British Journal of Developmental Psychology (2005), 23, 559–568

The British Psychological Society

www.bpsjournals.co.uk

Brief report

Social-cognitive skills between 5 and 10 months of age

Tricia Striano* and Evelin Bertin

Cultural Ontogeny, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

Joint attention skills are an important part of human cultural learning. However, little is known about the emergence and meaning of these skills in early ontogeny. The development of, and relation among, various joint attention skills was assessed. Seventy-two 5 to 10-month-old infants were tested on a variety of joint attention tasks. Intercorrelations among these tasks were sparse, which puts into question the meaning of these various skills. In addition, the majority of infants exhibited some joint attention skill before 9 months of age, which points to a more gradual development of joint attention skills than suggested by previous research.

Joint attention skills take a variety of forms. At some point in ontogeny, humans look in the direction of others' attention (attention following), check others' face when in an ambiguous situation (i.e. social referencing), selectively match others' goals (i.e. imitation), and show and share objects with social partners. Some of these behaviours are also present in a range of other species (e.g. Emery, 2000), but do not appear to coalesce as they do in humans (Tomasello, 1999).

Despite a general agreement that at some point in ontogeny the manifestation of joint attention skills implies an awareness of others' intentions (such as looking to people because they are sources of information; see Baldwin & Moses, 1997), there is also much debate surrounding the meaning of various joint attention skills. Furthermore, how and when these skills emerge in ontogeny and what they signify is the topic of much debate (e.g. Moore & Dunham, 1995).

Some research suggests that early joint attention skills do not necessarily imply an awareness of others' intentions or goals, but might reflect some sort of rule-based associative learning. For instance, Corkum and Moore (1998) successfully trained infants between 6 and 11 months of age to follow another's gaze to an interesting event, although the behaviour was not spontaneously observed in the youngest group of

*Correspondence should be addressed to Tricia Striano, Max Planck Institute for Human Cognitive and Brain Sciences, Neurocognition and Development Group, Otto-Schill-Strasse 1a, 04109 Leipzig, Germany (e-mail: striano@cbs.mpg.de).

DOI:10.1348/026151005X26282

infants. This finding shows that learning may underlie some triadic social behaviours involving people and objects (see also Caron, Butler, & Brooks, 2002).

Such 'lean' interpretations have been disputed. Tomasello (1995) argues that it is difficult to apply conditioning responses to the host of joint attention behaviours that co-emerge by the end of the first year. Rather, he suggests that by the end of the first year infants start to engage in a range of joint attention activities because they start to understand others as intentional agents (see also Tomasello, 1999).

Carpenter, Nagell, and Tomasello (1998) assessed the developmental trajectory and interrelation among various social cognitive skills. This study was among the first to investigate systematically the relation among various joint attention and non-social tasks in a relatively large sample of infants. Infants were assessed at monthly intervals between 9 and 15 months of age on a battery of skills that included joint engagement, attention following, imitative learning, communicative gesturing, and language. By 9 months of age, all infants did some coordinated joint attention between people and objects. Moreover, the various joint attention skills tended to emerge in a systematic manner across infants, suggesting that they are a manifestation of the same underlying understanding of others as intentional (see also Tomasello, 1995). The study corroborated research on independent social cognitive skills showing the start of coordinated looking by the end of the first year (e.g. Bakeman & Adamson, 1984; Phillips, Baron-Cohen, & Rutter, 1992; Trevarthen & Hubley, 1978; see also Lempers, 1979).

However, recent studies have not corroborated this relationship between various joint attention skills. For example, Slaughter and McConnell (2003) assessed the relation between gaze-following, social referencing, imitation, and naming in a cross-sectional group of 60 infants between 8 and 14 months of age. The authors found few relations among the various tasks, and hence ' . . . no evidence that infants' capacity to engage in various joint-attention behaviours were developmentally related . . . ' (p. 66). Interestingly, the results were not due to a ceiling or floor effect because approximately half of all infants passed all of the tasks.

Other research also suggests that joint attention skills are not highly related. Research by Mundy and colleagues has suggested a dichotomy between the initiation of joint attention skills (e.g. proto-declarative gestures, giving, showing) and behaviours such as attention following or imperative gestures which serve instrumental functions other than sharing attention with others (e.g. Mundy, 1995; Mundy, Kasari, & Signam, 1992; Mundy & Neal, 2001; see also Mundy, Card, & Fox, 2000).

Cleary, further research is needed to identify the emergence, interrelationship, and potential meaning of various joint attention skills before the end of the first year. This is especially important since Carpenter *et al.*'s (1998) seminal study on joint attention reported skewed ages of emergence for various tasks given that many infants were already engaging in joint attention tasks at the very first visit of their study (9 months of age). Assessing various joint attention skills in early ontogeny and among typically developing infants is also critical in establishing the possible predictive value of these tasks in the identification of social-cognitive disorders such as autism.

We considered various joint attention skills earlier in ontogeny than in previous investigations. Prior studies assessed interrelations during or after the onset of many joint attention skills starting at around 9–12 months of age (e.g. Carpenter *et al.*, 1998; Slaughter & McConnell, 2003), or assessed infants on a limited series of tasks (i.e. D'Entremont, Hains, & Muir, 1997; Morales, Mundy, & Rojas, 1998). In the current study, the emergence of joint attention skills and the relation among these skills was assessed in infants between 5 and 10 months of age. Given some evidence of social cognitive skills such as coordinated attention, teasing, and attention following by 7 months of age (see Morales *et al.*, 1998; Striano & Rochat, 1999), infants were tested starting at 5 months of age.

Method

Participants

Seventy-two infants (44 male and 28 female) between 5 and 10 months of age participated in this study ($M = 7$ months 26 days, $SD = 38.78$ days, range $= 5$ months 14 days to 10 months 1 day). Three additional infants ($M = 5$ months 24 days) participated but were excluded because they were not able to sit up without support, and could therefore not engage in some of the tasks.

Participants were recruited by telephone from a database consisting of a list of names of infants whose caregivers had volunteered to participate in studies of child development. All infants were full-term and healthy, and cared for at home primarily by their biological parents. They were Caucasian, living in the east of Germany, and were from middle-class families. Infants received a toy for their participation.

General procedure

The testing sessions were conducted in a 3×4.5 m testing room and filmed with a digital video camera. The camera was positioned behind and to the right side of experimenter and captured the infant's face and body as well as a profile view of the main experimenter. In addition, the camera captured various objects placed in front of the infant. The tasks were administered while infants sat on a soft mat held by their caregivers, who sat behind them. A female experimenter (E1) administered all tasks and sat 0.8 m in front of the infants. A second female experimenter (E2) sat out of the view of the infants, timed the various parts of the tasks, and coded the infants' behaviours online by marking on a piece of paper infant's performance. The online coding was used for the main coding, and was essential for some tasks, such as to determine if infants localized target objects for attention following tasks. Video records were primarily used for reliability (see below). Each session lasted approximately 20 minutes. Infants were administered five joint attention tasks and one means-end task. The order of the tasks was randomized across infants following the same general procedure of Carpenter *et al.* (1998), in order to eliminate any possible order effects.

Joint attention tasks

Coordinated attention

The purpose of this task was to assess whether infants spontaneously engaged in coordinated attention, namely, whether they alternated their gaze from an outside entity (i.e. a toy) to E1 and immediately back to the same outside entity while in a free play episode. E1 gave infants several toys with which they could play (Elmo in a car; blocks; stacking cups; a softball; a rattle with face; and several novel objects, i.e. ambiguous plastic objects with no function). The toys were presented to infants in a sequential manner, and within 20–30 seconds. The scoring of the task began once all objects were placed in front of the infant. The toys served as the outside entities on which infants could establish coordinated attention with E1. The free play episode lasted 6 minutes.

This was done because infants were younger than in prior studies and may have become fatigued more easily. In Carpenter *et al.*'s study, the same task was conducted for a duration of 10 minutes and the scoring criterion was the same.

Analogous to Carpenter *et al.*'s study, coordinated attention was coded when infants gazed from a toy to E1's face and immediately back to the same toy without directing gaze to a different object. To ensure spontaneous instances of coordinated attention, infants' looks to E1 in response to her speaking or moving were not tallied. Infants passed if they engaged in at least one coordinated attention look.

Gaze following

In this and the next task, infants' ability to follow the attention directing cues of a person to an object was assessed. E1 gave infants a block. Once infants became engaged with the object, E1 called the infants by name, waited for eye contact to be established, and then with a happy facial and vocal expression ('Ohhh!'), turned her head and eyes toward one of four target toys that hung from the walls of the testing room (two toys to the right and two toys to the left side of the infant). Then, E1 alternated her gaze between the target toy and the infants' eyes 3–4 times.

Point following

The point following task was identical to gaze following task, with the exception that E1 extended her arm and index finger to the target toys.

The positions of the target toys to the right and left of the room and which target toys E1 gazed and pointed at were randomized across infants. Infants were coded on whether they looked at the target toy to which E1 directed her attention at any time during the trial after the adult had looked at the object. Infants were given two trials in the gaze following task, and two trials in the point following task. Infants passed each task if they localized the target object on at least one trial. The coding criterion was the same as in Carpenter *et al.* (1998) except that infants only had to pass one trial for each task instead of two trials. This criterion gave the infants more chance to pass the task, and was consistent with the criterion for other tasks in the current study. It is important to note that in Carpenter *et al.*'s study, infants had to pass both point and gaze following tasks on both trials to be scored as passing, however, infants in their study had only to coordinate attention one time to be scored as correct (see Task 1 above). This may have led to a later emergence of attention following compared to joint engagement.

Blocking

This and the next task tested infants' reactions to social obstacles (see Carpenter *et al.*, 1998; Phillips *et al.*, 1992). E1 gave infants a small toy. Once infants looked at the toy, E1 covered the infants' hands with her own for 5 seconds.

Teasing

E1 gave infants an object. When infants reached for the object, E1 withdrew the object by pulling at the stick to which the object was attached, and held it out of the infants' reach for 5 seconds.

Infants received two trials for each of the blocking and teasing tasks. Infants passed a task if they looked to the experimenter's face for the 5 second response period, either on the first or second trial. The scoring criterion was the same as Carpenter *et al.* (1998). It is important to note here that infants in Carpenter *et al.*'s study had to look to the adult's face on one trial for these tasks.

Means-end task

Relation of support

Infants were given a small toy to manipulate for a few seconds. At this time, E1 spread a cloth towel beside the infants. She then took the toy away from the infants, placed it on the centre of the blanket out of the reach of the infants, and encouraged them to obtain the toy. If the infants did not pull the support after 20 seconds, E1 demonstrated to the infants that the toy moved by pulling the support toward them (Uzgiris & Hunt, 1975). Infants were given two trials. Infants passed the task when they obtained the toy by pulling purposefully on the cloth on at least one trial, either with or without E1's demonstration. All infants who passed the task did this on the first trial and without demonstration. This task was included to assess infants' performance on a non-social skill, to determine if it would show a different pattern of results than the more social tasks.

Reliability

To check the reliability of the primary coder, a second coder, blind to the hypotheses of the study, scored a random 20% of the infant sample for all measures. The coders' agreement for each of the coordinated attention, gaze following, point following, blocking, teasing, and means-ends task was 92.86% or above, and Cohen's κ were all above .80. Because it was not possible to assess if infants localized the target object (gaze following and point following task) from video records, for reliability, looking to the correct side of the room was counted as agreement for these tasks. Note however, that the task was coded online and for the purpose of analyses infants had to localize the target object (as in Carpenter *et al.* 1998).

Results

Developmental sequences

The number and percentage of infants who passed each task, as well as the mean ages at which infants passed the various tasks, are presented in Table 1. As can be seen in the table, success in the different tasks emerged at around the same point in development. A one-way analysis of variance (ANOVA), with infant age as the dependent variable and task as the independent variable was not significant, $F(5, 208) = 1.037$, $p > .05$, indicating that the mean ages at which a particular skill emerged did not differ significantly from each other. These results suggest that individual skills emerged approximately at the same point in development, between 7 and 9 months of age.

To examine whether performance within a task increased across age, logistic regressions were performed. The only task for which performance increased across age was the means-end task. That is, older infants were more likely to pull purposefully on the cloth to obtain a desirable toy (Wald $\chi^2(1) = 5.811, p < .05$; $e^{\beta} = 1.02$). There were no age effects for coordinated attention, gaze following, point following, blocking, or teasing.

Table 1. Number, percentage, and mean age (*SD* in days) of Infants Passing Each Task

Task	*n* (%)	Mean age		
		Months	Days	*SD*
Coordinated attention	53 (73.61)	8	1	36.5
Gaze following	25 (34.72)	8	5	36.2
Point following	68 (94.44)	7	28	37.8
Blocking	16 (22.22)	7	18	41.4
Teasing	22 (30.56)	7	22	39.5
Relation of support	30 (41.67)	8	9	34.3

Note. $N = 72$; *n* and % represent the infants who displayed the correct behaviours on at least one of the two trials for each task.

Interestingly, only one infant failed to perform on at least one task. Table 2 illustrates the number, percentage, and mean age of infants that passed/failed none to all tasks. As can be seen in the table, infants were less than 9 months of age when they passed the majority of tasks.

Table 2. Number, percentage, and mean age of infants (*SD* in days) that passed/failed various numbers of tasks

Number of tasks passed/failed	*n* (%)	Mean age		
		Month	Days	*SD*
Failed all 6 tasks	1 (1.39)	8	17	–
Passed 1 task	3 (4.17)	5	24	11.7
Passed 2 tasks	20 (27.78)	7	22	38.5
Passed 3 tasks	30 (41.67)	7	27	40.1
Passed 4 tasks	11 (15.28)	8	6	28.4
Passed 5 tasks	5 (6.94)	8	6	41.6
Passed all 6 tasks	2 (2.78)	9	4	10.6

Note. Percentages based on $N = 72$ infants.

To assess the relations among these tasks, nonparametric correlation statistics for nominal data using the Phi coefficient (ϕ) were conducted on infants' pass and fail scores (0 or 1) for each skill. As Table 3 illustrates, only a few significant relationships emerged. Coordinated attention was negatively correlated with gaze following: $\phi = -.291$; $\chi^2(1, N = 72) = 6.115$, $p = .013$. In particular, 54.17% of infants coordinated attention but did not follow gaze, and 19.44% coordinated attention and followed gaze. Thus, the majority of infants who coordinated attention did not follow gaze. In addition, gaze following was positively related to infants' success in the means-end task: $\phi = .271$, $\chi^2(1, N = 72) = 5.296$, $p = .021$. Also, point following was negatively correlated to teasing: $\phi = -.234$, $\chi^2(1, N = 72) = 3.943$ $p = .047$. These two correlations were not predicted, and further research is needed to assess their meaning. There was also a marginally significant positive correlation between blocking and teasing: $\phi = .226$, $\chi^2(1, N = 72) = 3.665$, $p = .056$. All significant tests presented were two-tailed.

Table 3. Phi correlation coefficient (ϕ) matrix for Joint Attention and Means-End Tasks

	Coordinated attention	Gaze following	Point following	Blocking	Teasing	Relation of support
Coordinated attention	–	−.291*	.130	.168	−.013	−.133
Gaze following		–	.177	−.109	.086	.271*
Point following			–	−.016	−.234*	.082
Blocking				–	.226[a]	.023
Teasing					–	.051
Relation of support						–

*$p < .05$ (two-tailed).
[a]Marginal significance .056.

Discussion

Much debate continues to exist regarding the emergence, interrelationship, and meaning of the various joint attention skills. One reason for the continued controversy is that prior studies have assessed infants after these skills presumably emerged, and findings have not always converged (e.g. Carpenter *et al.*, 1998; Mundy, 1995; Slaughter & McConnell, 2003). Thus, the developmental trajectory of joint attention skills has been somewhat unclear.

In the current study, we assessed joint attention skills in a group of 72 infants between the ages of 5 and 10 months. In accordance with some prior research showing that infants engage in some joint attention skills (e.g. gaze follow) before the end of the first year (i.e. D'Entremont, 2000; Hood, Willen, & Driver, 1998), we found that many infants passed some triadic social tasks before 9 months of age. This finding is in sharp contrast to what has been reported by the seminal study of Carpenter *et al.* (1998). It should be highlighted that Carpenter and colleagues did not begin testing infants in joint attention tasks until infants were 9 months of age. However, in many cases infants were passing various tasks at the first visit of their study. To highlight two examples, 100% of infants were coordinating attention (see p. 63) and nearly 37% of the sample was looking to the experimenter at 9 months of age in the blocking or teasing tasks (see p. 60). The criterion for passing some of these tasks was more lenient than for others (i.e. one joint engagement look or one look to the adult's face for coordinated attention and social obstacles, respectively; compared to the attention following tasks, where infants were required to look to all four target objects). These inconsistencies may have led to an incorrect order of emergence and sequence of the five main social cognitive skills reported by these authors – especially a late emergence of attention following relative to joint engagement. In addition, the age of emergence for various tasks reported would necessarily be skewed, given that infants may have first engaged in these tasks much earlier than 9 months of age. In fact, the current study suggests that this is the case (see also, Morales *et al.*, 1998; Striano, 2004; Striano & Rochat, 1999; for examples of various joint attention skills before 9 months of age), and supports other results showing low correlations among these various tasks in general (Mundy *et al.*, 2000; Slaughter & McConnell, 2003).

The findings of the current study show that joint attention skills do not suddenly appear at the end of the first year, and certainly these skills did not appear in any systematic way, at least in the ages tested. None of the social-cognitive skills that we tested increased significantly between 5 and 10 months of age. In fact, the only skill that increased during this time period was the one non-social-cognitive skill (i.e. relation of support).

The development of social cognitive skills requires much more systematic investigation, and in particular, a close analysis of the relations among these tasks. If there is a '9 month transition', research is needed to determine the mechanisms that promote it. For instance, major changes in brain organization, attention, and self-regulation mechanisms occur towards the end of the first year (e.g. Johnson, 2001; Ruff & Rothbart, 1996; Schore, 1994) and may precipitate major behavioural changes that do not necessarily reflect a new understanding of others (see also Corkum & Moore, 1995). Tomasello and colleagues argue that the co-emergence of a variety of joint attention tasks by the end of the first year indexes infants' understanding of intentions in others. Indications of triadic attention before this time are ' . . . fortuitous, a case of onlooking, a case of alternating attention, or results from infant gaze following as a learned response . . . There is no joint attention or any other indication that infants at this age understand others as intentional agents' (Tomasello, 1995, p. 108). Nevertheless, infants in this study engaged in joint attention behaviour before 9 months of age.

The current findings suggest that such behaviours might not indicate a general understanding of intentions of others by the end of the first year. As the correlational analyses showed, many of the skills that are thought to be linked, such as gaze and point following, were not related to one another. Other skills showed unpredicted relations (e.g. gaze following and relation of support, point following and teasing) which are difficult to interpret and require further research. The correlation between coordinated attention and gaze following can be explained on the basis of prior research which shows that coordinated attention emerges earlier in development than gaze following (e.g. Carpenter *et al.*, 1998). Although, the ages at which infants passed the coordinated attention and the gaze following task were about the same, coordinated attention skills might be more robust at this point in development than gaze following skills. The ability to disengage attention as in coordinated attention may also facilitate later attention following. However, the question of why infants might perform one task and not a similar one, if the underlying motive or understanding is presumably the same, remains. EEG studies have been informative in this regard (e.g. Mundy *et al.*, 2000) and could be used in future research to disentangle the emergence and relatedness of joint attention skills.

In conclusion, the current research suggests that joint attention skills do not develop in an abrupt fashion and not at 9 months of age. In addition, these skills are not as strongly related as suggested by the '9-month revolution' (Tomasello, 1995). If there is a 9-month revolution, such that joint attention skills at 9 months of age and later reflect an awareness of intentions in others, and that the same skills in earlier development are just 'fortuitous', empirical investigations are needed to demonstrate this effect and to identify the mechanisms that would give rise to these transitions.

Acknowledgements

We thank the parents and the infants who participated in this study; Caterina Boettcher, Amrisha Vaish, and Didrik Drageset for collecting data; and the Universitätsfrauenklinik Leipzig for support and assistance in subject recruitment.

References

Bakeman, R., & Adamson, L. B. (1984). Coordinating attention to people and objects in mother-infant and peer-infant interaction. *Child Development*, *55*(4), 1278–1289.

Baldwin, D. A., & Moses, L. J. (1997). The ontogeny of social information gathering. *Child Development*, *67*(5), 1915–1939.

Caron, A., Butler, S. C., & Brooks, R. (2002). Gaze following at 12 and 14 months: Do the eyes matter? *British Journal of Developmental Psychology*, *20*, 225–239.

Carpenter, M., Nagell, K., Tomasello, M (1998). Social cognition, joint attention, and communicative competence from 9 to 15 months of age. *Monographs of the Society of Research in Child Development. 63*(4, Serial No. 176).

Corkum, V., & Moore, C. (1995). Development of joint visual attention in infants. In C. Moore & P. J. Dunham (Eds.), *Joint attention: Its origins and role in development* (pp. 61–83). Hillsdale, NJ: Erlbaum.

Corkum, V., & Moore, C. (1998). Origins of joint visual attention in infants. *Developmental Psychology*, *34*, 28–38.

D'Entremont, B. (2000). A perceptual-attentional explanation of gaze following in 3- and 6-month-olds. *Developmental Science*, *3*(3), 302–311.

D'Entremont, B., Hains, S. M. J., & Muir, D. W. (1997). A demonstration of gaze following in 3- to 6-month-olds. *Infant Behavior and Development*, *20*, 569–572.

Emery, N. J. (2000). The eyes have it: The neuroethology, function and evolution of social gaze. *Neuroscience and Biobehavioral Reviews*, *24*(6), 581–604.

Hood, B., Willen, D., & Driver, J. (1998). Adult's eyes trigger shifts of visual attention in human infants. *Psychological Science*, *8*, 53–56.

Johnson, M. H. (2001). Functional brain development in humans. *Nature Reviews*, *2*, 475–483.

Lempers, J. (1979). Young children's production and comprehension of non-verbal deictic behaviors. *Journal of Genetic Psychology*, 93–102.

Moore, C. & Dunham, P. J. (Eds.). (1995). *Joint attention: Its origins and role in development*. Hillsdale, NJ: Erlbaum.

Morales, M., Mundy, P., & Rojas, J. (1998). Following the direction of gaze and language development in 6-month-olds. *Infant Behavior and Development*, *21*(2), 373–377.

Mundy, P. (1995). Joint attention and social-emotional approach behavior in children with autism. *Development and Psychopathology*, *7*, 63–82.

Mundy, P., Card, J., & Fox, N. (2000). EEG correlates of the development of infant joint attention skills. *Developmental Psychobiology*, *36*(4), 325–338.

Mundy, P., Kasari, C., & Sigman, M. (1992). Nonverbal communication, affective sharing, and intersubjectivity. *Infant Behavior and Development*, *15*(3), 377–381.

Mundy, P., & Neal, A. R. (2001). Neural plasticity, joint attention, and a transactional social-orienting model of autism. In M. L. Glidden (Ed.), *International review of research in mental retardation: Autism*, (Vol. 23, pp. 139–168). San Diego, CA: Academic Press.

Phillips, W., Baron-Cohen, S., & Rutter, M. (1992). The role of eye contact in goal detection: Evidence from normal infants and children with autism or mental handicap. *Development and Psychopathology*, *4*, 375–383.

Ruff, H. A., & Rothbart, M. K. (1996). *Attention in early development: Themes and variations*. New York, NY: Oxford University Press.

Schore, A. N. (1994). *Affect regulation and the origin of self: The neurobiology of emotional development*. Hillsdale, NJ: Erlbaum.

Slaughter, V., & McConnell, D. (2003). Emergence of joint attention: Relationships between gaze following, social referencing, imitation, and naming in infancy. *Journal of Genetic Psychology*, *164*(1), 54–71.

Striano, T. (2004). *Emergence and development of dyadic and triadic social skills: A weekly longitudinal study from 7 to 10 months of age*.

Striano, T., & Rochat, P. (1999). Developmental link between dyadic and triadic social competence in infancy. *British Journal of Developmental Psychology*, *17*, 551–562.

Tomasello, M. (1995). Joint attention as social cognition. In C. Moore & P. Dunham (Eds.), *Joint attention: Its origins and role in development* (pp. 103–130). Hillsdale, NJ: Erlbaum.

Tomasello, M. (1999). *The cultural origins of human cognition*. Cambridge, MA: Harvard University Press.

Trevarthen, C., & Hubley, P. (1978). Secondary intersubjectivity: Confidence, confiding and acts of meaning in the first year. In A. Lock (Ed.), *Action, gesture, and symbol: The emergence of language*. New York, NY: Academic.

Uzgiris, I., & Hunt, J. McV. (1975). *Assessment in infancy: Ordinal scale of psychological development*. Urbana: University of Illinois Press.

Received 18 May 2004; revised version received 3 September 2004