DOWNLOAD PDF ORIENTING MECHANISM 9

Chapter 1 : Face preference at birth: the role of an orienting mechanism | Carlo Umilta - blog.quintoapp.com

Relating the mechanisms of orienting and alertingOrienting is the selective allocation of attention to a particular part of the visual blog.quintoapp.com orienting of attention can be spatially quite precise even to a single letter within a word.

Thus, many of the discoveries in the field of attention were made by philosophers. Watson calls Juan Luis Vives the father of modern psychology because, in his book De Anima et Vita The Soul and Life , he was the first to recognize the importance of empirical investigation. By the s, psychologists began using positron emission tomography PET and later functional magnetic resonance imaging fMRI to image the brain while monitoring tasks involving attention. Because this expensive equipment was generally only available in hospitals, psychologists sought cooperation with neurologists. Psychologist Michael Posner then already renowned for his seminal work on visual selective attention and neurologist Marcus Raichle pioneered brain imaging studies of selective attention. With the development of these technological innovations, neuroscientists became interested in this type of research that combines sophisticated experimental paradigms from cognitive psychology with these new brain imaging techniques. Although the older technique of electroencephalography EEG had long been used to study the brain activity underlying selective attention by cognitive psychophysiologists , the ability of the newer techniques to actually measure precisely localized activity inside the brain generated renewed interest by a wider community of researchers. Selective and visual[edit] See also: Selective auditory attention In cognitive psychology there are at least two models which describe how visual attention operates. These models may be considered loosely as metaphors which are used to describe internal processes and to generate hypotheses that are falsifiable. Generally speaking, visual attention is thought to operate as a two-stage process. In the second stage, attention is concentrated to a specific area of the visual scene i. The first of these models to appear in the literature is the spotlight model. The term "spotlight" was inspired by the work of William James , who described attention as having a focus, a margin, and a fringe. Surrounding the focus is the fringe of attention, which extracts information in a much more crude fashion i. This fringe extends out to a specified area, and the cut-off is called the margin. The second model is called the zoom-lens model and was first introduced in This size-change mechanism was inspired by the zoom lens one might find on a camera, and any change in size can be described by a trade-off in the efficiency of processing. At this phase, descriptions of the objects in a visual scene are generated into structural units; the outcome of this parallel phase is a multiple-spatial-scale structured representation. Selective attention intervenes after this stage to select information that will be entered into visual short-term memory. As Rastophopoulos summarizes the debate: Attention is identified as one of the three major co-active processes of the working brain. Luria published his well-known book The Working Brain in as a concise adjunct volume to his previous book Higher Cortical Functions in Man. In this volume, Luria summarized his three-part global theory of the working brain as being composed of three constantly co-active processes which he described as the; 1 Attention system, 2 Mnestic memory system, and 3 Cortical activation system. Multitasking and divided[edit] See also: Human multitasking and Distracted driving Multitasking can be defined as the attempt to perform two or more tasks simultaneously; however, research shows that when multitasking, people make more mistakes or perform their tasks more slowly. In divided attention, individuals attend or give attention to multiple sources of information at once at the same time or perform more than one task. Generally, classical research into attention investigated the ability of people to learn new information when there were multiple tasks to be performed, or to probe the limits of our perception c. This research reveals that the human attentional system has limits for what it can process: While speaking with a passenger is as cognitively demanding as speaking with a friend over the phone, [23] passengers are able to change the conversation based upon the needs of the driver. For example, if traffic intensifies, a passenger may stop talking to allow the driver to navigate the increasingly difficult roadway; a conversation partner over a phone would not be aware of the change in environment. There have been multiple theories regarding divided attention. One, conceived by Kahneman , [24] explains that there is a single pool of attentional resources that can be freely divided among multiple tasks. This model seems to be too oversimplified, however, due to the different modalities e. The specific modality model was theorized by Navon and Gopher in However, more recent research using well controlled dual-task paradigms points at the importance of tasks. In contrast, when one of the tasks involves object detection, no interference is observed. As an alternative, resource theory has been proposed as a more accurate metaphor for explaining divided attention on complex tasks. These include, but are not limited to, anxiety, arousal, task difficulty, and skills. Simultaneous attention is demonstrated by children in Indigenous communities, who learn through this type of attention to their surroundings. Simultaneous attention requires focus on multiple simultaneous activities or occurrences. This differs from multitasking, which is characterized by alternating attention and focus between multiple activities, or halting one activity before switching to the next. Simultaneous attention involves uninterrupted attention to several activities occurring at the same time. Another cultural practice that may relate to simultaneous attention strategies is coordination within a group. Indigenous heritage toddlers and caregivers in San Pedro were observed to frequently coordinate their activities with other members of a group in ways parallel to a model of simultaneous attention, whereas middle-class European-descent families in the U. Alternative topics and discussions[edit] Overt and covert orienting[edit] Attention may be differentiated into "overt" versus "covert" orienting. Although overt eye movements are quite common, there is a distinction that can be made between two types of eye movements; reflexive and controlled. Reflexive movements are commanded by the superior colliculus of the midbrain. These movements are fast and are activated by the sudden appearance of stimuli. In contrast, controlled eye movements are commanded by areas in the frontal lobe. These movements are slow and voluntary. Covert orienting has the potential to affect the output of perceptual processes by governing attention to particular items or locations for example, the activity of a V4 neuron whose receptive field lies on an attended stimuli will be enhanced by covert attention [36] but does not influence the information that is processed by the senses. Researchers often use "filtering" tasks to study the role of covert attention of selecting information. These tasks often require participants to observe a number of stimuli, but attend to only one. The current view is that visual covert attention is a mechanism for quickly scanning the field of view for interesting locations. This shift in covert attention is linked to eye movement circuitry that sets up a slower saccade to that location. Central mechanisms that may control covert orienting, such as the parietal lobe, also receive input from subcortical centres involved in overt orienting. Exogenous and endogenous orienting[edit] Orienting attention is vital and can be controlled through external exogenous or internal endogenous processes. However, comparing these two processes is challenging because external signals do not operate completely exogenously, but will only summon attention and eye movements if they are important to the subject. This often results in a reflexive saccade. Since exogenous cues are typically presented in the periphery, they are referred to as peripheral cues. Exogenous orienting can even be observed when individuals are aware that the cue will not relay reliable, accurate information about where a target is going to occur. Posner and Cohen noted a reversal of this benefit takes place when the interval between the onset of the cue and the onset of the target is longer than about ms. Endogenous from Greek endo, meaning "within" or "internally" orienting is the intentional allocation of attentional resources to a predetermined location or space. In order to have an effect, endogenous cues must be processed by the observer and acted upon purposefully. These cues are frequently referred to as central cues. Central cues, such as an arrow or digit presented at fixation, tell observers to attend to a specific location. Researchers of this school have described two different aspects of how the mind focuses attention to items present in the environment. The first aspect is called bottom-up processing, also known as stimulus-driven attention or exogenous attention. These describe attentional processing which is driven by the properties of the objects themselves. Some processes, such as motion or a sudden loud noise, can attract our attention in a pre-conscious, or non-volitional way. We attend to them whether we want to or not. This aspect of our attentional orienting is under the control of the person who is attending. It is mediated primarily by the frontal cortex and basal ganglia [48] [49] as one of the executive functions. Studies show that if there are many stimuli present especially if they are task-related , it is much easier to ignore the non-task related stimuli, but if there are few stimuli the mind will perceive the irrelevant stimuli as well as the relevant. The cognitive refers to the actual processing of the stimuli. Studies regarding this showed that the ability to process stimuli decreased with age, meaning that younger people were able to perceive more stimuli and fully process them, but were likely to process both relevant and irrelevant information, while older people could process fewer stimuli, but usually processed only relevant information. As is frequently the case, clinical models of attention differ from investigation models. One of the most used models for the evaluation of attention in patients with very different neurologic pathologies is the model of Sohlberg and Mateer. Five different kinds of activities of growing difficulty are described in the model; connecting with the activities those patients could do as their recovering process advanced. The ability to respond discretely to specific visual, auditory or tactile stimuli. Sustained attention vigilance and concentration: The ability to maintain a consistent behavioral response during continuous and repetitive activity. The ability to maintain a behavioral or cognitive set in the face of distracting or competing stimuli. Therefore, it incorporates the notion of "freedom from distractibility. The ability of mental flexibility that allows individuals to shift their focus of attention and move between tasks having different cognitive requirements. This refers to the ability to respond simultaneously to multiple tasks or multiple task demands. This model has been shown to be very useful in evaluating attention in very different pathologies, correlates strongly with daily difficulties and is especially helpful in designing stimulation programs such as attention process training, a rehabilitation program for neurological patients of the same authors. Mindfulness has been conceptualized as a clinical model of attention. In a review, Knudsen [57] describes a more general model which identifies four core processes of attention, with working memory at the center: Working memory temporarily stores information for detailed analysis. Competitive selection is the process that determines which information gains access to working memory. Through top-down sensitivity control, higher cognitive processes can regulate signal intensity in information channels that compete for access to working memory, and thus give them an advantage in the process of competitive selection. Through top-down sensitivity control, the momentary content of working memory can influence the selection of new information, and thus mediate voluntary control of attention in a recurrent loop endogenous attention. At the top of the hierarchy, the frontal eye fields FEF and the dorsolateral prefrontal cortex contain a retinocentric spatial map. Microstimulation in the FEF induces monkeys to make a saccade to the relevant location. Stimulation at levels too low to induce a saccade will nonetheless enhance cortical responses to stimuli located in the relevant area. At the next lower level, a variety of spatial maps are found in the parietal cortex. In particular, the lateral intraparietal area LIP contains a saliency map and is interconnected both with the FEF and with sensory areas.

Chapter 2 : Mechanisms for orienting and placing articles - McGill University

It is likely that gaze coding mechanisms, spatial attention and social cognitive systems could be involved in detecting and maintaining iterative social orienting behaviours such as when one's eyes are followed by a conspecific [7,].

Another object of the invention is t provide mechanism of the character described in which the motive power for turning certain groups of loaves end for end is provided by the turntable which moves the bread loaves through the orienting machine. Other objects and advantages of the invention will be pointed out specifically or will become apparent from the following description when it is considered in conjunction with the appended claims and the accompanying drawings, in which: Referring now more particularly to the accompanying drawings wherein a preferred embodiment of the invention only is shown, a numeral 7 generally indicates an endless supply conveyor member which moves groups of bread loaves L in the direction a to a bread orienting station generally designated b where they are picked up by one of a trio of peripheral gripper assemblies, generally designated G, depending from a turntable assembly, generally designated T, which is mounted for rotation on a central post 8. Each of the assemblies G is operated at the position b to grasp a group of loaves L and, when the turntable assembly T has moved the particular gripper assembly G over a segment-shaped corner plate 9 to a second endless conveyor 10, to discharge them at position c for outgoing travel in the direction e to a machine which loads them onto relatively flat-bottomed trays or baskets. FIGURE l illustrates a typical arrangement of the loaves L in which the ponytails 11 thereof are rearwardly facing but it is to be understood that a plurality of bagging machines may be feeding the conveyor 7 from opposite sides thereof and delivering groups of bagged loaves having ponytails which are randomly both rearwardly and forwardly disposed. The orienting system and method which will be described is a type which either does or does not rotate a particular groups of loaves depending upon the orientation desired at the tray loading machine. The conveyor 7 may be considered to comprise any conventional endless conveyor having an upper run conveying surface 12 trained over driving rollers 13 and similarly the conveyor may be considered to comprise an upper run endless conveying surface 14 trained around driving rollers 14a. Plate 9 is supported at the same level as conveyor runs 12 and 14 preferably by means such as the conveyor side plates shown at 14b. The post 8 is Xed on a frame pedestal or base see FIGURE 2 generally designated 15 which includes support legs 16 extending perpendicularly one to the other and journaled thereon by means such as bearings 17 separated by a spacer sleeve 18 is the turntable hub of turntable The sleeve 21 and a bearing spacer sleeve 23 support upper and lower roller bearings 24 and 25, respectively, which journal an inner support sleeve 26 having a bottom flange 26a on which a channel-shaped support member 27 is xed. End plates 28, depending from the member 27, support straps 29 which pivotally Asupport gripper members which include oppositely disposed rods 30 at opposite ends of the straps 29 having dependent arm members 31 see FIGURES 5 and 6 connected by spanning loaf-engaging rods For all practical purposes, the rollers 33 may simply be considered to be convenient bearings for pivotally connecting the gripper members to the gripper support assembly. To prevent the bread loaves from being displaced in an endwise direction, a pair of links 36 and 37 connect the links 31 at the ends of each assembly, each link being pivotally connected to the lower end of an arm 31, as at 38, and each link 37, which is pivotally connected to a link 36 at 39, being pivotally connected at its other end to the opposite arm 31 near its upper end as at As FIGURE 6 indicates, the links 31 are movable from the gripping position in which they are shown in solid lines to the spread apart, raised position in which they are shown in chain lines. Each gripper assembly G includes a cam actuated plunger tube 41 see FIGURE 4 mounted for vertical sliding movement in the tubular member 26 by upper and lower slide bearing sleeves 42 and 43, respectively. Received between the pairs of plates 46 and 47 are follower rollers 48 mounted on follower shafts 49 which are fixed to connecting arms 50 welded to the rods The rollers 48, which are mounted by bearings from the shafts 49 function as pivots for the arms 31 and their gripper rods In order to normally maintain the plates 46 and 47 in the raised position in which they are shown in solid lines in FIGUR-E 6 and the arms 31 in the engaging position, a compression spring 51 is provided within the plunger tube 41, the spring 51 being supported at its lower end by a spring mount post 52 on a plate 53 which is connected by a housing member 54 to the plate 27 and so is prevented from moving in a vertical direction. At its upper end each spring 50 bears against an upper spring mount member 55 which mounts spaced apart plates 56, as shown in FIGURE 4. The plates 56 support a bolt member 57 on which a cam follower roller 58 is journaled, and a sleeve member 59 fixed to the plunger tube 41 insures upward movement of the plunger tube 41 when the spring I50 is permitted to move the spring mount member 55 upwardly. It will be desirable in certain instances to 4rotate the gripper bars 32 about the gripper assembly axis x see FIGURE 4 through to turn the bread loaves end -for end. The end of a flexible chain 62 is connected to a lug 60a on the pulley 60 in any suitable manner so that a pull on chain 62 will revolve the pulley member 60, and accordingly sleeve 26 and the gripper members 32 which are supported by it. Also mounted on each assembly is a second lower pulley member 63 having a chain 64 connected peripherally to the lug 65 on pulley member 63 and which may be connected to a plunger rod 66 disposed Within a housing 67 see FIGURES 1 and 2 which is fixed to the underside of turntable as at Each rod 66 which is provided with an enlarged spring seating head 66a is cooperable with a surrounding coil spring 66h which is compressed by the head 66a when the pulley 60 is rotated to turn the gripper assembly through and then, when it is permitted to expand, revolves the pulley member 63 and restores the gripper assembly G to original position. Because it is desirable to vertically adjust the upper cam track 69, it is supported separate from the lower track At the upper end of post 8 a cam supporting hub 71 is keyed to the post 8 as at 72 and mounts spoke members 73 which support the cam track 70 in fixed position. A support plate 74 is also mounted in fixed position by the sleeve 71 and supports a trio of bearing members 75 see FIGURE 1 journaling shafts 76 on which pulleys 77 are keyed. A chain 78 is trained around pulleys 77 and also around a pulley 79 mounted on a shaft 80 to which a handle member 81 is secured, as shown particularly in FIGURES 1 and 2. The trio of shafts 76 are threaded at their lower ends and extend into nut members 82 secured to the track section Since the nut members 82 are prevented from rotating, rotation of the shafts 76 by manipulation of handle 81 serves to adjust the track section 69 upwardly or downwardly, depending on the direction of rotation. To provide a gradual transfer or bridge between the ends of the track sections 69 and 70, gradually sloped bridge members S3, 83a are provided, as shown particularly in FIGURE 2, the bridge members 83 and 83a being fixed to pivotal shafts 84 carried by blocks 85 on radially inwardly extending plates 86 welded or otherwise suitably secured to the stationary cam track section Springs 87 connected between lugs 88 on the bridge plates 83 and 83a and lugs 89 depending from the plate 74 maintain the upper ends of the bridge plates 83 and 83a in engagement with the lower surface of track section 69 regardless of the vertically adjusted position thereof. The bridge plates 83 and 83a are disposed so that the plunger tube 41 is gradually permitted to rise at the position b and is gradually forced downwardly at the position c. The cam track 69 prevents the loaf engaging members 32 from snapping shut beyond a predetermined setting and crushing the loaves at the position b when the loaves L are gripped. At the side of the cam disk 91 generally opposite position c, a support plate 92 is fixed to the disk 91 and mounts a pair of follower rollers 93 on shafts 94 and 95 see FIGURES 1 and 3. An arcuate cam shoe member generally designated 96 and comprising side plate members 96a and 96h enclosing the roller 93 is pivotally mounted by the roller 93 for movement from the position shown in FIGURE l to the position shown in FIGURE 3 with energization of the solenoid operated, single-acting spring-returned air cylinder 97 which has a piston rod 97a pivotally connected to the shoe 96a. A similar mating cam shoe section 98 pivoted about the roller 93 on shaft 94 is connected by a spring 98a at 98b to a pin 99 on the disk 91 in a manner to normally hold the cam shoe 98 in the position in which it is shown in FIGURES l and 3. Associated with each gripper assembly and mounted on a pivot shaft supported in a bearing on the turntable 20 is a follower lever which is connected at a post to chain It is desirable that the ponytails 11 be disposed inwardly, as shown in FIGURE 8, and accordingly it will be necessary to provide the loaves L to the discharge conveyor 10 alternately with the tails rearwardly disposed and forwardly disposed so that a transversely disposed pusher bar S connected with the piston rod of a double acting cylinder 10 see FIGURE 9 can move the groups of loaves to the shallow tray In FIGURE 9 I have shown a typical electrical control system which is only illustrative of one which may be employed when it is desired to handle loaves which are received in random orientation at the tum-around mechanism. In circuit line g the solenoid a of the single-acting, spring-retumed air cylinder is connected in circuit with a cam operated switch b and it is to be understood that the lobes on the cam are disposed just out of alignment so that pusher bar will be operated alternately to move a group of loaves L opposite first the rear end of a tray and then the forward end. In circuit line h is connected the solenoid 97b of the air cylinder 97 which, when energized, operates to attract the piston rod 97a. A cam which, like the cam , is mounted on a timing shaft, operates to close a switch in circuit line h when rearwardly disposed ponytails are required at the tray By the same token, a cam operating a switch in circuit line i operates to close the switch when forwardly facing ponytails are required at the tray Also provided in the circuit line h is a cam operated switch operated by a cam on a suitable timing shaft, and a like switch is provided in circuit line i operated by a cam on a suitable timing shaft. The photoelectric eye E-1 shown in circuit line j includes the light beam producing member and the receiving photocell , as shown in FIGURE 1, and the photoelectric eye E-2 shown in circuit line k includes the beam producing element and the photoelectric cell The timing cam operates to close switch every time a group of loaves L reaches the position b. At this time the eye E-2 will not be operative because the ponytails 11 are forwardly disposed but the eye E-1 will be energized to energize relay R-l and close normally open relay contacts R-la. Since the relay contacts R-Zzz are normally closed, the circuit h is completed to solenoid 97b and the rod 97a of air cylinder 98 is retracted to move cam shoe 96 inwardly to the position in which it is shown in FIGURE 1. As FIGURE l indicates, then, the cam rollers will ride over the exterior surface of the cams 96 and 98 and the particular arm will be pivoted about its pivot sh-aft as the particular gripper assembly G moves around from position b to position c to exert a pull on chain 62 to revolve pulley 60 and the gripper assembly G through an arc of At the position c in FIGURE 1, the chain 62 has been pulled outwardly to unwind it from the pulley 60 and revolve the pulley 60 and gripper assembly G. In FIGURE 1 the gripper assembly G at position c is commencing to travel downwardly on the bridge plate 83a and the gripper members 32 are just about to be spread to release the loaves L. If the tray in the system were not calling for loaves with rearwardly disposed ponytails via cam , the cam would have its lobe moved from switch , which would be open, and so the loaves L would simply proceed to the tray in the tail-foremost position. If the system, however, were calling for loaves L with their ponytails forwardly disposed via cam , the cam would close switch at the time the loaves reached position b. If the loaves at position b had rearwardly disposed tails, both eyes E-1 and E-2 would Ibe engaged and the relays -R-l and R-2 would be energized so that normally open contacts R-lb and R-Zb would be closed at the instant that timing cam closed at the time the loaves L arrived at position b. Obviously the cams and are correlated with the spacing maintained between group loaves L on the supply conveyor surface 12 and their rate of travel. At this time the normally closed contacts R-Za will be open, of course. Regardless of Whether the orienting mechanism is to turn the bread loaves, the gripper rods 32 of each gripper assembly G are moved downwardly and together in each instance to grip the bread loaves L at the position b, and to slide them across the smooth surfaced dead plate 9 to the position c on conveyor 10, at which time the lower cam is encountered by the follower roller 58 and moves the plunger tube 41 downwardly so that the gripper rods 32 are moved to their spread apart, raised position. As each gripper assembly G moves into position over a group of loaves at position b on the conveyor surface 12 traveling in the direction a, the downwardly pivoting trailing gripper rod 32 will first of all engage the trailing ends of the loaves and must move them toward the also closing leading rod 32 until the loaves are centered with respect to the rods This centered position is necessary to insure that both rods 32 grip the loaves L and the loaves cannot become disarranged if it is necessary to turn them end for end. Links 36, 37 insure equal and simultaneous movement of the rods At this time the follower roller 58 is passing from the lower track 70 to the c-arefully adjusted cam track The forward or leading rod 32 in the direction of rotation y of turntable T had first of all moved over and cleared the leading ends of the loaves L. When the roller 58 of a particular gripper assembly G leaves the track 70 and the. Since the spring 51 must be strong enough to cause the trailing rod 32 to move the lbread loaves as described to a centered position, the gripping movement of rods 32 is limited by track 69 so that the very soft loaves are not crushed. Generally the cam track 69 is adjusted to a position with regard to loaves of a particular length so that the space between the rods 32 in closed position is l-2 inches less than the particular length of loaf being handled. The position of cam track 69 can be conveniently adjusted during operation of the machine. When the rollers 58 commence to travel on the bridge plate 83a at position c, downward movement of the plunger tube 41 will move the rollers 48 downwardly once again about pivots 33 to spread the arms 31 and bread-engaging rods Because the loaves may be disposed in the trays as indicated in FIGURE 8 with the ponytails inwardly facing and folded over, there need be no concern with the possibility of the ponytails becoming caught or jammed in subsequently employed handling mechanism or equipment. It is to be understood that the drawings and descriptive matter are in all cases to be interpreted as merely illustrative of the principles of the invention, rather than as limiting the same in any way, since it is contemplated that various changes may be made in the various elements to achieve like results without departing from the spirit of the invention or the scope of the appended claims. Orienting mechanism for products such as groups of bagged bread loaves with ponytails at one end comprising: The mechanism of claim 1 in which said clamp members depend from a vertical shaft and are mounted on said shaft such that they have upwardly and downwardly swinging pivotal movement toward and away from each other. The mechanism of claim 2 in which turntable means is provided and peripherally spaced apart clamp member assemblies mounted thereon support said clamp members; means rotatably mounting said turntable means adjacent generally perpendicularly arranged generally horizontally disposed conveyor surfaces; and means for revolving said turntable means about a generally vertical axis. The mechanism of claim 3 in which each clamp member assembly includes an actuator arm moving with said turntable meansy and connected to rotate the vertical shaft , and cam means in the path of said arms selectively movable to a position in response to said sensing means for causing rotation of a particular shaft and the clamp members thereon. The mechanism of claim 4 in which said cam means comprises a generally horizontally disposed stationary circular cam disk; and pivotally mounted arcuate cam shoe means forming a cam lobe thereon when in one position; and means operative responsive to said sensing means for swinging said shoe means horizontally outwardly to a position in which a part of said actuator arm is received between said disk and said lobe is ineffective to rotate the actuator arms. The mechanism of claim 5 wherein each actuator arm is pivotally mounted intermediate its ends for movement in a generally horizontal plane; one end of each arm mounting a follower for engaging said cam shoe means and the other being connected by a exible member to the periphery by one of said shafts; spring means being provided to normally urge each arm follower in a direction to engage said cam shoe means. The mechanism of claim 3 in which each shaft carries vertically movable actuator rod means connected to said clamp members to swing them downwardly toward each other to clamp products between them and upwardly away from each other to a raised position at a level above the products to a position to straddle their ends; and cam track means supported stationarily in the rotary path of said rod means. The mechanism of claim 7 in which said cam track means includes an arcuate portion supported at a higher level than another arcuate portion; spring means carried by each actuator rod means normally urging it upwardly; and linkage means connecting said actuator rod means and clamp members to translate vertical movement of said rod means into swinging movement of said clamp members. The combination defined in claim S in which said perpendicularly arranged conveyor surfaces comprise endless conveyors separated by a stationary corner segment slide plate and said higher level track section extends above said segment plate so that said products are gripped adjacent one side of the segment plate, are slid across it and are released adjacent the other side. The combination dened in claim 8 in which said higher level cam track portion is mounted for vertical adjustment. The combination defined in claim 8 in which each actuator rod means comprises a tube coaxial with each said shaft and spring means within each tube biased to urge it toward said cam track means. Orienting mechanism for products such as groups of bagged bread loaves with ponytails including: The combination of claim 12 in which a stationary cam means is carried by said frame means and clamp member actuating means in follower engagement therewith actuates the clamp members on each clamp assembly to closed position during a portion of each rotary cycle of the turntable means. Orienting mechanism for products such as groups of bread loaves comprising: The combination dened in claim 14 in which means is adjustable to change the position of the limiting means. A method of orienting bread loaves comprising: Orienting mechanism for products such as groups of bread loaves including: The condition defined in claim 17 in which said clamp member actuating means includes vertically movable follower members and said cam means comprises overhead cam tracks including one extending between said rotary positions which is adjustable vertically. Orienting mechanism for products such as groups of bagged loaves with ponytails at one end comprising: Orienting mechanism for products such as groups of bread loaves including product support means; a plurality of circumferentially spaced clamp assemblies for gripping the product and including clamp members movable to and from a product gripping position; clamp member actuating means carried by each assembly and movable between positions in which said actuating means moves the clamp members together and apart; arcuate cam means mounted by said frame means and engaged by said actuating means, operable to release said clamp member actuating means in one rotary position of said turntable means to permit said actuating means to move said clamp members together and operable to operate said actuating means to open the clamp members in another rotary position of said turntable means.

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Chapter 3 : USB2 - Self-orienting loader bucket mechanism - Google Patents

PACKAGED B-AKERY PRODUCT ORIENTING METHOD AND MECHANISM Filed Oct. 27, 4 Sheets-Sheet 5 kdf' 1', l FIG 6 INVENTOR Hamm E. TEMPLE @Y Dec. 9, H E TEMPLE 3,, PACKAGED BAKERY PRODUCT ORIENTING METHOD AND MEGHANISM Filed Oct. 27, A. Sheets-Sheet 4 FSG.

Since the sun gear the largest gear is fixed, the DOF of the above mechanism is one. When you pull the arm or the planet, the mechanism has a definite motion. The figure below shows a simple ratchet mechanism. A is the ratchet wheel, and B is an oscillating link. Attached to B is a pawl which is a link designed to engage with the ratchet teeth to prevent the wheel from moving in one direction. This mechanism has a supplementary pawl at D. When the link B moves in a counterclockwise direction, the pawl C pushes the wheel through a partial rotation. When the link B moves clockwise, the pawl C slides over the points of the teeth while the wheel remains at rest because of the fixed pawl D. The amount of backward motion possible varies with the pitch of the teeth. The smaller the teeth, the smaller the backward motion. The four-bar linkage on the right generates an oscillating rotation for link B. Pull the crank to watch the ratchet work. In this mechanism, for every turn of the driver wheel A, the driven wheel B makes a quarter turn. The pin, attached to driver wheel A, moves in the slots causing the motion of wheel B. The contact between the lower part of driver A with the corresponding hollow part of wheel B, retains it in position when the pin is out of the slot. Wheel A is cut away near the pin as shown, in order to provide clearance for wheel B as it moves. If one of the slots is closed, A can make less than one revolution in either direction before the pin strikes the closed slot, stopping the motion. Early watches, music boxes, etc. From this application, they also are called Geneva Stops. As a stop, wheel A is fastened to the spring shaft, and B turns on the axis of the spring barrel. The number of slots in B depends upon the number of times the spring shaft should be turned. The SimDesign file for Geneva wheel is "geneva. You may try this mechanism by pulling on the Geneva wheel.

Chapter 4 : Orienting mechanism - Hurley Jr., Samuel C.

A mechanism for retaining a pre-selected orientation of a front-end loader bucket at all points throughout the working range of the lift arm assembly includes a linkage system designed to allow rotation of the bucket from a tilted back position to a fully dumped position throughout the range of the lift arm assembly without limiting the range of the lift arm assembly and to provide strength.

This application is a continuation-in-part of my copending application ,, filed April 21, This invention relates to a hopper for delivering articles introduced thereto in heterogeneous arrangement, individually and successively and in an oriented manner, and more specifically to a hopper device adapted to successively deliver unitary elongated objects of a substantially cylindrical nature provided with a tapered or pointed end to a delivery chute, and to means in combination therewith and said delivery chute to orient the direction of delivery of said articles therefrom. The apparatus may be used to orient any type of object formed with one end of smaller transverse section than the opposed end. Such articles include for example, tapered bearings, bottles, shell casings, containers of various types, tapered pieces of all kinds such as bolt or screw blanks, bolts, rivets, nails, keys, cotter pins, wedges, and many other objects of the general shape described which may be cylindrical, rectangular, polyangular, etc. Although for purposes of convenience, I describe my invention in terms of projectiles having an ogival end, it is not limited to use with such objects. More particularly the present invention relates to a hopper adapted to receive elongated projectiles of a given size or caliber in heterogeneous arrangement, the hopper being adapted to successively deliver individual projectiles to a delivery chute extending therefrom, the delivery chute being provided with means for orienting the direction of the delivery of the projectiles, that is, all the projectiles are caused to be delivered with their blunt or boat-tail end forward or downwardly irrespective of whether or not they were so introduced from the hopper to the delivery chute. It is an object to provide a means for orienting articles of the character described and delivering them one after another in oriented order. For example, the articles may be discharged forwardly and downwardly through a funnel or chute; or they may be discharged in such a manner that they rest side by side with the blunt ends all in one direction. They may be discharged onto a conveyor belt or into cartons and packing cases; or into the feed mechanism of a machine for performing some additional operation. Such operations, in addition to packaging, may include filling if the articles are containers; milling or grinding, polishing, machining, etc. Many other uses will be apparent. Projectiles or armor piercing shell or cores such as for example of 30, 50 or the like small caliber, are generally made on screw machines and are collected in trays or pans from that operation. They may thereafter be subjected to heat treating at which time the cores or projectiles are handled in a gross manner which renders it impossible to maintain them in the same orientation as delivered from the screw machine. Likewise, after the original machining operation, the articles may have been subjected to washing in a drum or similar container making it impossible to maintain them in position in a direction in which they were delivered from the original operation. However, for the purpose of subsequent operations such as centerless grinding of the body diameter, milling or grinding of the boat-tail end of the projectile or core, hand inspection of given dimensions of the core, automatic inspection of given dimensions thereof, or bringing the projectiles into a grinder for overall grinding or correction grinding and the like operations, it is necessary that the projectiles be delivered individually and successively and all oriented in a single direction. With such end in view, it is an object of the present invention to provide a hopper adapted to receive projectiles or other articles of the class herein set forth in a heterogeneous or mixed arrangement, and to deliver them therefrom individually and successively and in an oriented manner, that is, the blunt or boat-tail end first, the delivery chute being characterized by including means for orienting the projectiles so that they are delivered in such manner from a funnel or other delivery means whereby the projectiles may be fed or thereafter handled in such orderly arrangement in the next successive operation. Other objects and advantages will be apparent from a consideration of the following specification and drawings wherein: On the surface of the feed plate 2. The hub, drive; drum-iand feed: As best illustrated in ig. The rim 13 is provided with a peripheral chamfer eand seats therein a hardened steel ring 30 to provide a bearing surface for the projectiles as they are received within the slots 29 while being carried to the delivery chute entrance. For the purpose of actuating the hopper there is provided suitable -drive means such as the ratio or gear-head motor 31, to the shaft 32 of which there issecured a V pulley 33, the pulley 33 extending adjacent to the ,drive: This may be accomplished by mounting the hopper standard and also its drive motor, on a tiltable platform. One method of accomplishing this is shown by the illustrations wherein the base 14 of the hopper standard is bolted as at 35, and the motor likewise bolted as at 36, to the angle pieces 31 which may, if desired, be a single channel forming a supporting bed for the hopper and motor. This supporting bed is in turn secured by suitable means such as the flat head screws 38 to the pair of spaced apart pipe clamps 39 which embrace the horizontally extending pipe 40, the pipe 40 being supported in elevated position through the elbows 41, nipples 42 and flanges 43 to a suitable mounting base generally indicated as Extending from the standard I and between a pair of rim supporting arms 12 is a supplemental arm 46 which extends to the rim 13 and terminates in a downwardly extending planar surfaced apron 41, the apron 47 providing a mounting surface 4 5 for the obliquely extending delivery chute generally indicated as Immediately above the chute 48 and forwardly offset therefrom, the rim 13 is provided with an oblique slot seating therein the slide member 49 which-provides a delivery opening from the hopper or the feed plate thereof, and a defined path for admitting projectiles delivered from the feed plate 20 to the chute This element 49 is provided with a planar surface portion 50 which is secured by means of the screws 51 to a recessed planar surface portion of the rim 13, and includes the right angular bearing surface 52, the said surface 52 being inclined at an angle of about to the vertical, the opposed longitudinal edge of the portion 50 being likewise inclined at the same angle. The bearing ring 30 is here split obliquely, its ends terminating at the longitudinal edges of the element The function of the spring 61 is to scrape out a group of projectiles which may have entered a slot 29 in a vertical position. The projectiles next pass beneath a second similar flat spring 62, which is mounted lower and closely adjacent the surface of the feed plate 20 to scrape off any projectiles which may ride up on the wall 28 in a horizontal position, to the end that when a slot 29 approaches the chute entrance there is contained therein a single projectile Thus, when a slot 29 registers with the top opening of the chute admittance slide 49, a projectile 63 carried in one of the slots 29 drops into the entrance-way, abuts against the bearing surface 52 of the element 49, and then falls in an inclined direction, either ogival or blunt end forward, to the inclined chute 48, the chute 48 being inclined at the same angle as the element 49, and having a surface portion continuous with the bearing surface The chute 48 comprises a back side plate A funnel 58 is secured to the face of the front side members 54 and 55 and bridges the gap between their adjacent ends and then extends generally downwardly in a vertical direction and terminates in the vertical ejection nipple 66, the nipple 66 being positioned laterally of the chute base The portions of the chute may be secured together by suitable means such as a plurality of screws 59, the entire chute assembly being secured to the apron 47 by means of the pair of screws 60 which extend through the portions 54, 56 and 53, and into the apron The front side plate 54 is spaced from the back side plate 53 a distance approximately equal to the widest diameter of the projectile 63, and the lower end of the front side plate 54 is spaced from the adjacent end of the front side piece 55 a distance approximately equal to the length of the projectile. The front upper corner of base piece 56, between the adjacent ends of the front side plate 54 and the front side piece 55 is beveled in a concave or arcuate manner so as to provide the base piece with an incline and to converge both longitudinally and transversely to the funnel 58, as best indicated in Figs. The tipper block 57 which is otherwise generally rectangular, is provided with a beveled edge 64, the bevel extending vertically thereof and from adjacent the front piece 55 to the back side plate 53, and leaving an abutment or remaining face portion 65 having a width slightly less than one-half of the thickness of the block 57 or base piece This provides an angular recess opening into the inner face of the block 57 and between the back side plate 53 of a sufficient degree to permit entrance of the ogival end of a projectile 63 but not the blunt end thereof. The particular shape of recess is given as illustrative of one effective and preferred embodiment, particularly when using the invention with projectiles or other objects of ogival shape. The recess may be of different shape when using the invention in connection with other articles whose smaller end is of different shape. For example, the recess may be cone shaped or a circular, oval or curved recess with substantially straight sides, the back being straight or concave in shape. The function of the recess is to provide a pivotal point for the end of lesser cross-section. It should be of such a shape preferably as to impart a lateral motion to the article being oriented, or at least so that it does not interfere with the lateral motion imparted by the sloping side of the chute when the smaller end is forward. In effect, the recess retains the small end momentarily and permits the larger end to swing laterally with the edge of the recess serving as a pivot point. In the further operation of the apparatus, as the projectiles are delivered to the chute either ogival or blunt end forward and downward, their momentum down the incline causes them to successively abut against the tipper block In the event that the projectile descends blunt end forwardly, it at best merely abuts against the face portion 65 of block 51 and continues to drop blunt end downward through the funnel 58 as illustrated in Figs. In the event that the projectile is delivered to the chute 48 ogival end forward its momentum carries it into the angular recess provided by the bevel 54, which causes the projectile to pivot about the tipper block 57 and to extend the blunt end clear of the base plate 54, and with the aid of the taper at the end of the base plate 56, the projectile is caused to drop blunt end downward and descend into and out of the funnel 58 in that manner, as illustrated in Figs. It will thus be seen that irrespective of the direction in which the projectiles are introduced to the chute 48, they are all delivered blunt end downward uniformly for a subsequent operation. Other modifications will be apparent. The article pivots as previously described but instead of dropping down a funnel, it passes blunt end forward onto conveyor belt 68, passing between guides By positioning the belt at an angle or providing a delaying means near belt 68 before the article has turned at right angles its former line of passage, the articles can be delivered lying side by side with the ends oriented. Although I have described the preferred embodiment of my invention wherein the chute is inclined and fed by gravity fall of the pieces, it is within the scope of the invention to project the articles into the chute by any means. For example, I may use air pressure, springs or other devices to impart sufficient forward motion to the article so that it will be passed through the chute, be oriented and be discharged from the device. The invention is not limited to any one particular way of feeding the article to the chute, or any one way of conveying it away from the discharge end. It will, of course, be understood that the apparatus as a whole may be dimensionally modified to accommodate a projectile of any given size, and that similar elongated objects having a pointed or concentrically reduced end may be similarly caused to be delivered in a uniform manner. I ,claim as my invention: A chute for receiving unit articles formed: In a device of a class described comprising: An inclined gravity chute for receiving elon- 7C gated unit articles formed with an ogival and a. A device for orienting unit articles formed with one end of lesser cross-section than the opposed end comprising walls to laterally confine said unit articles, one wall having an opening near the discharge end, the bottom wall near the discharge end having a laterally and downwardly sloping portion and a recessed terminal abutment means providing limited pivotal ingress for the end of said article of lesser transverse section only. A device for orienting unit articles formed with one end of lesser cross-section than the opposed end comprising walls to laterally confine said unit articles, one wall having an opening near the discharge end, the bottom wall near the discharge end having a laterally and downSwardly sloping portion and a recessed terminal abutment means providing limited pivotal ingress for the end of said article of lesser transverse section only for orienting said unit articles and causing them to be discharged uniformly through the opening in the wall with the ends of greatest cross-section forward, and means for removing the unit articles thus oriented. A gravity chute for receiving elongated unit articles formed with one end of lesser transverse section than the opposed end and for discharging said articles one at a time in a uniform manner comprising side walls to laterally confine said unit articles, a bottom formed with a laterally sloping portion adjacent its lower end and terminal abutment means forming a closure for the lower end of said chute formed with a laterally opposite entrance recess providing pivotal ingress for the end of lesser transverse section only for orienting said unit articles and for causing them to be discharged uniformly with the larger end forward through a lateral opening provided in one of said side walls adjacent said abutment means and outwardly over said sloping bottom portion into a conveying means. A device of the class described comprising means for projecting unit articles formed with one end of lesser cross-section than the opposed end into a passageway comprising walls to laterally confine said articles, said passageway being provided with an opening in the side adjacent the discharge end, said opening being at right angles to a vertical plane bisecting the passageway, the passageway being formed with a laterally sloping portion for causing the oriented articles to be discharged laterally through said opening, and a recessed terminal selective abutment means forming a closure for the passageway, said recess providing limited pivotal ingress for the end of said article of lesser cross-section only for orienting the unit articles.

Chapter 5 : Packaged bakery product orienting method and mechanism

FIG. 9 is a depiction of a support suited for orienting optical gratingsand the like utilizing the orienting mechanism of the invention. FIG. 10 is a depiction of an orienting mechanism based on the invention forsupporting a joy stick.

A mechanism as in claim 1 characterized in that said first and secondactuated joints are rotational joints positioned respectively between theends of the base link and the driven joint. A mechanism as in claim 1 characterized in that said first and secondactuated joints are rotational joints positioned respectively at the endsof the base link, between such ends and the respective proximal links. A mechanism as in claim 1 characterized in that said first and secondactuated joints are sliding joints positioned respectively between theproximal and distal links. A mechanism as in claim 1 characterized in that the said driven jointseach comprise three revolute joints, two of which joints have coincidingaxes and are connected to the distal links, all of said joints having acommon center of rotation. A mechanism as in claim 1 characterized in that the said driven jointseach comprise four revolute joints, the first and second of which arerespectively connected to distal links having coinciding axes, all of theaxes of said joints having a common center of rotation. A mechanism as in claim 1 wherein the support joint is carried by thebase and further comprising a cylindrical joint positioned between the endmember and the base. A mechanism as in claim 1, characterized by said support joint havingonly two degrees of rotational freedom. A mechanism as in claim 1, characterized by said support joint havingthree degrees of rotational freedom. The mechanism of claim 1 in combination with an actuable positioningmechanism for effecting displacement of the mechanism of claim 1 as anelevated member characterized by a linkage having four positional jointsand four positional links wherein: PA1 a three of the four positional links comprise: PA2 i one base positional link having two ends; andPA2 ii first and second oriented links each having base and elevated ends andbeing coupled at their base ends to the respective ends of the basepositional link through the first and second positional jointsrespectively;PA1 b the first positional joint permits orientation of the first orientedlink about a center of rotation;PA1 c third and fourth positional joints are located at the elevated ends ofthe first and second oriented links respectively. PA1 d the second and third, positional joints are revolute, each permittingrotation about one axis and having respective axes which arenon-orthogonal to each other; andPA1 e the fourth positional link comprises an elevated link supported at itstwo ends respectively through said third and fourth positional joints bythe first and second oriented links,PAL whereby the end of the elevated link at the third positional joint isconstrained to move about the first positional joint in a path which lieson a sphere centered at the first positional joint, and the end of theelevated link at the fourth positional joint is constrained to move in apath which is circular about the second positional joint, said positioningmechanism further comprising first, second and third positional actuatorsfor orienting the first, and second oriented links and the elevated link: PA1 i the first positional actuator being coupled on one side thereof to thebase positional link, and coupled on its other side to the first orientedlink in order to effect orientation of the first oriented link about anaxis which is non-orthogonal to the axis of rotation of the second joint;PA1 ii the second positional actuator being coupled on one side thereof tothe base positional link and coupled on its other side to the secondoriented link to effect orientation of such second oriented link;PA1 iii the third positional actuator being connected between the basepositional link and elevated link to orient the elevated link with respectto the base positional link,PAL whereby the positional actuators may collectively position and orient theelevated member within a work space, providing a combined mechanism withthree degrees of translational freedom and two or three degrees ofrotational freedom. The combined mechanism of claim 10 characterized in that the axis ofthe second positional joint intersects the center of rotation of the firstpositional joint. The combined mechanism of claim 10 characterized in that the axis ofthe third positional joint intersects the center of rotation of the fourthpositional joint. The combined mechanism of claim 10 characterized in that the distancefrom the center of rotation of the first positional joint to the axis ofthe third positional joint is substantially equal to the distance from thecenter of rotation of the fourth positional joint to the axis of rotationof the second positional joint. An actuable mechanism for orienting an end member with respect to abase, the end member being constrained by a fixed support joint having atleast two rotational degrees of freedom and a center of rotation for saidat least two rotational degrees of, freedom, said mechanism beingcharacterized by two 5-bar linkages each defining a closed loop and eachbeing;PA1 a supported by the base through a revolute base joint to which said 5-barlinkage is connected;PA1 b connected to the end member at a driven joint located remotely from theconnection of the base joint to the 5-bar linkage, the driven joint beingdisplaced from the support joint and having two degrees of rotationalfreedom,PAL each of the 5-bar linkages further being provided with first and secondactuated joints positioned within said closed loop between the base jointand the driven joint to provide mobility to the end member with respect tothe base in response to such actuated joints. Lo output link which, together with its forked end Lb,functions as an end member, Lg ground link , Lb base link , Lp proximallink , Ld distal link. Byconvention a positive direction of motion is indicated. Joints labelledJ1, J2, J3, form a passive spherical joint or gimbal. J1 is optionally acylindrical joint allowing the output link Lo to slide in and out, asindicated by S in FIG. The common axes of jointsMl, M2, and M3, M4 resp. J10, J11, J12, J13 do not need to becoincidental. They are represented or constructed this way for simplicityof depiction. Jb is the base joint supporting each 5-bar linkage. Joints labelled J6, J7, J8, J9 within the dual 5-bar linkages, joining theproximal and distal links Lp, Ld are revolute. There are several ways toimplement the four-joint substructures J10, J11, J14, J16 and J12, J13,J15, J17 in a manner which is similar to ordinary universal joints forexample, using forks. In the above Figures, several features are optional. F or example, thecenter of rotation of the support joint constituted by joints J1, J2, J3need not be coincident with the axes of the joints Ml, M2, M3, M4. Let joints M1, M2, M3, M4, rotate in the positive direction: Let joints M1, M2, rotate in the positive direction and joints M3, M4, inthe negative one: Let joints M1, M4 rotate in the positive direction and joints M2, M3 in thenegative one: Let joints M1, M3 rotate in the positive direction and joints M2, M4 in thenegative one: The six joints and six linksarise from the fact that the basic 5-bar linkage--FIGS. J12, J13 and is connected tothe end member through an additional link, La. This sixth link La is,however, outside the 5-bar loop FIG. J12, J13 share a common axle Lc connected to the additionallink La. It is therefore characterized as a 5-bar linkage for the purposesof this Specification. However, thistype of structure is commonly made to function properly by keeping allaxes parallel, which is a simple machining operation. In cases of exactingspecifications, the problem can be dealt with by introducing suitableelasticity in the links. By designsuch conditions can be avoided for large excursions. In addition, even insuch positions where actuators M1 and M2 lose their influence on the yawmotion of the output link, M3 and M4 would be capable of controlling thismotion. Condition 1 also occurs when points A1 and A2 both undergo a motion in adirection exactly orthogonal to the principal direction of a distal link. Proper functioning has, however, been verified by constructing mechanicalmodels and it was impossible to find such conditions within any workspacefree of interferences. Condition 2 occurs when one 5-bar linkage stretches completely. This mayput a definite bound on the workspace as a degree of freedom is lost. Construction of mechanical models has shown that such conditions can beavoided with a proper choice of design parameters. A wide range of mechanical amplification gains orattenuations is achievable by selecting the distance L5 between thecentral support joint for the output link Lo and the line joining thedriven joints A1, A2 as shown in FIG. These lengths may be chosen tovary the angle of incidence of each connecting link in order to createvarious lever-arm actions around the pitch and the yaw directions. The mechanism has the ability to operate with each effectedmotion based on the sum and differences of actuator motion for wide rangesof designs and in the neighbourhood of any operating point. This propertycan be exploited by making use of analog electronics to control thedevice, despite its complex kinematic structure, and thereby achievingvery high control bandwidth. This is because no multiplications are neededother than by constant quantities, due to the four way differential natureof the driving actions. The mechanical advantage changes mildly for yaw motions asone structure extends while the other contracts. It changes moderately forsliding motions. It remains almost constant for pitch motions. The worse case occurs forretractions combined with a roll. Depending on the intended application,many designs are possible. For a general purpose device, one should seekangular isotropy. For example, it is easy to see that if the point C, thecenter of rotation for the output link, falls on the line joining thepoints B1, B2 in FIG. The other design parameters can be searchedfor similar conditions for the other motions. To date, a good generaldesign has been found for the following length parameters: If we replace cylindrical joint J1 in FIG. In this case, we are in the presence of aredundantly actuated mechanism. For a given output torque, an infinite setof actuator torques can be chosen by control. This effect can be appliedto fulfil a number of functions. For example, the set of torques can beselected to create minimum stress in the structure. Another example is toselect those torques required to minimize the maximum torque in theactuators for a given output, thereby maximizing efficiency. Yet anotherexample is to create given bias forces in the joints, thereby cancellingbacklash if any. This particular effect can be appreciated by inspection of FIG. If apositive torque is created in actuators M1, M3 while a negative one iscreated in M2, M4 corresponding to the eliminated sliding motion , theresulting forces cancel out and all the passive joints are bias-loaded inone well defined direction. Thus, accuracy can be upheld even in thepresence of wear. Consider a fixed inertial load acting vertically on theoutput link Lo. If its center of mass lies on the axis of joint J1, thensliding motions will not create reaction forces and torques other thanthose that are exactly in the direction of motion. If the combinedcontribution of the load and links to the inertial tensor of the totalmechanism causes the axes of the corresponding ellipsoid of inertia tocoincide with the principal directions of motion, and this ellipsoid iscentered at the center of rotation, then angular accelerations will createzero reaction forces at the ground link, and only reaction torques. Thisis even more desirable if all the axes of this ellipsoid are equal, inwhich case this effect is obtained for any direction of rotationalacceleration. This feature is particularly useful for high acceleration,high bandwidth applications. The most obvious place for sensors to be located is on thesame shaft as the actuators. Redundant sensing offers a range of possibilities including augmentationof accuracy and usage of self-calibration techniques. The spherical casewith co-located actuators and sensors is sensor-redundant too. This invention does not suffer from accumulation of errors as a serialmechanism does. In fact exactly the opposite occurs, error reduction isobtained as all sensors are made to measure any motion or position. In ananalogous way all actuators are made to cause any motion. In the serialcase, each sensor and actuator is dedicated to each principal direction ofmotion, and therefore errors accumulate. Consider a sliding motion for example. In the serial caseonly joint J1 contributes power to this motion. The design of theinvention will require the contribution of all four actuators to cause thesame motion. The same argument can be repeated for all four principaldirections of motion, it thus follows that this design can achieve afactor four in power efficiency improvement. Byconvention the positive direction is taken in the sense of actuatorshortening. As in the prior case, joints labelled J1, J2, J3 form apassive gimbal, with J1 optionally being a cylindrical joint, allowing theoutput link Lo to slide in and out. The axes of joints J10, J11, resp. J12, J13 whereby the distal links Ldjoin at the driven joint Jd do not need to be coincidental. They arerepresented or constructed this way for simplicity. L6 is the distance between the points B3, B6 resp. B4, B5 ; and L7 is the distance between the points B3, B4 resp. Referring to the FIGS. Let joints P1, P2, P3, P4 translate in the positive direction: Let joints P1, P2 translate in the positive direction and joints P3, P4 inthe negative one. The output link Lo undergoes a yaw motion. Let joints P1, P4 translate in the positive direction and joints P2, P3 inthe negative one.

Chapter 6 : Involuntary but not voluntary orienting modulates the splitting of attention | JOV | ARVO Journa

Figure.9 is a schematic view of the means.-for intermittently driving my orienting mechanism;,Figure l0 is an-enlarged yfragnentary perspective View `of blog.quintoapp.com-table feeding trough blog.quintoapp.com another 'position -in Figure l.;.

At extreme raised position the bucket is able to be rotated from a full tilted back orientation to a dumping orientation that allows the floor of the dumped bucket to approach or achieve a position perpendicular to the plane upon which the loader vehicle is standing or assuming the vehicle is on a level plane the orientation of the bucket would be considered as straight down. As the bucket rotates zthrough the dumping process components of the linkage system travel a path over and beyond the end of the raised lift arm assembly maintaining favorable mechanical advantage over the bucket throughout its rotation. At the extreme lowered position of the lift arm assembly the bucket can be rotated from a full tilted back orientation to a position past straight down which is desirable when performing certain operations with a front-end loader. The design of the bucket orienting mechanism is paramount in allowing the combination of all the afore mentioned maneuvers and is therefore considered as the invention. A vehicle can be manufactured expressly for the purpose or an existing tractor can be equipped with a loader attachment. The front-end loader will have a lift arm assembly pivotally attached at one end to the vehicle and pivotally attached at the other end to a bucket or other type of material handling implement. Hydraulically actuated lift cylinders pivotally mounted at one end to the lift arm assembly and pivotally mounted at the remaining end to the frame of the vehicle or tractor raise and lower the lift arm assembly with hydraulic pressure received from a hydraulic system established on the vehicle. Tilting or dumping of the material handling device is accomplished by the extension or retraction of the hydraulically actuated bucket tilting cylinder or cylinders acting through arms and links attached at a pivot point or the material handling implement or bucket on one end and on the other end to a pivot point located static to the vehicle. These arms and links in series with the hydraulic cylinder are designed and located to maintain a substantially fixed and pre-selected orientation of the bucket throughout the raising and lowering cycle of the lift arm assembly. Many self-orienting designs place limitations upon the maximum amount of rotation allowed the lift arm assembly and bucket. Usually to accomplish the desired operation at either the extreme lowered or raised position of the lift arms a compromise situation is experienced at the other extreme position. That is to say that a self-orienting bucket design that has a favorable angle between the bucket actuating mechanism and the bucket at extreme tilt-back position when lift arms are lowered to extreme position can experience a problem with interference and or critical angles between components of the linkage, lift arms, and bucket when lift arms are raised to extreme limits and the bucket is tilted down or dumped to extreme position. Considerations must be made in the design of the linkage mechanism substituting desirability with acceptability. Another disadvantage with some designs is the extreme upper and lower travel of the lift-arm assembly is restricted by limitations of the self-orienting mechanism and not the physical limits that exist between the lift arm assembly and the vehicle. Limitations common to many self-orienting loader designs occur while the lift arm assembly is fully raised not allowing the bucket to achieve a filly dumped orientation before the bucket-tilting cylinder reaches maximum extension. Most stop considerably short of straight down making it difficult to dump materials that tend to stick and not slide from the dumped bucket. Improvements to the above-described problem areas realized through a unique self-orienting bucket mechanism will be an enhancement to the current art. Consideration is given to improving the areas that limit travel of the lift arms and restrict the rotation of the bucket as well as eliminating critical angles the mechanism may experience during extreme dump or extreme roll back orientation of the bucket. This invention introduces a design that allows a high degree of rotation of the lift arms, a full dumping of the bucket at all positions of the lift arms, and a linkage system that offers a favorable advantage to its components at all positions while maintaining a substantially fixed orientation of the bucket. Restrictions common in other front-end loader designs that occur when the lift arms are in full raised position and the bucket is rotated to a dumped position do not exist with this self-orienting mechanism. The ability of the components to extend over and above the bucket allows it to achieve an orientation of straight down while avoiding any critical angles. Being given an afore described situation with the lift arms fully raised as the dumping bucket approaches a straight down orientation interference between it and the underside of the lift arms will occur. This is an unavoidable condition common to the front-end loader field. The restriction this occurrence places upon the maximum stroke of the bucket-tilting cylinder will also limit the full downward tilt of the bucket when the lift arms are lowered. The design of the bucket orienting mechanism set forth in this invention prevents such a restriction to the stroke of the bucket-tilting cylinder with lift arms fully raised. The part of the mechanism being controlled by the extending bucket tilting cylinder assumes a path that neutralizes or near stops movement of the bucket even while the cylinder continues to extend to maximum stroke. Thus the rotation of the bucket ceases just prior to its experiencing an interference condition with the underside of the lift arm. While this control over bucket rotation is of favorable consequence when lift arms are in the fully-raised position also as the lift arms are lowered the area of interference between them and the bucket widens allowing the mechanism to automatically orient the bucket to a position of past straight down. Past straight down being a desirable position when using the tip of the dumped bucket as a blade for smoothing uneven or rough material. This past straight down orientation of the bucket is achievable as a result of the amount the bucket tilting cylinder is allowed to extend after the neutral path is assumed by the mechanism with respect to the dumped bucket while lift arms are fully raised. For clarity the bucket orienting mechanism is shown in schematic form and the lift cylinder has been omitted.

Chapter 7 : Attention - Wikipedia

Planta () Planta 9 Springer-Verlag CeUulose-microfibril-orienting mechanisms in plant cells walls R.D. Preston The University, Leeds, W. Yorks.*

The primary idea being that attention is like a movable spotlight that is directed towards intended targets, focusing on each target in a serial manner. When information is illuminated by the spotlight, hence attended, processing proceeds in a more efficient manner, directing attention to a particular point and inhibiting input from any stimuli outside of the spotlight. However, when a shift of spatial attention occurs, the spotlight is, in effect, turned off while attention shifts to the next attended location. Attention in this theory reflects both current and previous attentional allocation, so that attention can build up and decay across more than one attentional fixation over time. This means that time to detect a target may be dependent upon where attention was directed before the target was presented and attention needed to be shifted. They argue that in order for a person to orient to a new location, they first have to disengage, or take attention away from where it is currently focusing. Finally, attention would be engaged, or focused onto the new target. Research often disagrees about the amount of overlap in the neural systems for these different types of attention, and therefore research supporting both views is discussed below. However, it is this high visual acuity that is needed to perform actions such as reading words or recognizing facial features, for example. Therefore, the eyes must continually move in order to direct the fovea to the desired goal. Prior to an overt eye movement, where the eyes move to a target location, covert attention shifts to this location. For example, when a person is driving and keeping their eyes on the road, but then, even though their eyes do not move, their attention shifts from the road to thinking about what they need to get at the grocery store. The eyes may remain focused on the previous object attended to, yet attention has shifted. First, Posner et al. Patients were found to have damage present in the mid-brain area and associated cortical areas. Although patients were not able to move their eyes, they were still able to shift attention covertly. However, there was a slowing of the process of shifting attention in these patients, suggesting that the mid-brain and cortical areas must be associated with covert attention shifts. Additionally, previous research has shown support for covert attention shifts being associated with activity in the parietal lobe. On the other hand, research seems to indicate differences in brain areas activated for overt attention shifts, as compared to covert shifts. Previous evidence has shown that the superior colliculus is associated with eye movements, or overt attention shifts. Multiple studies have shown activity evident in the frontal cortex, concentrating in the precentral sulcus , the parietal cortex, specifically in the intraparietal sulcus , and in the lateral occipital cortex for both overt and covert attention shifts. While these studies may agree on the areas, they are not always in agreement on whether an overt or covert attentional shift causes more activation. Utilizing functional magnetic resonance imaging fMRI technology, Corbetta et al. Additionally, this study reported that covert shifts of attention showed greater activity levels than in the overt attention condition. However, it is important to note that different tasks were used for the covert versus the overt condition. Once again fMRI technology was utilized, as well as, two separate tasks, one for covert attention and one for overt attention. Results showed overlap in activated areas for overt and covert attention shifts, mainly in the parietal and frontal lobes. However, one area was shown to be specific to covert attention, which was the right dorsolateral cortex; typically associated with voluntary attention shifts and working memory. One should question whether this additional activation has to do with the selected task for the covert condition, or rather if it is specific to a covert shift of attention. Results were in agreement that covert and overt attentional shifts engage the same neural mechanisms. However, this study differed in that overt shifts of attention showed greater activation in these neural areas, and this occurred even at multiple shift rates. Once again, the neural regions implicated in this study included the intraparietal sulcus, the precentral sulcus, and the lateral occipital cortex. This larger activation evident with overt attention shifts was attributed to the added involvement of eye movements. In endogenous control, attention is directed toward the stimulus voluntarily, usually by interpreting a cue that directs one to the target, whereas in exogenous control, attention is automatically drawn towards a stimulus [20] The neural mechanisms in the brain have been shown to produce different patterns of activity for endogenous and exogenous attention. Specifically, the dorsal posterior parietal and frontal cortex region are mainly implicated with voluntary attention, while activity is transiently shown in the occipital region. The endogenous mechanisms are thought to integrate previous knowledge, expectations and goals to voluntarily decide where to shift attention. On the other hand, neural areas involved in reflexive attention are believed to have the purpose of focusing attention on events or objects that stand out in the environment. The temporoparietal cortex and ventral frontal cortex region, particularly in the right brain hemisphere, have shown involvement with reflexive attention. Both conditions showed activation in the dorsal and parietal premotor areas. However, the voluntary condition also showed activation in the right dorsolateral prefrontal cortex, which did not appear in the reflexive condition. As this area has been shown to be associated with working memory , it may indicate that working memory is engaged voluntarily. The subcortical global pallidus region was also activated only in the voluntary condition. Additionally, the activation shown in the temporoparietal junction [TPJ] was slightly different in both conditions, with the endogenous condition showing more spreading to the lateral, anterior and superior regions. Although these differences did exist, overall there was a lot of overlap demonstrated for voluntary and reflexive shifts of attention. Specifically both showed activations in the dorsal premotor region, the frontal eye field area, and the superior parietal cortex SPC , although, the SPC exhibited greater activation in the endogenous condition. The anterior attentional system is involved in detecting salient stimuli and preparing motor responses. Conclusion[edit] In conclusion, many neural mechanisms are involved in shifts of attention. While the type of attentional shift corresponds to different brain areas being activated, there is a lot of overlap seen. Additionally, even if the same neural areas are being utilized, one should question whether the same processes are being engaged within the same region or there is a difference in amount of activation. Properties of attention resources used depend on whether it is endogenously or exogenously directed or whether attention occurs as a spotlight or gradient, affect attentional shift as well as switching costs that may be experienced. Attentional shift occurs across modalities and depends on all of these properties to divide attention in order to most efficiently process information.

Chapter 8 : USA - Article orienting mechanism - Google Patents

Here, we report a novel social orienting response that occurs after viewing averted gaze. We show, in three experiments, that when a person looks from one location to an object, attention then.

Application October 29, , Serial No. My invention relates to an article orienting mechanism and, more particularly, to a mechanism for elevating and orienting a generally spherical article, having at least one indentation in its surface, such as fruit having a core indent. Improvements in methods of mass production in industry are responsible for the constantly rising standard of living that we all enjoy. The need for increased mechanization is especiallyy felt in the field of processing perishable fruits. This industry has a highly seasonal period of production, at which period a great volume of production must be accomplished in a relatively short time -due to the perishable nature of the base material. The work is done largely by migratory workers and a decrease in the number of such employees is desirable due to the uneconomic nature of itinerant labor. Also, it is difficult to secure enough temporary workers because of the relatively high permanent employment at this time. Savings in the processing of fruit are passed on to the nations food consumers in the form of lower prices, hence they may enjoy more of this healthful food. Even in relatively nonperishable fruit processing, it is desirable to have increased mechanization because there is a resultant saving over manual processes. The main problems in the mechanized processing of fruit are due to the irregular shape of the base material. It is necessary to orient the fruit in relation to the axis of the stem and core before such operations as peeling and coring can be performed. An object of this invention-is, therefore, to provide an improved method of orienting an article having a generally spherical shape with at least one identation in its surface, and of elevating the article from a fiume or reservoir to a position where it may be picked up and transferred to a peeling and coring mechanism. Once the article has been oriented, of course the orientation should be maintained. It is imperative to accomplish these objectives in an inexpensive manner with a simply constructed and maintained machine having a high rate of eiiiciency. In brief, these objectives are carried out in my invention by the following means: Positioned in the flume is an upright column having two sprocket wheels mounted thereon, one near the top and one under the surface of the water. The sprocket wheels are connected by an endless flexible chain. Means is provided for driving the sprocket wheels intermittently. Article carriers are mounted on the endless chain, equally spaced one from another. The article carriers are cup-shaped, and associated with each carrier is a driven Wheel projecting above the inner bottom surface of the carrier. Means is provided for rotating the driven wheel. A fruit in the article carrier is rotated by the driven wheel until it reaches a position with the core indent contiguous the wheel. At this point the driven wheel no longer contacts the surface of the fruit, and the fruit is stably supported by the inner surface of the cup. The driven wheel is mounted on a shaft having a driving sheave external of the carrier. A reciprocally movably upright rail is positioned contiguous the path of said driving sheaves on that side of the orienting mechanism up which the article carriers move. The article carriers are moved intermittently a distance equal to the distance between carriers. Latching means is provided to attach the upright rail to an article carrier during the movement of said carrier upwards. At the end of this travel, means is provided to disengage the upright rail, and the rail falls rotating the driving sheaves, and the driven wheel rotates moving the article in the article carrier towards an oriented position. Means is provided for latching the rail to the next succeeding article carrier when the rail has travelled downwards a distance equal to the space between carriers. It can be seen that means is provided for moving the article carriers intermittently and for rotating the driven wheels when the article carriers are at rest. A tiltable feeder trough, operatively attached to the bottom of the upright rail, is positioned in the flume or reservoir partially submerged in the water. The trough has an open end contiguous the upward path of the article carriers. By action of the upright rail the trough is submerged below the water level, comes up carrying several pieces of fruit, and tilts, whereupon one fruit rolls off the open end and into an article carrier. This carrier moves upward and the next carrier is in a position to receive another fruit, whereupon the process is repeated. Near the top of the travel of the fruit, means is provided for picking up the then oriented fruit and transferring the fruit to the peeling and coring mechanism. A preferred form of transfer mechanism is described in my co-pending application, Serial No. The method and meansl by which the aforesaid objects and other objects are accomplished by my invention will be best understood from the following description when read with reference to the accompanying drawings, in which: Figure 1 is an elevational view partly in section, illustrating a machine embodying the present preferred form of my invention; Figure 2 is an enlarged elevational view, partly in section, of one form of article carrier in my orienting mechanism; A Figure 3 is a fragmentary elevational view, partly in section, of the latch portion of the mechanism in a different position than shown in Figllle 1; Figure 4 is an enlarged perspective view of the latch and: The flume My elevating and orienting mechanism is preferably used ,in Aconjunction with a flume,. The feeder trough 30, which will be described in ldetail later, is positioned in this area and is in. At the other end of the shaft et is a driven sprocket wheel Intermittent motion imparted to. One end of a rod 36 is attached to the. As rod 36 is moved reciprocally, intermittent movement in one direction is imparted yto the drive chain. A stop dog 31 acts on the. Flexible chain There are two idler rollers 8d positioned on 4the outside of the upright column 19, one below the upper sprocket wheel and one above the lower sprocket wheel. A flexible endless chain I3 is mounted ony the sprocket wheels 28 and Over the rollers The rollers 84 serve to tighten the flexible chain I8 and to reduce transverse movement of the chain IB on the other side of the upright column. The U-shaped upright column is open on the side at which the chain moves upwards. Article carriers Cup-shaped article carriers I6 are mounted on the outside of the flexible chain I8 and are spaced equidistantly by means to be recited later. As shown in Figure 1, on the side of the upright column I9 with the backing plate 95, the cups are directed upward and on the other side, with the rollers 84, they will be downward. The inner surface of the sides of the cupshaped portion of the article carriers I6 support fruit placed therein as shown in Figures 2 and 5 If fruit having a core indent is placed in the article carrier I 6 and the driven wheel 42 is rotated, the fruit will be rotated by the action of the driven wheel 42 on the surface of the fruit until the fruit reaches a position with the core indent above the driven wheel, at which point the driven wheel will no longer contact the surface of the fruit and the fruit will be maintained at its now oriented position with the core axis vertical. A Imodification is shown in Figure 2 with a sleeve 86 enclosing the base of the article carrier. The shaft 44 has a fixed relationship with the sleeve The article carrier I6 has helical slots 90 in its base wall to receive the shaft In the method of construction of the article carrier shown in Figure 2, strap 94 is attached to the sleeve 86, instead of the base of the article carrier. A horizontally corrugated roller 46 is fixed on the shaft 44 between the article carrier I6 and the bent end of the strap U-shaped strap 96 is attached to the endless chain I8 immediately above the strap 94, and the legs of the U- shaped strap extend above the corrugated cylinder 46, and a second shaft 98 is mounted therein, with its axis parallel to the axis of the corrugated cylinder A Spur gear 91 is set on this shaft 98 in engagement with the corrugated cylinder The grooved sheave 41 is xed on the shaft 98 at one side of the spur gear Means is provided to move the bar 50 relative to the U-grooved sheave When the U-grooved sheave 41 is rotated, the spur gear 91 follows rotating the corrugated cylinder 46, and the driven wheel 42 in turn is rotated, moving a fruit in the article carrier I6 toward orientation, as heretofore described. Rail assembly Outside of the upright column I9, at one side of the endless chain I8, is positioned a vertical rod This is on the side of the orienting mechanism at which the article carriers I6 move upwards, as can be seen in Figures 1 and 4. The rod is slidably mounted in guide posts 99 attached to the upright column I9. A vertical rail 50 is positioned to bear against the U-grooved sheaves The rail is preferably made of hard rubber to insure operable engagement with the sheave The back of the rail 50 is held by a semi-circular upright member 00 whichV in turn is attached to the vertical rod 48 by horizontal connecting members The shorter arm of the L- shaped rod 04 extends through the vertical slot 92 and pivotally carries latch l The latch member 24 has a hook arm 23 extending towards the article carriers I6; a cam follower arm 2 extending in the opposite direction; and a counter-weight 22 attached to its under side which tends to keep the hook arm 23 and the cam follower in the general upright position. A roller 28 is provided on the end of the hook arm 23 and is engageable with lip 25 on strap 94 to latch the rail assembly to the article carrier assembly. When the roller 28 is in engagement with lip 25, it can be seen that the rail assembly will move upward with the article carrier assembly, as shown in Figures 1 and 4. On the inside of the upright column II, next to the cam follower arm 2 , are two superposed cams. As the rail assembly moves upward, a roller 21 on the cam follower arm 2 v is pulled rearward and the hook arm 23 is disengaged from the lip In Figure 1 the upper cam 26 is in contact with the cam follower arm 2 and any further movement upwards of the latch 24 will serve to disengage the rail vassembly from the article carrier assembly. As the rail assembly moves downward, the cam follower arm 2 strikes the lower cam I5 and the hook arm 23 is swung back to engage with the next following lip 25 associated with the next lower article carrier I6. In Figure 3 the cam follower arm 2 is shown as it first contacts the lower cam I5. The rail assembly is thus again latched to the article carrier assembly and the operation is repeated. The means for causing intermittent motion of the endless chain I8, heretofore described, is so timed and spaced that each advancing motion moves the article carriers I6 a distance equal to the distance between carriers. At the beginning of the movement the rail assembly is latched to the adjacent article carrier I6. As advancing movement ends, the rail assembly is unlatched from the article carrier and descends. The rail assembly completes its downward motion and is re-latched on the next succeeding article carrier before the endless chain I8 moves again. It can thus be seen that the driven wheel 42 only moves when the article carriers 6 are at rest and, therefore, the fruit is only moved towards orientation when the article carriers are motionless. Also, the operation of the rod 48 facilitates the action off the feederv trough, as. The cylindrical bodyI of the dashpot is attached to theA upright columnv I9. The upper end of the piston 52 is attached to thev Vertical rod As mentioned before, a feeder trough 3l! The vertical rod d3 is held xedly by means o f a set screw 4. On one end of the shaft il is fixedly attached a vertical plate The open end of the feeder trough 3i ; is mounted on the vertical plate 39, with the free closed end of the trough extending outward from the orienting mechanism. A rod 32 attached to the end of the shaft 4 , on the other side of the vertical rod 48 from the feeder trough 3Q, extends in an opposite directOIl from the feeder trough. Itean be seenthat, as the Vertical rod d8 moves up andt down, the rod. As stated before means is provided to urge the fruit. Asi vertical rod d8 moves upward, the feeder trough. The open discharge end is contiguous theV path of the. The trough is large enough to hold several fruit so that atleast. Transfer mechanism The transferA mechanismI is described more completely in my co-pending application, Serial No. L,, fried September

DOWNLOAD PDF ORIENTING MECHANISM 9

Chapter 9 : Examples of Mechanisms

The assumption was that orienting Kleiner (), the results of which demonstrated a indexes a subcortical mechanism, whereas fixation preference for the face with stimuli presented about 50 indexes a cortical mechanism (Johnson,).

In contrast, preferential-looking tasks show that face preference at birth manifests itself also with measures that index fixation duration. It is possible, however, that orienting and fixation duration are confounded and only orienting matters. The present study used a revised version of the preferential-looking technique, in which the same stimulus i. Results showed that longer total fixation times on the facelike stimuli resulted from the sum of a greater number of brief fixations, rather than from the sum of a small number of long fixations. Introduction mechanism, termed Conspec, containing a crude speci- fication of the arrangement of the main facial features Many studies have shown that human newborns prefer i. Cortical circuits specialized for to look at facelike patterns over non-facelike patterns processing faces i. Therefore, Conspec is not conceived as an argued that this preference is based on the attention-holding mechanism, because its role is merely structural information conveyed by facelike patterns to trigger attention toward faces but not to hold i. That is, what gives rise to the preference would be The assumption that preference for facelike patterns the spatial arrangement of elements within the pattern, in newborns is mediated by a subcortical mechanism is like three high-contrast blobs corresponding to the supported by the results of studies that measured the relative locations of the eyes and mouth. In these tracking tasks, the ing to faces is primarily controlled by a subcortical stimulus is continually moving from the nasal into the Address for correspondence: Considering that tracking behaviour in new- tectal pathway. By using two , Johnson and Morton ; see also Johnson, looking tasks i. Con- intended to investigate the role of orienting and spec. If face from fixation. In contrast, if it situation would resemble very closely the situation in the arises also with measures that index detection, then tracking task, where the baby performs saccadic eye some cortical structure is activated. Thus, We Valenza et al. This is because, asymmetry between the temporal and the nasal visual if preference for facelike patterns were mediated solely hemifields was exploited as an index of subcortical, by a subcortical, orienting mechanism, one would have extrageniculate mediation Simion et al. In this expected that orienting should have proved a more study, babies were tested monocularly, and the facelike reliable, if not the only reliable, indicator of preference and the non-facelike patterns were presented one at a for faces. The Overall, on the basis of the results of Valenza et al. Specifically, it seemed to us that two different hemifield. That is, the preference for facelike patterns, as suggestions could be put forward Simion, This hypothesis is supported by the results newborns would show a great number of orienting obtained by Pascalis, de Schonen, Morton, Deruelle and responses associated with short duration of single Fabre-Grenet , who showed that newborns look fixations. Six babies were removed from the study An alternative interpretation of our data was put because two of them did not complete testing1 and four forward by M. Johnson personal communication, 21 changed their state during testing they became too fussy November He claimed that there is not incon- or too drowsy, or cried. So, the final sample consisted of sistency between the results of the study by Simion et al. In the preferential-looking Apgar score of at least 8 at 5 min. They were tested after task used by Valenza et al. Testing took sides of the visual field. Therefore, when the baby place during the hour preceding the scheduled feeding time oriented his gaze and looked at the non-facelike only if the baby was awake and in an alert state. Parents stimulus, Conspec was activated by the facelike pattern were informed and gave their consent. The baby thus soon reoriented the gaze toward the latter stimulus. In contrast, when the baby looked at the Stimuli facelike pattern, Conspec was not activated because the The stimuli were identical to those used in our previous stimulus at the periphery was a non-facelike pattern. Morton and Johnson One stimulus had the To be included in the study, the baby had to orient to each that newborns preferential looking to facelike stimulus in the pair. If this constraint was not met, the baby was stimuli in the visual preference task of Valenza et al. Similarly, if the coders did not agree on the direction of the orienting response or on the duration of each fixation should be interpreted as a consequence of the i. The size of the blobs was 2. The nearest 33 ms by two coders an experimenter and a stimuli were projected on both screens at a distance of student. The inner stimulus presented. The eyes responses and the total fixation time, i. Subsequently, the mean duration of single that was located between the screens and that was used fixations on the stimuli was calculated. The bulb subtended about 6. A video camera, significant main effects or interactions involving the mounted behind the screens, recorded the eye move- within-subjects factor stimulus position left or right. Plain white curtains were drawn on both sides of Therefore, because there was only a single between- the chair where the experimenter sat with the baby in her subjects factor type of stimulus: They revealed the following. Every trial began with the centre flashing light. This The mean number of orientations was The babies in the experimental group were shown a pair of facelike stimuli, whereas the babies in Total fixation time the control group were shown a pair of non-facelike patterns. The stimuli remained on as long as the baby Also in this case the comparison was significant, fixated one of them infant control procedure. The mean of the mean fixation time was 5. This means that longer total fixation times on the facelike stimuli resulted from the sum of a great number of brief fixations rather than from the sum of a small number of long fixations. Comparisons with Valenza et al. In particular, we com- pared the results of Experiment 1A of Valenza et al. As already mentioned, in the present experiment babies in the experimental group were shown a pair of facelike stimuli i. In the visual preference task, newborns were shown facelike and Figure 2 a Mean number of orientations NOR for the non-facelike stimuli i. Therefore, the hypothesis predicts that, when each TFT for the two patterns. Overall facelike pattern on the opposite side. The most et al. Babies in the facelike condition and 17 in the non-facelike oriented more frequently to the facelike patterns than to condition. Therefore, to obtain comparable data, the non-facelike patterns, whereas the difference be- videotapes of the eye movements of 17 newborns from tween mean fixation times on the two stimuli was not the visual preference study were re-analysed by the same significant. In other words, even though facelike two coders who had analysed the tapes in the present patterns were more efficient than non-facelike patterns experiment. Only the videotape of the non-facelike patterns was absent, if not reversed, when first trial was re-analysed. The coders recorded, cumu- mean fixation time was considered. Although the latively for the two stimuli the facelike and the non- difference was not significant, the mean duration of facelike pattern , number of orienting responses, total single fixations on the stimulus was shorter for the fixation time and mean fixation time. Post hoc tests indicated did not attain statistical significance. Fixation time was that number of orienting responses was significantly 5. The conditions than in the non-facelike condition. Therefore, it appears that the presence of at least one facelike pattern at the periphery of the visual field elicits a greater number of orienting responses and produces longer total fixation times. In the non-facelike condition, Conspec is never called into action because there is no face in the periphery; thus the baby is not induced to shift the gaze from the stimulus that is being looked at. Therefore, single fixations last long. Our data show that, for facelike patterns, fixation duration is determined by the nature of the pattern that impinges on the periphery of the visual field, more than Figure 3 a Mean number of orientations NOR in the by the nature of the pattern that is being looked at. This happens Blackwell Publishers Ltd. The authors also thank Sandro Bettella for his is, this happens either when facelike patterns are technical help, and Donatella Pividori for assistance in presented to both sides of the visual field or when conducting the experiment. The research reported here facelike and non-facelike patterns are presented Valen- was supported by an EC Biomed grant BMH za et al. In either condition, this leads to single fixations of short duration. Development of smooth pursuit in human of fixations for the facelike and the non-facelike stimuli infants. Senders Eds , Eye movements: Cognition and visual perception pp. Individual differences orienting mechanism. Attention-getting and attention-holding communication, 21 November proposal. As already process of infant visual preferences. Visual following and a unilateral stimulus presentation was used Valenza et pattern discrimination of face-like stimuli by newborn al. Cortical maturation and the develop- ment of visual attention in early infancy. Biology and cognitive time, duration of the first fixation, and duration of the development. The case of face recognition. Basil longest fixation; Cohen, , whereas measures that Blackwell. Based on two-process theory of infant face recognition. The development of attentional mechanisms. University of Nebraska Press. Extrageniculate contribution to reflex visual orienting in normal humans: Visual perceptual abilities in Simion, F. Paper presented at the Third European Research Preferential orienting to faces in newborns: Journal of Experimental Psychology: Face preference at birth. Journal of Experimental

Simion, F. Human Perception and Performance, 22, underlying face preference at birth. Butterworth Eds , The development of sensory, motor and cognitive capacities in early infancy: From perception to Received: