefly discuss this discourse in a historical perspective, and to point out those major problems that infected the discourse around the aDNA data.

One remarkable characteristic of the third millennium BC archaeological record in Europe is the extraordinarily wide extent of archaeological units (or ‘cultures’). Especially Corded Ware, Bell Beakers and Yamnaya stretch over half the continent, and thus surpass every earlier and later archaeologically defined unit. Also, the material culture within these units is said to be extraordinarily uniform (Glob 1944; Strahm 2002; but see Vander Linden 2006; Furholt 2014). This has been interpreted in different ways during the history of archaeological research, namely as the result of a massive large-scale migration (Glob 1944; Struve 1955; Sangmeister 1966; Strahm 1971; Anthony 1990, 2007), changes in the social system connected to pastoralism and metallurgy (Kruk 1973; Sherratt 1981; Damm 1991), a package of symbols connected to new ideological values (Shennan, S.J. 1976; Strahm 2002) or new social networks (Czebreszuk & Szmyt 1998; Furholt 2003; Vander Linden 2007).

There are surely more nuances to these models, but overall they share the same main flaw: they all presuppose that one archaeological unit must represent one corresponding social phenomenon, or that it can be explained by one factor (as also discussed in Furholt 2014; Furholt 2018). It is a *reification* of a unit of classification, treating the product of archaeological classification as a real social phenomenon. This way of thinking has its root in the early culture-historical archaeology, which created monothetic block-like units, corresponding to its simplistic version of a modernist understanding

of the world, and social phenomena in particular, as consisting of static, clearly bounded, internally homogeneous phenomena. Gustaf Kossinna, for example, who was the main inventor of the ‘archaeological culture’ started from his romantic belief in the essential, culturally coherent and racially uniform nature of the different European peoples, whom he sought to trace back into prehistory. This way of thinking is fundamentally monothetic, which could be said to be one of the main flaws of culture-historian archaeology: monothetic thinking is at the basis of the great majority of archaeological classification units, be it a ‘type’ of material culture, a settlement community, a ‘group’, or a ‘culture’. To take archaeological cultures as a good example, their monothetic nature is a premise, not an assessment. While Kossinna stressed ‘[...] strictly delineated, sharply distinctive, closed cultural provinces’ (Kossinna 1926:21 translation by author) as the definition of a culture, which ‘[...] unconditionally (sic!) equal areas of specific peoples or tribes’, Childe made clear that cultures are characterized by ‘certain types of remains [...] constantly recurring together’ (Childe 1929:V–VI), and later explicitly excluded racial connotations (Childe 1933). Archaeological cultures are by definition monothetic, because they are supposed to be an expression of a likewise monothetic social unit. And this monothetic nature of our concepts used to describe prehistoric communities and the archaeological material has continuously haunted European archaeology. It carries in it the flaw of its original essentialist, fascist worldview, where static, clearly bounded homogeneous peoples are the agents in world history. Such views are unfortunately also very powerful in other areas of discourse. Right-wing populists, and white supremacists subscribe to the same world-view, where supposedly biologically and culturally distinct groups engage in competition and ultimately fight for survival (as well observed by Mason 2019). Yet, while such extreme views are easy to spot and to debunk, the core assumption of the monothetic nature of human groups is deeply rooted in more apparently ‘civil’ and ‘acceptable’ worldviews, which are commonly considered as conservative, moderate, and in any case part of mainstream discourse (Painter 2011; Adamson 2016; Appiah 2018). They are in other words considered ‘common sense’ by many and thus often maintained as part of the general worldview by individual natural scientists without a more thorough anthropological or theoretical archaeological education. And their work in several areas now increasingly starts to have indirect effects on the perception of prehistoric social group composition and on concepts of race, including in genetics (Fullwiley 2014; Frieman & Hofmann 2019). Thus while none of the colleagues involved in the discussion would probably ever subscribe to a racist world-view, the idea of essentially monothetic cultures in prehistory – that is bounded, static, homogeneous groups – is deeply encapsulated both in

large parts of the ‘common-sense’ thinking about social groups, and in the traditional archaeological practice of classification rooted in the culture-historical school. This idea has been able to survive despite being shown to be an obvious misrepresentation of the empirical facts it is connected to. This residual conceptual baggage has ideological power on its own, as its implementation into our models of prehistoric social processes has practical consequences. It has the power to push the interpretation of the new aDNA data in this specific direction, in which a ‘clash of cultures’ scenario is repeatedly surfacing, especially in the way it is transformed into popular accounts of third millennium scenarios of massive migration and genocide (Ansedé 2018; Barras 2019; critically discussed in Valera & Criado Boado 2018; Frieman & Hofmann 2019). Archaeological cultures are taken to represent distinct biological populations, they are given a collective agency, and migration is construed as a quasi-collective mass movement of one population from place A to place B. With little discussion, these events are portrayed as violent and genocidal. The finding of Olalde et al. (2018), that Bell Beakers clearly do not represent one distinct biological population, but that some individuals associated with Bell Beaker materials have genetic Steppe ancestry, while many others do not, is pointed out as if it would represent some kind of peculiar anomaly, from the supposed monothetic ‘normal’. The main aim of this paper is therefore to argue that in order to bring the discourse forward, it would be beneficial to look for different approaches to classify and model social groups and processes, which can also help to get rid of the conceptual baggage of monothetic thinking.

## Alternative approaches to the archaeology of the third millennium BC in Europe

There have been, as argued above, different approaches to understanding the third millennium BC in Europe, inspired for example by processual and post-processual impulses. There is no space here to present a comprehensive critique of these. Instead I want to highlight two trends that, in my view, focus on how to overcome at least the worst flaws of the culture-historical tradition: a polythetic approach to classification instead of a monothetic one; and a practice-based perspective instead of a formally descriptive one.

David Clarke (1968), in his critique of culture-historical classification, influentially stressed the monothetic nature of their units, especially archaeological cultures (Clarke 1968). In a monothetically classified unit, all traits examined are supposed to be constantly present in all individuals belonging to the unit, and exclusively so. So archaeological cultures should be units with distinct pottery styles, implements, ornaments, burial rites,

house forms and so forth. However, empirically this is virtually never the case (Eggert et al. 2012:190). Yet this inconvenient reality is constantly ignored, and archaeological cultures treated as if they were monothetic in nature, and often shown on maps in popular and scientific writing as closed shaded areas. In practice, cultures have been and mostly still are defined by pottery style, and with tool types, house forms, burial rituals and so forth added only in a second step, without acknowledging the lack of coherence within and between the archaeological cultures.

Clarke instead advocated a polythetic classification (Clarke 1968). Here, different traits can be differentially and unevenly distributed among units. Thus, a unit is not defined as an entity in which any given set of traits is (exclusively) present in all its individuals, but by a frequent co-occurrence of a set of traits which might also appear in other units. This is a much more realistic concept of classification of social phenomena, and it requires examination of traits or sets of traits independently.

Such an approach is also beneficial because it creates a conceptual basis on which it is possible to model past societies without the premise of clear boundedness of social groups. It acknowledges that there are several different areas of social practices in which different communities of practice can exist (following Wenger 1998). As these different areas of social practices do not need to be congruent, since there is overlap between different communities of practice being acted out by different social collectives, delineations between social groups become fuzzy. This is, I would like to argue, a perspective on past societies which better captures the multi-dimensional reality of social life.

Although this polythetic perspective was introduced to archaeology 50 years ago, it has only been in the last 10 to 15 years that it really started to be implemented in archaeological practice (Müller 2001; Müller-Scheeßel 2000; Brather & Wotzka 2006; Vander Linden 2006; Furholt 2008b, 2009, 2017). But recently it has gathered speed and profoundly changed our picture of the third millennium BC in Europe (Vander Linden 2006; Furholt 2014, 2019).

To apply such a polythetic approach to the third millennium BC in Europe, especially to the material commonly boxed in under the labels of Corded Ware and Bell Beakers, has significant consequences. Already at a rather superficial level, when we, for example, start to classify burial rituals and material object styles separately, the resulting picture is significantly different. The traditional, monothetic view holds that these two ‘cultures’ should exhibit clearly distinctive burial rituals. While their respective uniformities have traditionally been emphasized (e.g. Behrens 1973; Fischer 1956; Strahm 2010), they are in reality quite variable from region to region, and even within regions (as demonstrated in Vander Linden 2006; Furholt

2019). What is more, in Central Europe, Corded Ware and Bell Beaker-associated burials share most traits (for example the custom of individual burial, gender-specific rules of deposition, rules of orientation, the deposition of drinking vessels and weapons as grave goods). In several regions, the burial rituals associated with Corded Ware materials are not very different from those associated with Bell Beakers. Moreover, both Bell Beakers and Corded Ware materials are found in other contexts which are not associated with these kinds of burials. In the whole of Western Europe (excluding England and Scotland), finds of Bell Beakers are associated with different burial rituals, while in several regions of Central, Northern and Eastern Europe, Corded Ware materials are not, or very seldom, associated with these single burials, but are found instead in settlement sites, or in megalithic graves. Instead of looking at the material through the lens of distinct, monothetic cultures, it makes more sense to acknowledge that a new complex of burial rituals appear in Central Europe at around 2900 BC, first accompanied by Corded Ware Materials (which are also known from other contexts), and later also by Bell Beaker material (which again is also known from other contexts), and then are continuously dominant during the Early Bronze age, up until the onset of Late Bronze Age cremation graves (a more detailed discussion can be found in Furholt 2019). I call this new burial complex ‘Late Neolithic Early Bronze Age Single Grave Burial Rituals’ (SGBR). This distinction between a new complex of burial rituals (SGBR) and the changing styles of material culture associated with it, is important because it is this new type of grave that is primarily associated with those human bone samples whose aDNA profiles show the new genetic Steppe ancestry. This pattern is most obvious in relation to the Bell Beaker-associated individuals. Steppe genetic traits are strong where Bell Beakers are associated with SGBR, and weak or absent in those regions where SGBR does not exist (Olalde et al. 2018). With Corded Ware this argument is a little less strong, because those contexts where we find Corded Ware outside of the SGBR graves do not have other kinds of burials from which to sample for aDNA studies, and also traits of Steppe-related genetic heritage are also found in Scandinavian megalithic graves of the later third millennium (Rascovan et al. 2018). Still, it remains valid that the overwhelming majority of individuals with steppe ancestry stem from SGBR graves, and that these are not synonymous with Corded Ware, because Corded Ware materials are found in settlements well out of reach of these burials.

What this polythetic perspective does to the simplified migration narrative is more than mere nuance. It emphasises that the main change visible in the archaeological record since the early third millennium BC is one of burial ritual, much more so than of settlement pattern, subsistence strategy, or economic and social system. If and to what extent changes occur in these

domains is different from region to region (again, for a discussion of the material I refer to Vander Linden 2006; Furholt 2014, 2019). It is this new form of burial ritual that clearly highlights a set of new ideological values, especially individual aggrandizement, gender differentiation and male warriorhood. If we want to understand how this new bundle of ideas came into being and why it became so important for large parts of Europe, the answer has to be more elaborate than to merely state that it ‘came from the Steppe’. Further, it is also important to note that the strong connection of individuals with Steppe ancestry to the specifically SGBR burials indicates a social selection of access to this cultural practice, resulting in an over-representation of steppe ancestry in the aDNA record, especially as in many regions the burials associated to the pre-SGBR populations are missing, either because they are archaeologically invisible, or due to poor bone preservation. Also, if Yamnaya, Corded Ware or Bell beaker burials only represent a certain stratum of people living in the respective regions – and there are good reasons to believe that, one need only compare the number of burials to the assumed absolute population numbers (Müller 2015) – it is very misleading to take the genetic patterns of this specific social class of people (often heavily dominated by the male gender), to represent whole regional populations.

So, if we want to understand the changes, and also the patterns of mobility and migration during the third millennium BC, we cannot operate with a monothetic model, where for example Corded Ware pottery or Corded Ware Axes are automatically associated with immigrants. This blindfolds us to the potentially complex relations between immigrants (and their offspring), locals (and their offspring), and their relation to each other, as well as to ideological practices and to traditions of material culture.

A polythetic classification is of course not a secret formula for avoiding static notions of social phenomena. It also creates artificial, simplified units, which are as easy to reify as monothetic units, if one loses sight of the fact that it is just that: an artificial unit. The level of detail of the polythetic classification discussed here is also only a first step. To be able to model burial ritual activities and practices relating to pottery production and use as separate realms of social practices, connected to different, overlapping communities of practices is a relatively superficial operation. Finer differentiations will surely shed more light on regional and local dynamics of social interaction and change. For example, it becomes clear from Beckerman’s (2015) study of Dutch coastal sites that in many cases fine ware and coarse ware pottery vessels could be seen as belonging to different communities of practice which adopt Corded Ware traits to different degrees, even if they partly involve the same individual actors.

This brings me to the second alternative viewpoint I want to discuss. The culture-historical tradition is very much fixed on the description and

classification of material forms, shapes, decorations and so forth. In this approach it is mostly taken for granted that similarities in form must imply a similarity of meaning. A Bell Beaker from the Iberian Peninsula is thus seen as necessarily having the same meaning as a Bell Beaker from the Netherlands, because they look similar. This is compatible with the monothetic approach, where both kinds of beakers are naturally (and wrongly) taken to represent the same kind of social or ethnic identity. Yet the advent of practice theory in archaeology, most notably associated with post-processual approaches, has raised awareness that social meanings are not intrinsic to the shape or appearance of a thing, but rather are determined by the social practices in which they are integrated. This is not only a question of the appropriation of ‘foreign’ artefacts into new social contexts (Maran & Stockhammer 2012), but more fundamentally it comes down to a semi-otic model that acknowledges that meaning is created and constantly re-created in the pragmatic realm of real-world social practices (Preucel 2010; Furholt 2016; Heitz & Stapfer eds 2017; Furholt et al. 2018). For example, it has been shown that the same kinds of beakers are used very differently within and between different regions, or are associated with very different social contexts (Kleijne et al. 2016; Furholt 2016; Kleijne 2019). There are a number of excellent new studies that demonstrate, on a local or regional level, how elements of Corded Ware or Bell Beaker materials are integrated into and mixed with locally traditional ways of potting or manufacturing, and are successively transformed, while also transforming these contexts (Iversen 2010; Beckerman 2015; Großmann 2016; Suter 2017; Schultrich 2019; Kleijne 2019). The association of these types of material culture with migrating individuals, or with specific ideological trends, that seem probable for those vessels and tools which are placed in SGBR graves, is probably partly or totally absent in other contexts. Just to expand on one example here, Sandra Beckerman (2015) demonstrates how Corded Ware pottery does not suddenly appear in the Dutch coastal settlements, but instead elements of the local Vlaardingen style and that of the transregional Corded Ware are successively interwoven in the pottery-making practice, until further down the line there is a situation where many of the assemblages consist of a fine ware more resembling Corded Ware, and a coarse ware more reminiscent of the traditional Vlaardingen style. Yet their contexts of use and their functions – basically as cooking pots in settlement sites – are not very different from pre-Corded Ware periods. By contrast, Bourgeois and Kroon (2017) showed that in several different regions associated both with SGBR and Corded Ware burial goods, there are distinct similarities between the placement of artefacts in male graves, while female graves are distinctly locally diverse. Here, the connection of these vessels, weapons and tools to the new burial ritual and new ideas about social groups and gender roles

is obvious. Then again, in an earlier paper, I showed that at a wider spatial scale, the Corded Beaker has distinctively different associations in burials of different regions (Furholt 2016). All this shows a complicated and multi-dimensional picture which can only be made clear when it is approached from a polythetic perspective: transregional trends of different kinds were probably initially connected to transregional social networks and specific sets of meanings, and wedded to local traditions of different kinds in different ways. They create new social contexts and systems of meanings which we need to untangle if we want to understand the social processes that are actually behind the term ‘migration’. To gloss over such phenomena and talk about ‘a migration’ resulting in the formation of ‘the Corded Ware’ is obviously a stark simplification. To bring these nuances to the fore goes beyond a short paper, but the large body of archaeological work on third millennium local and regional contexts referred to here demonstrates that the material for such an endeavour is already available. It will have to be combined and better integrated with molecular biological studies, which now thankfully increasingly move towards local scale levels (Veeramah 2018; Schroeder et al. 2019).

## Conclusion

It is unfortunate that the aDNA revolution in the last five years docked onto the simplified culture-historical trope of prehistoric peoples and their mass movement. Instead of using the new data source to engage with the archaeological material and help to explore interesting new questions, the data were used to confirm one crude old narrative over a second crude narrative. In this paper, it was argued that the reason for the resurgence of these old, outdated concepts is their enormous power as a residual baggage buried deeply in our modern western way of thinking about social phenomena, ready to resurface whenever there is no explicit discussion of the ways we think about social groups. It was also argued that the acknowledgement of two more recent developments in archaeological discourse would significantly improve our understanding of social processes connected to human mobility.

Using the third millennium BC in Europe as a case study, it was argued that a polythetic approach to classification redefines the narrative in a significant way. It identifies a new burial ritual as the main innovation connected with migrants from the east, instead of any style of material culture, any new economic or subsistence practice, or any social identity. These aspects of social reality are decidedly more regionally variable, and more strongly rooted in regional traditions (Furholt 2014). The second develop-

ment is the acknowledgement that social meaning is not static, but rather constantly re-created in the course of social practices. So even if there could be some overall meaning attached to the new burial rituals, or to novel artefacts, such as the Corded or Bell Beakers, they would inevitably change their meaning in new contexts (Furholt 2016). This follows anthropological awareness that migration is a summary term for a huge variety of different kinds of human movement, taking place at different scales, involving individuals and different groups of people.

This means that in order to better understand the processes connected to human mobility, we should not only look at the overall European scale, but rather we have to treat every regional and local situation as a historical case by itself, in which some overall factors might come to play, but which will still show specific characteristics. So in order to better understand the overall situation, we need more regional and local case studies combining archaeological and molecular biological data, like the one from Knipper et al. (2017), Mittnik et al. (2019) or Schroeder et al. (2019). And also, we should pay more attention to the excellent archaeological work that has been, and is currently being carried in several regions for the third millennium BC (Larsson 2009; Beckerman 2015; Iversen 2015; Suter 2017; Großmann 2016; Schultrich 2019; Kleijne 2019 just to name a few). Even if these works do not themselves provide a direct link to new aDNA data, they are still crucial for our understanding of the archaeological material, and such an understanding is essential if there is to be productive integration of archaeology and biomolecular data, in order to gain genuinely new knowledge from the aDNA record.

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