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First arrival and owning the land: How children reason about ownership of territory

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ABSTRACT

Two experiments provide evidence that children (9–12 years) infer ownership of a physical place from first arrival. In experiment 1, children ($N = 284$) indicated that a character owns the land more and has more ownership right than another character when arriving first compared with arriving at the same time. In the second experiment ($N = 551$) it was found that first arrivers who work the land are perceived to own the land more than those who do not work the land. Yet, the importance of investment for inferring ownership was not so strong to fully undermine the first arriver principle. Additionally, when the first arriving character intended to abandon the land she was considered to own the land less than when she had the intention to return. However, information about abandonment intention also was not relevant enough to fully undermine the possessory right of the first arriver.

‘When we were kids, the girls in my neighborhood used to go out to the nearby parks and forests to pick flowers for their mothers. We knew precisely where the nicest patches of violets could be found, and we tried to get to these locations as quickly as possible and claim them for ourselves. The first girl who would reach the flowers would say “this is mine”, and this was a clear message to the other girls that they did not have the right to pick those specific flowers – simply because they arrived later. So they had to go and look for their own patches.’

1. Introduction

This story about children's sense of possession of territory is from a childhood experience of one of our colleagues. It illustrates that being there first can be an acceptable reason for claiming territorial ownership. It also illustrates that the claim of having arrived first can have exclusionary social consequences. Having arrived first at a piece of land can form a basis for ownership rights whereby the owner is entitled to decide who can be at the land and use it.

Concern with ownership and possessive behavior is evident already in young children, and their conflicts are often disputes about property and the related ownership rights (Ross, 1996; Ross, Conant, & Vickar, 2011). Yet, research has examined children's sense of ownership of physical objects (see Nancekivell, Van de Vondervoort, & Friedman, 2013), and of ideas and intellectual property (Shaw, Li, & Olson, 2012; Yang, Shaw, Garduno, & Olson, 2014), much less is known about children's judgment of land ownership (Zebian & Rochat, 2012) and how they determine ownership of a physical place. Ownership is a human universal (Brown, 1991) and a developing sense of territoriality might have evolutionary roots (Hinde, 1970; Taylor, 1988). Cross-cultural research into the development of ownership judgments has revealed similarities in children's conception of possession and their decisions in land ownership conflicts (Furby, 1978, 1980; Kanngiesser, Itakura, & Hood, 2014; Zebian & Rochat, 2012). Most forms of life observe some sense of territoriality and among humans territorial feelings and behaviors are pervasive and widespread in domestic life and in schools, organizations, neighborhoods, regions and countries (Brown, Lawrence, & Robinson, 2005; Lyman & Scott, 1967; Min & Lee, 2006). Furthermore, territorial behavior whereby an intruder is excluded or punished for invading ‘my’ play area has been found in observational and experimental research among young children (Factor, 2004; O'Neal, Caldwell, & Gallup, 1977). In addition territoriality among youth is a source of social exclusion and conflict, and one of the roots of gang behavior (Childress, 2004; Kintrea, Bannister, Pickering, Reid, & Suzuki, 2008). Thus although

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children rarely actually own a physical place of a piece of land, they do develop a sense of psychological ownership that is involved in power struggles and shapes social relationships and real conflicts.

Research on territoriality has argued that prior use and past investment lead to perceptions and feelings of land ownership. People who have used the land previously or have invested time and energy into it are more likely to feel and to be perceived as owning it (Brown et al., 2005). What has not been considered or examined is the possibility that land ownership is derived from first arrival. The present research examines whether children (9–12 years) use first arrival to infer land ownership. In Experiment 1 children responded to stories in which two children find a good place to pick flowers or to build a sandcastle whereby one of the two children arrives at the place first or both arrive simultaneously. Experiment 2 focuses on first comers and examines whether laboring the land (investment) is an additional cue to land ownership. Furthermore, in experiment 2 we examined whether the intention not to return to the land, and thus to abandon it, has an effect on inferred ownership of first comers. We focused on late childhood because it is only at around 7 or 8 years of age that children are able to use and weigh different forms of information to assess and evaluate claims and rights (Smetana, 2006). Furthermore, compared to objects, ownership of land might be a rather abstract issue for young children.

1.1. First arrival

In political theory the term 'historical right' refers to the right to decide about a piece of land because of first occupancy (Gans, 2001; Murphy, 1990), and in anthropology the term 'autochthony' is used for the belief that a place belongs to those who 'are from the soil' and therefore are entitled to it (Ceuppens & Geschiere, 2005; Geschiere, 2009). Autochthony emphasizes primo-occupancy and is a strong justification for territorial and nationalist sovereignty claims and a core issue in violent conflicts and war (Toft, 2014). The notion of autochthony and the related 'historical rights' have 'come into ascendancy as claims based strictly on ethnic, strategic, and economic considerations have become less acceptable' (Murphy, 1990, p. 531). It figures in, for example, the Jewish-Palestinian dispute over Palestine, the (former) Tamil-Sinhalese dispute in Sri Lanka, and forms the basis of restorative justice claims for indigenous groups (Meisels, 2003). Additionally, autochthony claims are used to exclude newcomers and to justify prejudice towards immigrants and minority groups (Ceuppens, 2011; Geschiere, 2009; Martinovic & Verkuyten, 2013).

Developmental research has examined the importance of having first possession of an object for children's recognition of ownership. Children as young as two have been found to assume that an object belongs to the first person who possessed it (Blake & Harris, 2009; Friedman & Neary, 2008). Older children and adults also argue that the first person to possess a previously non-owned object is its owner (Friedman, 2008; Friedman & Neary, 2008), and the same has been found for the ownership of ideas (Shaw et al., 2012).

An explanation of the first possession bias is that initial possession establishes a psychological association between a person and an object or place (Heider, 1958; Rudmin, 1991). People think of psychological ownership as a subjective association with the related 'feeling of possessiveness and of being psychologically tied to an object' (Pierce, Kostova, & Dirks, 2001, p. 299). Initial possession is an important cue to infer ownership. The person with the earliest past contact is more likely to be viewed as having acquired ownership. First arrival indicates that one occupied the land before anyone else and this might be an important basis for perceiving a subjective association and inferring ownership. Thus, having arrived first at a particular location is information that children may use to infer ownership.

The first arrival assumption is examined in experiment 1 by comparing children's judgment of ownership and the right to control the land in stories in which one child arrives first at a particular place or two children arrive simultaneously. It was predicted that participants would evaluate the character who arrived first – compared to simultaneous arrival – as owning the land more and being more entitled to control it. The stories end with the two children getting into an argument and we also asked who was to blame for this. This allows us to examine whether first arrival affects not only judgments of ownership and the related rights, but also children's reasoning about the ensuing conflict.

2. Experiment 1

2.1. Participants and design

This experimental study was part of a larger data collection among pupils at eight primary schools in different parts of the Netherlands. A paper-and-pencil questionnaire was administered in separate class sessions and under supervision of the teacher and a research assistant. Twelve different versions of the questionnaire were randomly assigned to this sample, and we only selected the participants that completed the two versions that were specifically designed for this experiment ($N = 284$). The two versions were presented in the beginning of the questionnaire. This sample consisted of 43% girls and 57% boys and the ages ranged between 9 and 12 ($M = 10.55$, $SD = .99$). This age range allows us to examine whether the findings are similar for these ages. We had no reasons to expect meaningful age differences and for exploring possible differences we considered age in the analyses.

In a between-subjects design, the children randomly received one of the two versions of the booklet. Each version contained two similar stories in a fixed order. In one version of the booklet the two stories involved a child who finds a nice place and then a second child comes along (first arrival condition). The other version involved two stories about two both children arriving at the place simultaneously (same-time condition). The first story was about the picking of flowers in a field and the second one about building a sandcastle on the beach. The first one was: "Susan and Julia are on vacation and are going to pick flowers in a field. Susan finds a place with nice flowers. Then Julia also comes there. But Susan says, 'It is my spot and only I can pick here'. Julie does not want to leave and they get into an argument" (first arrival), *versus* "Susan and Julia are on vacation and are going to pick flowers in a field. Susan has heard about a place with nice flowers. But Julie follows her and they arrive at the same time at the spot. Susan says, 'It is my spot and only I can pick here'. Julie does not want to leave and they get into an argument" (same-time arrival). For the second vignette the pupils were presented with one of the two following stories: "Bram is at the beach and he wants to build a sandcastle. He finds a nice spot. Then Thijs comes along. Because the sand is good he also wants to build a castle there. But Bram says: 'It is my spot and only I can build here'. Thijs does not want to leave and they get into an argument" (first arrival), *versus*, "Bram is at the beach and he wants to build a sandcastle. He has heard that there is very good sand a bit further away. Thijs follows him and they arrive at the same time at the spot. Bram says: 'It is my spot and only I can build here'. But Thijs does not want to leave and they get into an argument".

After each story the children were asked three questions: on ownership, ownership right, and attributed blame. Preliminary informal discussions with this age group indicated that children often did not attribute ownership to one of the two characters but rather viewed the place as owned by both. Following Beggan and

Brown (1994) and in contrast to research on the first possession bias (e.g., Friedman, 2008, 2010), we therefore did not use a response format in which only one of the two children could own the place. With the first question they were asked 'To whom does this spot belong the most?', and there were five response categories. For example in the story with the sandcastles there categories were: fully to Thijs (1), more to Thijs (2), equally to both (3), more to Bram (4), fully to Bram (5). Subsequently the children were presented with the question on decision right, 'who can decide whether one can pick flowers (build a castle) here?', with Thijs (1), both (2), Bram (3) as three response categories. Lastly, children were asked about attributed blame: 'who is most to blame for the argument?'. The response categories were only Thijs (1), Thijs somewhat more (2), both equally (3), Bram somewhat more (4), only Bram (5).

The ownership questions for the two stories were significantly correlated ($r = .52$, $p < .001$) and we computed a single ownership score with a higher score indicating relatively stronger perceived ownership for the first child. We also computed a single decision right score ($r = .51$, $p < .001$) and a single score for attributed blame ($r = .66$, $p < .001$). A higher score indicates relatively higher decision right and higher blame for the first (arriving) child, respectively. Analyses for the two stories separately yielded the same pattern of results as for the combined scores. Because the data were collected in school classes and therefore had a nested structure of children within classrooms we also examined the intraclass correlations which were below .09. This indicates that there was little variance at the class level. Furthermore, multilevel analysis that takes class-level variance into account yielded the same findings as analyses of variance that are more easy to interpret.

2.2. Results

2.2.1. Descriptive findings

Higher perceived ownership by the first child was significantly associated with stronger right of this child to make decisions ($r = .55$, $p < .001$), and with lower attributed blame for the argument ($r = -.28$, $p < .001$). The perceived right to decide was negatively associated with attributed guilt ($r = -.34$, $p < .001$).

The majority of participants indicated that both characters owned the land (77%). A fifth of the children (21%) found that the first comer owned the land relatively more, and only 2% granted more ownership to the second comer. A one-sample *t*-test showed that the mean score ($M = 3.17$, $SD = .42$) was significantly above the mid-point of the scale ('both own it'), $t(283) = 6.97$, $p < .001$, CI [.12, .22]. Although this score was closer to the value of '3' (mid-point) than the value of '3.5' (indicating a preference for one of the first-comers in the two stories), this indicates that there was a tendency to infer ownership from the first arrival principle. Likewise, the majority of the participants expressed that both children can decide whether one may pick flowers or build a sandcastle (82%), and 14% of the children attributed a higher decision right to the first arriving child. The mean score was again significantly different from the scale mid-point ('both can decide') indicating that children tended to attribute relatively more decision right to the first as compared to the second arriver, $M = 2.17$, $SD = .31$, $t(283) = 4.08$, $p < .001$ CI [.04, .11]. For attributed blame, 46.2% blamed both children for the argument. The mean score ($M = 3.41$, $SD = .95$) was significantly above the mid-point indicating that the participants blamed the child that arrived first (40%) more than the child arriving second, $t(283) = 7.24$, $p < .001$, CI [.30, .52]. Additional analysis showed that there were no significant gender differences ($p_s > .10$) in the perceptions of ownership, ownership right and attributed blame. Thus, gender was not considered further in the analyses.

2.2.2. Findings on first arrival

An ANOVA with experimental condition and age as factors indicated that participant's perception of *ownership* differed by condition, $F(1, 283) = 14.27$, $p < .001$, $\eta_p^2 = .049$. As shown in Fig. 1, the first comer was considered to own the land relatively more in the first arrival condition than in the same-time arrival one ($M = 3.28$, $SD = .50$, and $M = 3.08$, $SD = .30$, respectively). In the latter condition the land was perceived to belong to both children equally because the mean score was not significantly different from the scale mid-point. The effects of age and the interaction between age and condition were not significant ($p_s > .10$).

For the *right to decide* the findings were similar with an effect for condition, $F(1, 283) = 4.65$, $p = .032$, $\eta_p^2 = .02$. The first comer was considered to have relatively more right to decide about the picking of flowers and the building of a sandcastle in the first arrival condition compared to when the children arrived simultaneously ($M = 2.11$, $SD = .37$, and $M = 2.04$, $SD = .24$, respectively). Age had no significant effect, also not in interaction with experimental condition.

Blame attribution for the argument did not differ between the two conditions, $F(1, 283) = 1.27$, $p > .10$, $\eta_p^2 = .01$, and there also was no significant interaction effect between condition and age. However, there was a significant age difference, $F(3, 283) = 2.99$, $p = .031$, $\eta_p^2 = .03$. Post-hoc test showed that the 11-year and 12-year-olds ($M = 3.56$, and $M = 3.50$) blamed the first child significantly more than the 9-years old ($M = 3.08$), with the 10-years old in the middle ($M = 3.34$).

2.3. Discussion

Although most participants viewed the land as belonging to both children, the results demonstrate that first arrival has an effect on ownership judgments. Compared to the same-time arrival situation, a first arriving child was considered to own the place somewhat more and to have relatively more right to decide about who can use the land. Furthermore, the judgments about ownership and ownership rights were positively associated. These findings indicate that first arrival is used to infer ownership and the entitlement to control the land. This corresponds to the notion of autochthony, which views primo-occupancy as a basis for claiming the right to control the land (Geschiere, 2009). Higher perceived ownership and stronger ownership rights of the first arriver were also associated with lower attributed blame for the argument over the land. However, overall first arrivers were blamed more for the argument. Thus, although the first arriver is recognized as owning the land more he or she is also held more responsible for the ensuing dispute. This might be due to the fact that the first arriver is seen as possessive, selfish or bossy.

3. Experiment 2

In experiment 2 we focused on first arrivers and examined two additional considerations for inferring land ownership: the initial arriver's past investment in the land and her intention to abandon it. Investment of time and energy in an object is an important basis for establishing ownership. Children reason that someone comes to own an object through his or her labor (Tummolini, Scorolli, & Borghi, 2013). Those objects in which an individual invests become assimilated into the self: they become part of him/her and of what is his/hers. Furthermore, laboring or working the land implies that one controls it which gives rise to feelings and perceptions of ownership (Furby, 1978; Pierce et al., 2001). This means that it can be expected that a first comer would be perceived to own the place more when she had worked the land relative to when she had not. We tested this prediction by using four different versions

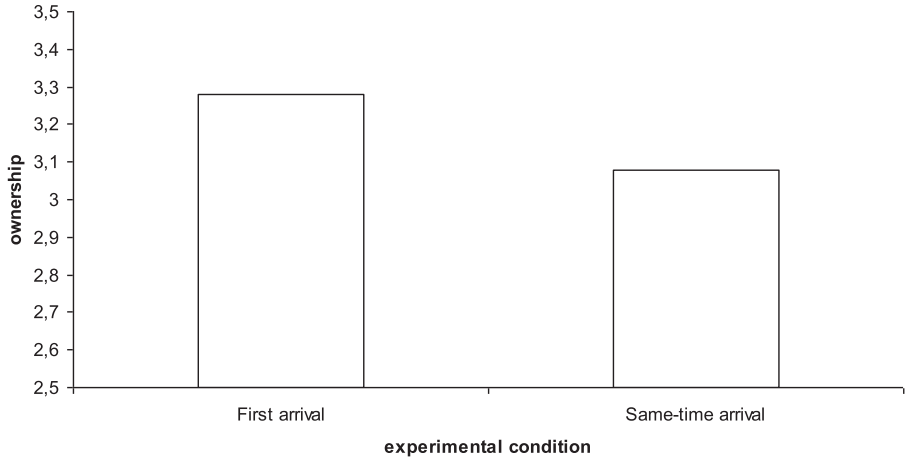

Fig. 1. Ownership judgments for first arrival and same-time arrival conditions in experiment 1.

of a story in which the later arriving child always invested in the land after the first child had temporarily left. This allows us to examine whether in determining ownership first arrival without investment is more important than later arrival with investment. This provides a strong test of the first arrival principle. Having worked the land can be used to infer land ownership but does not have to determine other judgments such as liking the place (Friedman, 2008; Nancekivell & Friedman, 2014). To examine whether investment is specific for inferring ownership we tested whether liking judgments are also affected by investment.

In contrast to left property in which the initial processor remains the owner, abandoning one's property implies relinquishing possessory interests and rights (Beggan & Brown, 1994; Snare, 1972). Thus, when people abandon the land to which they arrived first, they might be considered to own the land less than the second arriver. We examined this possibility in terms of the intentions of the first arriver. Research has shown that already young children consider intentions when interpreting and evaluating behavior (e.g., Lillard, 1998; Meltzoff, 1995). The same behavior is interpreted differently depending on the intentions of the actor. We expected that a first arriver would be considered to own the land less if she intended to abandon it compared to if she did not. The intention to abandon the land was also predicted to lead to the perception that the first comer likes the land less.

3.1. Participants and design

This experimental study was part of the same data collection as experiment 1 and presented at the end of the questionnaire. Thus, some of the children who participated in experiment 1 also participated in experiment 2. For experiment 2, the total sample (N = 551) consisted of 49% girls, and the mean age was 10.57 (SD = .98).

Four different versions of a single story were used to assess perceived land ownership and liking. The versions were randomly distributed between children and within classrooms using a 2 (investment in the land, no-yes) by 2 (intention to return, no-yes) between-subjects design. The four versions adapted from Beggan and Brown (1994) were; "Karen finds a piece of land where she wants to grow flowers. She starts with removing the weeds. But then she has to go home to eat. After dinner she returns. But in the meantime Anne has come to the spot and has started to remove the weeds. Karen says that the land is hers and that Anne has to leave" (*investment and intention*); "Karen finds a piece of land where she wants to grow flowers. But she first has to go home to eat. After dinner she returns. But in the meantime Anne has come to the spot and started to remove the weeds. Karen says that the land is hers and that Anne has to leave" (*no investment and intention*); "Karen finds a piece of land where she wants to grow flowers. She starts with removing the weeds. But then she has to go home to eat. She does not like removing the weeds and does not want to return after dinner. But after dinner she changes her mind and returns anyway. In the meantime Anne has come to the spot and started to remove the weeds. Karen says that the land is hers and that Anne has to leave" (*investment and no intention*); "Karen finds a piece of land where she wants to grow flowers. But she first has to go home to eat. That is not so bad because actually she does not like to remove the weeds. So she does not want to return after dinner. But after dinner she changes her mind and returns anyway. In the meantime Anne has come to the spot and started to remove the weeds. Karen says that the land is hers and that Anne has to leave" (*no investment and no intention*).

After the story and similar to experiment 1, the children were asked to give an answer to the question 'To whom does this spot belong the most?'. There were again five response categories: fully to Anne (1), more to Anne (2), equally to both (3), more to Karen (4), fully to Karen (5). Subsequently the children were asked to indicate who likes the land most: Anne (1), both equally (2), Karen (3). The answers to the ownership and liking question were positively but weakly associated (r = .16, p < .001) and this association was similar for the four versions (.09–.21).

3.2. Results

Across the experimental conditions, 55.9% of the children indicated that the piece of land was equally owned by both children, 35.4% considered the first arriving child the owner, and 8.3% choose the second arriving child as the owner. The overall mean score (M = 3.34, SD = .78) was significantly above the mid-point ('both own equally') of the scale, $t(551)$ = 10.18, p < .001, CI[.28, .41], indicating higher perceived ownership of the first as compared to the second arriver. There were no significant differences for gender and age.

For the liking question, 66.2% indicated that both children equally liked the place, 16.2% thought that the first arriving child liked it more than the second child, and 17.6% thought that the second child liked it more. The mean score (M = 1.99, SD = .58) did not differ significantly from the mid-point of the scale, $t(551)$ = .59, p > .10, CI[−.06, .04]. There were no significant age and gender differences for the liking judgment.

To examine differences in perception of ownership we performed an ANOVA with investment (no-yes) and intention to return (no-yes) as the two experimental conditions. Furthermore, we included participation in experiment 1 (no-yes) as a control variable. The reason is that although the second experiment was presented at the end of the questionnaire, it came after experiment 1 which implies the possibility of carry-over effects. The analysis indicated that participant's perception of *ownership* differed by investment condition, $F(1, 551) = 21.88$, $p < .001$, $\eta_p^2 = .04$. As expected the first arriving child was considered to own the land relatively more when she had already removed weeds compared with when she had not ($M = 3.49$, $SD = .77$, and $M = 3.19$, $SD = .76$). Additionally, in the latter condition the mean score was significantly different from the mid-point of the scale ('own both'). This indicates that the first arriver was viewed as owning the land relatively more even when the second arriver had labored the land and she had not, $t(272) = 4.08$, $p < .001$, CI[.09, .27].

There was also a significant main effect for intention, $F(1, 551) = 7.02$, $p = .01$, $\eta_p^2 = .01$. When the first arriving child intended to return she was considered to own the land somewhat more compared with when she had no intention to return ($M = 3.42$, $SD = .77$, and $M = 3.24$, $SD = .78$, respectively). Yet in the latter condition she still was perceived as owning the land relatively more than the second child because the score was significantly above the mid-point ('both equally'), $t(271) = 5.67$, $p < .001$, CI[.18, .36]. There were no significant interaction effects between the two experimental conditions (Beggan & Brown, 1994) and there were no interaction effects between the conditions and age. Furthermore there were no significant age differences, and participation in the previous experiment also had no significant effect[1] (all $p_s > .10$).

For *liking* a similar analysis of variance yielded a significant effect for intention, $F(1, 551) = 46.67$, $p < .001$, $\eta_p^2 = .08$. When the first child intended to return later (*versus* no intention to return) she was perceived as liking the piece of land relatively more ($M = 2.16$, $SD = .48$, and $M = 1.81$, $SD = .63$, respectively). The effect for investment was not significant ($p > .10$) and the interaction between investment and intention was also not significant ($p > .07$). This indicates that participants did not rely on labor when answering the liking question. Furthermore, there was no significant difference for participation in the previous experiment or for age, and also not for age in interaction with the experimental condition.

3.3. Discussion

The findings of experiment 2 demonstrate that first arrivers who invest in the land are perceived to own the land relatively more than those who do not work the land. The importance of investment for inferring ownership was not so strong to fully undermine the first arriver principle: the first arriver was considered to own the land relatively more when she did not work the land compared to the later arriver who did work it. Furthermore, the findings suggest that the investment assumption is specific because it is limited to the question regarding ownership: it did not have an effect on the liking question (Friedman, 2008; Nancekivell & Friedman, 2014).

When the first arriving child intended to abandon the land she was considered to like and to own the land less than when she had the intention to return. However, information about abandonment intention was not relevant enough to fully undermine the possessory right of the first arriver. When the first arriver did not intend to return but did so after all, she still was perceived to own the land relatively more than the later arriver. This indicates that first arrival was not fully disregarded when competing information about ownership was available.

4. General discussion

To our knowledge this is one of the first experimental studies that has examined children's reasoning about land ownership (Zebian & Rochat, 2012). Most forms of life observe some sense of territoriality and territorial feelings and behaviors are pervasive and widespread in children's lives at home, in school and in their neighborhood (Factor, 2004; O'Neal et al., 1977). Two experiments examined whether children judge that the first person to arrive at a particular place owns it relatively more than someone who arrives later, and whether personal investment in the land and the intention to abandon it are additional considerations for inferring ownership that might undermine the first arrival principle. The findings show that children believe that a person owns a particular land relatively more when that person arrived first. This is in agreement with the view that children infer ownership from information about who possessed an object in the past (Friedman, Neary, Defeyter, & Malcolm, 2011; Friedman, Van de Vondervoort, Defeyter, & Neary, 2013; Nancekivell & Friedman, 2014). The person with the earliest, first contact is more likely to be viewed as having acquired ownership. In experiment 2 it was found that in judging ownership, first arrival even outweighed the laboring of the land of the later arriver. Thus the perceived possessory right of the first arriver was not fully transferred to someone who had worked the land but had not arrived first. Furthermore, when the first arriving child initially intended to abandon the land she was considered to own it less than when she had the intention to return, but in the former situation she still was perceived to own the land relatively more than the later arriver. These findings indicate that first arrival is a relevant principle to determine ownership and that this principle is not disregarded when competing information about ownership is available. Furthermore, in experiment 1 the principle was not only used to determine who owns the land more but also to infer who is more entitled to control the land. The acknowledgment of ownership right is crucial for ownership (Furby, 1978) and first arrival appears to be a basis for claiming and granting this right.

The findings in experiment 2 further suggest that personal investment in the land is a basis to infer ownership but not perceived liking of the land. When a person is laboring or working the land he or she is considered to own the land more but this does not imply that he or she likes it more. Liking was found to depend on the intention of the first arriver to abandon the land or not, whereby the initial intention not to return was associated with lower perceived liking.

This research suggests that children infer who owns a piece of land by considering who arrived first and therefore has had the earliest contact with the land. In contrast to previous research that focused on ownership of human-made objects (Friedman et al., 2013; Gelman, Manczak, & Noles, 2012), we showed that historical information is used to judge ownership of natural objects. Being there first seems an important consideration for deciding who owns the land and has the right to control it. This corresponds to 'historical right' which in political theory refers to the right to a piece of land because of first occupancy (Gans, 2001; Murphy, 1990), and to anthropological research that has demonstrated that people use notions of autochthony as self-evident reasons to (re-)claim land and rights in territorial and other disputes (Ceuppens & Geschiere, 2005; Geschiere, 2009). First-comers to a new territory have historically claimed ownership of the respective

[1] There were also no carry-over effects for specific experimental conditions (all $p_s > .10$).

territory and the belief of 'we were here first' tends to trigger self-evident notions of ownership and entitlements.

We have tried to make one of the first contributions to the understanding of children's reasoning about land ownership but there are some limitations and different possible directions for future research. First, although there is experimental and statistical evidence for the first arrival principle it should be noted that the majority of children indicated that both characters owned the land equally ('equally to both'). Children tend to attach great importance to equality and often insist on equal sharing and even distribution (Killen & de Waal, 2000). Furthermore, older children are well aware of the social norm of fairness and equality which might lead to social desirable responding (Rutland, 2004). What the results then show is that despite the personal and social importance of equality there is a tendency to infer relative land ownership on the basis of first arrival. Furthermore, the fact that many children indicated that the land belonged to both characters might be due to the short, written descriptions that were used and that lack vividness. This might mean that many children did not clearly perceive the scenarios in terms of ownership issues, even though they were explicitly presented with an ownership question. It is possible that the effects are stronger when, for example, images and short films are presented to the children in which the question of ownership is more obvious. At the same time, and although we used the response category 'equally to both', it should be acknowledged that we asked the children to indicate who owns the land 'the most'. For some children this might have suggested and implied a choice between the two characters and guided them in the direction of the first comer.

Second, concern with ownership is evident in young children but the evidence is about ownership of objects (Nancekivell et al., 2013) and therefore it is unclear whether young children think that land can be owned, how they reason about land ownership and how this develops. We focused on older children and future studies could examine, for example, at which age young children develop an understanding that a particular place can be owned and the type of information that they use to infer ownership and the related entitlements. Additionally, future studies could examine the first arrival principle cross-culturally. Developmental and cross-cultural investigates may shed light on the general psychological basis of ownership as well as the likely cultural variation in ownership claims and rights. For example, although research has found cross-cultural similarities in children's reasoning about ownership and land ownership conflicts (Furby, 1978; Kanngiesser et al., 2014; Zebian & Rochat, 2012), the first arrival principle might be less important for nomadic people. Furthermore, cultural differences in work ethic might affect the role of past investment for inferring ownership and there might be cultural differences in when it is considered legitimate to take or use someone's land (e.g., Rossano, Rakoczy, & Tomasello, 2011).

Third, it might be useful for future research to systematically consider attributions in examining land ownership claims and disputes. In Study 1 we found that first arrivers were blamed more for the ensuing argument and this might be because they were seen as selfish or bossy. These types of interpretations may lead to perceiving the first arriver as having a less justified claim of ownership (Beggan & Brown, 1994). Additionally, it is important to examine the first arriver principle when there is competing information available for inferring ownership. In Study 2 we examined the role of personal investment and the intention to abandon the land but there are other considerations that can be important. For example, first arrival may be disregarded when children are explicitly told who owns the land or when the duration of stay at the land of the first arriver is much shorter than that of the later arriver, or when the later arriver has made the land prosper. There will be many situations in which land ownership inferences are not based on the first arriver assumption alone, or at all. Therefore it is important to examine the first arriver principle in combination and competition with other considerations.

Fourth, we have examined inferred land ownership in the case of two individual children. However, there are many situations in which groups of children make claims on a particular physical place, such as when children convert a site in their play area, club or hideaway (Factor, 2004), or with youngsters that form an urban street gang (Kintrea et al., 2008). Having a personal sense of ownership ('mine') might differ from a sense of collective ownership ('ours') (Pierce & Jussila, 2010), which forms the basis of autochthony claims. Children might reason differently about collective ownership and collective ownership rights. Hence, it could be examined whether the present findings about land ownership also apply to situations in which a group of children arrives first at a particular place followed later by another group. This type of research might also shed light on the role that perceived collective ownership can play in children's reasoning about exclusion of newcomers and immigrants (Verkuyten, Thijs, & Sierksma, 2014).

In conclusion, the present study provides evidence for a first arrival bias in children's reasoning about land ownership. First-comers to a new territory have historically claimed ownership of the respective territory and the belief of 'we were here first' tends to trigger self-evident notions of ownership and entitlements that lead to exclusionary behavior and negative feelings towards outsiders and newcomers (Geschiere, 2009; Martinovic & Verkuyten, 2013). Territoriality or perceived ownership of physical place is central to people's lives and an important influence on their thoughts and feelings. It organizes behavior in ways that reduce the necessity for aggression and conflict and thereby contributes to social and communal functioning (Edney, 1975), but it can also become the topic of disputes between groups and defensive and exclusionary territorial behaviors (Brown et al., 2005; Kintrea et al., 2008; O'Neal et al., 1977). These are all the more reasons to investigate people's reasoning about land ownership. We have tried to make one of the first contributions to this and we hope that our research provides useful guidelines for many other questions that can be asked and investigated in relation to the first arrival principle.

References

Beggan, J. K., & Brown, E. M. (1994). Association as a psychological justification for ownership. *Journal of Social Psychology, 128*, 365–380.

Blake, P. R., & Harris, P. L. (2009). Children's understanding of ownership transfers. *Cognitive Development, 24*, 133–145.

Brown, D. E. (1991). *Human universals*. New York: McGraw-Hill.

Brown, G., Lawrence, T. B., & Robinson, S. L. (2005). Territoriality in organizations. *Academy of Management Review, 30*, 577–594.

Ceuppens, B. (2011). From 'the Europe of the regions' to 'the European Champion League': The electoral appeal of populist autochthony discourses in Flanders. *Social Anthropology, 19*, 159–174.

Ceuppens, B., & Geschiere, P. (2005). Autochthony: Local or global? New modes in the struggle over citizenship and belonging in Africa and Europe. *Annual Review of Anthropology, 34*, 385–407.

Childress, H. (2004). Teenagers, territory and the appropriation of space. *Childhood, 11*, 195–205.

Edney, J. J. (1975). Territoriality and control: A field experiment. *Journal of Personality and Social Psychology, 31*, 1108–1115.

Factor, J. (2004). Tree stumps, manhole covers and rubbish tins: The invisible playlines of a primary school playground. *Childhood, 11*, 142–154.

Friedman, O. (2008). First possession: An assumption guiding inferences about who owns what. *Psychonomic Bulletin and Review, 15*, 290–295.

Friedman, O. (2010). Necessary for possession: How people reason about the acquisition of ownership. *Personality and Social Psychology Bulletin, 36*, 1161–1169.

Friedman, O., & Neary, K. R. (2008). Determining who owns what: Do children infer ownership from first possession? *Cognition, 107*, 829–849.

Friedman, O., Neary, K. R., Defeyter, M. A., & Malcolm, S. L. (2011). Ownership and object history. In H. Ross, & O. Friedman (Eds.), *Vol. 132. Origins of ownership of property: New Directions for child and adolescent development* (pp. 79–89).

Friedman, O., Van de Vondervoort, J. W., Defeyter, M. A., & Neary, K. R. (2013). First possession, history and young children's ownership judgments. *Child Development, 84*, 1519–1525.
Furby, L. (1978). Possession in humans: An exploratory study of its meaning and motivation. *Social Behavior and Personality, 6*, 49–65.
Furby, L. (1980). The origins and early development of possessive behavior. *Political Psychology, 2*, 30–42.
Gans, C. (2001). Historical rights: The evaluation of nationalist claims to sovereignty. *Political Theory, 29*, 58–79.
Gelman, S. A., Manczak, E. M., & Noles, N. S. (2012). The non-obvious basis of ownership: Preschool children trace the history and value of owned objects. *Child Development, 83*, 1732–1747.
Geschiere, P. (2009). *The perils of belonging: Autochthony, citizenship, and exclusion in Africa and Europe*. Chicago: University of Chicago Press.
Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
Hinde, R. A. (1970). *Animal behavior*. New York: McGraw-Hill.
Kanngiesser, P., Itakura, S., & Hood, B. M. (2014). The effect of labour on ownership decisions in two cultures: Developmental evidence from Japan and the United Kingdom. *British Journal of Developmental Psychology, 32*, 320–329.
Killen, M., & de Waal, F. B. M. (2000). The evolution and development of morality. In F. Aureli, & F. B. M. de Waal (Eds.), *Natural conflict resolution* (pp. 352–372). Berkeley: University of California Press.
Kintrea, K., Bannister, J., Pickering, J., Reid, M., & Suzuki, N. (2008). *Young people and territoriality in British cities*. York, UK: Joseph Rowntree Foundation.
Lillard, A. S. (1998). Wanting to be it: Children's of intentions underlying pretense. *Child Development, 69*, 981–993.
Lyman, S. M., & Scott, M. B. (1967). Territoriality: A neglected sociological dimension. *Social Problems, 15*, 236–249.
Martinovic, B., & Verkuyten, M. (2013). 'We were here first, so we determine the rules of the game': Autochthony and prejudice toward outgroups. *European Journal of Social Psychology, 43*, 637–647.
Meltzoff, A. N. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month old children. *Developmental Psychology, 31*, 838–850.
Meisels, T. (2003). Can corrective justice ground claims to territory? *The Journal of Political Philosophy, 11*, 65–88.
Min, B., & Lee, J. (2006). Children's neighbourhood place as a psychological and behavioural domain. *Journal of Environmental Psychology, 26*, 51–71.
Murphy, A. B. (1990). Historical justification for territorial claims. *Annals of the Association of American Geographers, 80*, 531–548.
Nancekivell, S. E., & Friedman, O. (2014). Preschoolers selectively infer history when explaining outcomes: Evidence from explanations of ownership, liking, and use. *Child Development, 85*, 1236–1247.
Nancekivell, S. E., Van de Vondervoort, J. W., & Friedman, O. (2013). Young children's understanding of ownership. *Child Development Perspectives, 7*, 243–247.
O'Neal, E., Caldwell, C., & Gallup, G. G. (1977). Territorial invasion and aggression in young children. *Environmental Psychology and Nonverbal Behavior, 2*, 14–25.
Pierce, J. L., & Jussila, I. (2010). Collective psychological ownership within the work and organizational context: Construct introduction and elaboration. *Journal of Organizational Behavior, 31*, 810–834.
Pierce, J. L., Kostova, T., & Dirks, K. T. (2001). Towards a theory of psychological ownership in organizations. *Academy of Management Review, 26*, 298–310.
Ross, H. (1996). Negotiating principles of entitlement in sibling property disputes. *Developmental Psychology, 32*, 90–101.
Ross, H., Conant, C., & Vickar, M. (2011). Property rights and the resolution of social conflict. In H. Ross, & O. Friedman (Eds.), *Origins of ownership of property: New directions for child and adolescent development* (Vol. 132, pp. 53–64).
Rossano, F., Rakoczy, H., & Tomasello, M. (2011). Young children's understanding of violations of property rights. *Cognition, 121*, 219–227.
Rudmin, F. W. (1991). "To own is to be perceived to own": A social cognitive look at the ownership of property. *Journal of Social Behavior and Personality, 6*, 85–104.
Rutland, A. (2004). The development of self-regulation and intergroup attitudes in children. In M. Bennett, & F. Sani (Eds.), *The development of the social self* (pp. 247–265). East Sussex, UK: Psychology Press.
Shaw, A., Li, V., & Olson, K. R. (2012). Children apply principles of physical ownership to ideas. *Cognitive Science, 36*, 1383–1403.
Smetana, J. G. (2006). Social cognitive domain theory: Consistencies and variations in children's moral and social judgments. In M. Killen, & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 119–154). Mahwah, NJ: Erlbaum.
Snare, F. (1972). The concept of property. *American Philosophical Quarterly, 9*, 200–206.
Taylor, R. B. (1988). *Human territorial functioning: An empirical, evolutionary perspective on individual and small group territorial cognitions, behaviors, and consequences*. Cambridge: Cambridge University Press.
Toft, M. D. (2014). Territory and war. *Journal of Peace Research, 51*, 185–198.
Tummolini, L., Scorolli, C., & Borghi, A. M. (2013). Disentagling the sense of ownership from the sense of fairness. *Behavioral and Brain Sciences, 36*, 101–102.
Verkuyten, M., Thijs, J., & Sierksma, J. (2014). Majority children's evaluation of acculturation preferences of immigrant and emigrant peers. *Child Development, 85*, 176–191.
Yang, F., Shaw, A., Garduno, E., & Olson, K. R. (2014). No one likes a copy-cat: A cross-cultural investigation of children's response to plagiarism. *Journal of Experimental Child Psychology, 121*, 111–119.
Zebian, S., & Rochat, P. (2012). Judgment of land ownership by young refugee Palestinian and U.S. children. *International Journal of Behavioral Development, 36*, 449–456.