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PETER SKOGLUND, MICHAEL RANTA, TOMAS PERSSON, ANNA CABAK RÉDEI  
AND JAN MAGNE GJERDE

## A NARRATIVE TURN: HUMAN AGENCY IN ROCK CARVINGS AT NÄMFORSEN, NORTHERN SWEDEN

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*Summary.* The idea to create pictorial narratives seems to have occurred long after humans learned to produce iconic images, that is, depictions based on visual similarity to external objects. In Scandinavia, e.g. in Gärde, Sweden or Stykket and Bøla, Norway, early Mesolithic images (e.g. rock carvings from before c.5000 BCE) often feature animals that are solitary or without suggestion of causal or narrative relations to other figures, although they sometimes are grouped by proximity or are superimposed on each other. Notable is also the almost complete absence of human figures. However, in subsequent Neolithic configurations (after c.5000 BCE), there are renderings of human agents involved in various forms of interaction with each other or with animals, often within distinguishable ‘scenes’ or compositions.

*In this paper we outline the emergence of pictorial narratives in Scandinavian rock carvings. In particular, we focus on some of the first depictions of human agency as displayed in Nämforsen, Sweden (c.5000–1800 BCE). Further, we present an analysis of occurring human-animal relationships, interpretable as early attempts to create narrativizing images.*

### INTRODUCTION

The earliest rock art in Scandinavia was made c.9200 BCE; its creation continued throughout the Stone Age and into the Bronze Age (Gjerde 2010; Ling 2014), though with considerable stylistic and thematic variations. Early rock art, which mainly has been dated by taking shore displacement and stylistic comparisons into account, seems to have had a static as opposed to a dynamic appearance, in the sense that individual figures, mostly animals, seem relatively isolated and not to be interacting with one another, though they may be grouped by proximity and occasionally superimposed. Any apparent causal, or otherwise narrative, relations are not displayed, and human figures are absent.

However, in the late Mesolithic, c.5000 BCE, human agents are introduced, being actively engaged within distinguishable ‘scenes’. In some cases, these images, mostly rock carvings or petroglyphs, show actions that call for an interpretation qua pictorial narratives (Gjerde 2010;

Sjöstrand 2011; Helskog 2014; Fuglestad 2018; Ranta *et al.* 2020; Günther 2022). Hereby, images with a relatively high degree of complexity were created, which had the potential of reflecting multiple social and existential facets of life. In preliterate societies, the practice of representing collective experiences by means of pictorial storytelling would have provided new tools for communication and shared cognition.

In this paper, we shall point to some of the first steps of a ‘narrative turn’ in rock art from Scandinavia. In particular, we present and analyze early petroglyphs displayed at Nämforsen in northern Sweden, c.5000–1800 BCE. By studying content, composition and style, we demonstrate a narrative shift compared to the products of earlier pictorial cultures. Our general hypothesis is that depictions evolved from being ‘complete in themselves’, in the sense that they are rarely related to one another, to pictorial configurations where several images are put together to represent more complex and eventful scenes. We regard the introduction of human agents in rock art, involved in different kinds of actions, as a crucial factor in this respect.

#### PICTORIAL NARRATIVITY, HUMAN AGENCY, AND SCENES

The historical development of pictorial representation has been frequently discussed among philosophers and art historians. Conceptions of art as progressing towards increased *realism* have been common, taking Palaeolithic image-making as a starting point, after which technical-pictorial skills have gradually improved (cf. textbooks such as Gombrich 2006 [1950]; Janson 1991 [1962]; Honour and Fleming 2013 [1982]). Among archaeologists, the development of Palaeolithic art has frequently been described as progressing towards representational accuracy, where realistic Palaeolithic cave paintings were highly acclaimed, while nonfigurative images tended to be disregarded (though this is a view which nowadays has less adherence; cf. Moro Abadía and González Morales 2013). Generally, a prevailing focus of interest among art historians, as well as archaeologists, seems to have been the evolving ability to represent (quite static) objects or space. However, discussions concerning the development of rendering *actions* or *events*, and of telling pictorial stories, seem to have been less extensive and somewhat overlooked.

As to the concept of narrativity as such, many narratologists have considered the representation of several events as a crucial condition of its existence (e.g. Prince 1982, 4; cf. Rudrum 2005), but perhaps even the representation of a single event might be a sufficient, minimal condition. According to Gérard Genette, ‘as soon as there is an action or an event, even a single one, there is a story because there is a transformation, a transition from an earlier to a later and resultant state’ (Genette 1988, 18–19). Accordingly, renderings of single events would then qualify as mini-narratives, showing changes of state and sometimes implying action schemas commonly performed by agents (cf. Skoglund *et al.* 2021). We might also consider another narratological angle, put forward by Monica Fludernik (2009). Rather than representations of actions or events being at the core of narrative, Fludernik points instead to ‘the communication of anthropocentric experience [...] drawing on fixed patterns of behaviour as well as conveying thoughts and feelings, and depicting perceptions and reflections’ (2009, 59). Sequences of events are usually integral parts of human ‘experientiality’ and thus narrativity, but its centre is constituted by ‘protagonists of an anthropomorphic nature who are existentially anchored in a temporal and spatial temporal sense and who (mostly) perform goal-directed actions (action and plot structure)’ (Fludernik 2009, 6).

Historically seen, stories have been manifested in verbal as well as non-verbal media, including those having no (overt) temporal structure on the expression plane, such as static pictorial representations – including rock art (Fredell 2003; Kristiansen 2010; Melheim 2013). Pictorial forms of storytelling can, for example, be accomplished by multiple distinct images, each of them showing a single scene or event, which are linked in a series. Numerous (more or less explicit) examples of such serial, pictorial storytelling can be found throughout history (cf. Ranta 2011). A prerequisite for apprehending many pictorial narratives is that the components consist of iconic signs. In the case of rock art, the visual likeness of the images makes them intelligible, even to present-day beholders, and the possibility to link images together is dependent on this comprehensibility.

But, importantly, single pictures too may have narrative functions as figurative shorthands, or as mnemonic devices, e.g. for historical or mythological stories (cf. Kelly 2015; Skoglund *et al.* 2021; Ranta 2022), or as mini-narratives in the sense of showing a ‘pregnant’ moment in an implied action sequence. Put in semiotic terms, ‘there would be a temporal link due to the indexical relationship between the depicted scene and a particular action scheme’ (Sonesson 1997, 245), that is to say that the manner in which the images are linked together and the particular patterns observed in the clustering give iconic signals as to their indexical interrelations. For instance, a human figure carved close to an animal creates a perceptual connectivity, in turn prompting causal and narrative interpretations. We are likely to interpret the human figure as an agent doing something to the animal, such as hunting or chasing it.

In recent years, a number of rock art researchers have focused on the study of ‘scenes’ in rock art, (minimally) understood as ‘a set of images in spatial proximity to each other from which, without any knowledge other than the images themselves, an observer can infer actions taking place among the actors represented in the images’ (Davidson 2021, 16). Concepts, such as ‘gallery’, ‘composition’, ‘panel’, or ‘frieze’ have also been employed (Kelly and David 2021, 67–8). Notably, it has been claimed that the ‘representation of the agency of humans or animals is what distinguishes scenes [...] from nonscenes’ (Davidson 2021, 28). Indicative of scenes to be taken as visual narratives, apart from sheer proximity or grouping of figures, is therefore the exercise of agency and movement of the figures. Comparable to the discussion among narratologists mentioned above, researchers on rock art have sometimes required the representation of several motifs or figures for something to be considered a visual narrative, although other scholars have also argued that only single motifs, e.g. single hunting scenes or just a figure with angled limbs signifying movement, would be sufficient (Dobrez 2021b; Kelly and David 2021; Lenssen-Erz *et al.* 2021). Generally, postural deviations from a resting positions, such as figures with raised arms or outspread legs, are effective indicators of movement (Friedman and Stevenson 1980; Dobrez, 2021a). Whereas causality in real life situations is temporally established (something is experienced as causing an effect due to its temporal proximity), pictorial renderings of causality are often manifested by spatial proximity. Visual configurations can have an even more outspoken narrative character, though, when elements close together also seem to show a sequence of events unfolding in time (Alexander *et al.* 2021, 273).

We may note, then, that there is an ongoing discussion regarding the nature and manifestations of scenes in rock art. As the archaeologists Craig Alexander and others recently put it, ‘[a]s regards scenes, rock art researchers everywhere are still in a primeval stage: ‘It looks very much to me like a scene to me, but I cannot clearly state just why I know that – It’s just sort of obvious’ (Alexander *et al.* 2021, 274).

## EARLY ROCK CARVINGS IN SCANDINAVIA: SINGLE FIGURES AND SCENES

Scandinavian rock art displays variations both in motifs and compositions that commonly are categorized into a northern and a southern tradition (Gjerde 2010; Goldhahn and Ling 2013; Lødøen 2015). The earliest rock carvings are found in the north in hunter-gatherer contexts and date to the Early Stone Age, *c.* 9200 BCE (Hesjedal 1992; 1994; Gjerde 2010), while in southern Norway rock art started to be created later, during the Late Early Stone Age, 6500–4000 BCE (Mikkelsen 1977; Gjerde 2010; Glørstad 2010, 220–2; Fuglestad 2018). A comprehensive overview of the regional variations of Scandinavian rock art would go beyond the scope of this paper. Instead, we will point to some significant examples during the period 5000–4000 BCE when the number of rock art sites notably increased, as did the creation of new types and configurations of images, not least depictions of human agency (Gjerde 2010; Fuglestad 2018).

Previous studies have shown that before *c.* 5000 BCE the number of motifs of rock carvings in northern Scandinavia was often limited to large game, such as elk (*Alces alces*) and reindeer (Gjerde 2010). In these cases, we find outline shapes aimed at a visual resemblance to the objects they represent, shown as singular and non-interacting figures. This striving for naturalism or a high degree of iconicity is made most apparent by often displaying animals in their distinctive profiles and (approximately) life-size, e.g. such as at Gärde, Sweden or Bøla, Norway (see Figs. 1 and 2; cf. Helskog 1989).

In contrast to the earlier tradition as here described, some distinctive concentrations of rock art in Scandinavia can be dated to the latter part of the Early Stone Age and the initial part of the Late Stone Age, such as Alta in northern and Vingen in western Norway respectively, as well as Nämforsen in northern Sweden (see Fig. 1).

In Alta, the action-based and narrative character of rock art is often quite forthright and obvious (Fig. 3). Hunting scenes are present, putting emphasis on the movement of animals in a pictorial space, such as bears (including their tracks) and reindeer (sometimes with tracks leading to reindeer corrals). Especially noteworthy is also the inclusion of human agents, such as hunters (see Gjerde 2010; Helskog 2014). Moreover, their activities imply a collective organization, such as large-scale hunting operations which are the outcome of joint efforts involving many people (cf. Helskog 1984; 2012a; 2012b).

These developments towards images that show narration in a new way are clearly evident in Alta, but similar tendencies in displaying interactions between humans and animals occur during the same time in other regions of northern Europe, such as in Vingen, Norway (Lødøen 2015), and in Vyg and Onega in Russia (Gjerde 2010; 2013).

To sum up, there seems to be a change in Scandinavian rock art roughly around 5000 BCE. Earlier rock art tended to depict figures having a rather solitary, large-scale, and immobile appearance, which seldom interacted with each other, and depictions of human figures hardly occurred. Subsequently, however, larger and more complex compositions with small-scale figures appeared, combining a manifold of images and not least human agents (see Figs. 4 and 5). In the next section, we will take a closer look at such renderings at Nämforsen, which can be seen as a turning point regarding an increased anthropocentric orientation and interest in narrativizing images.

## NÄMFORSEN, NORTHERN SWEDEN: MOTIFS AND CHRONOLOGY

The site of Nämforsen constitutes the largest aggregation of petroglyphs in northern Sweden, with around 2600 figures. According to Larsson *et al.* (2018), the motifs consist of 711

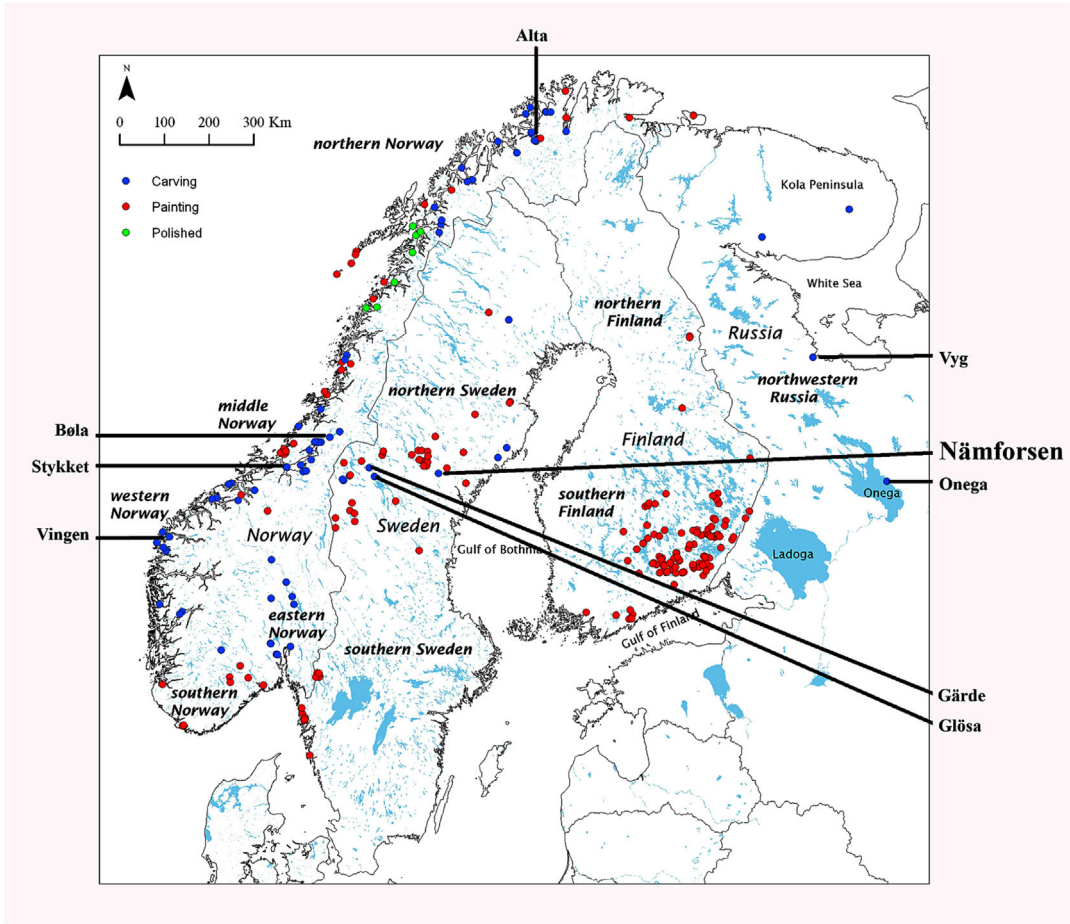


FIGURE 1

Map of rock art sites discussed in the present article. Rock carvings (made by pecking): blue, polished (ground art): green, and rock paintings: red. Map adapted from Gjerde 2010.

animals, of which 461 are clearly depicted elk (*A. alces*), 21 fish, and 8 birds. There are also 387 boats, 104 human/anthropomorphic figures, 126 cup marks, and 29 footprints, to mention the most common identifiable motifs (Larsson *et al.* 2018, 13–16). Recent digital documentation techniques carried out at selected panels have increased the number of figures (Bertilsson 2021, 113).

These carvings are the result of an accumulation process. A local chronology could not be established before the 1990s, when independent calculations were reached by Forsberg (1993), Lindqvist (1994), and Baudou (1993). In their opinions, the depictions of elk could be divided into different phases based on their designs and by the degree of shore displacement registered. Baudou’s study was primarily based on shore displacement data, while Lindqvist used shore displacement, superimposition and similarities of rock art motifs with motifs occurring on archaeologically dated slate objects. Forsberg’s conclusions were grounded in seriation, correspondence analysis and superimposition. Despite their different methodologies, they reached similar conclusions, according to which surface-pecked elk were older than contour-pecked ones.



FIGURE 2

Rock carvings before 5000 BCE. Above: Elk (Gärde, Sweden). Below: Reindeer (Bøla, Norway). Photographer: Jan Magne Gjerde. The red colorization of the upper image, as also in Figs. 3–5, is a present-day enhancement in order to increase their visibility.

Baudou and Lindqvist suggested a division into three main chronological phases, consisting of surface-pecked elk being replaced by contour-pecked elk, and in turn by a design corresponding to the Bronze Age tradition of southern Scandinavia (Baudou 1993; Lindqvist 1994, 213–20).



FIGURE 3

Rock carvings showing bear hunting scene (Alta, c.5200–4200 BCE). Photo: Jan Magne Gjerde.

Forsberg, on the other hand, argued that the elk motifs could be divided into four phases (Forsberg 1993), a chronology later adopted by Sjöstrand (2011; 2015), thereby replacing previous chronologies (e.g. by Hallström 1960; Malmer 1981). The exact dating of the phases differs, however. While Forsberg believed phase 1 to start in the Early Neolithic, i.e. around 4000 BCE at the earliest, Lindqvist argued for a slightly earlier dating based on shore displacement.

Based on new geological data, Gjerde (2010) argues for an even earlier dating of the first phase to c.5000 BCE. Excavations at the northern side of the Ångerman riverbank revealed an extensive red ochre production site at 75–80 m.a.s.l. where the oldest layer dates to 4200–4000 BCE. Accepting that the earliest images at Nämforsen were shore bound, the red ochre layer would have been below sea water level when these carvings were made and hence the carvings must be older than 4200 BCE. Such an early dating also gains support from Gjerde's extrapolation of the most recent shore displacement curve, indicating that the highest situated carvings observed by Hallström and situated at 90 m.a.s.l, probably were done as early as 5000 BCE (Gjerde 2010).

The dating of phase 4 is rather well-established due to comparisons with depictions on dated archaeological objects (Forsberg 1993), while the datings of phase 2 and 3 show only a general trend (Sjöstrand 2015) and are therefore less certain. The dating of Nämforsen into four phases is also briefly discussed by Forsberg (2000). Taking the above findings into consideration, the internal chronology of the carvings, and in particular the images of elk, at Nämforsen might then be outlined as follows:



FIGURE 4

Rock carvings at Laxön, Nämforsen, Sweden, c.5000–1800 BCE. Photo: Michael Ranta.

- Phase 1 (c.5000/4000–3000 BCE): surface-pecked elk with straight legs;
- Phase 2 (c.3000–2500 BCE): contour-pecked elk with rectangular bodies, surface pecked heads, and angled legs;
- Phase 3 (c.2500–2200 BCE): contour-pecked bodies and angled legs, but in general the elk are somewhat larger and display more details such as beards, mouths, antlers and lifelines which are those lines that run from the muzzle to the interior of the animal, typically to the heart area;
- Phase 4 (c.2200–1800 BCE, but possibly stretching into the Bronze Age): contour-pecked, highly stylized bodies with straight, short legs and a distinct hump.

Surface-pecked humans can be found in phase 1 as well as boats with hulls made up of single lines. Contour-pecked human figures (so-called ‘athletes’ because of their triangular torsos; Fig. 6, right image) and double-lined boats belong to phase 4. In addition, a small number of images such as footprints and a few ship motifs can be found which presumably can be dated to the Early Bronze Age, c.1700–1100 BCE (Baudou 1993; Lindqvist 1994).

#### ANALYSIS: HUMANS IN RELATION TO OTHER FIGURES AT NÄMFORSEN

##### *Methodology*

We have good reason to argue that depictions of humans are crucial vehicles for narrative content in images. As focal points for a quantitative analysis of the panels at Nämforsen, anthropomorphic figures (henceforth humans) were chosen (see also supplementary data file). We found 89 identifiable humans on the panels on the three islands (Laxön, Notön and Brådön) as



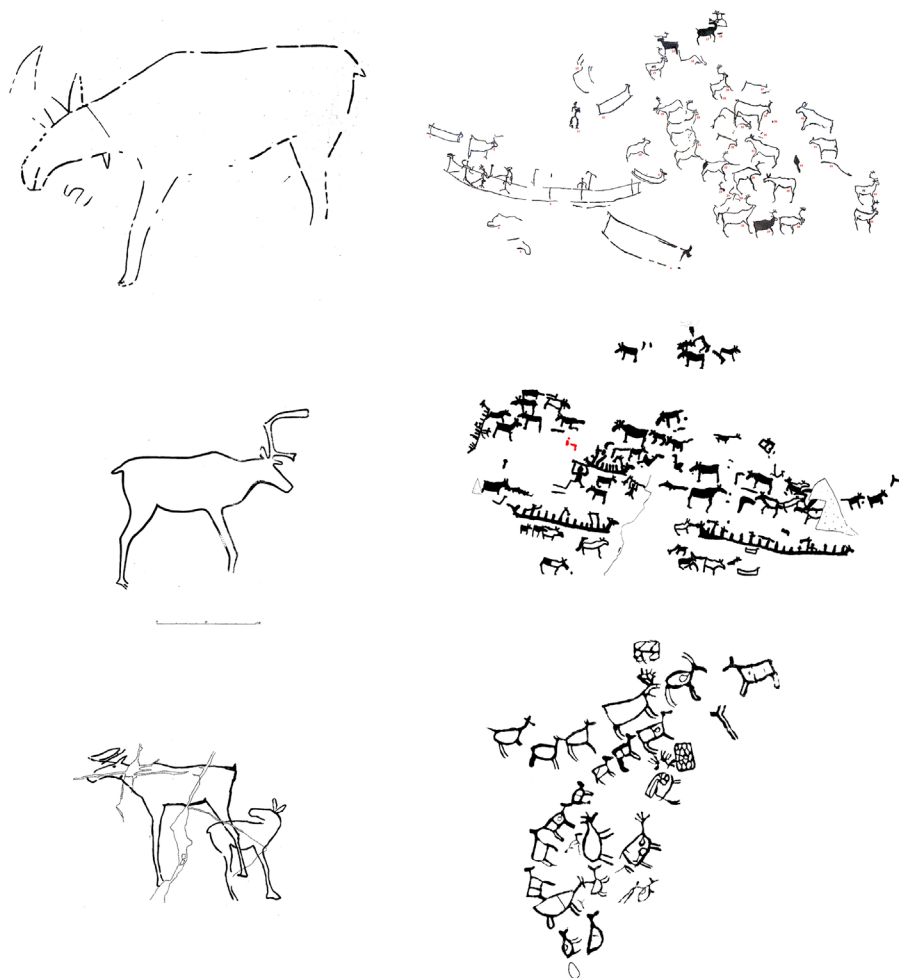


FIGURE 5

Rock carvings before (left) and after (right) the narrative turn. Top left: rock carving of an elk from Gärde, northern Sweden, after Hallström (1960, plate IV). Middle left: Rock carving of a reindeer from Bøla, middle Norway, after Gjessing (1936, plate LIII). Bottom left: Rock carving from Stykket, middle Norway. After Sognnes (1981, fig. 7). Top right: Rock carving from Ole Pedersen 4, Alta, northern Norway after altarockart.no, tracing by Karin Tansem 2021, VAM. Middle right: Rock carving from Laxön G:1, Nämforsen (Larsson and Broström 2011, 31). Bottom right: Rock carving from Glösa, northern Sweden, after Hallström (1960, plate V). Illustration: Jan Magne Gjerde.

documented in Larsson and Broström (2011), based on Hallström's original documentation (1960). These could be divided into an early ( $n=81$ ) and a later ( $n=7$ ) phase, depending on their form (cf. Fig. 6 for examples). One figure was not possible to categorize. Importantly, humans that were found on or in boats were excluded from analysis since their contexts were markedly different from humans out of boats, and hence not comparable using the approach described below, where the spatial layout of separated figures is central to interpretation. Furthermore, most of the anthropomorphic presence on boats relates to the youngest phases at Nämforsen and cannot help in explaining relationships involving the majority of human images that are older.

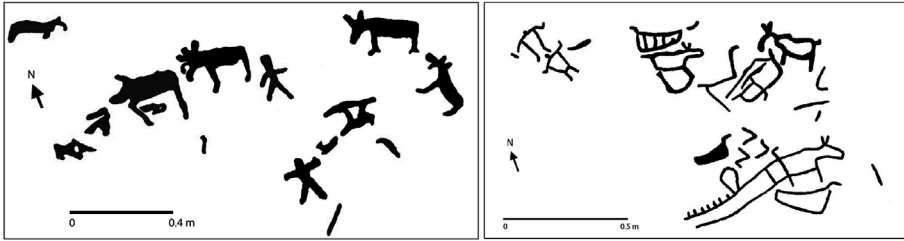


FIGURE 6

Examples of earlier (left) and later (right) human figures and elk at Nämforsen, on Laxön D:16 and Notön A:2, respectively. Adapted from Larsson and Broström (2011, 21; 43). Left image shows arm positions coded as ‘both arms stretched out’ (bottom) and ‘one arm stretched out, one arm lowered’ (top). Right image: ‘out, down’ (top); ‘out, up’ (bottom).



FIGURE 7

Human figures (holding elk head staffs, with arms raised and lowered, respectively), elk, and other animals at Nämforsen, on Notön L:4. From Larsson *et al.* 2018, 86.

In general, human figures at Nämforsen are rather uniform. Besides the objects being held (see below), the feature that adds specificity to humans, and their potential activities, is the position of the arms, which show some variability (see Figs. 6 and 7). The human figures ( $n=89$ ) were divided into the following (if approximate) categories: both arms lowered  $<45$  degrees ( $n=14$ ); both arms stretched out from body at approx.  $90$  degrees ( $n=34$ ); both arms raised  $>135$  degrees ( $n=17$ ); one arm raised, one lowered ( $n=4$ ); one arm stretched out, one lowered ( $n=11$ ); one arm stretched out, one raised ( $n=9$ ). The most commonly encountered position of the arms is when they are held more or less straight out from the body, suggesting a minimum of depicted activity in the human form as such. Because of this formalized way of depicting a human, both the presence of other variable features, such as objects, and the relationship to other figures, becomes the main source for narrative interpretations.

In order to code relationships to other figures, we looked at the direct context of each *focal human* (H) in terms of the five *nearest neighbours* (henceforth NN) in all directions and irrespective

of distance. The number five was chosen because it was considered to yield a sizeable dataset of comparable contexts for each H. With such a comparative methodology we can target objective principles at the local level, such as relationships between adjacent figures, something that is applicable to a wide variety of rock art. Besides the categorization of each H in terms of where to find it on the panel (going from left to right in the documentation of Larsson and Broström 2011), we coded the dating of H, arm positions, and the presence and categorization of objects. We coded NNs in terms of identity (if possible), distance to H, any points of contacts between H and NN, global orientation between NN and H in terms of compass directions, and local orientation in terms of how H and NN were rotated in relation to each other. The coding was undertaken by the authors TP and PS, and uncertainties were discussed and resolved between them. The code ‘unknown’ was used when the image was not identifiable or when the coders disagreed. For each panel in Larsson and Broström (2011), compass points (north) and scale of the images are given (see Fig. 6), but the analysis did not take the topography of individual panels into account. We are indeed aware that the topography may affect both the estimation of proximity between two figures, and how the images end up rotated in relation to each other, but this is beyond the scope of the present study.

### *Human – elk relations*

The most common neighbour (NN 1–5) to Hs are elk ( $n=140$ ), followed by other humans ( $n=75$ ), boats ( $n=28$ ), and other animals ( $n=27$ ), including one fish and potentially one dog. A majority of NNs are ‘unknowns’ ( $n=160$ ), that is, shapes and peck marks that were not identifiable, including cupmarks, and forms on which the coders could not agree. When considering only the closest neighbour (NN 1), these are: elk ( $n=34$ ); humans ( $n=20$ ); boats ( $n=7$ ); animals ( $n=4$ ); unknowns ( $n=24$ ). Seventy-one elk (50.7%) are within 5 cm of a human, meaning that the human – elk configurations occasionally are quite dense.

As earlier mentioned, elk motifs have the highest chronological certainty at Nämforsen and can be differentiated into at least four phases with corresponding styles (Forsberg 1993). An overwhelming majority of elk (NN 1–5) in the vicinity of humans are from phase 1 ( $n=131$ ). It is therefore a reasonable deduction that the analysis of human – elk interaction will reflect the earliest state of the panels at Nämforsen. To support this conclusion, we can mention that only two humans in the younger style (‘athletes’), both on the panel Notön A:2, have an elk as NN 1–5, which is from the latest phase 4.

Proximity is only one way to structure relations between images; another way, which potentially can strengthen pictorial narrativity, would be the arrangement of figures in the same picture plane, i.e. horizontally, together with other images. Therefore, images NN 1–5 were coded according to what side of the H they occupied: on either side, by the feet, or by the head (Table 1). At first glance the data does lend some support to the idea that Hs are related to other images in a preferentially horizontal mode (category ‘Side’), as opposed to vertically (categories ‘Feet’ and ‘Head’).

One should keep in mind instances when, on combining the head and feet neighbours as on a single vertical axis (‘vertical sum’ in Table 1), the total is about as many as on the horizontal axis made up from the two ‘sides’ (left and right). We may note, however, that when human images appear in less crowded panels – with more available space (distance to NN 20–39.9 cm), they are in 18 out of 25 cases oriented on the side towards an elk. This suggests some horizontal organization of human-elk interactions after all. When looking at the data on how Hs are oriented

HUMAN AGENCY IN ROCK CARVINGS AT NÄMFORSEN

TABLE 1

The relations between focal humans (H) and nearest neighbours (NN 1–5) according to the orientation of NN towards H ('Side', 'Feet' and 'Head'), at different distances between H and NN. (One elk-human dyad is excluded because of superimposition.) Data in suppl. information

Distance (cm) and orientation towards focal human (H)	Number of nearest neighbours (NN 1-5)							SUM	'Vertical SUM'
	Animal	Dog	Fish	Boat	Elk	Human	Unknown		
Side 0-9.9	Side 13	-	1	7	44	26	47	<b>138</b>	
Feet 0-9.9	2	-	-	-	20	14	29	65	
Head 0-9.9	3	1	-	6	23	14	20	67	<b>132</b>
Side 10-19.9	-	-	-	-	13	4	16	<b>33</b>	
Feet 10-19.9	-	-	-	-	6	1	6	13	
Head 10-19.9	2	-	-	2	3	2	6	15	<b>28</b>
Side 20-29.9	2	-	-	2	11	3	10	<b>28</b>	
Feet 20-29.9	-	-	-	3	3	1	1	8	
Head 20-29.9	1	-	-	3	2	3	4	13	<b>21</b>
Side 30-39.9	1	-	-	-	7	5	5	<b>18</b>	
Feet 30-39.9	-	-	-	1	1	-	1	3	
Head 30-39.9	-	-	-	-	1	-	2	3	<b>6</b>
Side 40-49.9	1	-	-	-	-	-	2	<b>3</b>	
Feet 40-49.9	-	-	-	-	-	-	1	1	
Head 40-49.9	-	-	-	-	4	-	1	5	<b>6</b>
Side 50-59.9	-	-	-	-	-	1	1	<b>2</b>	
Feet 50-59.9	-	-	-	-	-	-	-	0	
Head 50-69.9	-	-	-	-	-	-	-	0	<b>0</b>
Side 60-69.9	-	-	-	-	1	-	-	<b>1</b>	
Feet 60-69.9	-	-	-	-	-	-	1	1	
Head 60-69.9	-	-	-	-	-	-	-	0	<b>1</b>
Side 70-79.9	-	-	-	-	-	-	1	<b>1</b>	
Feet 70-79.9	-	-	-	-	-	-	-	0	
Head 70-79.9	-	-	-	-	-	-	2	2	<b>2</b>
Side 80-131	-	-	-	1	-	1	3	<b>5</b>	
Feet 80-131	-	-	-	3	-	-	1	4	
Head 80-131	-	-	-	-	-	-	-	0	<b>4</b>
<i>SUM</i>	25	1	1	28	139	75	160	429	

towards elk as NN 1 ( $n=34$ ) we find that in 64.7% of cases Hs are directed with their sides towards the front ( $n=9$ ) or the rear ( $n=13$ ) of the elk. Hence, there is no strong preference for either side on the horizontal plane towards an elk.

The above results suggest that horizontal organization could be favoured on less crowded parts of a panels, but was likely not the only guiding principle. It is probable that proximity as such, irrespective of orientation, was also a factor. To test this hypothesis, we divided the NNs into those with direct contact with H and those without contact (Table 2). The results demonstrate that 24.3% of elk and 30.7% of humans are in direct contact with an H, while the numbers for animals (8.0%), boats (10.7%), and unknowns (10.6%) are considerably smaller. Thus, it seems to have been

TABLE 2  
Number of NN 1–5 distributed according to whether they have direct contact with H. Data in suppl. information

Distance from human (H)	Number of nearest neighbours (NN 1–5)						SUM
	Human	Elk	Animal	Boat	Unknown	Other	
Direct contact (0 cm)	23	34	2	3	17	0	79
Not direct contact (>0 cm)	52	106	23	25	143	2	351
<i>SUM</i>	75	140	25	28	160	2	430

TABLE 3  
Number of H holding objects related to different types of NN 1. The second row nested in the first row, i.e. 36 humans in total holding objects. Data in suppl. information

	Number of humans (H) with objects in relation to NN 1					<i>SUM</i>
	Human	Elk	Animal	Boat	Unknown	
Object in at least one hand	7	11	3	4	11	36
Object in both hands	2	2	1	0	2	7

desirable to position human images in close contact with elk and other human images. This patterning could be a result of the large number of elk in total, and thus an effect of crowding, but for the humans (who are much fewer) it is a more significant arrangement. It should be noted, however, that this effect is largely driven by a single panel, Notön Q:1, which contains 73.9% of the human-human contact cases. Interestingly, about half of the Hs and elk that are in contact have the elk orientated at the side ( $n=16$ ) of the Hs, while 11 are oriented towards the feet and 7 above the head. Only one elk was largely superimposed on a human. Considering that objects held in hands typically project upwards in the images, and that we counted object contact as human – elk contact, it is surprising that there was not more contact above the head. Out of 17 images where humans with objects had physical contact with an elk, an object touched an elk in 7. The next most common point of contact was the human foot,  $n=6$ .

A total of 40.4% ( $n=36$ ) of all H ( $n=89$ ) hold what appears to be objects of some kind. A tentative impression received was that humans holding objects were often in the vicinity of an elk. To test this hypothesis, we checked how many humans were holding objects when close (NN 1) to other humans, elk, other animals, boats, and ‘unknowns’ (Table 3). A total of 43 possible objects (36 held in one hand; 7 in a second hand) were coded.

However, since many NNs 1 are ‘unknowns’, a substantial amount of relationships to categorizable figures in the analysis escape attention. If one instead goes through the NNs until one comes across the first elk or other human (and thus ignore unknowns, boats, etc.), the result for an object in a single hand is nearly twice as large for elk, amounting to 19, as compared to 10 for humans. The result for objects in both hands remains the same, since in those cases NN 1 was indeed an elk or a human.

Objects can be classified as either long ( $n=5$ ) or short ( $n=6$ ) staffs without features and with various degrees of straightness; long staffs may have circles at the base ( $n=9$ ) (examples in Fig. 4); and long ( $n=7$ ) or short ( $n=5$ ) staffs share features with elk heads. To be categorized as ‘elk-head

staffs' (see Fig. 7), they should fulfil at least two of three features: a curvature/bend reminiscent of elk heads/necks, ears, and muzzle. (One of the long elk staffs shares the circle at the base with the 'circle staffs'; panel Laxön C:1). Besides the clear examples of elk-head staffs, which are similar to those seen in rock art at other localities (see Fig. 3) that have correspondences in the material record (Zhulnikov and Kashina 2010; Losey *et al.* 2021), we do not infer any categorization, nor function, for the other types of staffs or sticks. A notable exception are two possible 'spears' held in a thrusting position by the humans and that make contact with animals; panels Laxön C:1 and C:2. Eleven possible objects could not be identified and had to be classified as 'unknown'.

Since the predominant NNs are elk, followed by other humans, one could anticipate that there could be human group activity surrounding elk. In fact, 22 of 69 (31.9%) of Hs that had humans or elk (and other land animals) as NN within a radius of 10 cm, had *both* animals and other humans in their immediate neighbourhood. Given the low frequency of these combinations, however, and a possible effect engendered by a few crowded panels, we would not suggest that the panels in general depict humans engaged in communal hunting activities, at least not in any explicit sense.

Finally, since there is variation in arm positions among the human images, which may hold some meaning, we looked to see if the arm positions changed in relation to different NN 1 identities (Table 4). The data do not demonstrate any clear differences in arm positions in relation to NN 1 identities, but both arms outstretched dominate in relation to all types of NN 1 except for boats. Hs stretch out their arms to the sides in 52.9% of elk as NN 1, and 40.0% of other humans as NN 1.

### Conclusions from the analysis

In summarizing the analysis of the data, it is clear that the vast majority of elk associated with humans can be attributed to phase 1. In general, it is not possible to identify an obvious plane on which the picture can be read, except for images, including elk, occurring at 20–39.9 cm from a human, which is congruent with a horizontal plane. However, this tendency disappears over shorter distances, instead revealing proximity as a stronger structuring principle. This seems to be confirmed by the fact that elk dominate in those cases when there is direct contact between a human and another image. Humans holding objects in one or both hands are more common in relation to elk than in relation to humans, indicating that these objects had a mediating role in human – elk

TABLE 4  
Categories of human arm positions related to different types of NN 1. Data in suppl. information

H arm positions	Number of humans (H)					SUM
	Human	Elk	Animal	Boat	Unknown	
One out, one down	3	3	1	0	4	11
On out, one up	2	3	1	1	2	9
On up, one down	0	3	0	0	1	4
Two, down	3	3	1	0	6	14
Two, out	8	18	0	1	7	34
Two, up	3	4	1	5	4	17
<i>SUM</i>	<i>20</i>	<i>34</i>	<i>4</i>	<i>7</i>	<i>24</i>	<i>89</i>

relationships (e.g. elk-head staffs; cf. Losey *et al.* 2021). Finally, the analysis did not demonstrate any clear patterns regarding different kinds of arm positions in relation to different NNs 1.

#### THE EMERGENCE OF PICTORIAL NARRATIVITY IN THE ROCK CARVINGS AT NÄMFORSÉN

##### *The indeterminacy of narrative structures*

The rock carvings at Nämforsén have been divided into four chronological phases. Our analysis shows that the first phase seems to have the most explicit narrative character (cf. also Sjöstrand 2011, 178–80), emphasized by the presence of human agency. Particularly noteworthy is the frequent occurrence of human figures in contact or close to elk, sometimes with different kinds of objects in their hands. According to our analysis around 95% of such encounters appear during this first phase.

But which stories, or mini-narratives in Genette's (1988) sense, are displayed by the petroglyphs? Admittedly, the renderings of movement and action are rather ambiguous and imprecise. First, depictions of humans mostly show the front or back views of whole figures with straight legs. Single-moment pictures (rather than serial ones) would have suggested movements more clearly if the figures were shown with a sideways orientation, or in profile, such as in later Scandinavian Bronze age petroglyphs of hunting or fighting scenes. Otherwise, with a frontal viewpoint, they appear to be standing still, or are at least indeterminate. The elk, on the other hand, are shown in characteristic profile, which may have been intended to facilitate their identifiability.

Pictorial indicators of movement are often deviations from resting positions, such as figures lifting or bending their arms or legs (cf. Friedman and Stevenson 1980, 238–9). At Nämforsén, such postural deviations are mostly restricted to the human figures' arms, sometimes holding or lifting tools, such as elk-head staffs and other (undetermined) objects, sometimes reaching for and also touching elk or each other. Apart from these arm movements, overt forms of (inter-)action, such as hunting or combat scenes, are absent, likewise depictions of weapons or hunting tools. Three exceptions are one very clear, and atypical, picture of an oversized arrow going into an elk (without an associated human figure), and two images of a human holding a stick or a spear suggesting that it is being thrust into an elk. Furthermore, diverse social or professional roles are not discernible.

##### *Animist perspectives*

As noted above, humans are frequently shown in close relationships with elk, but as the exact significance of this is difficult to determine, a number of questions arise. Are these configurations of humans and elk meant to be descriptive or prescriptive? Do they render actual encounters between humans and elk, either past historical events (tokens) or general encounters (types)? Or do they show idealized human-animal interactions, as recommended encounters, perhaps even of a supernatural nature?

One way of approaching these concerns might be to look for anthropological examples of human-animal interactions in comparable present-day contexts. Given that most of the rock art all over the world has been produced by hunter-gatherers, it is no surprise that animist and shamanist

perspectives, which are prevalent in such societies, have often been applied to the interpretation of rock art (e.g. Creese 2011; Fuglestad 2018; Challis 2019).

A prevalent trait of animism seems to consist of the belief that nonhuman categories, such as certain animal or plant species, or inanimate objects, are 'endowed with intellectual, emotional, and spiritual qualities paralleling those of human persons' (Willerslev 2007, 2). In the rock art at Nämforseen, human-animal relationships are displayed as being of particular concern, which may indicate an animist belief system. In present-day hunter-gatherer societies, such relationships certainly play a significant role. Geographically and ethnographically relevant to the present study are, for instance, the Yukaghir, an ethnic group living in Siberia. Traditional hunting practices of the Yukaghir presuppose that reindeer and elk have personhood like humans. These beliefs play out through the ways humans engage with prey through mimetic acts and mindsets, blurring the differences between humans and animals (Willerslev 2007). The hunter may thus attempt to imitate the elk's movements. This should not be understood as a full ethological matching of behaviour but rather as actions that have proven to be efficient in the hunting process. It is believed that if the performance is convincing, the elk will leave its hiding place and approach the hunter as it would one of its own kind (Willerslev 2007, 99).

### *Narrativity and (human) agency*

At Nämforseen, the large number of elk depictions clearly reveals that elk had a special status. Present-day animist belief systems, as outlined above, may give some insights into close human-animal relationships and interactions in prehistoric times, such as hunting contexts.

The fact that human agents are included at all among the rock carvings is noteworthy. From our present-day perspective, where depictions of humans since ancient history are commonplace, this aspect might easily be overlooked. But here it is a pictorial novelty, which rarely occurred during the Palaeolithic period or in Scandinavian rock art preceding c.5000 BCE. Images of humans, and especially human activities, are largely absent in the earliest figurative rock art. With regard to Nämforseen, we may also consider Fludernik's (2009) approach, focusing on the communication of anthropocentric experience as a necessary condition for narrativity. Narratives are representations of 'possible worlds' which revolve around 'protagonists of an anthropomorphic nature' who usually 'perform goal-directed actions' (Fludernik 2009, 6). Although in our study action structures remain quite indeterminate, as well as any temporal-spatial settings, we may nevertheless sense or suspect an anthropocentric intentionality in the figures and their interplay with elk in particular, thereby evoking narrative interpretations. The petroglyphs at Nämforseen may thus represent something of a transitional landmark striving for enhanced communication through image-making, with increasing narrative complexity and structuring. One should probably refrain from regarding such a trend as linear and irreversible – some 'pictorial discoveries' may have been made at different places and different times and could have been lost and reanimated again many years later. The relatively large number of human agents highlights their importance and could be interpreted as an indication of a growing anthropocentric self-awareness. While humans hitherto had been invisible in renderings of the world, from now on they seem to play an influential role, being able to manipulate and to exert some control over external states of affairs, in this case hunting, and potentially communicate with elk.



## CONCLUDING REMARKS

When starting this study our main thought was that around 5000 BCE there was a narrative turn in Scandinavian rock art as depictions changed from being ‘complete in themselves’, in the sense that they are rarely interacting with each other, to pictorial configurations where several images are put together to represent more complex and eventful scenes, with human agency playing a central role in this respect. In our investigation we have analyzed 89 human images at Nämforsen and their relationships to 429 nearest neighbours.

In our study we observed a tendency that images were arranged horizontally when possible, and sometimes interaction between humans and elk were indicated by objects being oriented towards elk or by the bodies of humans and elk being in close contact. When, due to crowding, ordering on a consistent plane was not possible, proximity alone seemed to have become the dominant structuring principle. The proximity and (inter-)action between humans and elk seem to indicate a preference for combining images into scenes (cf. Davidson 2021, 16).

However, clearly depicted activities, such as explicit hunting scenes, are absent, making it difficult to identify them as narrative images using traditional definitions (such as those by Prince [1982] or Genette [1988]). Instead, humans and elk seem to be depicted with a quite restricted repertoire of movements. Still, the ways in which humans and elk are positioned in relation to each other seem to indicate some kind of narrative connectedness. Arguably, these scenes and arrangements have been intended to communicate ‘anthropocentric experiences’ as outlined by Fludernik (2009, 59).

At Nämforsen, such would include closeness between humans and other things. As our analysis demonstrates, direct contact with humans occurs mainly in just two contexts: between humans and other humans, and between humans and elk. While the first type of encounter is shared among humans around the world, the latter would be more indicative of a specific animist experience, expressed by the intimate closeness between humans and elk.

The relative lack of elaborate scenes at Nämforsen, however, differs from some other contemporary rock art sites. Alta, for example, is characterized by many clearly composed, and narratively quite explicit, hunting scenes. Thus, the comparison between Alta and Nämforsen shows that the ‘narrative turn’ in Scandinavia c.5000 BCE was not a clear-cut transition from static and non-narrative images to outspoken forms of pictorial storytelling. Instead, there was a variety of ways of expressing narrativity, often through the common factor of humans as agents.

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*(PS) Division of Archaeology,  
Department of Cultural Sciences  
Linnaeus University  
SE-391 82, Kalmar  
SWEDEN  
E-mail: peter.m.skoglund@lnu.se*

(MR) Sichuan University  
College of Literature and Journalism  
Chengdu  
CHINA  
and

Division of Archaeology,  
Department of Cultural Sciences  
Linnaeus University  
SE-391 82, Kalmar  
SWEDEN

(Corresponding author) E-mail: michael.ranta@lnu.se

(TP) Division of Cognitive Science,  
Department of Philosophy  
Lund University  
Box 192, SE-221 00, Lund  
SWEDEN

E-mail: tomas.persson@lucs.lu.se

(ACR) Division of Cognitive Semiotics,  
Department of Language and Literature  
Lund University  
Box 201, SE-221 00, Lund  
SWEDEN

E-mail: anna.cabak\_redei@semiotik.lu.se

(JMG) High North Department  
Norwegian Institute for Cultural Heritage Research (NIKU)  
P.O. Box 6606, NO-9296, Tromsø  
NORWAY

E-mail: jan.magne.gjerde@niku.no

doi: 10.1111/ojoa.12282

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

**Data S1.** Supporting Information.