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## **Hegemony for Beginners: Egyptian Activity in the Southern Levant during the Second Half of the Fourth Millennium B.C.\***

**Abstract:** After a modest start in the mid-20<sup>th</sup> century, thousands of Protodynastic Egyptian objects have been unearthed and identified as such in the Southern Levant, including *serekh*-signs of several Dynasty 0 (Narmer, "Double Falcon", Ny-Hor, Iry-Hor, Ka), and 1<sup>st</sup> Dynasty (Hor Aha) pharaohs. The explanatory models presented so far fail to integrate the totality of the archaeologically manifested parameters, especially considering the impact of the last fifteen years of finds and their contextual and other analysis, into the proper semiotic matrix. The conundrum of Egyptian activity in the Southern Levant displays, at the same time, features of a small-scale trading partner, a colonizer, and a suzerain. Egyptian pottery of local origin provides an indication of a south-north flow of the Egyptian daily-life repertoire of pottery types, or rather their contents, between the Egyptian-related sites, that clearly demonstrates an Egyptian distribution system operating on an intra-regional level in the Early Bronze IB Southern Levant. The 'Egyptian phenomenon' is far from being unique since reestablishment of a similar geopolitical pattern, only on a considerably greater scale, can be recognized during the New Kingdom – the Egyptian province in Asia.

**Key words:** Egypt, Dynasty 0, Canaan, Early Bronze IB, paleopolitics, province, copper

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\* The present paper is a shortened and up-to-date version of a public lecture delivered September 11, 2009 at the Sterling Memorial Library Lecture Hall. Yale Egyptological Institute in Egypt and Department of Near Eastern Languages and Civilizations, Yale University. I am indebted to J. C. Darnell, C. Manassa, E. Braun, E. C. M. van den Brink and R. Gophna who, in various ways, helped make this paper possible. The present author is participating in the project no. 177008 of the Ministry of Education and Science, Republic of Serbia.

## Egyptian-Levantine Protodynastic interaction: brief history of research

For more than six decades after the first systematic archaeological project in an ancient tell in southern Palestine (*cf.* Petrie 1891), Egyptian-related archaeological finds were still limited mostly to the 18<sup>th</sup> to 20<sup>th</sup> Dynasties and later artifacts. It was due to Yadin's (1955) foreshadowing article that certain much earlier contacts between Egypt and the Southern Levant started to gain slightly wider attention from the professional community.<sup>1</sup> Aside from being an archaeologist Yadin was also a lieutenant general and Chief of Staff, and that probably affected the development of his view of "Egypt's military penetration" and "the subjugation of the peoples of Palestine" (Yadin 1955, 10, 16).<sup>2</sup> Promising support for Yadin's theory soon followed: in 1959 a *serekh* of Narmer, the last king of the Egyptian Dynasty 0 (*cf.* Anđelković 2002, 84 n.33)<sup>3</sup> was unearthed at the Tel 'Erani (Yeivin 1960; *cf.* Braun 2011). Apart from removable Egyptian artifacts – including the Egyptian bullae made of local clay – the Egyptian architecture, *i.e.* "an Egyptian building", was identified at Tel 'En Besor during the 1970s excavations (Gophna 1995, 14). A situation "comparable to that of contemporary 'En Besor" was also discovered at Tel Ma'ahaz (Amiran and van den Brink 2001). Over the next few decades, a variety of Egyptian Protodynastic artifacts, both imported and locally-made, were unearthed at an ever-growing number of sites (Brandl 1992; Anđelković 1995; Gophna 2008). Tel 'Erani<sup>4</sup> became "the generally accepted center of early Egyptian activity in southern Canaan" (Levy, van den Brink, Goren, and Alon 1995, 28; *cf.* Beit-Arieh 1984, 23). Meanwhile, another center of Egyptian activity in the Southern Levant "which rivals or complements Tel 'Erani" was uncovered – namely, excavations on the Halif Terrace revealed large quantities of Egyptian prestige goods, as well as further "evidence of possible

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<sup>1</sup> However, the existence of the Egypto-Levantine early relationship has been known "from the Egyptian side" for decades (Dessel 2009, 130 with references).

<sup>2</sup> Despite the fact that Yadin's "interpretation of Narmer's palette is untenable" (Wright 1985, 251 with references), he got it right (Egyptian military presence in southern Palestine) but for the wrong reasons (*cf.* Levy and van den Brink 2002, 24).

<sup>3</sup> A dividing line between the last Protodynastic king Narmer (Dynasty 0) and the first Early Dynastic king Hor Aha (1<sup>st</sup> Dynasty) has been drawn by the overgrown volume, complexity and extent of the entire social, economic and political organization, namely, overall Egyptian empire management and logistics, that significantly exceeded the previous Naqada-rooted parameters (Anđelković 2004, 541; Anđelković 2011b, 31).

<sup>4</sup> According to Yekutieli (2006, 225, 238-239) the fact that Tel 'Erani was a major Canaanite economic and political center "may have been one of the reasons Egyptians colonized the region" in Early Bronze Ib2, 3200-3050 B.C.

administrative functions" (Levy, van den Brink, Goren, and Alon 1995, 28; *cf.* Levy *et al.* 1997). Another important site, Tel Lod, yielded a significant, albeit proportionally small, less than 10%, quantity of Egyptian and Egyptian-related pottery (van den Brink 2002, 297) including the largest assemblage of *serekhs* for any site outside the Nile Valley: 7 of Narmer, 1 of Ka, 1 of Iry-Hor, and 1 unidentified – totally 10 *serekhs* (van den Brink and Braun 2002).<sup>5</sup> However, the best nominee for the main Egyptian settlement/center was yet to come: the salvage excavations at Tell es-Sakan in 1999 revealed a fortified city dating to the Protodynastic period, including "dwellings and installations such as hearths, kilns and a silo", that illustrate building techniques "typical of contemporary Egypt" (Miroschedji and Sadek 2008, 2028). The approximate date of the foundation of this large site, characterized by almost exclusively Egyptian-related artifacts, is *ca.* 3300 B.C. (Miroschedji and Sadek 2005, 157).

Over the past five decades after the first Narmer's *serekh* was unearthed at Tel 'Erani, many new discoveries have been made, indicating a strong Egyptian presence. From some 40 sites known so far (Fig. 1),<sup>6</sup> thousands of Protodynastic Egyptian artifacts in the Southern Levant became known, both those made in Egypt, and those of Southern Levantine origin, including *serekh*-signs of Narmer's predecessors "Double Falcon", Ny-Hor, Iry-Hor and Ka, as well as a single *serekh* of his successor Hor Aha.<sup>7</sup>

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<sup>5</sup> Although some twelve *serekh* fragments from Lod were originally registered (van den Brink 2001, 88), two of them turned out to be rather dubious fragments, so the final number at present is ten (E. C. M van den Brink, personal communication, August 20<sup>th</sup>, 2009).

<sup>6</sup> In addition to the already mapped sites (Anđelković 1995, 8 Map. 1) we should mention: Tel Aphek, Tel Dalit, Tel Lod, Tell es-Sakan, Amaziya, "Nesher"-Ramle (el-Hirbe) (Burial caves F-55 and F-355, three imported Egyptian jars; Avrutis and van den Brink 2010). An additional number of sites "with attested Egyptian merchandize", including *inter alia* Horvat Shovav, Teluliyot Batash and Giv'atayim, is suggested by Gophna (2008). A number of Egyptian objects were found at Bâd edh-Dhrâ' in the Dead Sea Plain (Braun 1993, 124). Tell Abu al-Kharaz, in the central part of the Jordan Valley, produced "two Egyptian cylindrical jars" of Naqada IIIB date (Fischer 2000, 225). A fragment of Egyptian relief carving (the 'Bet Yerah Palette') that "antedates its find context by some centuries" was found in a secondary depositional context at Tel Beth Yerah (Wengrow 2008-2009, 32).

<sup>7</sup> Totally thirty-three pottery-incised *serekh*-signs have been discovered in the Southern Levant so far (E. C. M van den Brink, personal communication, June 3<sup>rd</sup>, 2012; *cf.* van den Brink 2001, 88-89, Appendix A.a). Horus Crocodile and two unidentified rulers have also been mentioned in regard to the view that "Soreq basin *serekhs* belong to a time span perhaps associated with the reigns of as many as seven Egyptian rulers" (Braun, van den Brink, Gophna and Goren 2001, 70). The *serekh* serve to represent the monarch's royal authority (*cf.* O'Brien 1996), and in the case mentioned above probably indicates the presence of a state-related administrative

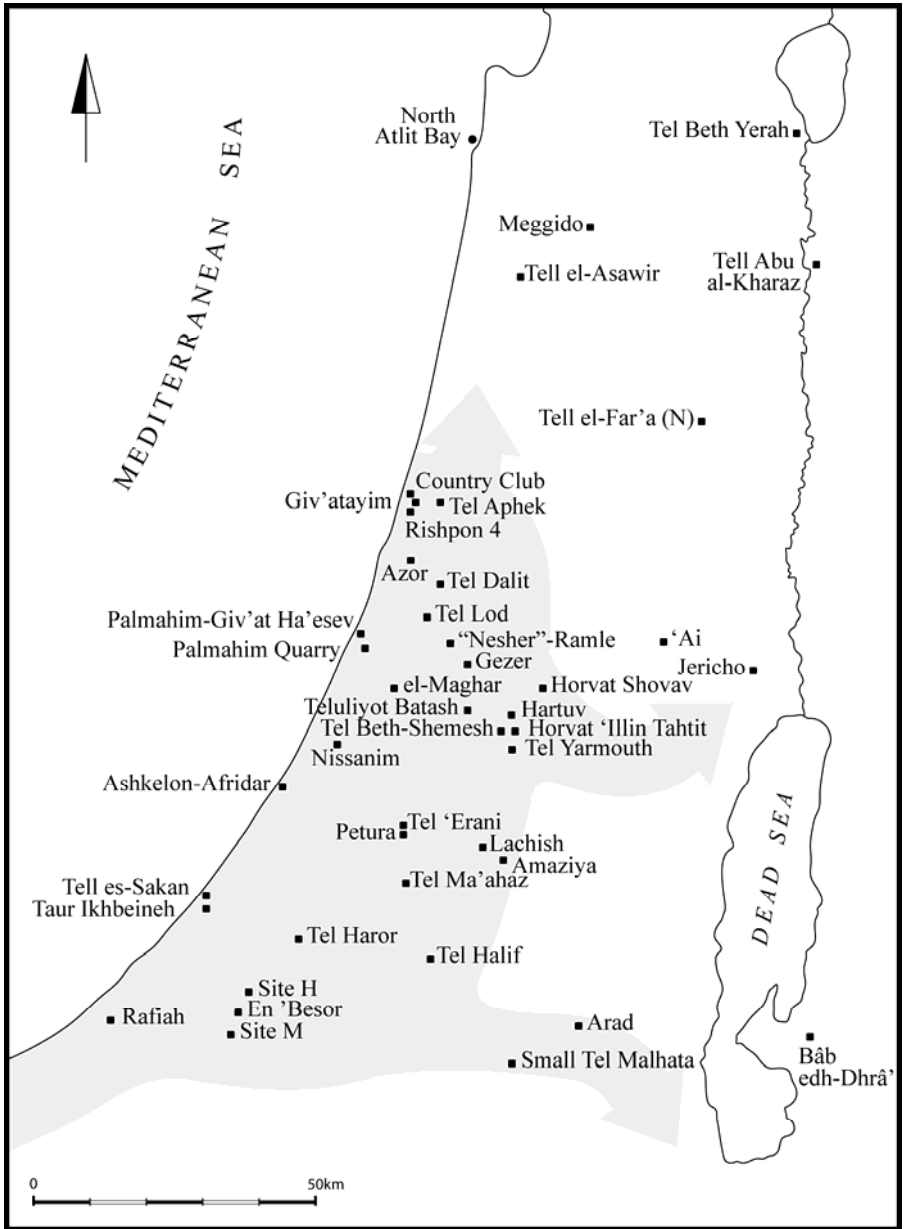


Fig. 1. Egyptian Dynasty 0 Province of the Southern Levant.

system connected to economic activities, such as goods production, distribution, taxation, and the like. Note that royal *serekh*-signs are found not only on storage jars from Egypt, but also on locally produced Egyptian vessels from the Southern Levant.

## Modeling Egyptian activity in the Southern Levant

Egyptian activity in the Southern Levant during the second half of the fourth millennium B.C.<sup>8</sup> so far can be categorized by five primary models (Anđelković 1995, 67-68 with references; Anđelković 2002, 76-81; Levy *et al.* 1997, 6-7; Kansa 2001, 52-58; Levy and van den Brink 2002, 4-6; Dessel 2009, 131-135, 143-146; *cf.* Adams 2002), none of which necessarily excludes certain components of one or more of the others.

(1) The Military Penetration Model, Conquest Model, Naked Force Model and the Imperialist Model are terminological variations that stand for the thesis that the Southern Levant was dominated by Egyptian military power. While one can hardly doubt that the troops of the Egyptian Crown protected the state's interests – let us remember that many Protodynastic monuments "focus on foreign relations, aggression, and the assertion of order" (Baines 1999) – back up forces must have been present on a relatively small-scale, because Dynasty 0 Egyptian military capability had no serious opponent<sup>9</sup> in the ideologically and politically unfocused, sparse population of the late Early Bronze I Southern Levant. However, that a certain danger did exist, and that Egyptians did not feel safe (due to bands of plunderers, or some competing 'third side' interested in the Southern Levantine territorial riches?), seems to be demonstrated by three successive defensive mud-brick city walls, the latest 3.8 m thick, at Tell es-Sakan.

(2) The Commercialization Model, Commerce Model, and Merchandise Diffusion Model, all share a view of Egyptian-South Levantine interaction as purely economic, based on complex exchange, reciprocal trade and commerce. However, large, medium and small Egyptian settlements with almost entirely Egyptian archaeological material, along with the sites containing a significant amount, between 20-40%, of Egyptian-related finds, especially daily-life kitchen utensils and sickles (van den Brink 2002, 297; Rosen 1988, 114), imply

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<sup>8</sup> Egypto-Levantine intersocietal relations have a long history, even since the terminal Paleolithic (Anđelković 1995, 23-24 with references). The Egyptian presence in the Southern Levant during the 4<sup>th</sup> Millennium B.C. had three phases: (1) a small scale commerce existed at the Late Chalcolithic/incipient EB IA transition; (2) at the second half of EB IA, Egyptians were exploring the southern Levant and consolidating their positions there; (3) the outcome was establishing of the permanent large-scale Egyptian presence at EB IB (Anđelković 1995, 72), or as Dessel put it (2009, 135): (1) sporadic contact; (2) entrepreneurial exploration; (3) direct settlement.

<sup>9</sup> The fortification at Tel 'Erani seems to be among the earliest in Palestine but "comparisons between the Bronze Age walled towns of Palestine with the archaic states of Egypt and Mesopotamia (...) may be like comparing apples and oranges" (Levy and van den Brink 2002, 24).

that these artifacts were used by Egyptian settlers<sup>10</sup> who tried to sustain their traditional way of life, despite what their individual responsibilities and duties in the Southern Levant, their new home, might be. Their undivided participation in the Egyptian bureaucratic system is confirmed by state-related administrative artifacts such as royal *serekhs*, cylinder seals and seal impressions. Moreover, as suggested by the North Sinai survey results, "the economic balance of the colony was negative", or in the other words "the maintenance of the colony demanded from [the] Egyptian state much more than what it earned from it" (Yekutieli 1998, XXII-XXIII). Sporadic small-scale trade, scarcity of potential merchandise on both sides, and not particularly wealthy native 'customers' living in a small villages, can hardly offer sound 'commercial' reasons even for trade diaspora or "small trading enclaves" (Kansa 2001, 54), let alone for the prolonged presence of "a permanent large-scale network of Egyptian communities" (Dessel 2009, 151).

(3) The Colonial Model and World System Colonial Model both suggest that the Southern Levant was an Egyptian domain, but while the former perceives it as "a non-self-governing territory", "ruled by Egyptians" (Anđelković 1995, 70), the later defines it through the "indirect modes of economic exploitation" (Levy *et al.* 1997, 6). According to Miroschedji and Sadeq (2005, 163-165), "the Egyptian colonial territory" was distinguished by two<sup>11</sup> different areas: a 'core area' of permanent Egyptian installation, stretching up to *ca.* 25 km north/northeast of Tell es-Sakan, with "an almost exclusively Egyptian material", from which "the administration of the Egyptian colonial territory was conducted"; and a 'peripheral area' of colonial Egyptian presence, covering roughly "the coastal plain and the Shephela region south of the Yarkon river" where a number of sites hosted an "important Egyptian contingent, for all or only part of the year". However, the evidence at Tel Lod (about 15 km southeast of Tel-Aviv) of bread molds and so-called 'lotus-bowls' "made from loessial clay, the source of which is the southern region of Canaan", provides "an indication of a direct south-north flow" of certain 'specialized' pottery types (van den Brink 2002, 287, 299), that rather point toward the territorial compactness of the Egyptian presence and activities in the Southern Levant,<sup>12</sup> from Tell es-Sakan approximately to

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<sup>10</sup> Egyptian and Levantine ceramic production was "divided along ethnic lines" and each attended "to the needs of their respective communities" (Dessel 2009, 128).

<sup>11</sup> The rest of Palestine would make a "third area" with "regular trading contacts with Egyptians, who could occasionally, or seasonally, send small groups of traders there" (Miroschedji and Sadeq 2005, 165).

<sup>12</sup> The general frame of the Egyptian domain in the Southern Levant, be it either a colony (as a non-self-governing territory) or province, is not directly related to a greater or lesser Egyptian-Levantine ratio at any particular location within the

Yarkon river and Nahal Poleg area (*cf.* Brandl 1992, 444; Anđelković 1995, 8 Map 1). The strong tendency of the Naqada culture/elite to expand its power beyond its borders, or rather to expand both its power *and* borders,<sup>13</sup> was early recognized by Kaiser (1957, 74) who accordingly labeled it "Kolonialkultur". As correctly noticed by Brandl (1992, 447-448), the colony "served the Egyptian interests in the Mediterranean, and as such should be seen as an extension of the settlement along the Pelusiac branch of the Nile and the North Sinai coast", or as Porat put it (1986/87, 118) it was "an extension of Egypt and not just under Egyptian influence". Indeed, the Southern Levant territory was practically an extension of the Egyptian settlement along the northern Sinai coast – the North Sinai land route was its "vital life vein" (Yekutieli 1998, XIX) – that too (see below) makes it an Egyptian province rather than a colony.

(4) The Dynamic-Tension Model, 'Mastermind' Model, and Distance-Parity Model offer a theoretical framework that is primarily concerned with socio-political and hegemonic power relations. Such an approach (*cf.* Dessel 1991) perhaps defines motives which lay behind the 'Egyptian phenomenon' in the Southern Levant, but when it comes to "a limited period of direct Egyptian settlement" (Dessel 2009, 144), *i.e.* actual Egyptian presence on the ground, it rather turns to (and merges with) some/any of the other models.

(5) The Émigré Model suggests one-way population movements from Egypt to the Southern Levant, that may have been purposefully directed and controlled by a powerful entity such as the Egyptian state, or, less probably, were uncoordinated settlements of Egyptian people. As stated by Gophna (1976, 32) "Egyptian pottery did not reach Canaan as commercial imports (...) but was part of the household equipment of Egyptians coming to stay in southern Canaan".<sup>14</sup> Establishing an Egyptian émigré community could alternatively constitute "a means for the utilization of excess population" (Dessel 2009, 131).

It should be noted that the purpose of the Egyptian presence is often confused with the form by which it was implemented. For instance, the distinction between commerce and colony models has been blurred by the assertion that "a state-sponsored colonial program" is introduced to establish

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territory under control (*cf.* Redford 1990, 30), as is well demonstrated by the similar well-documented historical situations.

<sup>13</sup> As we have already stated elsewhere, that is exactly why every subsequent political entity, from Upper Egyptian proto-nomes to the all-Egyptian early state/Egyptian empire, encompassed a larger territory in comparison to its precursor (Anđelković 2006, 600; Anđelković 2011b, Fig. 3.3).

<sup>14</sup> Low Nile floods *ca.* 3200 B.C. (Hassan 2000) may have caused substantial population movements.

and maintain "asymmetric trading relations between Palestine and Egypt" (Kansa 2001, 56). This clearly demonstrates that the 'Egyptian phenomenon' in the Southern Levant is a complex, multi-layered construct of various but still somehow related issues. The nature of Egyptian activity in the Southern Levant<sup>15</sup> is to be fully perceived only through the selective integration of these five models – that bring into focus various aspects such as power imbalance, sociocultural identity differences, economic interests, access to strategic raw materials, population movements encompassing immigration and direct settlement, and political subservience – into a comprehensive new interpretation of specific spatiotemporal form: the Egyptian Dynasty 0 province of the Southern Levant.<sup>16</sup>

### Egyptian finds in the Southern Levant

Numerous Protodynastic Egyptian finds in the Early Bronze IB Southern Levant include almost every class of artifact (*e.g.* Anđelković 1995, 25-56): architecture (fortifications, embankments and buildings), a tremendous amount of pottery, alabaster vessels, palettes, stone and copper tools and weapons, seals and seal impressions, amulets, jewelry, figurines, Nilotic fauna – large freshwater molluscs (*e.g.* Nile shells have been found at Petura, *ca.* 2 km east of Tel 'Erani: see Braun and van den Brink 2008, 655), fish bones of Nile perch (dried specimens transported as provender), Nile catfish spikes (used as small harpoons), etc.

Despite the existence of the hybrid pottery (Brandl 1989, 376),<sup>17</sup> that often represents an Egyptian potter experimenting with Southern Levantine forms<sup>18</sup> (*cf.* Levy *et al.* 1997, Fig. 27a,b) – a tendency well known from Egyptian

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<sup>15</sup> Although the present author, like several other colleagues, previously perceived an Egyptian Protodynastic presence in the Southern Levant as colonial (*e.g.* Brandl 1992; Anđelković 1995; Anđelković 2002), with a steadily growing corpus of finds and their contextual analysis a new picture emerged - identifying the 'Egyptian phenomenon' as the Egyptian Dynasty 0 province of the Southern Levant.

<sup>16</sup> A similar geopolitical pattern, but to a considerably greater degree, was to be restored with the Egyptian province in Asia, when Canaan was annexed to Egypt (*e.g.* Redford 1990; Bar, Kahn and Shirley 2011), *i.e.* absorbed into the "powerful Egyptian empire of the New Kingdom" (Sparks 2002-2003, 49).

<sup>17</sup> Hybrid vessels production was irregular and localized: such hybrids as Levantine "holemouth jars and storage jars made in local Egyptian ware have been documented only at the Halif Terrace and at Tel el-'Erani in the EB IB" (Dessel 2009, 113, 127).

<sup>18</sup> As indicated by Dessel (2009, 128) "the importation of Egyptian vessels had no perceivable effect on the Levantine industry".



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adoption of the Palestinian ledge-handled jars in Naqada IIc: soon to be transformed into Egyptian wavy-handled jars – the Egyptian ceramic industry in the sites in the Southern Levant "was kept very separate from the Levantine industry" (Dessel 2009, 126).

### The quest for copper

Aside from archaeologically visible artifacts and materials, there are many goods that are hard to detect. Paradoxically, these are not perishable organic products alone, but rather are made of solid metal which was mostly been robbed in antiquity or recycled in subsequent periods (Anđelković 1995, 21). If copper was one of the main Egyptian strategic interests in the Southern Levant, it was, as well as gold, too valuable to be left behind or abandoned, but has been recycled. The modest excavated amount, *e.g.* the copper harpoon and awl from Tel 'En Besor which are "products of the well-developed Egyptian metal industry of the Protodynastic period" (Gophna 1995, 226),<sup>19</sup> or the copper axe of "Late Gerzean Egyptian type" from Tel 'Erani (Yeivin 1975, 97), by no means reflects the amount of copper in circulation. The term 'recyclable exports' can be introduced (Anđelković 2002, 81) for such type of archaeologically invisible phenomena (*cf.* Kraft 1996).<sup>20</sup> The "recycling of copper and the exploitation of less copper-rich ores", that point to the growing demand for copper that may have exceeded the supply in the Early Bronze Age, is affirmatively suggested by Golden (2002, 235). In Locus 102/105 at the Halif Terrace several finished copper tools and the remains of metallurgical activities have been found, including awls, crucible fragments, 'raw' or unrefined copper and red and green cuprite and malachite, similar to ores from Feynan: it is not by chance that many of the artifacts found in the very same locus also have a clear association with the Egyptian presence at the site, including two clay seal impressions "which are commonly interpreted as representing administrative involvement" (Golden 2002, 226-227). As far as more northern sites are concerned, Stratum IVa at Tel Lod, with a sizeable quantity of Egyptian finds, yielded fragments of "two small clay crucibles used for copper smelting or melting" (van den Brink 2002, 291). And again, as noted by Golden (2002, 227) "it is likely that Egyptian interests in the southern Levant included the copper industry". It seems that Egyptians also kept their eyes on the "copper road" between Arad and the Sinai sites (Amiran

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<sup>19</sup> One can't help but wonder: were they produced by Egyptians in Egypt proper, or by Egyptians in the Southern Levant?

<sup>20</sup> But archaeologically largely undetectable goods are also slaves and cattle (Yekutieli 1998, XIV; *cf.* Kansa 2001, 58).

and Ilan 1993, 82), or rather the southeast Wadi Araba/the greater Aqaba area sites, e.g. Wadi Feynan, Tall al-Magass and Tall Hujayrat al-Ghuzlan (cf. Czarnowicz 2011). As suggested also by Russell Adams (in Dessel 2009, 133 n.3, 143 n.21) "Egyptian expansion into the Southern Levant might well be linked to the search for copper ores".

### Tombs, temples and ports

There are a few additional questions concerning the Egyptian presence in the Southern Levant that should be mentioned. In contrast to Egypt proper, no formal Egyptian cemeteries of the kind we are used to in Egypt have yet been discovered in the Southern Levant. There are a number of Southern Levantine burial caves with Egyptian finds, like in Tell el-Asawir, Azor (e.g. van den Brink, Gophna and Ovadiah 2007) and "Nesher"-Ramle (el-Hirbe) (Avrutis and van den Brink 2010), but we can by no means define them as Egyptian tombs. A so-called "Egyptian-Style" tomb was unearthed in 1994 at the Halif Terrace (Levy *et al.* 1997, 14-16), but its chronological position with two phases of use, atypical plan and lack of grave goods, hardly justify such determination (cf. Braun and van den Brink 2008, 658-659).

In an attempt to understand the puzzling question of the missing Egyptian cemeteries in the Southern Levant in *any* period, we should perhaps reach for some Ancient Egyptian literary references. In *The Tale of Sinuhe*, "a funerary Autobiography" that was composed in the first half of the 12<sup>th</sup> Dynasty, we witness Sinuhe's dramatic return from foreign lands/"a substitute Egypt", to the enduring security of real Egypt, where the king resides as "the political and ideological centre of Egyptian culture and the representative of all its values",<sup>21</sup> the king enjoins Sinuhe to return for burial in Egypt – "an ultimate homecoming"<sup>22</sup> (Parkinson 2009, 21-24, 36-37):

"Return to Egypt! (...)

For today you have already begun to be old, have lost your virility,  
and have in mind the day of burial,  
the passing to blessedness. (...)

Your death will not happen in a foreign country;

Asiatics will not lay you to rest; (...)

This is too long to be roaming the earth!

Think of your corpse – and return!"

<sup>21</sup> King - the Divine Ruler acting as an eternal promise to nullify chaos, enemies and death - seems to be a key ideological issue in the transformation of Predynastic Egypt (Anđelković 2011c).

<sup>22</sup> Note the pattern: Egypt-Retjenu-Egypt (Parkinson 2009, 23).

Accordingly, it is possible that the Egyptian population was simply buried in Egypt proper,<sup>23</sup> their homeland and the center of the 'civilized' world, surrounded by lands of chaos beyond the order of the gods (*cf.* Campagno 2008).

There is no evidence for Egyptian Dynasty 0 temples in the Southern Levant but, aside from Hierakonpolis (Locality HK29A, an early ceremonial center, Naqada IIcd) and Elephantine, there is hardly any evidence for contemporaneous temples in Egypt proper either. A fragmented faience baboon statuette "which the Egyptian settlers brought from their homeland to sustain them in an alien and unfamiliar environment", that at the same time "may indicate the existence of a small shrine within the confines of Egyptian Building A" was found at 'En Besor (Gophna 1993, 31; for the Protodynastic baboon symbolic see Hendrickh, Eyckerman and Förster 2008, 376-377).

Along with the land route, there was a maritime route along the Southern Levantine coast, part of the route stretched between the Eastern Nile delta and the Phoenician coast. Such a thesis is supported by a number of finds: the Egyptian knife found lying on the sea-bottom near the shore at Yavne-Yam; about 2 km north is an Early Bronze I site Palmachim-Giv'at Ha'esev<sup>24</sup> that probably served as "a navigational landmark to signal mariners sailing along the coast"; while "the heavy ash remains may be explained as the remnants of bonfires used to direct boats to safe anchorage in the sandy estuary of Nahal Soreq" (Gophna and Liphshitz 2009, 139). Furthermore, a ceramic Early Bronze I jar of a hybrid type, "made of alluvial Nile clay", containing 18 large Nile shells, that probably fell off an Egyptian sea craft, was retrieved from the seabed, 700 m off the coast, at a depth of *ca.* 12 m, in North Atlit Bay, south of Haifa (Sharvit, Galili, Rosen and van den Brink 2002), another well known anchorage point.

## The Egyptian Dynasty 0 province in the Southern Levant

Due to perfect timing, the Early Bronze I mostly village-based chiefdoms created a sort of gap between the collapsed Chalcolithic societies and nascent urban sites of Early Bronze II, whereas the expanding Dynasty 0

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<sup>23</sup> Pottery comparison indicates that the best parallels to Egyptian assemblage, at least as far as Tel Ma'ahaz is concerned, are found in the ceramic repertoires of the Delta sites such as Minshat Abu Omar (Grave Group 3b), Tell el-Fara'in/Buto and Tell Ibrahim Awad (Amiran and van den Brink 2001, 47).

<sup>24</sup> Note that Palmachim Quarry produced a *serekh* of "Double Falcon" - the name compartment was filled with punctures, whereas two small vertical strokes stand for the birds - (Braun, van den Brink, Gophna and Goren 2001, 69-70, Pl. 4.3a).

Egyptian state firmly and rapidly progressed up its core civilization evolutionary trajectory.

As said before, Egyptian pottery of local origin, uncovered at Tel Lod but produced at the sites with differing degrees of Egyptian affiliation up to 80 km southward, provides an indication of a direct south-north flow of "a rather limited 'repertoire' of certain 'specialized' Egyptian pottery types",<sup>25</sup> such as bread molds and small and medium-sized 'lotus' bowls (van den Brink 2002, 299). Not in disharmony with "hints" that there was a local "small-scale redistributive economy" at the Halif Terrace (Kansa and Levy 2002, 204), this pattern clearly demonstrates the presence of an Egyptian "(re)distribution system operating on an intra-regional level" (van den Brink 2002, 299) at Egyptian-related sites in the Southern Levant. At a newly-discovered settlement and silo complex at Amaziya (*ca.* 9 km east-south-east of Tel Lachish), the large-scale silo complex was associated to "the existence of a polity exercising some sort of regional control" and again "a small but highly significant assemblage of imported Egyptian pottery and other Egyptian-style vessels" was found (Milevski, Braun, Varga and Israel 2012).

In the light of the overall evidence, Egyptian Dynasty 0 activity in the Southern Levant is to be seen as the establishment, maintenance and exploitation of the earliest known Egyptian province there, in many aspects similar to the Egyptian province of Canaan that would reappear during the New Kingdom. Accordingly, the Southern Levantine 'exports' to Egypt, especially copper, olive oil and wine are to some extent to be interpreted as taxes (paid by Egyptian settlers?) or tribute (paid by the south Levantine population?). The Egyptian Dynasty 0 state directed and supported the process of settlement plantation – Egypt simply extended her frontiers as far as logistically possible at the given moment. It is significant that the center of Egyptian Dynasty 0 activity was the fortified city Tell es-Sakan, some 500 m to the north of Tell al-'Ajjul. It seems that it is not due to chance but rather to well established tradition that in the Gaza area was the capital of the Egyptian province of Canaan in the New Kingdom, where "the chief governor of Canaan resided" (Mazar 1990, 236).

Like any other nation-state (*cf.* Anđelković 2008; Anđelković 2011a; Anđelković 2011c) Egypt subdued and controlled its neighbors' territories for any or all of the following reasons: (1) the resources and products, including those which passed through them; (2) the manpower available therein; (3) the strategic location of these territories; and (4) the living space afforded there (Redford 1990, 2). Given the Egyptian need for copper, olive oil, wine and slaves, both male and female (*cf.* Kansa 2001, 58), endemic rivalry with

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<sup>25</sup> Specialized "foreign production, responsible for the ceramic needs of an émigré community" was identified at the Halif Terrace (Dessel 2009, 6).

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Hither-Asia and control of transit corridors, and finally the large amount and repeating domestic context of Egyptian artefacts that have been found in the Southern Levant, it seems that all four mentioned aspects were present.<sup>26</sup>

The golden age of the Egyptian Dynasty 0 province lasted for several generations. As already stated elsewhere (Andelković 1995, 72), a sharp increase of the level of political and socio-economic organization, population growth and founding of the large walled towns in the Southern Levant, a shift of Egyptian interest to Lebanon and Syria, or some internal events in Egypt proper, such as an inner political unrest, might have caused the abandonment and withdrawal from the province.

The Egyptian, or rather Naqadian-style, experiment in assimilation of the local population, assisted by acculturation (the hybrid pottery as far as the Southern Levant is concerned?), that turned out to be successful in Lower Egypt and Lower Nubia, eventually failed in the Southern Levant, because, while Lower Egyptians and Lower Nubians were both Nilotic populations as were the Naqadians themselves, the Southern Levantines belonged to another, northeastern Mediterranean cultural sphere.<sup>27</sup> Unlike Nubia, the Southern Levant always remained alien to the Egyptians – they were "strangers in a strange land" (Sparks 2002-2003).

Let me add a few words on the employed terminology. Provincial entities are created with a view to organizing and integrating conquered territories into the political matrix of the domineering power. Whether we should talk of Egypt's *province* of the Southern Levant, or Egypt's *occupation* of the Southern Levant instead, or if the Egyptians in charge can be understood as vicerealty, governors, senior military leaders, or overseers "who put the fear of Horus into the foreign lands" (Redford 1990, 5), is a matter for scholarly discussion, but does not change the essence of manifested hegemonic power – Egypt rules!

To conclude this paper I will borrow the words of the eminent archaeologist Flinders Petrie, who is best known for his work in Egypt, but who devoted the last fifteen years of his life to digging in southern Palestine (Sparks 2002-2003, 48): he offered a meaningful definition of southern Palestine, which is described as "Egypt over the border".

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<sup>26</sup> Note that the Egyptian conquests in the Levant during the New Kingdom were mostly carried out in order to guard the main routes to Lebanon and Syria, and for the gains from the economic exploitation of the occupied territory: "Wood, oil, wine, wheat, cattle, copper, slaves and concubines" (Mazar 1990, 236).

<sup>27</sup> According to Amiran and Ilan (1993, 82), in "respect to its spiritual life, Arad belonged to the north Syrian Irano-Mesopotamian world, despite its strong commercial ties with Egypt".

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Hegemonija za početnike: egipatske aktivnosti na Južnom Levantu u drugoj polovini četvrtog milenijuma p. n. e.

Arheološkim istraživanjima na južnom Levantu je otkriveno i opredeljeno na hiljade protodinastičkih egipatskih nalaza, uključujući arhitekturu, svakodnevne upotrebne predmete, ali i recipijente sa serek-oznakama više faraona Nulte (Narmer, "Dupli soko", Ni-Hor, Iri-Hor, Ka) i Prve (Hor Aha) dinastije, kao manifestacije državnih ekonomsko-administrativnih aktivnosti. Manji deo artefakata potiče iz samog Egipta, dok je većina proizvedena lokalno. U cilju objašnjenja fenomena egipatskog prisustva u južnom Kanaanu/Palestini sugerisano je više modela (vojno osvajanje, trgovina, kolonizacija, logističko usavršavanje, migracija stanovništva), koji ipak nisu uspeali da integrišu arheološki utvrđene parametre u jedinstvenu celinu, posebno kada se ima u vidu upliv novijih podataka i njihova kontekstualna analiza. Enigma prisustva protodinastičkog Egipta na južnom Levantu, koje sadrži elemente trgovine manjeg obima, nastanjivanja novih teritorija, i državne uprave, biva jasnija kada se ima na umu ponavljanje sličnog geopolitičkog obrasca tokom Novog carstva, u smislu uspostavljanja Egipatske azijske provincije. Mapiranje lokalno proizvedenih egipatskih posuda, tj. njihovog sadržaja, odnosno lokaliteta na kojima je konstatovana svakodnevna egipatska aktivnost, ukazuje na postojanje intra-regionalnog distributivnog sistema, čime se otvara mogućnost definisanja izvorne egipatske provincije na južnom Levantu tokom Nulte dinastije (fig. 1). Među razlozima njenog formiranja, osim širenja moći i teritorije, nije zanemariva ni uloga bakra kao strateške sirovine svog vremena. Egipatsko prisustvo se može objasniti i kao kontinuitet: prvo procesa unutrašnje konsolidacije, a potom ekspanzije Nakada kulture iz matične oblasti u Gornjem Egiptu, prema Donjem Egiptu, Donjoj Nubiji, i južnom Levantu. Za puno sagledavanje dinamike i faza formiranja države u Egiptu, kao i njene interakcije sa perifernim oblastima, reflektovanih u arheološkim nalazima, neophodan je veći upliv saznanja iz paleopolitike, kao ključne analitičke studije vezane za rekonstruisanje i razumevanje ukupnih aktivnosti prethodnih kompleksnih društava u kontekstu svog okruženja.

*Ključne reči:* Egipat, Nulta dinastija, Kanaan, rano bronzano doba IB, paleopolitika, provincija, bakar

Hégémonie pour les débutants: activités égyptiennes au Levant du Sud dans la deuxième moitié du quatrième millénaire av. J. C.

Des milliers de vestiges protodynastiques égyptiens ont été découverts et classés grâce aux fouilles archéologiques au Levant du Sud; ces vestiges

comprennent aussi bien les vestiges d'architecture, des objets d'usage quotidien, que des récipients comportant des marques serekh de plusieurs pharaons de la dynastie zéro (Narmer, Horus aux "deux faucons", Ny-Hor, Iry-Hor, Ka) et de la première dynastie (Hor-Aha), puis enfin des manifestations des activités économique-administratives de l'État. Une plus petite partie des artefacts provient de l'Égypte même, alors que la plupart sont produits localement. Afin d'élucider le phénomène de la présence égyptienne dans le Canaan du sud/la Palestine, plusieurs modèles d'explication ont été suggérés (conquête militaire, commerce, colonisation, perfectionnement logistique, migration de la population); ceux-ci n'ont tout de même pas réussi à réunir les paramètres archéologiquement fixés dans une seule unité, notamment lorsqu'on prend en compte l'impact des données plus récentes et leur analyse contextuelle. L'énigme de la présence de l'Égypte protodynastique au Levant du Sud, présence incarnée par l'introduction d'un commerce de petite taille, un peuplement des nouveaux territoires et des éléments d'administration de l'État, devient plus facile à élucider lorsque nous avons à l'esprit la répétition d'un modèle géopolitique semblable au cours du Nouvel Empire égyptien, à savoir l'établissement d'une province égyptienne asiatique. Le mapping des récipients égyptiens localement produits, autrement dit de leur contenu, ou des sites sur lesquels a été constatée une activité égyptienne quotidienne, rend compte de l'existence d'un système distributif intra-régional, ce qui ouvre la possibilité de définir la province égyptienne originelle au Levant du Sud au cours de la dynastie zéro. Parmi les raisons de sa formation, l'expansion de la puissance et des territoires mise à part, le rôle du cuivre en tant que matière brute stratégique de son temps n'est pas négligeable. La présence égyptienne peut être expliquée comme une continuité: d'abord du processus de consolidation intérieure, puis de l'expansion de la culture Nagada de la région centrale dans la Haute-Égypte, vers la Basse-Égypte, la Basse Nubie, et le Levant du Sud. Pour une pleine analyse de la dynamique et des phases de formation de l'état en Égypte, puis de son interaction avec les domaines périphériques, indiquée par les vestiges archéologiques, il paraît nécessaire de faire intervenir davantage les connaissances venant de la paléopolitique, considérée comme une étude analytique essentielle et liée à la reconstruction et à la compréhension des activités intégrales des sociétés complexes antérieures dans le contexte de leur environnement.

*Mots clés:* Égypte, dynastie zéro, Canaan, l'âge du bronze ancien IB, paléopolitique, province, cuivre

Primljeno / Received: 12. 06. 2012.

Prihvaćeno / Accepted for publication: 16. 06. 2012.

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## **Contextual analysis of fragmentation of the anthropomorphic figurines from the Late Neolithic site of Selevac\***

**Abstract.** The biographical approach to material culture and the hypothesis of deliberate fragmentation of anthropomorphic figurines are used in this paper to deduce a hypothesis that there should be an association between particular fragmentation categories and context types in the archaeological record of the Late Neolithic settlements in Central Balkans. This hypothesis is tested using published data from the site of Selevac by performing *correspondence analysis* and *chi-square* test on a contingency table in which categories of fragmentation are cross-tabulated with context types. The results are statistically significant, suggesting that complete figurines are associated with houses while transversely broken figurines are associated with pits. There is also evidence that figurines were broken differentially in respect to their original size.

**Key words:** figurines, fragmentation, Late Neolithic, Selevac, context, cultural biography.

### Introduction

For artifact classes such as prehistoric figurines, archaeological context is one of the few available variables against which the variability of formal attributes can be projected. Its importance stems from our hope that we can somehow link the physical context with the social context in order to infer the meaning and use of these objects (Chapman and Gaydarska 2007; Gaydarska *et al.* 2007; Marcus 1996; Ucko 1962).

The morphology of figurine fragmentation is a formal attribute considered to be relevant in the archaeology of the Late Neolithic (LN) and Eneolithic (EN) in Southeastern Europe (SE), judging by the fact that it is often recorded and presented in reports (e.g. Biehl 2006; Chapman and Gaydarska 2007;

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\* This paper is an extended version of the report presented at the 35<sup>th</sup> Annual Meeting of the Serbian Archaeological Society in Valjevo (2012). The research presented here was undertaken for the purposes of the project No. 177008 funded by the Ministry of Education and Science of the Republic of Serbia.

Gaydarska *et al.* 2007; Milenković and Arsenijević 2010; Talalay 1987; Zorbić, 2004). Fragmentation of objects from the LN and EN of SE has been given a deeper social and symbolic meaning in the works of Chapman and Gaydarska (Chapman 2000; Chapman and Gaydarska 2007). Chapman's seminal monograph (Chapman 2000) presented a new way of looking at the breakage of objects from the perspective of the enchainment theory of social relations and personhood. The central point of this theoretical perspective is that material culture plays a crucial role in mediating and representing social relations (see also Jones 2005). By deliberately fragmenting an object and giving its parts to other social actors (living people or ancestors) a social link is established – an enchainment. In enchainment, objects are more than mere tokens of relationships – they are supposed to define and convey the very personhood of the individual giving or receiving the object.

The fragmentation is often compared across different archaeological contexts (e.g. Chapman and Gaydarska 2007; Gaydarska *et al.* 2007; Milenković and Arsenijević 2010). The rationale for this kind of analysis is based on concepts and ideas closely related to Kopytoff's concept of cultural biography of things (Kopytoff 1986). Kopytoff's biographical approach is based on a proposition that things or artifacts have biographies or life-histories:

"In doing the biography of a thing, one would ask questions similar to those one asks about people: What, sociologically, are the biographical possibilities inherent in its 'status' and in the period and culture, and how are these possibilities realized? Where does the thing come from and who made it? What has been its career so far, and what do people consider to be an ideal career for such things? What are the recognized 'ages' or periods in the thing's 'life', and what are the cultural markers for them? How does the thing's use change with its age, and what happens to it when it reaches the end of its usefulness?" (Kopytoff 1986, 66–67).

Following this logic, each figurine goes through a sequence of events on its biographical trajectory, and the totality of these events make up its life-history, so figurines can be studied using the *chaîne opératoire* approach that is often applied to other classes of material culture such as lithics (Gaydarska *et al.* 2007). The ideal biography may or may not be realized, but it is reasonable to expect that there was a modal behavioral biography of figurines – if the figurines were cultural items, and the culture is a population phenomenon, it makes sense to speak of the statistically most common sequence of life-history stages. If the transition from one stage to another in life-history is correlated with fragmentation (as a cause or a consequence of the transition), and if this change (in meaning, use, or both) affects the spatial context of use and deposition, the implication is that there should be a correlation between the archaeological context and fragmentation category.

There is empirical evidence that suggests that this correlation is present when figurines from the LN of Central Balkans are in question. Srejović (1968) noted that complete figurines were usually found in houses. A statistical analysis made by the Petnica Research Station students revealed that there was a significant relationship between figurine fragmentation and archaeological context (Milenković and Arsenijević 2010). There are however two major objections that can be raised about these results: 1) the sample for the fragmentation analysis is biased because the authors chose only specimens presented in figures and plates of published reports; 2) aggregation of figurines and contexts from different sites into a single sample rests upon the untested assumption that the patterns of relationship between context and fragmentation are the same for all of these sites. Additionally, the authors did not formally explore which particular fragmentation categories are significantly related to particular context types.

The principal objective of this short study is to test the hypothesis that there is a relationship between the fragmentation category and the archaeological context of the LN figurines from Selevac. Selevac is one of the few LN sites excavated and published in sufficient detail necessary for the formal testing of this hypothesis. Selevac is a large multiphase LN Vinča culture site in Central Serbia occupied from 5300–4700 BC as the radiocarbon data indicate (Tringham and Krstić 1990b). In terms of culture history, Selevac belongs to the LN Vinča culture. Four major phases of Selevac occupation were defined: Selevac I corresponding to Vinča B1, Selevac II corresponding to Vinča B2, Selevac III corresponding to Vinča B2/C1, and Selevac IV corresponding to Vinča C1/C2 phase (Tringham and Krstić 1990a).

There are also two additional factors that may influence the relationship between context and fragmentation: 1) formation processes; 2) the ability of archaeologists to discriminate in the field between items from different contexts. Cultural component of formation processes, or C-transforms (Schiffer 1976; 1987) that are based on deliberate decisions to move figurines from one context to another are not problematic. This is exactly what is of interest. However, C-transform such as construction works (i.e. leveling and pit digging) that might have caused an unintentional dislocation of figurines from their contexts of deposition should be filtered out as they may blur the relationship of interest, or even worse, create spurious associations between context types and categories of fragmentation. These formation processes, although formally cultural, as they are a consequence of human action, are actually equivalent to natural transformations or N-transforms (Schiffer 1976; 1987) from the perspective of this particular research problem. N-transforms such as bioturbation and physical conditions of deposition might also act as confounding factors. For these reasons it is necessary to attempt to assess, and if possible, filter out the impact of formation processes.

## Research hypotheses and questions

The main hypothesis to be tested in this study is that *there is an association between context and fragmentation of a figurine*. Given that formation processes can influence the potential relationship between context and fragmentation in ways described above, the main hypothesis will be tested first on a complete set of context types, and then on a restricted number of context types, taking into account only those contexts which are relatively more protected from the influence of formation processes, such as sealed house floors and pits. If the data support the hypothesis in both cases (the complete and the restricted set of context types), it is a sufficient (but not necessary!) condition for the claim that the association between context and fragmentation is a consequence of the changes in the cultural biography of figurines.

It would also be interesting to examine whether certain fragmentation categories stand out in some respect, for example do they appear more or less often in individual contexts. This is a research question that will be explored in this study, as well.

## Materials and methods

Selevac figurines are published in the Selevac monograph along with information on stratigraphic position, fragmentation and context (Milojković 1990). This information is available for 333 of the total of 341 published figurines. Individual contexts are grouped in four context types: house floor, house rubble, pit, cultural layer. House floor and pit are designated here as relatively closed contexts, while house rubble and the cultural layer are considered to be relatively open contexts. This distinction seems to be supported by the data as well (see *Results* section).

For most specimens database entries on fragmentation categories are given without illustration, so this precludes any independent classification of fragmentation categories. However, it was possible to collapse some categories that were considered redundant by the author into a single category. This was done for *almost complete* (slightly damaged) and *complete figurines*, and for categories such as *lower torso* and *figurine base*. The recoding scheme is given in Figure 1.

Correspondence analysis was performed on the context and fragmentation data in order to visualize the associations between fragmentation categories and context type in a two dimensional space. Correspondence analysis is a multivariate technique that reduces the dimensionality of the contingency table (cross-tabulation of fragmentation and context) and enables the analyst to visualize the relationships between categories within and between the categories of two nominal variables (Baxter 1994; Shennan 2004).



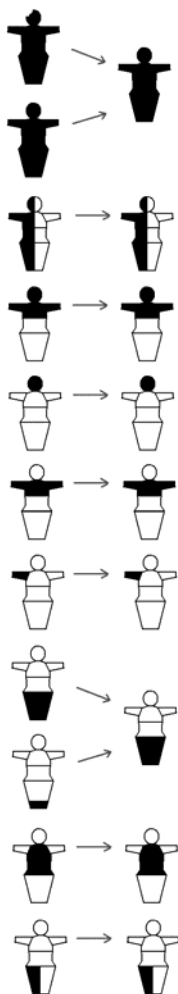


Figure 1: Recoding scheme of fragmentation categories based on original categories from Milojković 1990.

The main hypothesis was formally tested using the standard *chi-square* test with a *p* value calculated using the *Monte Carlo* simulation method. The analysis of adjusted standardized residuals (Haberman 1973) of the *chi-square* test was used to formally explore which particular fragmentations categories are related to specific context types. Two *chi-square* tests were performed for the main hypothesis: one with the complete set of contexts and one with only closed contexts.

The research question about the presence or absence of fragmentation categories from individual contexts (not context types!) is explored by plotting the logarithm of frequency of fragmentation categories against the logarithm of their ubiquity, a technique used in zooarchaeology (Lyman 2008, 114–119). The ubiquity of a particular fragmentation category is the number of individual contexts in which the category occurs. If fragmentation categories are distributed across individual contexts in proportion to their frequency in the sample, the points on the graph should all lie along a single line. To evaluate whether this is true, linear regression of ubiquity on frequency will be used to assess the fit of the linear model. More importantly, regression allows us to see which fragmentation categories deviate significantly from the regression line by looking at the values of standardized regression residuals. If a fragmentation category is significantly more or less ubiquitous than some other category that occurs with the same frequency in the assemblage, then it can be inferred that there was a systematic factor affecting the differential dispersion of that fragmentation category across contexts.

All statistical tests rest upon the assumption that the observations are independent. It is reported that there were only 10 cases of matching fragments (Milojković 1990), but only 3 pairs or 6 matching specimens were mentioned by their identification number. The adjustments were made in the database for the known matching pairs, but no adjustments were made for the remaining matched pairs because they were not identified. Matching pairs must belong to different fragmentation categories by definition (except for longitudinal breaks which are extremely rare), so if the members of a matching pair occur in the same context type this will weaken the relationship (and inflate the probability of Type II Error) between context and fragmentation if it exists (thus counteracting the artificial inflation of the Type I Error), and have no effect on the strength of the relationship if the context and fragmentation are truly independent. Strictly speaking, matching pairs violate the independence assumption, but this violation cannot have any substantial effect on the calculation of statistical significance in this case, because the number of dependent observations is relatively small.

## Results

Correspondence analysis was performed and the associations in the original contingency table are presented in a reduced two-dimensional space (Figure 2). The first two dimensions account together for the 85.3% of inertia (equivalent to variance) in the data. The first dimension accounts for 62.6% of inertia and the second dimension accounts for 22.7% of inertia.

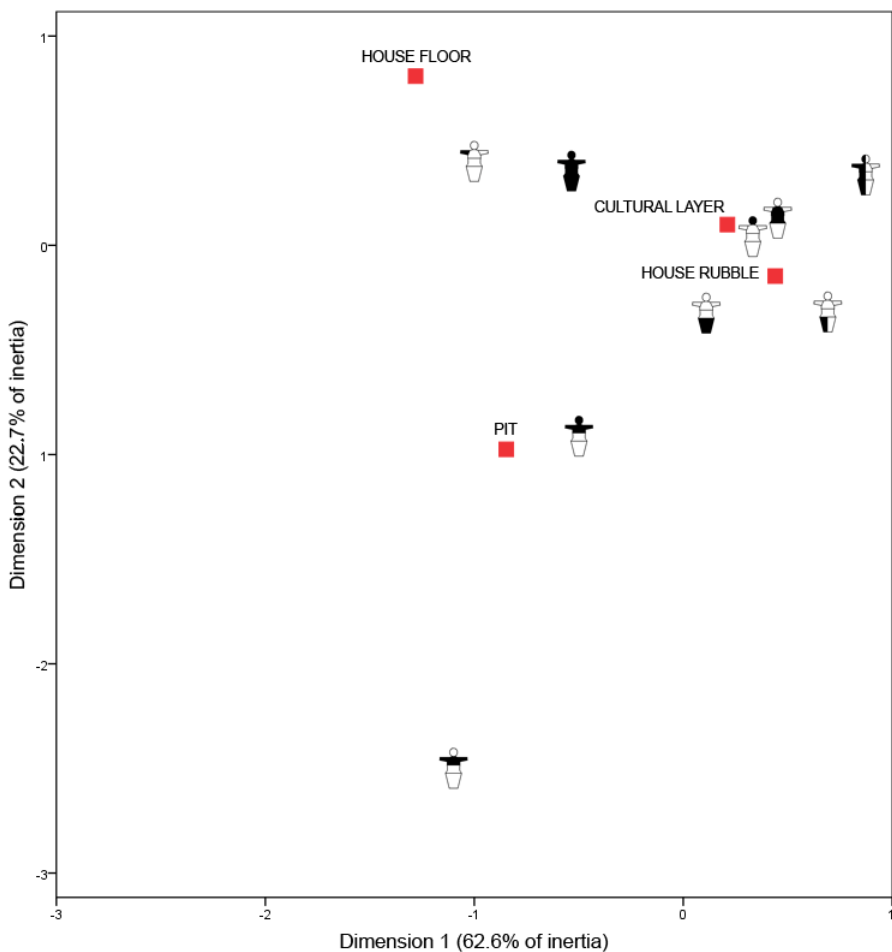


Figure 2: Correspondence analysis of Selevac data; symmetrical biplot of context types and fragmentation categories.

The results of correspondence analysis suggest that:

1. The first dimension which accounts for the largest percent of variance separates clearly house floors and pits on one side, and house rubble and the cultural layer on the other. This means that the greatest differences in the structure of fragmentation categories are between house floor and pit (closed contexts) assemblages on one side, and open contexts such as house rubble and the cultural layer, on the other.

2. The second dimension separates house floors from pits.

3. House rubble and the cultural layer are similar in their composition of fragmentation categories on both dimensions. This justifies the decision to treat these two context types as the same class of open contexts.

4. Complete figurines and arm fragments are associated with house floors.


5. Upper parts of transversely broken figurines (upper torso with or without head) are associated with pits.









6. Head, torso without arms and head, leg fragments, lower torso fragments, and longitudinally broken figurines are associated with house rubble and the cultural layer.

The *chi-square* test for the association between fragmentation and context yielded statistically significant results allowing the rejection of the null hypothesis of no correlation at the 0.05 level ( $\chi^2 = 44.655$ ,  $df = 24$ ,  $p = 0.01$ ). Therefore, the main hypothesis seems to be supported by the data – the correlation between context and fragmentation is statistically significant, although weak (*Cramer's V* = 0.211,  $p = 0.01$ ).

Observed and expected frequencies along with associated adjusted standardized residuals are given in Table 1. Adjusted standardized residuals significant at the 0.05 level (one-tailed) are given in boldface. The analysis of residuals suggests that the following associations from the correspondence analysis biplot are statistically significant: complete figurines and arm fragments are found on house floors more often than expected by chance, upper torso fragments with or without head are found in pits more often than expected by chance, upper torso fragments without head and arms are found in the cultural layer more often than expected by chance. Negative associations are also of interest. Negative residual values indicate which fragmentation categories are found in what context types less often than expected by chance. The results suggest that upper torso fragments without head and arms are found less often on house floors and in pits, arm fragments are found less often in house rubble, and upper torso fragments with head and arms are less often found in the cultural layer.









Table 1: Context and fragmentation, contingency table with expected values and adjusted standardized residuals; residual values given in boldface indicate deviations significant at the 0.05 level (one-tailed).

	<i>GENERAL LAYER</i>	<i>HOUSE FLOOR</i>	<i>PIT</i>	<i>HOUSE RUBBLE</i>	TOTAL
 Count	18	6	4	5	33
Expected Count	20.51	2.97	3.67	5.85	
Adjusted residual	-0.95	<b>1.94</b>	0.19	-0.41	

		<i>GENERAL LAYER</i>	<i>HOUSE FLOOR</i>	<i>PIT</i>	<i>HOUSE RUBBLE</i>	<i>TOTAL</i>
	Count	5	0	0	1	6
	Expected Count	3.73	0.54	0.67	1.06	
	Adjusted residual	1.08	-0.78	- 0.87	-0.07	
	Count	14	3	8	7	32
	Expected Count	19.89	2.88	3.56	5.67	
	Adjusted residual	<b>-2.26</b>	0.08	<b>2.63</b>	0.65	
	Count	44	5	5	17	71
	Expected Count	44.14	6.40	7.89	12.58	
	Adjusted residual	-0.04	-0.65	- 1.23	1.55	
	Count	1	0	1	0	2
	Expected Count	1.24	0.18	0.22	0.35	
	Adjusted residual	-0.36	-0.45	<b>1.76</b>	-0.66	
	Count	23	10	7	3	43
	Expected Count	26.73	3.87	4.78	7.62	
	Adjusted residual	-1.26	<b>3.50</b>	1.16	<b>-1.98</b>	
	Count	25	1	5	3	34
	Expected Count	21.14	3.06	3.78	6.02	
	Adjusted residual	1.44	-1.30	0.70	-1.43	
	Count	69	5	6	19	99
	Expected Count	61.54	8.92	11.0 0	17.54	
	Adjusted residual	<b>1.84</b>	<b>-1.64</b>	- <b>1.91</b>	0.46	
	Count	8	0	1	4	13
	Expected Count	8.08	1.17	1.44	2.30	
	Adjusted residual	-0.05	-1.16	- 0.40	1.26	
<b>TOTAL</b>		207	30	37	59	333

Even though the second dimension separates house floor contexts from pits, the null hypothesis of no association between fragmentation and closed context cannot be rejected at the 0.05 level ( $\chi^2 = 7.308$ ,  $df = 7$ ,  $p = 0.403$ ; *Cramer's V* = 0.330,  $p = 0.403$ ). It is clear from Table 2 that there are great differences between house floor and pits in the proportions of complete figurines (relatively more frequent in houses) and upper torso with head (relatively more frequent in pits), but these differences are not statistically significant at the 0.05 level.

Table 2: Fragmentation and closed context types; column percentages in parentheses.

	<i>HOUSE FLOOR</i>	<i>PIT</i>	<i>TOTAL</i>
	6 (20%)	4 (10.8%)	10
	3 (10%)	8 (21.6%)	11
	5 (16.7%)	5 (13.5%)	10
	0	1 (2.7%)	1
	10 (33.3%)	7 (18.9%)	17
	1 (3.3%)	5 (13.5%)	6
	5 (16.7%)	6 (16.2%)	11
	0	1 (2.7%)	1
<b>TOTAL</b>	30	37	67

The plot of logarithmically transformed frequency and ubiquity is presented in Figure 3 along with the with the linear regression line. Frequency explains 97.1% of variance in ubiquity. Fragmentation category that seems to deviate most from the regression line is upper torso with head. The standardized residual value for this fragmentation category is 1.75, and this is significant at the 0.05 level if one-tailed  $p$  value is calculated for this residual ( $p = 0.04$ ). This indicates that this fragmentation category is more ubiquitous than expected for its frequency in the assemblage.

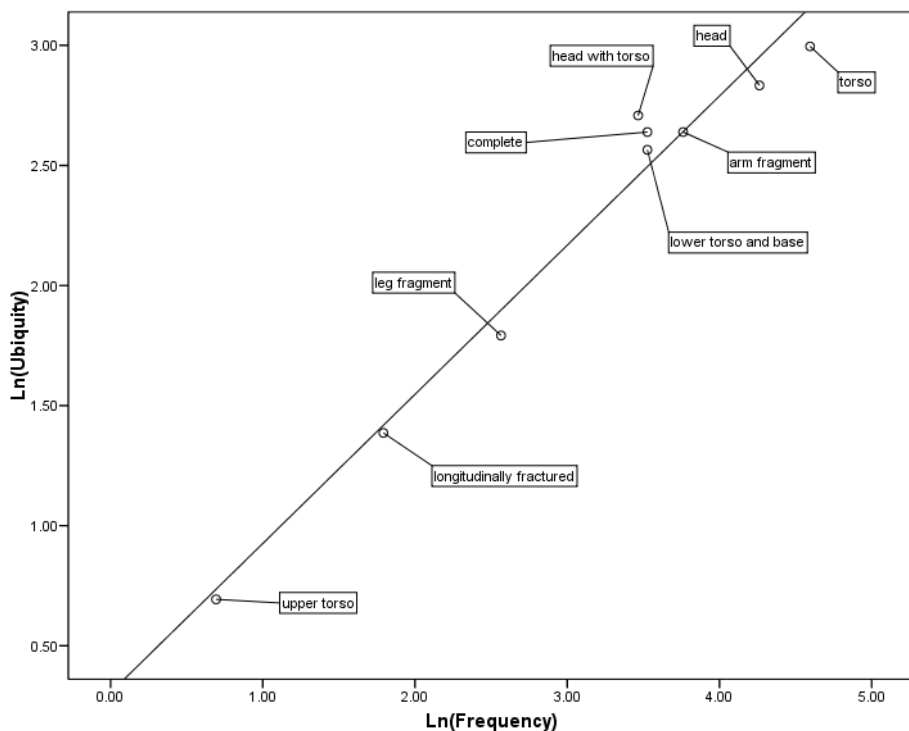


Figure 3: Scatterplot of ubiquity and frequency of fragmentation categories; best fit linear regression line is shown.

## Discussion

The main hypothesis seems to be supported by the data when all context types are included, but there was no significant difference between house floor and pit contexts. The fact that differences are statistically significant only when open contexts are included raises the question of whether these differences were due to formation processes or actual behavior.

The answer to the question – "how did the cultural layer in LN sites in Central Balkans form?" – is relevant for this discussion. Cultural layers are artifact and ecofact rich deposits within which house features are inserted and subsurface features are cut, and they are a common feature of the LN settlements (Chapman 2000b). Thinking about the accumulated assemblages coming from pits or cultural layers brings into focus the theoretical issue of cultural and practical logic (Hutson and Stanton 2007). Are accumulated assemblages from

LN sites in Central Balkans the products of cultural or practical reason? How does the cultural layer form? Is it a product of deliberate deposition (see below) or is the cultural layer a secondary product of formation processes acting on site features such as houses and pits? Chapman's explanation of cultural layer assemblages is given in terms of cultural logic. As Chapman describes it, the typical Balkan Late Neolithic and Copper Age village or farm was:

"(...) another kind of ambience in which a walk around a settlement involved avoiding the larger, if not sharper, materials lying on the ground and was dominated by the smells of decomposing human feces, vegetal and animal matter (...) The basic image of NCA settlements is of people living on top of, or within, what most twentieth century archaeologists would call a 'refuse tip'. The implication of this striking picture is that of the proximity of residents to their discarded objects and food remains rather than strict segregation of 'refuse' into 'rubbish' pits" (Chapman 2000b, 356).

If Chapman is right, the cultural layer is mostly the product of intentional deposition rather than a secondary derivative of assemblages from features transformed by formation processes (see also Chapman 2000a). The taphonomy of animal bones may offer some indirect clues: if the material from the cultural layer comes from disturbed pits and other features, we should expect to find no differences in weathering between bones from the pits and bones from the cultural layer. This hypothesis can be rejected at least for the site of Gomolava, where Orton demonstrated that there were statistically significant differences in the frequency of weathered bones between pits and the cultural layer – bones being more weathered in the cultural layer than in pits (D. C. Orton 2010). The relative frequency of weathered specimens from Gomolava is 25%. Data on weathering are available from several other sites: Stubline – 27.87% (Porčić unpublished), Petnica – 40% (David Orton 2008, 258), Vinča – Belo Brdo – 7% (Dimitrijević 2008). Unfortunately, it is not well understood at what rate the weathering occurs in temperate environments, so it is difficult to interpret these figures in terms of the deposition rate of the cultural layer. However, Orton's result from Gomolava does seem to suggest that the cultural layer is not a secondary context in relation to pits and houses. Therefore, this evidence, along with the fact that the upper parts of transversely broken figurines associated with pits are less likely to be found in the cultural layer may suggest that the deposition of certain kinds of fragments into the cultural layer may have been related to cultural biography rather than formation processes.

The correspondence analysis suggests that upper torso fragments with head are more frequent in pits while complete figurines were more frequent in houses, but *chi-square* test failed to demonstrate the significance of these differences, even though the strength of the association, as measured by *Cramer's V* coefficient was moderate. This may be due to a lack of statistical power or more probably due to the fact that not all house floors come from burnt houses.



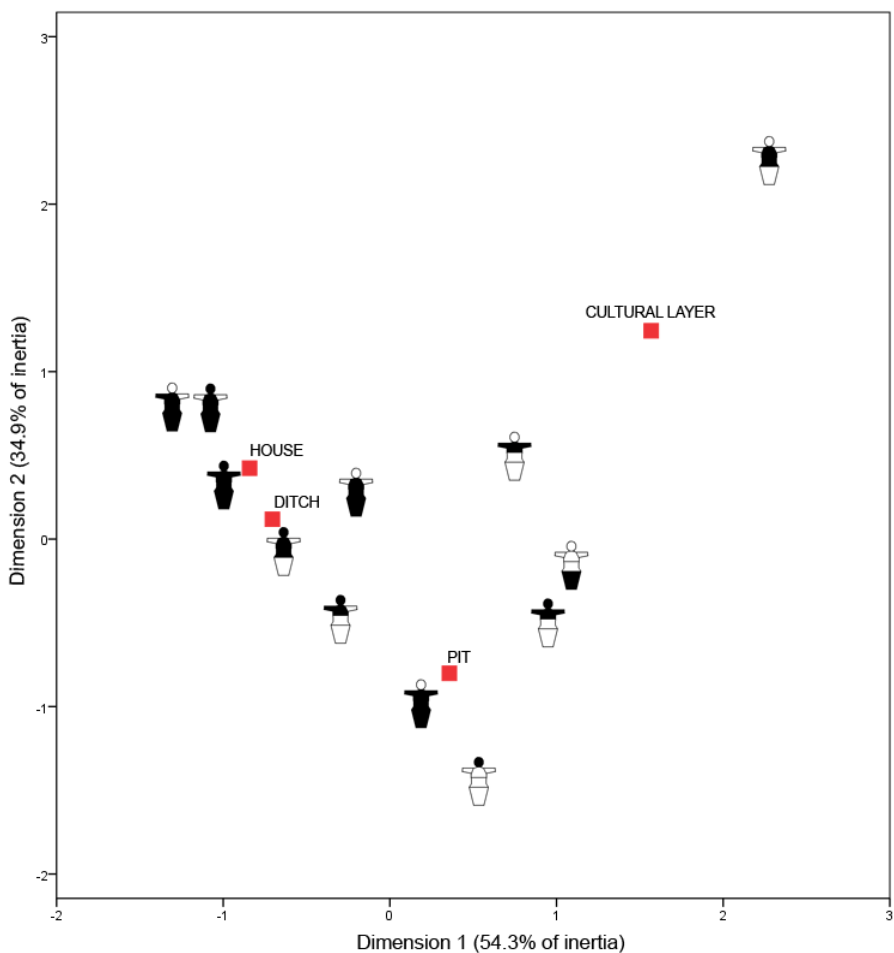


Figure 4: Correspondence analysis of data from Milenković and Arsenijević 2010; symmetrical biplot of context types and fragmentation categories.

Both correspondence analysis and *chi-square* residuals indicate that arm fragments are unusually frequent on house floors. This result is difficult to interpret at this moment. It may be that some of these arm fragments come from unidentified matching pairs (e.g. near complete figurines and their complementary broken arms), but there is no way of checking this without physically inspecting the figurines.

It is interesting to compare the structure of the associations between fragmentation and context at Selevac with the structure of associations based on data collated by Milenković and Arsenijević (2010). Even though the fragmentation and context categories are not the same in these two studies,

most of them are comparable. Correspondence analysis was applied to Milenković and Arsenijević's data, and the results are given in Figure 4. The first two dimensions account for 89.2% of inertia. The first dimension accounts for 54.3% and the second for 34.9% of inertia. There are interesting similarities between the two correspondence plots: complete figurines are associated with houses, upper torso with head is associated with pits, and upper torso without arms and head is associated with the cultural layer. It is interesting to note that the association between closed contexts (houses and pits) with fragmentation is significant in this case ( $\chi^2 = 19.849$ ,  $df = 10$ ,  $p = 0.009$ ; *Cramer's V* = 0.643), meaning that there are statistically significant differences in the distribution of complete (adjusted residual for complete figurines in houses = 3.1) and transversely broken figurines in this sample (adjusted residual for torso with the head and arms in pits = 1.7). This may also be taken as independent evidence, though biased for the reasons explained above, that there was something special about the transversely broken figurines and their deposition into pits.

The "unusualness" of transversely broken figurines at Selevac is also supported by their higher than average ubiquity. For some reason this fragmentation category was found in more individual contexts than expected if the dispersion of this kind of fragments across context was dependent only on its overall frequency.

One of the most important questions related to fragmentation analysis is whether the figurines were broken deliberately or the fragmentation was a result of their use and/or formation processes. There is no experimental evidence (at least not to my knowledge) to guide us in discriminating between intentional and accidental breaks. It is reasonable to assume that figurines are most likely to break in places where they are the weakest such as the neck or the arm region, so this kind of breakage does not have to imply any additional effort to break the figurine. But it is not that simple to determine for other parts of the figurine body whether the break can occur without additional and deliberate human action. Biehl offered criteria for the identification of potential and non-potential breaks (Biehl 2006, 206, Figure 18.3), but acceptable as they may be to the common sense, they are still educated guesses about the probability of intentional and unintentional fragmentation.

In this study, the inference of the nature of fragmentation was not the main objective, but Selevac data can be used to shed some light on this problem as well. This issue deserves a full study, but I will nevertheless present some tentative results that might be relevant for further research. If figurines were fragmented regardless of their size, the average height of preserved figurines should be higher than the average preserved height of the figurines broken in half (e.g. upper torso with head, or just upper torso). This hypothesis can be tested formally on Selevac data. The null hypothesis to be tested is that the

average height of the complete figurines is equal to the average height of upper torso fragments with head and upper torso fragments without head. In Selevac database, there is information about the length, width and thickness of each figurine fragment. The results are surprising: there is no statistically significant difference at the 0.05 level between the length of complete figurines and the length of upper torso fragments with head ( $M_{\text{complete}} = 52. \text{mm}$ ,  $SD_{\text{complete}} = 21.3 \text{mm}$ ;  $M_{\text{upper torso with head}} = 43.8 \text{mm}$ ,  $SD_{\text{upper torso with head}} = 17.2 \text{mm}$ ;  $t = 1.647$ ,  $df = 60$ , one-tailed  $p = 0.0525$ ). Moreover, there are no statistically significant differences between complete figurines and torso fragments without head and arms ( $M_{\text{complete}} = 52 \text{mm}$ ,  $SD_{\text{complete}} = 21.3 \text{mm}$ ;  $M_{\text{torso}} = 50 \text{mm}$ ,  $SD_{\text{torso}} = 31.8$ ;  $t = 0.319$ ,  $df = 125$ , one-tailed  $p = 0.375$ ). In order to account for the possibility that the L dimension reported in the database is a measure of the maximal linear dimension rather than preserved height, the *t test* was performed in the same manner for a "size" variable computed as the product of the length, width, and thickness. No significant differences were found (complete vs. upper torso with head:  $t = 0.338$ ,  $df = 59$ , one-tailed  $p = 0.363$ ; complete vs. torso:  $t = 0.267$ ,  $df = 119$ , one-tailed  $p = 0.395$ ). This means that the complete figurines are not significantly higher or larger than fragments representing approximately one half of their original size. From this it follows that the fragmented figurines were larger when they were complete than the preserved complete figurines.

This is a very important result because it suggests that figurines were broken differentially in respect to their size. What this means in terms of actual behavior is difficult to specify at this moment. Taken at face value, in combination with the (not proven) assumption that large figurines break more easily in general, the most parsimonious explanation for the figurine breakage would be that they were broken accidentally. If big and small figurines were used in a similar manner, and if bigger figurines break more easily when dropped, accidental breakage as a result of manipulation failure is a sufficient explanation for the observed empirical pattern. If there was an intention to break the figurine, this could have been achieved with a little extra effort (e.g. smashing it with a rock) regardless of its size and the potential resistance to breakage. The alternative, but more complex explanation, is that big and small figurines were used for different purposes and perhaps meant different things. In any case, further research is needed on this issue – the first step would be to see whether this pattern is found on other LN sites in the region.

## Conclusion and suggestions for further research

The main conclusion of this study is that there is a statistically significant association between fragmentation and context. Although it is not possible to demonstrate this rigorously, circumstantial evidence suggest that the association

of transversally broken figurine parts with pits and the association of complete figurines with houses indicates changes on the biographical trajectories. Therefore, it seems that the fragmentation of figurines, deliberate or accidental, is culturally significant either as a cause or a consequence of changes in the use of figurines. These results are consistent with Chapman's hypotheses about the use of fragmented objects for social and symbolic statements.

I will conclude this paper with suggestions for future research:

1. Fragmentation analysis should be undertaken for other LN sites in Central Balkans to see whether the patterns of association are the same.
2. Spatial analysis of fragmentation is necessary – are fragmentation categories randomly distributed across the site or do they appear in meaningful clusters?
3. Experiments with fragmentation are necessary in order to determine what are the effects of different fragmentation scenarios (e.g. deliberate vs. accidental) on the probability of observing particular fragmentation categories and breakage types.

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### Kontekstualna analiza fragmentacije antropomorfnih figurina sa kasnoneolitskog lokaliteta Selevac

Pronalaženje odgovora na pitanje šta su predstavljale i čemu su služile antropomorfne figurine u kasnom neolitu Balkana predstavlja jedan od najtežih zadataka praistorijske arheologije. S obzirom na to da nije moguće samo na osnovu formalnih atributa figurina doći do ovog odgovora, alternativni pristup je da se druge klase arheoloških podataka iskoriste kao uporedni okviri za sagledavanje varijacije formalnih atributa figurina. Ukoliko se u jednu ravan stav koncepcija kulturne biografije predmeta Igora Kopitofa i Čepmenova hipoteza o fragmentaciji kasnoneolitskih antropomorfnih figurina sa područja Balkana, može se dedukovati hipoteza da postoji veza između arheološkog konteksta u kome je figurina pronađena, kao uporednog okvira za trajektoriju upotrebnog ciklusa figurine, i modaliteta njene fragmentacije kao direktnog pokazatelja posledica upotrebe (namernog ili slučajnog lomljenja). Cilj ovog rada jeste da na podacima sa lokaliteta Selevac testira ovu hipotezu. Na tabelu u kojoj su ukršteni podaci o kontekstu i fragmentaciji, tj. o zastupljenosti pojedinih kategorija fragmentacije po arheološkim kontekstima, primenjeni su analiza korespondencije i *hi kvadrat* test. Rezultati ukazuju na to da podaci potkrepljuju osnovnu hipotezu tj. da postoji statistički značajna veza između konteksta i modaliteta fragmentacije. Cele figurine dominiraju u kućama, a transverzalno polomljene figurine u jamama. Takođe, podaci sa Selevca ukazuju na to da je fragmentacija figurina bila pristrasna u odnosu na veličinu figurine – veće figurine su češće fragmentovane od manjih figurina.

*Ključne reči:* figurine, fragmentacija, kasni neolit, Selevac, kontekst, kulturna biografija

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Analyse contextuelle de la fragmentation des figurines anthropomorphes de la localité du néolithique tardif de Selevac

Trouver la réponse à la question sur la signification des figurines anthropomorphes et leur usage dans le néolithique tardif des Balkans représente une des tâches les plus difficiles de l'archéologie préhistorique. Étant donné qu'il n'est pas possible d'obtenir cette réponse uniquement à partir des attributs formels des figurines, l'approche alternative consiste à exploiter d'autres classes de données archéologiques en tant que cadres parallèles pour l'analyse de la variation des attributs formels des figurines. Si l'on met sur le même plan la conception de la biographie culturelle des objets d'Igor Kopitof et l'hypothèse de Chapman sur la fragmentation des figurines anthropomorphes du néolithique tardif de la région des Balkans, il devient dès lors possible d'émettre l'hypothèse sur l'existence d'une relation entre le contexte archéologique dans lequel la figurine a été trouvée, cadre parallèle pour une trajectoire du cycle d'usage de la figurine, et la modalité de sa fragmentation, révélateur direct des conséquences de l'usage (de la fracture volontaire ou involontaire). L'objectif de ce travail est de tester cette hypothèse en se fondant sur les données du site de Selevac. Sur le tableau où sont croisées les données sur le contexte et la fragmentation, c'est-à-dire sur la présence des catégories particulières de fragmentation établies d'après leurs contextes archéologiques, l'analyse de la correspondance et le test du X<sup>2</sup> ont été appliqués. Les résultats révèlent que les données étayent la principale hypothèse, celle de l'existence d'une relation statistiquement importante entre le contexte et les modalités de fragmentation. Les figurines intactes se retrouvent dans le plus grand nombre dans des maisons alors que les figurines transversalement abîmées sont plus nombreuses dans des fosses. Les données de Selevac démontrent également que la fragmentation des figurines s'est faite en fonction de leur taille – les figurines plus grandes sont plus souvent fragmentées que les plus petites.

*Mots clés:* figurines, néolithique tardif, Selevac, contexte, biographie culturelle

Primljeno / Received: 01. 06. 2012.

Prihvaćeno / Accepted for publication: 01. 07. 2012.