

Clothing, messages, and identity – theoretical and methodological approaches to clothing in Central European prehistory

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Zusammenfassung

Kleidung, Botschaften und Identität – theoretische und methodische Ansätze zur Kleidung in der mitteleuropäischen Vorgeschichte

Kleidung ist für die menschliche Existenz ebenso unabdingbar wie die Nutzung von Werkzeugen und Feuer. Im vorliegenden Artikel liegt der Schwerpunkt auf Funden und Befunden der Steinzeit und der frühen Bronzezeit in Mitteleuropa. Visuelle Identitäten und Codes werden typischerweise mit vielen Facetten des ›Looks‹ einer Person in Verbindung gebracht, einschließlich Schuhwerk, Frisuren und verschiedenen Accessoires. In Europa stammen unsere Kenntnisse über prähistorische Stoffe und Kleidung aus vielen Quellen, wie z. B. verschiedenen Arten von Abbildungen (Figurinen und gemalte oder eingeritzte Darstellungen auf verschiedenen Materialien wie Keramik und Stein), aber auch aus schriftlichen Dokumenten der späteren Vorgeschichte. Von besonderer Bedeutung sind archäologische Textilien, obwohl organische Überreste nur unter bestimmten Bedingungen überleben. Wir nutzen auch Schmuck und Kleidungsstücke aus Gräbern (vor allem solche, die in situ in Gräbern gefunden wurden), um die visuellen Codes zwischen Kleidungsstücken und -ensembles zu beleuchten, die von bestimmten prähistorischen Gemeinschaften verwendet wurden.

Theoretische Konzepte der Kleidung werden ebenfalls angesprochen, um das Thema aus verschiedenen Perspektiven zu analysieren, darunter Kulturanthropologie, sog. material culture studies, Sozialpsychologie, evolutionäre Anthropologie und zeitgenössische Modestudien. Im Mittelpunkt der Diskussion stehen Theorien zu visueller Kodierung, nonverbaler Kommunikation, Modetheorie, Geschlecht, Alter und sozialer Hierarchie. Es ist von Bedeutung, ob archäologische Daten aus der Stein-, Bronze- und Eisenzeit die Beurteilung spezifischer Kleidungsarten im Zusammenhang mit der sozialen Stellung des Einzelnen, bestimmten Rollen innerhalb einer Gesellschaft, dem Alter oder dem Geschlecht erlauben.

Schlagwörter Kleidung, Vorgeschichte, theoretische Konzepte, Sinne, nonverbale Kommunikation

1. Introduction and theoretical framing

Since the Palaeolithic, clothing has been a fundamental necessity for human beings and can be found in great variations in all human cultures. This article aims to employ a framework involving theoretical aspects to discuss the significance of clothing as a medium of communication, vari-

Summary

Clothing is as integral to human existence as the utilisation of tools and fire. Here, the focus is on finds and features of the Stone Ages and the Early Bronze Age in Central Europe. Visual identities and codes are typically associated with multiple facets of an individual's ›look‹, including footwear, hairstyles and various accessories. In Europe, our understanding of prehistoric garments and clothing comes from many sources, such as different kinds of images (figurines and painted or incised representations on various materials like pottery and stone), and also written documents in later prehistory. Of specific importance are archaeological textiles, although organic remnants only survive under particular conditions. We also use jewellery and dress fittings found in burials (especially those from in situ positions in graves) to elucidate the visual codes among garments and dress ensembles employed by particular prehistoric communities.

Theoretical concepts of clothing are also addressed to analyse the subject from diverse perspectives, including cultural anthropology, material culture studies, social psychology, evolutionary anthropology, and contemporary fashion studies. The discussion centres on theories pertaining to visual coding, nonverbal communication, fashion theory, gender, age, and social hierarchy. It is of interest whether archaeological data from the Stone Age, Bronze and Iron Ages allow for the assessment of specific kinds of clothing connected to the individual's social position, specific roles within a society, age or gender.

Keywords Clothing, prehistory, theoretical concepts, senses, non-verbal communication

ous types of perception, and sensory aspects while encompassing numerous case studies from the Stone Age, Bronze Age, and some from the Iron Age in Central Europe (Fig. 1).

Clothing is understood here as the combination of garments and related accessories, such as dress fittings made of stone, bone and metal, as well as belts, brooches, pins, and various types of jewellery (e.g. necklaces, bracelets, and



Fig. 1 Word cloud with various aspects of the study of clothing, created with wortwolken.com 2024.

Abb. 1 Wortwolke mit verschiedenen Aspekten des Studiums der Kleidung, erstellt mit wortwolken.com 2024.

anklets). In the understanding of modern costume theory (Cordwell/Schwartz 1979; Eicher/Evenson 2015, 2–27), in addition to clothing and jewellery, the outer appearance (the ›look‹) also includes shoes, headgear, hairstyles and even makeup and tattoos. Additionally, posture, facial expressions, and gestures are all considered to be components of external appearance in the broadest sense. Together, all of those factors constitute how a person presents him or herself to others; it literally ›communicates‹ with the viewers.

Humans, as members of social entities, may express their identities by their appearance, which serves as an important means of nonverbal communication (Grömer 2016; Roach-Higgins et al. 1995; Sommer 2012). Jewellery, worn on various parts of the body (especially around the neck and on arms and legs), is significant in prehistory in Central Europe; it finds different expressions throughout time and within certain geographical regions. Those objects attached to clothing are functional (serving to close or gather the garments) as well as decorative and even hold diverse symbolisms and meanings.

The origins of human body covering, which occurred thousands of years ago, is the focus of various research approaches. In various papers, I. Gilligan (e.g. 2010; 2016; 2019) argues that one of the principal purposes of clothing is thermal protection. This theory explains the development of clothing as one of the results of the loss of body hair and response to environmental change (Gilligan 2016, 2). As such, clothing is an important shield against thermal extremes, precipitation, and adverse weather conditions. According to Gilligan, this physiological necessity led to complex social demands and manifestations, subsequently resulting in feelings of sexual shame and modesty along with the emergence of the first expressions of fashion.

To set the interpretation of the evidence for prehistoric clothing in a more general perspective, some overarching ideas from historical and modern fashion studies might provide inspiration. The role of clothing in non-verbal communication is a focus of A. Lurie, who studied the use of dress ensembles in Northern America and Europe in the mid-

20th century. In her work, »The Language of Clothes« (Lurie 1981), she asserts that specific garments and attire combinations, along with colour and choice of material, form a vocabulary (e.g. common words, eccentric ones, archaic or foreign words) and grammar as exact and laden with subliminal meaning as any verbal language. After Lurie, every individual possesses a fundamental repertoire of such words, phrases (how they combine individual items), and unique expressions related to their cultural, hierarchical, geographical, and socioeconomic background. This type of language is also used in movies, advertisements and media to convey immediate impressions regarding sex, age, socioeconomic standing, geographical origin, personality, opinions, tastes, and even current mood. Therefore, it might be of interest whether we can detect such mechanisms in prehistoric societies.

Another theory that may hold significance is discussed by G. Lehnert, a professor of contemporary fashion theory at the University of Potsdam. In »Der modische Körper als Raumsulptur« (Lehnert 2014), using historical and recent case studies, she suggests that clothing establishes a form of personal space. Garments are three-dimensional entities when worn; conversely – when not worn – they are two-dimensional and flat. The interplay between the clothing and the wearer is significant. This three-dimensionality of garments is also related to the fact that garments fulfil both practical and aesthetic needs.

Additionally, the American archaeologist P. Wells, in his work »Image and Response« (Wells 2008), specifically addresses the visual perception of clothing ensembles. Wells examines the visual attributes of Central European prehistoric grave goods (mostly the non-organic components such as jewellery and dress fittings) through the lens of research conducted by neuroscientists, social scientists, anthropologists, and art historians. Surfaces, edges, texture, colour, adornment, and sparkle are crucial in perception. The visual aspects of dress accessories and jewellery are typically focal points in studies of archaeological materials from prehis-



Fig. 2a–c The Venus of Willendorf, Austria, with details of the headdress and body adornment, 29 500 years old.

Abb. 2a–c Venus von Willendorf, Österreich, mit Details des Kopf- und Körperschmucks, 29 500 Jahre alt.

tory, as the bone, shell, stone and metal elements survive the decomposition process.

There is more to consider aside from visual aspects: S. Harris (2019), in her remarkable paper »The sensory archaeology of textile«, examines textiles and clothing not solely from a visual perspective but also endeavours to incorporate other senses – olfactory, auditory, tactile, and kin-aesthetic. She also provides a methodology for the study of those components. These elements are typically neglected in archaeological studies of clothing – only recently taken into account in specific research projects (Pomberger et al. 2023; Grömer et al. 2024; Gouy 2024).

The sources for our studies of prehistoric attire are varied. Pictorial sources, such as figurative art or paintings and incisions on ceramics are significant. The jewellery and dress accessories discovered in graves are of importance, together with analyses of their context and placement patterns. Generally, adornment that is permanently attached to the body (such as tattoos or non-removable jewellery) is to be distinguished from portable jewellery (Sørensen 1997). Organic materials belonging to garments could comprise, e.g. woven textiles, leather, fur, felt, or bast fibre, but they are quite rare in comparison with other artefact groups and can be found only under specific conditions (Grömer 2016). Among the earliest bast fibre textiles are the finds from Çatalhöyük, Turkey, dated to the 8th millennium BC (Loudon et al. 2023). From excavations in Central Europe, for example, woven

textiles and grass mats are known from imprints on Early Neolithic pottery (Grömer 2016). Preserved plant materials like hats or shoes made of tree bast are known from Late Neolithic lakeside settlements in southern Germany and Switzerland (Banck-Burgess 2016). Mineralised textiles and leather were identified, attached to metal objects in Bronze and Iron Age graves. A large variety of artefacts made of organic materials like bast, fur, leather, or textiles have been found in prehistoric salt mines in Austria or in alpine glaciers (Kern et al. 2008). Research on textiles and their properties (raw material, technological details, quality, patterns, structures, etc.) is crucial to our understanding of clothing.

2. Into the deep history of clothing

The first known instances of human clothing and body coverings date back to the Palaeolithic when people lived as hunter-gatherers. Recent DNA analysis of human body lice may hold the key to understanding the origins of clothing. About 100 000–200 000 years ago, head and body lice separated, suggesting that by this point, people had already begun to cover their bodies (Bower 2010).

Evidence for the utilisation of materials such as shells, teeth, and ivory, either worn on the body or affixed to garments as adornments, originates from the Palaeolithic period. Bracelets, for example, are discernible on the wrists



Fig. 3 Grub Kranawetberg, Austria. Ivory beads and mollusc shell ornaments, c. 30 000 years old; no scale.

Abb. 3 Grub Kranawetberg, Österreich. Perlen aus Elfenbein und Muschelschalenschmuck, ca. 30 000 Jahre alt; o. M.

of the otherwise unclothed 29 500-year-old Venus of Willendorf, Austria (Fig. 2) (Antl-Weiser 2008). Her elaborated hairstyle, which might also be a cap decorated with shells as known from other Palaeolithic sites, is also remarkable. In the collections of the Natural History Museum Vienna, among the artefacts from Willendorf – a site with multiple archaeological layers – are also numerous shell items and ivory beads (Fig. 3) (Antl-Weiser 2018, 95).

Comprehensive overviews of pictorial sources and adornments found on Palaeolithic and Mesolithic sites are provided in this volume by various authors. Of specific interest in this respect are the grave finds. Numerous ivory beads were unearthed in the graves at Sungir in Russia, dated to approximately 24 000 years ago. Their arrangement pattern implies the deteriorated fabric to which the beads were likely fixed. This is a prominent example of evidence for sewn garments (Bader/Bader 2000). For the Mesolithic, the items in the shaman's grave at Bad Dürrenberg in Central Germany (Meller/Michel 2022; Orschiedt et al. 2023) represent the most remarkable ensemble of body ornaments; these finds inform the distinctive reconstruction presented at the State Museum of Prehistory at Halle (Saale).

The earliest evidence for sewing needles comes from Central Asia and is 45 000–35 000 years old, whilst the use of sewing needles in Europe dates back to c. 30 000 BC (see Borao Álvarez et al. and Kandel et al. in this volume). From Austria, examples of sewing needles include finds from the Austrian

Gudenushöhle (Obermaier/Breuil 1908, Pl. III) displayed at the Natural History Museum Vienna (Fig. 4). The technology of using eyed needles, which enables the user to sew directly with thread points to advanced clothing types. In the time of the hunter-gatherers, mainly fur or leather were used as organic components of garments, as well as sometimes plant materials for cordage, twined and plaited items.

There was a material turn in the Neolithic agricultural societies, as they introduced a significant advancement: the capability to weave larger textiles, which then became the basis for clothing. Over 9000 years ago, the fundamental techniques of spinning, weaving, and subsequently patterning were established (Barber 1991). In Central Europe, from the Linear Pottery culture (5600–4900 BC) onwards, evidence deduced from figurines indicates the production of basic linen textiles to produce various kinds of garments (e.g. Lüning 2006; Becker 2011), whilst fabrics made of sheep wool seem to be an achievement of the 3rd millennium BC (Grömer 2016). Graves from that era (e.g. Nieszery 1995) contain jewellery crafted from shell and bone as well as belt components. Initial hints for elaborate hairstyles may be inferred from figurines (e.g. Eilsleben in Central Germany; Lüning 2006) and from graves where combs fashioned from bone and antler were utilised in hair arrangements.

From the Middle Neolithic in Central Europe (especially Lengyel Culture), we know of an abundance of anthropomorphic figurines. They are usually naked, with one impor-

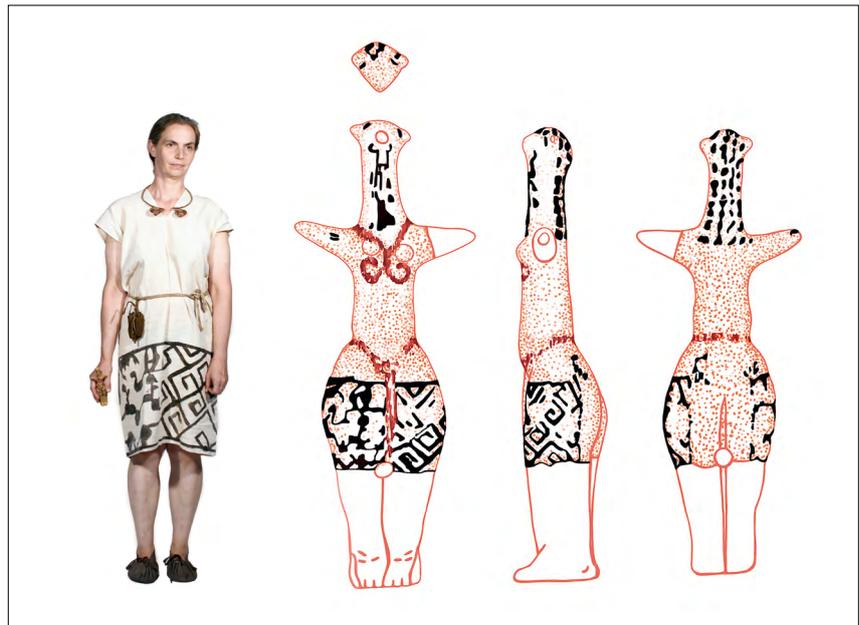


Fig. 4 Sewing needles from the Gudenushöhle, Austria, from the Palaeolithic period; no scale.

Abb. 4 Nähadeln aus der Gudenushöhle, Österreich, aus dem Paläolithikum; o. M.

Fig. 5 Figurine from Falkenstein, Austria, from the Middle Neolithic period and recreation of a painted mini-dress as shown on the statuette.

Abb. 5 Figurine aus Falkenstein, Österreich, aus dem Mittelneolithikum und Nachbildung eines bemalten Minikleides wie auf der Statuette.



tant exception: a little statuette discovered in Falkenstein, Austria (Lenneis et al. 1995, 100), within a 6900-year-old fortification system. The black-patterned design might indicate a painted mini-dress made of linen cloth (Fig. 5) or leather; alternatively, it may just refer to a form of body painting. The late Middle Neolithic vessel (Münchshöfen Culture) found in Murr, Germany (Neumaier 1996, Fig. 26; Pl. 16), provides insight into the silhouettes of Neolithic garments, as it shows long belted dresses.

In the Late Neolithic period, particularly in southern France, northern Italy, and Switzerland, larger stone figures were found that displayed clothing. Late Neolithic attire in Central Europe seemingly incorporated headgear made of grass and tree bast, such as that discovered in lakeside dwellings in southern Germany and Switzerland (e.g. Feldtkellner/Schlichtherle 1987, Fig. 2–8; see Hafner in this volume).

The most famous Stone Age garment assemblage from Central Europe is associated with the so-called Iceman, ›Ötzi‹, dated to 5300 years ago (Egg/Spindler 2009; see also Hafner in this volume). The mummy was found in 1991 in the Alps on the border between Austria and Italy. This is the only find of a Stone Age individual's complete garment ensemble from Europe (Fig. 6). He wore tight leggings tied to his belt with leather strips, while the belt also secured a loincloth. On his upper body, ›Ötzi‹ wore a patchwork garment made of differently coloured fur strips sewn together. His ensemble also included a bearskin cap, a grass cape and shoes.

Although metal (gold and copper) was already used for jewellery and dress fittings in the Neolithic, the widespread use from the Bronze Age onwards had a massive impact on garments, their layout and embellishment. The form and decoration of dress fittings (like pins, belts, and later, fibulae) and jewellery (bracelets, anklets, necklaces, etc.) are distinctive markers of cultural groups in the Bronze and Iron Ages, as well as a strong chronological hint. Their placement – for example, if fibulae are worn paired on the shoulders, singly in the chest area, or even three at a time in different positions –

differs according to region and date. This also provides hints for certain garment types (compare Grömer 2016, Fig. 237).

Some grave finds from Central Europe might serve as examples for later periods: The Early Bronze Age female burials from Franzhausen, Austria, display a variety of bronze objects (Neugebauer/Neugebauer 1997; Grömer/Neugebauer-Maresch 2017). As a Middle Bronze Age example from the Danube region, there is a remarkable high-sta-



Fig. 6 Recreation of the Man in the Ice (›Ötzi‹) as displayed in 2007 at the Natural History Museum Vienna.

Abb. 6 Nachbildung des Mannes aus dem Eis (›Ötzi‹), wie 2007 im Naturhistorischen Museum Wien ausgestellt.

tus garment from Winklarn in Austria (Grömer et al. 2013; see below Fig. 10); the ensemble includes spiked pendants, a wide bronze belt, and elongated, pointed pins. Burials of high-ranking females with two fibulae and belt components from the cemetery at Hallstatt, Austria (Kromer 1959; Kern 2018), also provide clues for our studies.

We also have pictorial sources from the mid-Iron Age in Central Europe: the situla art (Turk 2005) discussed briefly, below. For our understanding of the silhouettes and shape of garments, we also gain information from complete garments that are known, for example, from the oak coffin burials in Denmark, dating to c. 1500 BC (Mannering et al. 2012) and from various bog finds in Northern Europe, dating to the Iron Age, e.g. Huldremose in Denmark or Thorsberg in Germany (Mannering et al. 2012; Möller-Wiering/Subbert 2012).

3. Clothing, Messages, and Identity

Clothing in all its facets serves as a form of non-verbal communication – apparel and ›look‹ allow a discourse between the individual and society (Fig. 7). However, due to the paucity of written sources in prehistory, it is not easy to make complex, concrete statements about the significance that appearance and thus adornment had for people.

As discussed earlier, the total visual appearance of the ensemble surpasses that of the individual components: the combination of different items from head to toe must be considered. The choice of headgear, shoes, and the garment's silhouette (which body parts are exposed or concealed, such as the feet or abdomen) are crucial, as well as which and how many items of jewellery, dress fittings and other accessories are used.

To evaluate the overall composition, the specific colour combinations of the furs, textiles, jewellery, and dress accessories should also be taken into account. The visual characteristics of fabrics and garments are influenced by the texture and quality of the material (is the textile dense or more trans-

parent); the patterns and colours, along with shimmer and reflections, are of significant value, as noted by P. Wells. This is particularly relevant for dress accessories made of metal.

3.1 Expressing identities

The above-mentioned facets of visibility pertain to direct, non-verbal communication and interpersonal contact. Cultural identities such as gender, social roles or status can be expressed through those visual signs (e.g. Sørensen 1997; Martin/Weetch 2017; Mattson 2021), which are discussed in the following with some examples.

The exceptional ensemble of items accompanying the body in the Mesolithic burial from Bad Dürrenberg, Saalekreis District, Germany (Orschiedt et al. 2023), can be interpreted as parts of the complex costume of a shaman. The 30–40 year old woman had – along with other items – headgear made of deer antler and many pierced teeth in the area of her head: six boar tooth lamellae, of which two were pierced, six pierced incisors from wild boar that show signs of wear, 33 incisors and three canines of bison/aurochs, half of which were pierced, as well as 16 incisors and two unperforated canines from red deer (Orschiedt et al. 2023, 126). The focus of this costume clearly enhances the head and upper body. With this ensemble, a strong visual hint at a specific role within that society is addressed.

Evidence for specific roles can also be examined in later times, such as the Early Bronze Age clothes from graves 110 and 747 in Franzhausen, Traisen Valley, Austria (2200–2000 BC) (Grömer/Neugebauer-Maresch 2017). The key pieces are the bronze elements found in the chest area, which were sewn onto the garments, as well as pins, bracelets, and the headgear. The placement pattern, i.e. where the bronze dress fittings are located on the body, tells us a great deal about the kind of garment they might have adorned. Additionally, in grave 110, a massive headdress was placed around the head. In this, a piece of fabric was identified. The

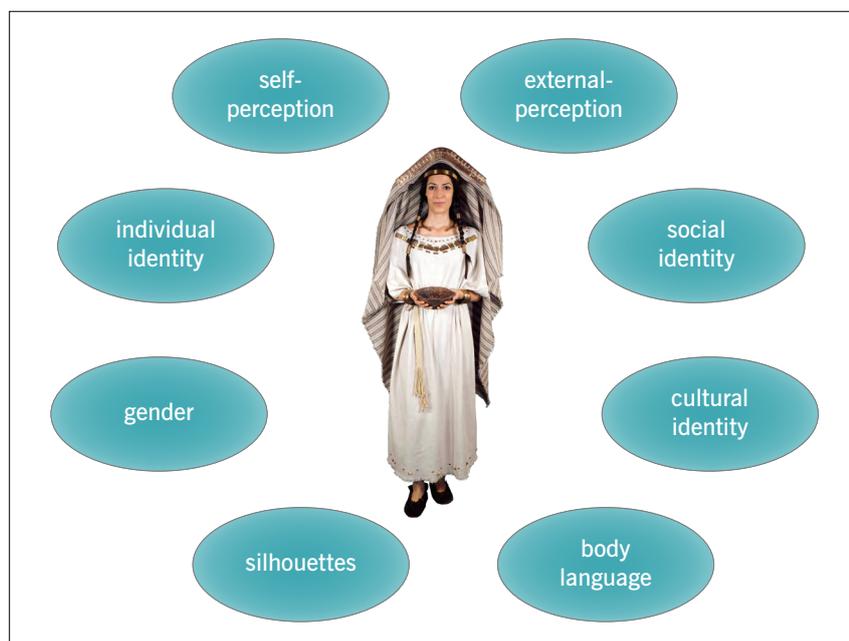


Fig. 7 Aspects of non-verbal communication with garment ensembles.

Abb. 7 Aspekte der nonverbalen Kommunikation mit Kleidung.



Fig. 8 Recreations of costumes as found in the Early Bronze Age burials 110 and 747 in Franzhausen, Austria, in daylight and exposed to artificial light (fire).

Abb. 8 Nachbildungen von Gewändern, wie sie in den frühbronzezeitlichen Gräbern 110 und 747 in Franzhausen, Österreich, gefunden wurden, bei Tageslicht und unter künstlichem Licht (Feuer).

colour of the linen had become greenish, but we can see that it had a striped pattern. This is the oldest striped textile we know from Central Europe (Grömer 2016, Fig. 98).

The recreation of the dress ensembles (Fig. 8) was based on the different garments involved. Grave 110 includes an elaborate headpiece and linen was found in the burial. As

such, a linen dress and striped veil were recreated. For burial 747, which had similar metal elements (except for the headpiece), garments were recreated based on finds from oak-coffin graves in Denmark – a blouse and skirt. These two costumes allow us to examine potential perceptions. They accentuate different body parts, and – when moving – the impact on the space surrounding the person differs significantly. The headdress of the woman from grave 110 definitely emphasises her head, as the bronze bow on her head and the embroidered elements at her neckline create a frame around her face. The emphasis of the recreation of grave 747 is primarily the upper body, where the shimmering bronze adornments are located. Clearly, the signalling value of the impressive headgear placed the woman wearing it in a specific role within society. Additionally, this kind of headgear is found quite rarely in the Traisen Valley, but other components (bracelets, decorative elements on the chest, pins etc.) are found among the social upper 20% of the females at the Franzhausen cemetery (Neugebauer/Neugebauer 1997). Within those Bronze Age societies, different items and sets of garments and jewellery existed that were available to females within the society – expressing their status, economic wealth, or other aspects of social identity (age group, marital status ...). In this way, the items served as ›words‹ in an unspoken language, as A. Lurie (1981) put it.

Aside from status and specific roles within a society, gendered designs can also be detected. From the earliest farming societies onwards, when we have evidence from

larger cemeteries, different items were placed into burials of females and males – including different jewellery and dress fittings. This points to the fact that biological sex was also expressed via visual signals in those societies. The large Linear Pottery cemeteries in Bavaria, such as Aiterhofen-Ödmühle (Nieszery 1995, e.g. Pl. 13; 26; 50; 52) are good examples. For example, females are distinguished by Spondylus shells in the belly area (as a decorative or functional element of a belted garment, which creates a silhouette enhancing the waist). Additionally, shell necklaces and combs suggest a specific hairstyle.

Those principles were also followed in the Bronze and Iron Ages in Central Europe, since in the graves different dress components and jewellery can regularly be found along with anthropologically determined females or males. For the Iron Age, situla art (Turk 2005; Grömer 2016, 221), with its more or less detailed pictorial evidence, also documents distinct clothes for men and women. Women are typically depicted with veils and elongated garments; occasionally, chequered fabric is illustrated. Male images in situla art display other kinds of garments – various hats and caps, knee-length tunics, cloaks, and also trousers. They appear for the first time in Central Europe around 600–500 BC – presumably arriving from the East, as the oldest trousers worldwide are known from the Taklamakan Desert in China c. 1000 BC, connected with horseback riding (Beck et al. 2014). The belt-plate from Molnik, Slovenia (Turk 2005), and the scabbard from Hallstatt, Austria



Fig. 9 Various materials used for Stone Age garments.

Abb. 9 Verschiedene Materialien, die für steinzeitliche Kleidungsstücke verwendet wurden.



Fig. 10a–b Ensemble from Winklarn, Austria, at the Natural History Museum Vienna and recreation of the outfit.

Abb. 10a–b Ensemble von Winklarn, Österreich, im Naturhistorischen Museum Wien und Nachbildung des Gewandes.

(Grömer 2016, 222), show trousers, while actual trousers are known from bog finds in Northern Europe (Möller-Wiering/Subbert 2012).

3.2 Self- and external perception: visuals, touch, sound, and light

For external perception, the visual components of costumes discussed above are important, but there is also a need to add an additional dimension: how does a garment or costume look in daylight, at night or in artificial light? This also includes considerations of what kinds of lighting were possible in past times when sunlight was unavailable: moonlight and firelight from different sources. How is the perception of a garment affected by darkness or the light of a fire?

There are materials used for clothing ensembles that reflect artificial light (such as bright, polished ivory beads), while others (like dark furs or leather) are not that visible. This effect is even more impressive in periods when metal is used. Again, the two garment-ensemble reconstructions from Franzhausen might serve as examples of these principles (Fig. 8). The shimmering headgear of burial 110, along with the quantity of bronze decorative objects around the neckline, would create a glittering frame around the face when lit by a fire. Whether by chance or not – the headgear also looks as if the wearer would carry the moon on her head. The use of white linen also enhances this effect. The darker colours of the wool skirts and cloak chosen for the recreation of burial 747 lend a different effect, rendering parts of the costume and the person invisible.

In addition to the previously mentioned visual signals, in this respect, the tactile and auditory aspects as defined by S. Harris (2019) are also important. Tactile or haptic experiences are essential for the self-perception of a person wearing a garment ensemble. Garment components involving fabrics and elements made of stone, shell, metal or glass include varying attributes such as weight, thermal conductivity (e.g. wool or fur differs from metal in temperature sensation), thickness, flexibility, and mechanical characteristics. Additionally, the comfort factor must be considered, namely the tactile sensation of the materials against bare skin: bast items versus leather or fur, coarse textiles versus smooth ones, and ivory versus metal (including the sharp points of pins; Fig. 9).

Also, other properties of materials should be noted: leather, fur, and textiles are elastic and move together with the body, while mollusc shells and other materials used for decoration are rigid substances. This interplay between different materials and their specific properties can be experienced, for example, on garments such as those found in the Sungir graves, Russia (Bader/Lavrushin 1998), where some mollusc shells and thousands of ivory beads were attached to their surfaces.

This can also be discussed in terms of external perception. Different haptics transmit messages to those who perceive or even touch a person wearing a specific garment ensemble. One of the most impressive examples is known from the Middle Bronze Age: the ensemble from Winklarn, Austria (Fig. 10), with large pins, bracelets, a massive bronze belt and a necklace consisting of spiked pendants (Grömer et al. 2013). It is essential to note that this type of jewellery

served as a prestige symbol for the upper strata of the social hierarchy 3500 years ago. It served as a psychological and physical barrier to physical contact.

Another important factor, both for self- as well as external perception is sound. It is essential to examine the relationship between sound-producing items and others that are relatively silent in the context of attire. This pertains to the way an individual moves in their attire. Sound perception (Harris 2019; Pomberger et al. 2020; Grömer et al. 2024) is influenced by various aspects, including the sound's location, loudness, and tonality. Rattling elements of stone, bone and ivory, and in later periods, metal (bells, pellet bells, and items with jingling pendants), are frequently affixed to clothing. In recent years, this also has been examined through an interdisciplinary method involving music-archaeological, acoustic, and psychoacoustic study at the Natural History Museum, Vienna (Pomberger et al. 2023), with investigations of sound-producing Iron Age Hallstatt-period attire such as the large brooches with tintinnabula from the eponymous site of Hallstatt, Austria. For this period, we can discern a specific sound field that was created by women of the higher social strata. In this case, the particular sounds of the rattling jewellery – found only in very rich graves – might also have served as an indicator of wealth and attractiveness.

One of the most interesting Stone Age assemblages, where sound is an integral part of the overall clothing ensemble, furnished the burial of the female shaman of Bad Dürrenberg. The various elements would have rattled and clattered against each other during movement – signalling specific activities and, as such, acting as a decisive factor in external perception and nonverbal communication.

3.3 Body language and options for movement

As pointed out by various scholars, in addition to all the physical components of garment ensembles, gesture, posture, and overall body language are also components of external appearance (Cordwell/Schwartz 1979; Eicher/Evenson 2015). In particular, body language and movement options are impacted by garments, including how they are made and what materials are used. There are differences in movement if fitted garments are worn – such as those known from the Iceman, ›Ötzi‹ – or draped garments, such as the distinctive variants of the Roman toga.

The options for movement may sometimes hint at how representative a costume is – and thus also be a marker for social status. In the case of the often-mentioned early Bronze Age grave 110 from Franzhausen, the headgear significantly affects both the overall silhouette and the wearer's posture and gestures. She must maintain an erect posture; otherwise, the headgear might slip off her head. Her inability to bow might signify that she would not be obliged to serve anyone. This woman lived in a culture that was beginning to establish a hierarchical system, since the bronze artefacts in the cemeteries mark socioeconomic inequalities. A spatial impact of the garment ensemble is particularly evident when the woman moves and rotates. When viewed from the rear, no human silhouette is discernible. This individual occupies considerable space and possesses a pronounced

three-dimensionality, as articulated by G. Lehnert (2014) in her theories.

4. Outlook

Clothing provides protection against environmental elements, including rain, cold, and heat. There are many hints that the clothed body served as a medium of communication in prehistoric societies as early as the Stone Age. Clothing – the overall dress ensemble as well as the single items – was used like a language to express identities and had a significant impact on both external perception and self-perception. As demonstrated by the evidence of specific jewellery and dress fittings from burials, social identities such as gender and age might be indicated by clothing as far back as the Stone Age and particularly in the Metal Ages. Especially from the Bronze Age onward, clothes and jewellery also served as indicators of social position, economic wealth and affiliation with various regional groups and thus may define cultural identities. Clothing also affects the body: it alters the surface, texture, and silhouette. Articles of clothing as three-dimensional entities and items worn on the body also significantly impact body language and movement choices. It might be an interesting topic for future studies to identify the principles of functional design – as can be seen, for example, in the thermal insulation properties of ›Ötzi's‹ shoes (they are made in layers with stuffed inlays).

A major component of clothing is its visibility. In this article, we also added the dimension of visual perception in daylight, at night or with artificial light – which also might have an impact on how clothing is used. For future research, it might be interesting to study perception from a distance versus perception in close proximity: what was seen, and by whom? Who might have been allowed to come close enough to a person to spot the finer details?

The tactile experience should also be addressed. This involves the particular properties of the materials used for clothing (e.g. elasticity, temperature, and softness) and the haptic differences in the interaction between various materials such as wool, linen, ivory, shells, or metal. The auditory experience must also be acknowledged. Some of the items attached to garments or worn as jewellery also produce sound and thus create a sound field around the wearer who moves within it. Those are important factors for the person wearing the garment ensemble – affecting self-perception as well as external perception. Through the lens of sensory qualities and thoughts on the three-dimensionality of garments, we obtain fresh insight into the cultural and even societal impact of clothing and jewellery in prehistoric societies by decoding the language of clothing.

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