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ID	actions	participant	idea no.	description	no mode	hand	one-handed	two-handed	voice	gaze	body	physical	WIMP	reality	drawing	writing / air-keyboard	acting	pull and push	throw	swipe	tear apart	rumbling / squezzing	metaphor	far	near	transition	free	environment	object	user	far	near	on	transition	detour	compress	spread	transform	store	Move	Remove	Merge	Split	Preview / Overview	Details / Browse	Search	Order / Sort	porary Storage Space	Annotate
1	1	P1	1	grabbing stuff on the right side and place them in front of the user		x	x																		x					x																			
2	1	P1	2	pilling content in close proximity to the body ("crashing it together")		x		x						x								x			x					x		x										x							
3	1	P1	3	finger come closer pinching to move		x	x																	x																									
4	1	P2	1	pick item; throw to the destintion to form a group		x	x							x					x						x		x																						
5	1	P2	2	unpack pile for overview; two pinched fingers in the middle of the group; move apart; grab and release		x		x																	x												x												
6	1	P2	3	grab and release		x	x																		x																								
7	1	P2	4	pinch by two hand; carry multiple items to another place; autosort into target group		x		x																	x		x							x				x									x		
8	1	P2	5	pull it to me by a far reach arm		x	x																	x			x			x		x		x															
9	1	P3	1	swipe items to the destination to form a group		x	x																		x									x															
10	1	P3	2	pinch and pull to close a look		x	x																	x										x															
11	1	P3	3	click/ tap; place to form a group		x	x																		x																								
12	1	P3	4	raycasting pointing		x	x																	x																									
13	1	P3	5	voice; pointing		x	x		x															x																									
14	1	P4	1	grab; switch hands in transfer process		x		x																	x		x								x														
15	1	P4	2	picks up a pile by pushing two hands togeter; holds pile in one hand; moves single items from the thand to the target location		x		x						x											x		x			x			x	x	x	x			x									x	
16	1	P4	3	raycast in distance to select; hand move		x		x																x															x										
17	1	P4	4	raycast in distance; one flat hand select and stays, another hand move		x		x																x																									
18	1	P4	5	one flat hand select, another hand removes unwanted cards from source pile via swiping to the side		x		x																	x					x											x								
19	1	P4	6	one hand select, another hand move and put items with a proximity, one by one		x		x																x										x	x					x									
20	1	P5	1	grab in close; unpack pile with bloom gesture and spread as 2d grid; tapping/ contextual menu; group as stack		x	x						x												x												x	x											
21	1	P5	2	search bar via keyboard or voice;					x				x			x								x	x																					x			
22	1	P5	3	tapping single objects to select; tap group button		x	x						x												x																								
23	1	P5	4	raycast pointing; grab / pinch, pull; place		x	x																	x		x													x										
24	1	P6	1	grab whole group via fist (single items via pinch); collect as a stack/		x	x																		x													x											
25	1	P6	2	voice					x															x	x																								
26	1	P6	3	point with right hand; tap to select; cards stack up after selection on the left hand, shrinked; when looking at left hand, rearrange to a grid; a full right hand place; single cards can be taken out by pinch		x		x		x														x				x				x	x	x	x	x											x	
27	1	P7	1	swipe by two hands one by one; ending up as a row		x		x																	x																								
28	1	P7	2	swipe one by one in a fan		x		x																	x																								
29	1	P7	3	grab by right-h; left-h storing fanning poker gesture; drag n drop on the left hand to reorganize		x		x																	x					x			x					x	x										x	
30	1	P7	4	collected group in hand; put second hand to it to compress the content to a stack; groups falls down and stays there		x		x						x											x					x			x	x		x		x		x									
31	1	P8	1	tap(hiit and settle on table spreading as grid; grab in distance; move; group in grid		x		x				x													x				x				x				x			x									
32	1	P8	2	grab scattered items and release, to grid (semi auto)		x		x																	x													x											
33	1	P8	3	contextual menu, group mode, tap, in front of me, gird or stack		x	x						x												x					x		x																	
34	1	P8	4	voice; find all docs with this property; then group them					x															x	x																					x			
35	1	P9	1	click and unpack as collage; grab and release one by one (swipe); move to destination in poker stack/ stack		x	x																		x									x			x			x									
36	1	P9	2	click and unpack as collage; tapping multiselecting then make reverse bloom to unordered pile; follow the fingertip to move to destination in poker stack/ stack		x	x																		x	x									x	x	x		x										

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37	1	P9	3	tap and dwell in distance; point to move with fingertip one by one - like glue on a finger; collect as stack; swipe to place		x	x																	x		x								x														
38	1	P9	4	left hand facing ceiling and point items by right hand; drag it to left hand as temporary storage there; stack in the left hand; pointing at the group in left hand; point destination (e.g., whiteboard)		x		x																	x			x		x			x	x	x				x									x	
39	1	P10	1	point at a pile appearing on hand as pile; voice to select items; selected cards on hand in horizontal stack; grab and release as grids		x		x	x															x						x			x	x	x														
40	1	P10	2	grab to hand as virtual basket (wrist or back); place one by one / all together then organize		x		x															x	x		x				x		x		x	x													x	
41	1	P10	3	pull gesture (spiderman) one by one, in front of me, ending up scrollable grid		x	x																x	x		x								x				x										x	
42	1	P11	1	gaze at pile to unpack (based on the FoV) as row; pointing; pull to me in front of view as a row; end up with stacks / girds		x	x			x														x										x			x	x											
43	1	P11	2	point; drew circle lasso; pull; ending up with stacks		x	x								x									x				x				x		x															
44	1	P11	3	gaze and dwell at pile to unpack; in front of view as row; pull to me gesture; ending up with stacks		x	x			x				x										x						x		x		x															
45	1	P11	4	grab or gaze and raise to invisible folder next to head		x	x			x														x						x		x							x										x	
46	1	P12	1	voice + full grab; piles on the pinch fingers; layout one by one /draw layout as row		x	x		x						x										x					x			x			x	x													
47	1	P12	2	mode selection via hand position or on the shoulder; pick; draw layout		x		x			x				x										x																								
48	1	P12	3	raycast and dwell on item; pinch; pull to me; piles on hand		x	x																	x						x			x	x															
49	1	P12	4	pointing; preview row / column; rearragne in the same placel piles on fingers		x	x																	x													x							x				x	
50	1	P13	1	grab docs; put them to other hand as a pile (or pick the whole pile); presented as a thin stack or fan; take the docs from the hand (TWS) and place them somewhere again with a pin motion;		x		x																	x					x			x	x	x				x									x	
51	1	P13	2	Change between TWS layouts by moving the thumb		x	x																	x	x					x			x					x										x	
52	1	P13	3	square up with two hands (put them on an orderly stack); thin stack in hand; count from the front with a fixed axis		x		x						x											x					x			x			x												x	
53	1	P13	4	grab/ circle (draw a circle) / tapping to multiselect; objects comes a bit closer; then grab one by one		x	x								x									x						x		x		x															
54	1	P13	5	multiselect; rearrange in loose grid, move through hand		x	x																														x											
55	1	P14	1	pinch one by one; drop; grid; gesture for controlling the distance and rotation at the final position		x	x																		x					x		x																	
56	1	P14	2	flick through a stack; push them down, file cabinet like; pinch and drop		x	x							x											x																								
57	1	P14	3	pinch; push to move and release; have a digital clone of hand / imaginare hand that can be controlled as a remote cursor for detail navigation		x	x																	x																								
58	1	P15	1	pinch with both hands one by one; preview on the hand; thin stack with preview or horizontal stack		x		x																	x					x			x	x					x									x	
59	1	P15	2	pinch right-h; put and pilp up left-h; thin stack with thumbnails; holding and drop/ thorw to stack		x		x						x					x						x					x			x		x				x									x	
60	1	P15	3	touch with both open hands (jesus); grid in front of me; tap on them or look items		x		x		x	x			x											x												x											
61	1	P15	4	draw the layout by two hands accordeon gesture, direction indicating the direction of stack (column or row); selection of items via tap or gaze		x		x							x										x												x	x										
62	1	P16	1	unpack and orient me by two hands push outwards gesture spreading as grid; two hands compress to form a grid for selections		x		x																	x					x						x	x											
63	1	P16	2	grab and throw unwanted away;		x	x							x					x						x									x														
64	1	P16	3	tap one by one; make grasp; cards move to me and in front; grab and release		x	x																		x	x				x		x		x	x														
65	1	P16	4	compress with press motion to pocker stack		x		x						x								x			x											x		x											
66	1	P17	1	full hand grasp; push them a bit away to unpack as grid; point and tap items; ending with circular layout in front of me		x	x																	x													x											
67	1	P17	2	select from far; create a circulare group around the user (so we should also add body)		x	x																	x						x		x		x															

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68	1	P17	3	"call the names and group them"; voice					x															x	x																								
69	1	P17	4	point; drag towards a predifened positions; stacking in this position		x	x																	x																									
70	1	P17	5	drag items from afar and first group them in front of the user; after that place them in the somewhere		x	x																	x		x				x		x		x	x													x	
71	1	P18	1	pick up pile with two hands; compress to horizontal stack (like a shuffle machine to autimatically sort the docs)		x		x																	x											x		x									x	
72	1	P18	2	right-h pick; left-h collect as stack; right hand accordeon gesture to pull; diagonal pocker stack on hand; the final target layout is determined by drawing		x		x						x	x										x	x			x		x	x				x		x										x	
73	1	P18	3	tap one by one; hold and dwell the last selection; all selections fly to hand into stack		x	x						x												x				x			x	x															x	
74	1	P18	4	voice; selection flies to hand					x															x	x				x			x	x															x	
75	1	P19	1	fingertip touch one by one; swiping to left arm collecting as small stack; swipe out to with hand from the arm; diagonal poker stack		x		x																	x					x			x	x	x					x									x	
76	1	P19	2	pinch and store on hip or arm; hand holding as stack; fan out or draw a layout on table		x		x				x		x	x										x					x			x	x						x									x	
77	1	P19	3	voice and highlight; grab into hip pocket		x	x		x		x	x												x	x					x			x	x						x									x	
78	1	P19	4	multidevice	x								x																																					
79	1	P20	1	pick one by one; place as rows on table, the proximity indicating the grouping relations		x	x																		x				x				x	x															
80	1	P20	2	pick and collect on table as flat grid; two finger tap one by one as multi-selection; raycasting rise the group up; raycasting move to place on a virtual wall; grid		x	x																		x				x				x	x						x									x	
81	1	P20	3	finger snapping by touching; shrinking as thumbnail column; swipe finger to wall as grid / making circular wand as circular layout		x	x																		x					x			x	x	x														
82	1	P21	1	drawing by lasso and highlighted; pull and grid (spread) / row (sideways) with hand open [scope based]; tapping / VC one by one; grasp selection with whole hand; stack		x	x								x									x		x				x		x					x													
83	1	P21	2	define number of objects to select by wrting on hand; lasso select or grab		x		x								x								x	x																								
84	1	P21	3	tapping one by one; pull to me		x	x							x										x						x		x		x															
85	1	P21	4	select the elements by calling there name; graps gesture in the air to group the selected ones		x	x		x															x	x																								
86	1	P21	5	raycasting one by one; pull to me; pinch to put		x	x																	x						x		x		x	x														
87	2	P1	1	grab away		x	x																		x																								
88	2	P1	2	point to grab via pinch		x	x																	x																									
89	2	P2	1	unpack to spread around the table temporally; drag and drop directly		x		x																	x												x												
90	2	P2	2	throw item for accurate		x	x							x					x						x								x																
91	2	P2	3	go-go arm to pinch and release in distance		x		x															x	x																									
92	2	P3	1	grab and release		x	x																		x																								
93	2	P3	2	voice item name; voice location					x															x	x																								
94	2	P3	3	finger swipe to move; point destination		x	x																		x																								
95	2	P4	1	two hands raycast in distance		x		x																x																									
96	2	P4	2	click on the clipper on corner; uses one hand to point, the other to confirm		x		x					x											x																									
97	2	P4	3	grab with two hands; drop the group		x		x						x											x																								
98	2	P4	4	air writing to assign		x	x									x								x																								
99	2	P5	1	grab to destination/ throw		x	x							x					x					x		x																						
100	2	P5	2	pinch with raycasting; pull to me; drop to destiation and attach		x	x							x										x		x								x	x														
101	2	P5	3	voice search (but no need for close ones)					x															x	x																					x			
102	2	P6	1	pinch; throw in distance (dislike walking)		x	x							x					x					x		x									x													
103	2	P6	2	pinch; put on the hand, point destination with item attached to fingertips		x		x																x						x			x		x				x									x	

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104	2	P6	3	grab and release		x	x																		x																						
105	2	P7	1	one finger pointing in distance,		x	x																	x																							
106	2	P7	2	one finger touch and move in close		x	x																		x																						
107	2	P7	3	voice commande, stack “next to it”					x															x	x																						
108	2	P7	4	point and voice		x	x		x															x																							
109	2	P8	1	grab and release		x	x																		x																						
110	2	P8	2	"add cat to pig group"					x															x	x																						
111	2	P8	3	double tap item; tap group		x		x																	x																						
112	2	P8	4	come to me gesture two targeted groups; double tap or grab and place item; go away gesture;		x	x							x									x	x		x				x		x		x	x												x	
113	2	P9	1	pointing item; move; pointing group		x	x																	x																							
114	2	P9	2	tap with two fingers; force push to group;		x	x																		x									x													
115	2	P9	3	pick up with left hand; right hand pointing; move to a group		x		x																	x									x	x												
116	2	P10	1	spiderman pull to me; reverse spiderman to shot to target		x	x											x					x	x											x												
117	2	P10	2	fishing rod to catch and throw		x		x															x	x											x												
118	2	P10	3	grab and release		x	x																		x																						
119	2	P11	1	grab item; look and pull group with both hands; unpack as columns/row; throw item to column		x		x		x									x						x										x		x										
120	2	P11	2	tap item; point to targert		x	x																		x								x														
121	2	P11	3	point/gaze in distance; pull to me ; gaze to target		x	x			x														x											x												
122	2	P11	4	shrink group with original layout; two arms open and push inward to come to me; grab and release		x		x			x			x										x						x		x		x	x		x										x	
123	2	P12	1	voice commands					x															x	x												x										
124	2	P12	2	point and dwell; unpack piles to column/ rows geasture; pick and place (or throw)		x		x		x				x					x					x		x											x										
125	2	P12	3	entire hand pick up a group; pinch picks up single; move hands together to join ... dependent on the interaction technique		x		x																	x																x						
126	2	P12	4	sticky finger; tap item; thumbnail attached to finger; brush or shake it off at target		x	x							x											x					x			x		x				x									
127	2	P13	1	point with raycasting + tap for far, grabbing for near; drop		x	x																	x						x		x			x												
128	2	P13	2	point and tap (far and near); reeling motion (fishing rod); "swinging" it to the new group		x		x															x	x											x												
129	2	P13	3	point or pinch; drag or drop/ throw to target		x	x							x					x					x						x		x		x	x												
130	2	P13	4	read name of the card					x															x	x					x		x															
131	2	P14	1	pick and place;		x	x																		x																						
132	2	P14	2	go-go hand; drag to pull on the finger tip; drop		x	x																x	x		x				x	x				x												
133	2	P14	3	point and push; highlight by size and brighter; points and push to place		x	x																	x																							
134	2	P15	1	pick up with hand; put inside stack at exact position defined by, e.g., gaze; indicate number on stack when accumulating		x	x			x															x																						
135	2	P15	2	grab and throw		x	x							x					x						x								x														
136	2	P16	1	pinch pick; drop in close or distance		x	x																	x																							
137	2	P16	2	snapping to full hand/ finger tip; move; attach to destination		x	x																		x										x												
138	2	P17	1	point; swipe with open hand to destination		x	x																	x																							
139	2	P17	2	select object; twist wrist to "reset"/"undo" object to last positions/relation/...		x	x																	x																							
140	2	P17	3	point; pinch and release in distance		x	x			x														x																							
141	2	P17	4	gaze at source; gaze on target						x														x	x																						
142	2	P18	1	r-hand grab group; l-hand drag and inseart		x		x																	x					x			x														x	
143	2	P18	2	grab the group; voice item flying to me ("put the panda in my hand")		x	x			x														x						x			x	x												x	

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144	2	P18	3	point; fly to hand; force push to target		x	x							x				x						x						x			x		x													x	
145	2	P19	1	pick and place		x	x																		x																								
146	2	P19	2	swipe to the target group		x	x																		x																								
147	2	P19	3	raycast point; come to me gesture; move to destination		x	x							x									x	x											x														
148	2	P19	4	voice commands					x															x	x																								
149	2	P20	1	pinch and release in distance with raycasting		x	x																	x																									
150	2	P20	2	touch edge of card; swipe one card over to group to bottom of grid		x	x																		x																								
151	2	P20	3	gaze focus on source; wink twice to select; look at target; wink twice again						x														x																									
152	2	P21	1	after mode selection, raycast to targeted group		x	x																	x																									
153	2	P21	2	tap/ selecting; force swiping, force dependent (determines distance the selected card travels)		x	x							x											x																								
154	2	P21	3	grab; throw		x	x							x					x						x								x																
155	3	P1	1	grab away		x	x																		x														x										
156	3	P1	2	point to grab/pinch away		x	x																	x															x										
157	3	P1	3	swipping away		x	x							x						x					x														x										
158	3	P2	1	pick; pull out; auto-rearrange group		x	x																		x												x		x										
159	3	P2	2	pick whole group; on hand; pick out item		x		x																	x					x			x		x			x		x						x			
160	3	P3	1	voice					x															x	x														x										
161	3	P3	2	contextual menu; remove option									x												x														x										
162	3	P3	3	swiping downwards to mark it as to remove		x	x						x												x														x										
163	3	P3	4	cross icon on corner		x	x								x										x														x										
164	3	P3	5	click; draw cross		x	x						x		x										x														x										
165	3	P4	1	draw cross		x	x								x										x														x										
166	3	P4	2	draw cross to remove; draws an id for the group the removed item should be move to		x	x								x										x														x										
167	3	P4	3	define range of items by two hands; clap them together; drop to virtual trash can (in distance or close)		x		x						x								x			x										x			x										x	
168	3	P4	4	gaze stare (eye big open); dwelling to collect alont the way to move somewhere else						x														x															x										
169	3	P5	1	grab and release to middle unused space as stack; no fixed location		x	x																	x										x				x		x									x	
170	3	P5	2	pinch in distance; pull to me; put into middle space		x	x																	x					x		x		x							x										
171	3	P5	3	voice command					x															x	x														x										
172	3	P5	4	grab whole group close to me; grab and release to remove		x	x																		x	x				x		x		x						x										
173	3	P6	1	grab and taking out(from group); holding on the finger tips; stay on the palm afterwards		x	x																		x					x			x	x				x		x									x	
174	3	P6	2	pointing and pinch in distance; come on hand; let go gesture		x	x																	x		x								x	x					x										
175	3	P6	3	gaze to point; pinch; pull your hand		x	x			x														x						x			x	x					x		x								x	
176	3	P7	1	voice and finger pointing		x	x		x															x	x														x										
177	3	P7	2	pointing and finger move		x	x																	x															x										
178	3	P7	3	use a mouse like stuff	x								x																										x										
179	3	P8	1	grab and release		x	x																		x														x										
180	3	P8	2	voice					x															x	x														x										
181	3	P8	3	touch individual; swiping away		x	x																		x														x										
182	3	P9	1	point; move by swiping		x	x																	x															x										
183	3	P9	2	point stack; move finger to rise up/enlarge items; moving		x	x																	x												x			x										
184	3	P9	3	point group; blooming gesture to unpack as grid; point item		x	x																	x												x			x										

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ID	actions	participant	idea no.	description	no mode	hand	one-handed	two-handed	voice	gaze	body	physical	WIMP	reality	drawing	writing / air-keyboard	acting	pull and push	throw	swipe	tear apart	rumbling / squezzing	metaphor	far	near	transition	free	environment	object	user	far	near	on	transition	detour	compress	spread	transform	store	Move	Remove	Merge	Split	Preview / Overview	Details / Browse	Search	Order / Sort	orary Storage Space	Annotate
185	3	P10	1	grab and release by spiderman gesture; move/ throw to virtual garbage near user/at wrist		x	x				x	x							x				x	x						x		x			x				x		x									
186	3	P10	2	point and select by spiderman gesture; move/ throw to physical garbage		x	x											x	x				x	x					x							x				x		x									
187	3	P10	3	crumble into ball to deleted		x		x				x		x								x			x															x										
188	3	P11	1	push up from stack to row; swipe down to virtual trash attached to hip		x	x					x		x											x					x		x		x						x		x								x	
189	3	P11	2	push down items in vertical stack to a horizontal poker stack; grab and release / throw to virtaul trash can		x	x							x					x						x				x					x	x	x		x	x	x		x									
190	3	P11	3	gaze at item; disappointed face expression						x				x										x																	x										
191	3	P12	1	unpack stack to column; grab and release to virtual trash		x	x																		x												x		x	x									x	
192	3	P12	2	point; shooting gesture; deleted		x	x																x	x																x									x	
193	3	P13	1	tap or point to select; throw up or down to temporary stack storage		x	x												x					x	x			x	x		x	x							x		x								x	
194	3	P13	2	storage attached to an arm and can be accessed		x	x																							x			x						x										x	
195	3	P13	3	voice commands; name of the card					x															x	x																x										
196	3	P14	1	grab and release somewhere		x	x																		x														x		x								x	
197	3	P14	2	point; tap; bin on hud right corner		x	x																		x					x		x		x					x		x								x	
198	3	P14	3	point and swipe away		x	x							x						x				x																	x										
199	3	P15	1	pinch and grab; put it into breast pocket; grab out in a grid in front of with all contains		x	x				x	x		x											x					x			x	x						x		x								x	
200	3	P15	2	gaze at target; swipe out(up) and item raises; shows in front of me; swipe direction operation, e.g., left to pocket, right to trash		x	x			x				x						x				x											x		x		x		x										
201	3	P15	3	gaze; swipe away gesture		x	x			x				x						x				x																	x										
202	3	P15	4	voice commands; store the rabbit in my pocket					x															x	x					x			x						x		x										
203	3	P16	1	grab and release or throw		x	x							x					x						x									x						x										
204	3	P16	2	use whole hand to move group		x	x																		x															x										
205	3	P17	1	full hand grab to closer; spread into grid in front with another hand; swipe it outside of the grid		x		x						x						x				x		x				x		x			x		x				x										
206	3	P17	2	flick item away		x	x																	x	x															x										
207	3	P17	3	crumble it, (optional: throw it to the dustbin)		x		x						x					x			x			x															x										
208	3	P18	1	pinch and flying to hand; starwars force push to somewhere		x	x											x					x	x		x							x	x						x										
209	3	P18	2	point at card; come to me gesture, fly to hand; drop		x	x							x									x		x					x			x		x					x										
210	3	P18	3	tap; swipe to side		x	x							x						x					x															x										
211	3	P19	1	pick and place; into the personal pocket		x	x				x	x													x					x			x						x	x									x	
212	3	P19	2	go-go hand; arm gets extended (also visually)		x	x																x	x																x										
213	3	P20	1	touch; snaping to finger		x	x																		x					x			x						x	x									x	
214	3	P20	2	touch; grab and release to belly, looks like patch/ pin		x	x				x														x					x			x						x	x									x	
215	3	P20	3	pick it in distance; pull towards one on hand; swipe item out of group		x		x						x						x				x		x								x	x					x										
216	3	P20	4	raycast; double click; pinch and pull close		x	x						x											x						x			x	x					x	x									x	
217	3	P21	1	tap/ raycasting; flick to delete		x	x							x										x	x															x										
218	3	P21	2	virtual bin virtual for removal (from hand contexual menu)		x	x						x												x			x										x	x										
219	3	P21	3	voice command					x															x	x														x										
220	4	P1	1	throw item to group in distance		x	x							x					x						x																									
221	4	P1	2	grab and release		x	x																		x																									
222	4	P3	1	raycast finger click; drag/swipe it towards the user (whole hand)		x	x																	x						x		x		x																
223	4	P3	2	come to me gesture (whole hand); swipe, push, drag it to somewhere		x	x							x									x	x						x		x			x															
224	4	P3	3	grab and release		x	x																		x																									

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225	4	P4	1	lasso circle; sound by foot; stumping to select and move through that selection binary count style; draw circle around target group / gaze moving		x		x		x	x				x									x																								
226	4	P4	2	pen as pointer (can be distance but pointing shape is important, e.g., mug handle)								x												x																								
227	4	P4	3	blow to move					x		x												x		x																								
228	4	P5	1	grab and release		x	x																		x																								
229	4	P5	2	pinch; contextual menu		x	x						x											x																								
230	4	P5	3	pinch and pull two groups (stacks) near to me; unpack with bloom gesture; arrange and operate in detail; place		x	x											x						x		x				x		x		x	x	x	x												
231	4	P5	4	tmeporary representation (proxy) the user is working on	x																			x	x					x		x																x	
232	4	P6	1	point and pinch; gaze to another group		x	x			x														x																									
233	4	P6	2	point and pinch; dwelling and come to finger; point		x	x																	x						x			x		x														
234	4	P6	3	contexual menu on hand									x																	x																			
235	4	P7	1	pen as a pointer; move		x	x					x													x																								
236	4	P7	2	finger pointing		x	x																	x																								
237	4	P8	1	double tapping individual to group		x	x																		x																								
238	4	P8	2	drag ann drop		x	x																		x																								
239	4	P8	3	contextual menu (like burger menu), then select target group		x	x						x												x																								
240	4	P10	1	grab and release		x	x																		x																								
241	4	P10	2	spiderman pull group to user; grid in front of view; pick and throw/ drop based on distance (used finger guns)		x	x										x		x				x	x		x				x		x		x	x			x										x	
242	4	P11	1	grab it closer; gaze/ point to target		x	x			x								x							x									x	x														
243	4	P11	2	point one group; voice "~item~" coming out; point to target		x	x		x															x										x															
244	4	P11	3	come to me geasture group; grap to pick up; throw to target		x	x							x				x	x					x		x								x	x														
245	4	P12	1	unpack; hand pointer dwell; pick or throw to place		x	x												x					x										x	x		x												
246	4	P12	2	unpack; draw layout (separate multple docs)		x	x								x									x													x												
247	4	P12	3	unpack; pick with two fingers; multiselection by pinch with 3rd finger one by one; ghost/proxy representation at fingers		x	x																	x						x		x					x												
248	4	P13	1	tap + throw		x	x							x					x					x																								
249	4	P13	2	grab; place		x	x																		x																								
250	4	P14	1	point; tap; moving		x	x																	x																								
251	4	P14	2	point and tap; proxy of card to estimate how far away it is		x	x																	x																								
252	4	P14	3	go-go hand pull; push/ grab		x	x											x					x	x		x									x														
253	4	P15	1	grab; throw		x	x												x					x											x														
254	4	P15	2	gaze; swipe		x	x			x														x																								
255	4	P15	3	voice; doc appears in front of user; point at target; voice		x	x		x															x											x														
256	4	P15	4	two arms unpack to grid; grab and throw or drop		x	x				x			x					x						x								x			x													
257	4	P16	1	grab and release; automatically integrate it into the grid		x	x																		x												x												
258	4	P16	2	pinch whole group in distace; come to me; grab and release; put source group back		x	x																	x																								
259	4	P17	1	pinch; throw; it is in front of stack (fifo like)		x	x							x					x					x		x									x														
260	4	P17	2	pinch; frisbee throw		x	x												x				x	x		x									x														
261	4	P17	3	point and pinch group in distance; come to me; pick and place		x	x							x										x		x								x															
262	4	P18	1	point and dwell item to select single item instead of group; come to me gesture; fly to hand; insert it where i want		x	x							x										x		x								x	x													x	
263	4	P18	2	grab and release		x	x																		x																								
264	4	P18	3	voice commands					x															x	x																								

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265	4	P19	1	pick and place		x	x																		x																								
266	4	P19	2	pick and throw		x	x							x					x						x																								
267	4	P20	1	raycast select group; thread to weave, draw layout rearranging to clock circle; grab and release		x	x							x	x									x		x				x				x				x												
268	4	P20	2	pinch and release with raycasting, auto rearrange by proximity		x	x																	x														x												
269	4	P21	1	point source item; point destination group or group title		x	x																	x																										
270	4	P21	2	lasso to select; grab and release		x	x								x									x		x																								
271	4	P21	3	drag and throw		x	x							x					x						x								x																	
272	5	P1	1	both hands grabing a group edges		x		x																	x																								
273	5	P1	2	spread out hand to select a group and then move it somewhere else		x	x																		x																								
274	5	P1	3	voice to the target with gaze					x	x														x	x																								
275	5	P2	1	hold group on two edges;move		x		x																	x																								
276	5	P2	2	squeeze the group to a smaller representation; move; spread out again into desired layout by drawing layout		x		x						x	x							x			x								x		x	x													
277	5	P2	3	squeeze to collect on hand; rotate the palm upwards: showing a semicircle preview around the user		x		x														x			x					x		x		x		x			x					x	x					
278	5	P2	4	pick up by far reach arm; layout by two hand gesture drawing		x		x							x									x																										
279	5	P3	1	full hand highlights every doc to be moved (of a group); grab and move		x	x								x										x																									
280	5	P3	2	looking to the position + "I want..." voice					x	x														x	x																								
281	5	P4	1	draw circular lasso on group; another hand swipe to move to destination		x		x							x									x																										
282	5	P4	2	point at item; air tap items with the pointing hand one by one; another hand swipe to move destination		x		x																x																										
283	5	P4	3	two hands compress; shrink as stack as temporal statue; move; place it by move one by one from the stack in the hand		x		x						x								x			x					x			x	x		x		x	x											
284	5	P4	4	pick up one by one		x	x																		x																								
285	5	P5	1	pinch group in distance; pull to me; place		x	x																	x												x														
286	5	P5	2	grab and release		x	x																		x																								
287	5	P5	3	voice group name; gaze to move; place					x	x														x	x																								
288	5	P6	1	gaze to point; grasp to pull on hand; gaze to place		x	x			x				x				x						x												x														
289	5	P6	2	point and higlight; grasp to the hand; point to the destination; point destination and release		x	x																	x										x																
290	5	P7	1	pull it by two hands towards; holding by two hand; push away		x		x						x				x						x						x			x		x															
291	5	P7	2	point; select by pressing; stacking; move; unstacking		x	x																	x												x	x													
292	5	P8	1	with full open hand, starwars force pick and place		x	x											x					x		x										x															
293	5	P8	2	contextual menu; move		x	x						x																																					
294	5	P8	3	stacking by squeeze by two corner with two hands; grab the stack		x		x														x			x											x		x												
295	5	P8	4	voice					x															x	x																									
296	5	P9	1	click group; point destination		x	x																	x																										
297	5	P9	2	grasp full hand; move and release		x	x																	x												x														
298	5	P9	3	grab and release		x	x																		x																									
299	5	P10	1	full grab group from distance or close; pull in front of view; throw		x	x							x				x	x					x						x		x			x			x												
300	5	P10	2	grab the two edges of the group, then move and place		x		x																	x																								
301	5	P10	3	physical folder close to group; open folder to collect;		x		x				x		x											x				x				x	x					x										x	
302	5	P11	1	circle lasso group; pull to me; throw/push to target		x	x							x	x			x	x					x						x			x		x															
303	5	P11	2	grab to get closer; crash them smaller; then throw		x		x						x					x			x		x		x									x	x														
304	5	P11	3	scoop up from buttom; throw		x	x							x					x						x									x	x														

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305	5	P12	1	full hand grab; compress to thin stack; release by open hand		x	x							x											x										x	x													
306	5	P12	2	while placing a stack; having a ghost/proxy/preview at the side of the hand to know how it would look like at the final position		x	x																	x	x					x		x			x														
307	5	P12	3	voice					x															x	x																									
308	5	P12	4	collect docs in hand container		x		x																						x			x						x										x	
309	5	P12	5	vacuum to suck multiselection; shoot out		x	x											x					x	x											x															
310	5	P13	1	grab with full hand to pull closer; “go away” gesture to swipe away		x	x							x				x	x				x	x											x															
311	5	P13	2	lasso circle; tap circle selection; grab and release		x	x								x									x																										
312	5	P14	1	point to select multiple cards, while left hand holding as mode selection (also stores the docs); point to place		x		x																x											x				x										x	
313	5	P14	2	go-go with larger both hands; grab at the edges and release		x		x															x	x						x	x																			
314	5	P14	3	draw cricle lasso; grab and release		x	x								x									x																										
315	5	P15	1	full open hand grab; shrinking to stack on hand; drop or throw at target position		x	x							x					x						x									x		x														
316	5	P15	2	grab a group with both hand		x		x																	x																									
317	5	P15	3	gaze point and full hand grab; appears on hand; drop or throw		x	x			x				x					x					x		x								x	x	x														
318	5	P15	4	pointing in distance with fist; moves with fixed distance		x	x																	x						x	x																			
319	5	P16	1	pinch (from afar) and release with raycastinng		x	x																	x																										
320	5	P16	2	grasp with whole hand and release		x	x																		x																									
321	5	P16	3	grab on the sides through a fist; release		x	x																		x																									
322	5	P17	1	two hands hold edges of group; push/throw		x		x						x					x					x	x																									
323	5	P17	2	point with open hand; grab with all fingers; pull closer; drop or throw		x	x							x				x	x					x										x	x															
324	5	P17	3	drag stack; push /throw		x	x							x					x					x																										
325	5	P18	1	both hands crash fan inside to stack; hold group in hands; force push to target and back to original structure		x		x						x											x									x		x														
326	5	P18	2	point at group; come to me gesture; rearrange as I want it; take them with hand and drop		x		x						x				x					x	x						x		x		x	x			x											x	
327	5	P18	3	point to them with open hand; move with force gesture		x	x																x	x																										
328	5	P19	1	squeeze group from top to buttom as thin stack; take in pocket; place / grab one by one with original layout		x		x						x								x			x					x			x			x			x											
329	5	P19	2	lasso gesture to select; grab and release		x	x								x										x																									
330	5	P19	3	grab and release one by one		x	x																		x																									
331	5	P20	1	circle lasso the group; move to hand and shrink as sphere; swipe it off to send out		x		x							x				x						x					x		x		x		x														
332	5	P20	2	full hand grab and compress; come to me in front of view; throw		x	x							x				x	x				x		x	x									x	x														
333	5	P20	3	gaze pointing; double wink to select; look down to come to me; look to target double wink						x														x																										
334	5	P21	1	circle lasso; hold to move; placing like fishing with force		x	x							x	x								x	x																										
335	5	P21	2	select title of a group; grab and release or throw		x	x						x	x					x					x																										
336	5	P21	3	voice title of the group					x															x	x																									
337	5	P21	4	gaze lasso; double blink to select; move with gaze; double blink to release						x					x									x																										
338	6	P1	1	grab groups with spread out hand; bump into together		x		x						x								x			x												x				x									
339	6	P1	2	gazing and say “merge”					x	x														x																x										
340	6	P1	3	place a group to the another group		x	x																		x															x										
341	6	P2	1	collect; add and squeeze		x		x						x								x			x					x			x			x					x									x	
342	6	P2	2	spread hands to select to groups in close proximity and move them into each other		x		x						x								x			x																x									
343	6	P2	3	throw to the group		x	x							x					x					x																x										

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ID	actions	participant	idea no.	description	no mode	hand	one-handed	two-handed	voice	gaze	body	physical	WIMP	reality	drawing	writing / air-keyboard	acting	pull and push	throw	swipe	tear apart	rumbling / squezzing	metaphor	far	near	transition	free	environment	object	user	far	near	on	transition	detour	compress	spread	transform	store	Move	Remove	Merge	Split	Preview / Overview	Details / Browse	Search	Order / Sort	porary Storage Space	Annotate
344	6	P3	1	two hands overlapping across each other		x		x						x								x			x																x								
345	6	P3	2	one by one on top of another		x		x																	x																x								
346	6	P3	3	contextual menu to precise select									x												x																x								
347	6	P4	1	each hand lasso one group; move selections over each other to create an overlap		x		x							x									x																	x								
348	6	P4	2	pick up one by one		x	x																		x																x								
349	6	P5	1	stacking by contextual menu; pull groups closer; place down		x	x						x												x																x								
350	6	P5	2	contextual menu; move		x	x						x												x																x								
351	6	P5	3	voice command A to B					x															x	x																x								
352	6	P5	4	pull to me; grab and release stack to another group		x	x																	x										x							x								x
353	6	P6	1	gaze and grasp; gaze another and realse		x	x			x															x																x								
354	6	P6	2	point a group, grab and release; point another group		x	x																	x																	x								
355	6	P6	3	grasp to get closer; move on top of another group; release		x	x																	x										x							x								
356	6	P7	1	select two groups by two hands; crash into each other		x		x						x								x			x																x								
357	6	P7	2	if content too low; control and move it by foot; to bring it up to the "hand" area, kick it up							x														x									x							x								
358	6	P7	3	point each group with a flat open vertical hand; two hands crossed in front of chest for groups in distance		x		x			x						x							x		x															x								
359	6	P7	4	(while one group is temporarily stored in the left hand) pointing left hand of the group; point at another group and move it to the left hand so they merge in left hand/ pointing on the temp group from the left hand and move it to destination		x		x										x						x		x				x			x	x	x					x			x						x
360	6	P8	1	grab; stacking; grab another; crash them		x		x						x								x	x		x											x						x								
361	6	P8	2	point edges in distance; crash in		x		x														x		x		x															x								
362	6	P8	3	tapping group name; pack it into a stack by reverse bloom gesture; contextual menus; tap option to merge		x	x						x											x	x																x								
363	6	P9	1	pointing with one hand; select and clap		x		x						x										x																	x								
364	6	P9	2	grasp in distance; come to me and crash; throw to destination as grid		x	x							x				x	x			x	x	x												x					x								
365	6	P9	3	pointing to a common place; automerge		x	x																	x													x				x								
366	6	P10	1	open physical folder to collect; throw after collection		x		x				x							x						x									x	x				x		x								x
367	6	P10	2	grab the two edges of the group; move and place		x		x																	x																x								
368	6	P10	3	move associated physical proxy (e.g. whiteboard) of group towards another group; merge								x													x				x			x	x	x							x								
369	6	P11	1	crash stack to thin stack; grab and move next to another group; swipe to unpack		x		x						x								x			x									x		x	x				x								
370	6	P11	2	pick and place		x	x																	x											x					x								
371	6	P11	3	lasso select; throw		x	x							x	x				x					x		x								x	x					x								
372	6	P11	4	come to me geasture; crash to thin stack; throw to target		x		x						x				x	x			x	x	x		x								x				x			x								
373	6	P12	1	pinch in distance; pull on hand; crash together; throw		x		x						x				x	x			x		x		x								x							x								
374	6	P12	2	multi selection by "1 finger claw" to add to collection on user hand		x	x																	x						x		x		x					x		x								x
375	6	P13	1	select by tap or lasso circle; drop or throw		x	x							x					x						x									x							x								
376	6	P13	2	select both groups; crash together; one groups content will be transfered to the layout of the other one		x		x						x								x		x	x																x								
377	6	P14	1	draw circle lasso on group; grab and release to target group		x	x								x									x																	x								
378	6	P14	2	multiselection mode with left hand		x		x																x	x																x								
379	6	P14	3	go-go hand grab group; star wars move next to target		x	x																x	x		x				x	x				x							x								
380	6	P15	1	grab two hands for each; clap to crash		x		x						x								x		x																	x								
381	6	P15	2	grab; move on the top of destination to overlap		x	x																		x																x								
382	6	P15	3	push them close to crash		x		x						x								x		x																	x								

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383	6	P16	1	grab with full hand the group edge; place to overlap; automatically adjust		x	x																		x												x					x							
384	6	P16	2	pinch group; place to overlap		x	x																	x																		x							
385	6	P17	1	fullhands grasp each groups; clap		x		x						x								x		x																		x							
386	6	P17	2	grab it with full hand; throw it towards target		x	x							x					x						x								x									x							
387	6	P18	1	pick one group's corner; put inside the other group		x	x																		x																	x							
388	6	P18	2	pick up; compress to packing by two hands to stack; force push to target group		x		x						x				x				x	x		x																	x							
389	6	P18	3	pointing group; come to me; push to destination		x	x							x				x						x																		x							
390	6	P19	1	widen armed then closer arms to crash		x		x			x			x								x			x																	x							
391	6	P19	2	grab group; put next to target; swipe in		x	x																		x																	x							
392	6	P20	1	a big pespective lasso in view to cover around two groups; combine and auto-sort		x	x								x									x													x					x					x		
393	6	P20	2	pespective lasso source group; grab and release to target group		x	x								x									x																		x							
394	6	P20	3	full right hand grab; shrink and collect on left hand; right hand grab another and crash; swipe or throw to place		x		x											x	x		x			x				x			x	x	x								x						x	
395	6	P21	1	pointing (in distance) / touching the edge with full hand; two hands push inwards to crash by clap;		x		x						x								x		x																		x							
396	6	P21	2	voice					x															x	x																	x							
397	6	P21	3	raycast with open each hands - using a fishing line metaphor; clap		x		x															x	x																		x							
398	7	P1	1	drawing separator lines; move one part with spread out hand		x	x								x								x		x																			x						
399	7	P1	2	either hand can select docs for a gorup; afterwards they can be move out with spread out hand		x		x																	x																			x					x	
400	7	P2	1	unpack to semi cricle; grab and release into two columns for subgroups; pack		x		x																	x												x	x						x						
401	7	P2	2	holding on top of another item to create a group out of it		x	x																		x																			x						
402	7	P2	3	if on table; easily use two hands to spread and move docs in different directions to "sort" them		x		x				x		x											x				x			x					x							x				x		
403	7	P3	1	click parameter; same value get highlighted; grab and release		x	x						x												x																			x						
404	7	P3	2	pick and place into two colums with both hands		x	x																		x																			x						
405	7	P3	3	grab and release to two stacks		x	x																		x										x		x							x						
406	7	P4	1	draw lasso circles aound target; separate		x		x							x									x	x																			x						
407	7	P4	2	grab and release one by one		x	x																		x																			x						
408	7	P4	3	blowing and expand					x		x														x																			x						
409	7	P5	1	pinching one by one; move; grab and release		x	x																	x																			x						
410	7	P5	2	pointing one by one; move; pointing		x	x																	x																			x						
411	7	P5	3	contextual parameter buttons to filter									x																															x						
412	7	P5	4	point parameter to filter		x	x						x											x																			x						
413	7	P5	5	separate contextual menu									x											x	x																			x						
414	7	P6	1	grasp from distance or near; unpack with accordeon gesture/tear them apart; another hand taking apart		x		x		x				x							x			x													x							x						
415	7	P6	2	grab and release one by one		x	x																		x																			x						
416	7	P6	3	grab; context menu via gaze; confirm a function; then take apart		x	x			x			x												x																			x						
417	7	P6	4	grab group with one hand; bring second hand close; show context menu how to split; select with eyes; pull outwards		x		x		x			x												x				x		x													x						
418	7	P7	1	pointing stack to unpack to fan; point to select; swipe then split		x	x																	x													x							x						
419	7	P7	2	full two hands push outwards to sparate		x		x						x								x			x																			x						
420	7	P8	1	grab one by one		x	x																		x																			x						
421	7	P8	2	double tapping to multiselect; quick swipe left and right		x	x							x						x					x																			x						

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422	7	P8	3	contextual menu		x	x						x												x																	x						
423	7	P9	1	pointing to items from stack; rise one by one; point to move		x	x																	x													x					x						
424	7	P9	2	grasp; unpack with full hand open to grid; pointing one by one		x		x																x													x					x						
425	7	P9	3	draw a line between the items to create a new group		x	x								x																											x						
426	7	P10	1	pick and place one by one		x	x																		x																	x						
427	7	P10	2	clap to compress to stack; draw layout by pulling accordeon apart, width determines number of columns to rearrange		x		x						x	x										x											x	x	x					x						
428	7	P10	3	lasso drawing area; tap to collect items in the hand; grab and release		x	x								x										x					x			x						x					x						
429	7	P11	1	push stack down on table; unpacking as horizontal column; pick and place		x	x					x													x				x				x					x					x						
430	7	P11	2	push items (from vertical stack) aside to pop out;		x	x																		x																	x						
431	7	P11	3	fetch one by one next to stack group; grab all at once (if too many items crash to thin stack); place		x		x						x								x			x											x						x						
432	7	P12	1	unpack as columns; slice apart; two thin stacks with distance		x	x				x			x			x						x		x												x					x						
433	7	P12	2	unpack as columns; pushing apart/tear them apart into two		x		x						x							x				x												x					x						
434	7	P12	3	multi selection by tapping; pull out; place		x	x																	x	x																	x						
435	7	P13	1	lasso or tap whole group; draw the line (separator lines); moving apart		x	x								x									x																		x						
436	7	P13	2	tap or point to multi selection; pull out and come close interanlly; move to destination as grid		x	x																	x									x									x					x	
437	7	P14	1	two virtual go-go hands and being larger; grab columns; then split		x		x															x	x					x	x												x						
438	7	P14	2	draw vertical line to cut, split between; grab and release for precise manipuate		x	x								x									x																		x						
439	7	P15	1	top edge or side edge; push		x	x																		x																	x						
440	7	P15	2	unpack to grid; tap one by one		x		x																	x												x					x						
441	7	P15	3	unpack (two hands); swipe objects to the side;then scoop thos up in their hand		x	x							x						x			x		x												x					x						
442	7	P15	4	grab and pull; open hand to unpack to grid; left hand to collect		x		x																x		x				x		x	x	x								x					x	
443	7	P16	1	pick and place one by one		x	x							x											x																	x						
444	7	P16	2	grab outer edges; pull them apart to split from middle		x		x																	x																	x						
445	7	P16	3	tap to select; pull apart		x	x						x	x							x				x																	x						
446	7	P17	1	two hands stay in the separating place; set apart by pushing away		x		x						x							x				x																	x						
447	7	P17	2	pick and place one by one		x	x																	x																	x						
448	7	P17	3	select group; a list of the names are shown; then select the names; then swipe to the side to create a new group		x	x						x							x				x					x		x											x						
449	7	P18	1	place hand in the poker stack at split point; grab up (top) target parts; place		x	x							x							x				x																	x						
450	7	P18	2	touch; quick swipe to left or right		x	x							x						x					x																	x						
451	7	P18	3	point one by one (click); come to me gesture; source rearrange, selection becomes stack in front of me		x	x							x									x	x					x		x		x		x							x						
452	7	P18	4	draw seperation line; then two handed parting		x		x							x		x				x		x		x																	x						
453	7	P19	1	create a space between halves by two hands or (sweep) by entire arms; seperation by push part gesture		x		x			x			x							x				x																	x						
454	7	P19	2	lasso; auto rearrange		x	x								x										x													x				x						
455	7	P19	3	grab one by one; auto rearrange		x	x																		x													x				x						
456	7	P20	1	select by two fingers; distance click; pinch and move them away; select from pre-defined list of layouts or draw target layout shape; automatically sorted		x	x						x		x									x														x				x				x		
457	7	P20	2	one hand cut and draw a separated line; the same hand swipe side		x	x								x								x	x																		x						
458	7	P20	3	pointing separated place with two hands; pushing apart gesture with both hands		x		x						x							x			x										x								x						
459	7	P21	1	selections via lasso; scissor gesture		x	x							x	x		x						x	x																		x						

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460	7	P21	2	scissor cutting as lasso area around items; cutted out		x	x							x	x		x						x		x																	x							
461	7	P21	3	pull closer to me; items closer internal as grid; grab and release one by one / drawing lasso and grab and release		x		x							x									x		x				x		x		x	x	x							x							
462	8	P1	1	speech; put out info into a list					x				x											x	x					x		x												x						
463	8	P1	2	pull parameter on the hand; make a list		x	x						x											x						x			x	x											x						
464	8	P1	3	voice agent to create some descriptive plots (e.g., histograms)					x															x	x																				x						
465	8	P2	1	squeeze to collect group; palm up showing a semicircle as preview		x		x														x			x					x			x	x		x	x		x						x						
466	8	P2	2	on surfaces: overview, WIM, zoom in with two fingers		x		x																	x			x	x				x				x								x						
467	8	P3	1	click parameters; pop up/context menu, small summary									x												x																				x						
468	8	P4	1	menu; drawing magnifying glass; pop window		x	x						x		x										x																				x						
469	8	P4	2	draws an "i" icon; pop out window as described before		x	x						x		x										x																				x						
470	8	P5	1	grid and view mannually	x																																x								x						
471	8	P5	2	360* circular stripe; ring can be scrollable		x	x																		x					x		x						x								x						
472	8	P6	1	tap; split autosorted in to multiple stacks; select then to curved vertical poker stacks		x	x						x												x												x	x							x			x			
473	8	P6	2	point; contextual menu; grid		x	x						x												x																				x						
474	8	P6	3	preview in circlular, semi circlular, fan	x																									x		x												x						
475	8	P7	1	touch; two hands push along horizontally; row layout determined by the scope of gesture movement		x		x			x														x												x								x						
476	8	P7	2	touch; draw layout; semi-circular stripe.		x	x								x										x												x								x						
477	8	P7	3	touch; curve gestur; curved convex slidershow (layout is number dependent)		x	x								x										x												x								x						
478	8	P8	1	contextual menu to sort; multiple grids (rows main)									x												x																				x			x			
479	8	P8	2	double tap to select parameter; the same values highlight;		x	x						x												x																				x						
480	8	P9	1	select parameter; swipe to drag; text popped out		x	x						x											x	x																				x						
481	8	P9	2	flip down gesture; pushing a vertical stack to horizontal column (like dominos)		x	x							x											x													x							x						
482	8	P9	3	rise gesture; pull stack to vertical column, like a chain moving up		x	x							x											x													x							x						
483	8	P10	1	click parameter; auto rearrange accordingly; preserve general layout, subgroups as alphabetical order		x	x						x												x													x							x						
484	8	P10	2	grab stack; holding and drawing circle around waist; 360* circular layout		x		x							x										x					x		x						x							x						
485	8	P10	3	grab stack; put in front, sort by left-and-right-quick swiping		x	x						x	x						x					x					x		x													x			x			
486	8	P11	1	voice command; pop up summary					x	x			x											x	x					x		x													x						
487	8	P11	2	grab and unpack to row; context button below; parameters in bold on picture		x	x						x												x					x		x						x							x					x	
488	8	P12	1	voice command					x															x	x													x							x			x			
489	8	P12	2	grab; unpack by drawing column; contextual menu by rotating fist; columns auto-sort		x	x						x		x									x	x					x		x						x	x						x			x			
490	8	P12	3	histograms overview	x																																								x						
491	8	P13	1	compress thick stack to thin stack; spread out; flip one by one with fixed roll		x		x														x		x	x					x		x						x							x						
492	8	P13	2	drawing a circle on the long side to automaticall flip page by page like a book		x	x								x										x													x							x						
493	8	P13	3	search for the word by voice; color highlighting					x															x	x																				x		x				
494	8	P14	1	color coding;	x																																								x						
495	8	P14	2	rough sort by quick swipe to left and right		x	x							x						x					x																				x			x			
496	8	P14	3	move parameter to an extra more "prominent" position below the card; applied to every card;		x	x																																						x				x		
497	8	P15	1	gaze at property; popping out a list of info						x			x											x	x																				x						

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498	8	P15	2	gaze at parameter; unpack via gesture; generated information overview						x			x											x	x												x							x					
499	8	P15	3	unpack to grid; gaze select at property; order and highlight the docs		x		x																x	x												x							x			x		
500	8	P15	4	point parameter; draw circle to trigger order; auto-sort in grid		x	x								x									x														x							x			x		
501	8	P16	1	grab and release to rearrange based on existing layout		x	x																		x													x							x					
502	8	P16	2	tap parameter; draw layout from top to down; autosort column		x	x						x		x										x													x							x			x		
503	8	P16	3	tap parameter; same value highlighted		x	x						x												x																			x					
504	8	P17	1	flat spread out layout; bloom gesutre to squeeze together; results into 3D box (only sides) or pillar layout (if more than 4 sides ...); dependent on the number they can be in the center		x		x															x	x	x											x		x							x					
505	8	P17	2	tree layout with hierachy or seperated rows	x																																							x					
506	8	P17	3	color coding	x																																							x					
507	8	P18	1	hold stack; navigate by scroll/ flipping in order like folder; hovering card bigger when stack gets cycled through		x		x						x											x					x			x					x							x				x	
508	8	P18	2	pick up stack; move hands apart diagonally; grid, size determined by distance of hands		x		x						x											x					x			x				x								x				x	
509	8	P19	1	"highlight all docs with diet ..."; voice commands to highlight or to sort					x															x	x																			x			x		
510	8	P19	2	pick one example; touch parameter; same parameter highlight		x	x						x												x																			x					
511	8	P19	3	manually looking	x																																							x					
512	8	P20	1	select group; come to me gesture; slideshowing in stack; auto-playing		x	x							x									x	x										x				x							x					
513	8	P20	2	come to me geasture; 360° circlular stripe; swipe to scroll or rotate myself		x	x							x									x	x						x		x		x				x							x					
514	8	P20	3	opening book layout; auto flipping		x	x																	x	x													x							x					
515	8	P21	1	“closer ” gesture and voice; sorting auto; pocker stack		x		x	x					x									x	x	x					x		x		x				x							x			x		
516	8	P21	2	"closer” gesture; click parameter		x	x						x	x									x	x										x											x					
517	9	P1	1	draw line mark similarities; add text by voiceadd text by voice		x	x		x				x		x										x																					x				
518	9	P1	2	draw circle on image; system highlights the drawn shape		x	x								x										x																					x				
519	9	P2	1	on horizontal surface: double tap on cards, which are than presented as a slide show in front of the user		x		x					x												x			x	x	x		x	x				x									x				
520	9	P2	2	spread by two hands to put on horizontal surface; overview by shrinking small squares; zoom in by two fingers		x		x					x												x				x				x				x									x				
521	9	P2	3	ask the system to sort a group to get more details					x															x	x																					x		x		
522	9	P3	1	click on a category; show a pop out window with a summary how the group is categorized									x												x																					x				
523	9	P3	2	grab and release one by to compare side by side; afterwards move them back		x		x																	x												x	x								x				
524	9	P3	3	have circular stripe around the body; allows to swipe/scroll through by rotating it around		x	x																		x					x		x						x									x				
525	9	P4	1	draw a magnifying glass; shows a table with an information overview		x	x						x		x										x																					x				
526	9	P5	1	combine a group and derive a summary information panel (detailed unclear)									x																																	x				
527	9	P6	1	point to select it; three finger pinch to decouple items from wall and put it to the hand; shows information beneath it		x	x						x											x				x		x			x	x												x			x	
528	9	P6	2	coverflow comparision mode with focused item (bigger); periphery items curved placed with descriptions below		x	x																													x		x							x					
529	9	P6	3	change layout of group by 3 finger bloom (towards the layout); either making it bigger (bloom) or smaller (grab)		x	x																	x	x											x	x	x							x					
530	9	P6	4	flip with book layout (long axis fixed) in hand with finger		x		x						x											x					x			x													x			x		
531	9	P7	1	voice to ask summary					x															x	x																					x					
532	9	P7	2	air wirting / typing		x	x									x								x																					x					
533	9	P7	3	pointing; viewing in row, curve, grid		x	x																	x												x	x								x					
534	9	P7	4	pointing; 3d sphere and “im in the center”		x	x								x		x							x					x		x															x					
535	9	P8	1	Inspecting mode; auto grids to grids; distance interaction enabled	x																																x	x								x				

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536	9	P8	2	two hand clamp a stack; one hand (non dominant) holds onto stack; another hand swipes cards one by one, like flipping through a folder		x		x						x											x					x			x													x			x	
537	9	P8	3	fanning, unnecessary info covered	x																																x								x				
538	9	P8	4	still and inspect semicircle/fan/gird to overview at once	x																																								x				
539	9	P9	1	pointing navigate stack; rise; zoom in by two finger; item get bigger		x	x						x											x														x								x				
540	9	P9	2	unpack the group with the chain geasture; items can be zoomed in		x	x						x												x													x								x				
541	9	P9	3	force gesture form circle surrounded body (arm at max distance with fingertips upwards); circular layout		x	x				x												x	x	x					x		x						x								x				
542	9	P10	1	grab stack; put in front; swipe to sides to create subgroups etc		x	x													x					x																				x				
543	9	P10	2	collect grid to pile; throw it to digital display; slideshow for each item one by one as a hologram		x	x					x		x											x				x				x	x		x									x				
544	9	P11	1	grab stack; throw and spread on table; gird / collage by autoarrange		x		x																	x				x				x	x			x	x								x			x	
545	9	P11	2	grab; circular surround and towards user; slowly rotate automatically		x		x																	x					x		x					x								x			x	
546	9	P11	3	grab; two strips circular surround and towards user; rotate in opposite directions		x	x																		x					x		x					x								x			x	
547	9	P12	1	voice (ask for arbitrary parameter, show me the most interesting parts); clulster in thin stacks					x															x	x													x								x				
548	9	P12	2	split it as two colums; sorted by system according to similarity		x		x																	x													x								x			x	
549	9	P12	3	switch vaiours parameters; output various layouts to browse	x																																								x				
550	9	P13	1	search and highlight based on keyword	x																																								x	x	x		
551	9	P13	2	manually rearrange picture one by one; multiple grid/ fan/ stack layouts		x	x																	x	x																				x		x		
552	9	P14	1	automatically sorting; groups together based on selected parameters	x																																x								x		x		
553	9	P14	2	color coding by parameters; every parameters underlined in specified color	x																																								x				
554	9	P14	3	filp cards (different modes); on back showing parameters in larger	x																			x	x																				x				
555	9	P15	1	slideshow with one foci; arrows left and right; swipe through		x	x						x												x					x		x						x								x				
556	9	P15	2	have a slide show, one big card in front of me, arrows left and right, icon to switch representation, some options for cards, swipe through them now		x	x						x																	x		x					x								x				
557	9	P15	3	inside globe, in the centre	x																									x		x					x								x				
558	9	P15	4	strip around me, 360°	x																									x		x													x				
559	9	P15	5	"infinite" straight strip; slide through		x	x																																						x				
560	9	P15	6	cards on floor as tiles, cover whole room/floor	x																							x					x												x				
561	9	P16	1	grab and sort them manually; collage to columns or rows		x	x																		x																				x		x		
562	9	P16	2	"group by similariy in two groups"; voice with recomendation of similairty					x															x	x																				x				
563	9	P17	1	unpack as 2D plane of some shape; stack / pile into any place layout		x	x																														x								x				
564	9	P17	2	unpack as some spatial layout like arc, fan etc	x																																x								x				
565	9	P18	1	pick stack; move two hand apart diagonally; grid, size determined by distance of hands		x		x																	x					x			x					x								x			x	
566	9	P18	2	180* seimicircle stripe with scrolling		x	x																		x					x		x														x				
567	9	P19	1	curved draw with two hands as 360* semi circle stripe; possible to transfer semisphere with multiple rows defined by draw gesture from top to down		x		x							x										x					x		x						x								x				
568	9	P19	2	group compressed as one node (expandable nodes); level of details based on the distance (closer, more cards show);		x	x																	x	x					x							x	x								x				
569	9	P19	3	L shape layout with max arm reach	x																																x								x				
570	9	P20	1	put in front of me, gird; view mannually	x																									x		x													x				
571	9	P20	2	clock layout with multi-layer rings, smaller in the center	x																																								x				
572	9	P20	3	sourrounded by 360* full circular stripe	x																									x		x													x				

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573	9	P21	1	recommendation by system	x																																							x				
574	9	P21	2	apply filter; color encoding	x																																							x				
575	9	P21	3	grid and view mannually	x																																							x				
576	10	P1	1	voice; bring it closer to me					x															x						x		x														x				
577	10	P1	2	voice; highlight with arrow					x															x	x																					x				
578	10	P1	3	use air drawing to draw the query term; computer identifies and shows you rats		x	x								x									x																						x				
579	10	P2	1	seach contextual menu on wrist; voice or type					x				x												x					x			x													x				
580	10	P2	2	search bar, fixed into environmnet		x	x						x											x				x					x													x				
581	10	P3	1	air-wiritng		x	x									x								x	x																					x				
582	10	P3	2	recommendation with semantic connections selected by the user		x		x																																						x				
583	10	P3	3	making a sound I know from the animal					x					x			x							x	x																					x				
584	10	P4	1	air-draw manigify glass; sound locating		x	x						x		x										x																					x				
585	10	P5	1	search bar wearable; highlight / arrow							x		x												x					x		x	x													x				
586	10	P5	2	physical environment, group location associated to suitable locations	x																							x	x									x								x				
587	10	P6	1	voice; highlight/diminish everything elese, sound feedback, bring in front of view					x															x	x																					x				
588	10	P6	2	voice; creates a group for you; placed in your hand					x															x	x					x			x	x												x		x		
589	10	P6	3	recomendation by "selecting one, showing similar"; collected next to the initial item		x	x						x												x																					x				
590	10	P6	4	search bar on the top ceiling, head up with real keyboard in the environment								x	x											x				x			x															x				
591	10	P7	1	voice, sound feedback					x															x	x																					x				
592	10	P7	2	air-type		x	x									x								x	x																					x				
593	10	P8	1	contextual menu									x																																x				
594	10	P8	2	voice - "sound", spatial beeping feedback					x															x	x																					x				
595	10	P9	1	air-type; stand out target dim the rest		x		x								x								x	x																					x				
596	10	P9	2	recommendation; type to get similar animal		x	x									x								x	x																					x				
597	10	P9	3	voice; say the name					x															x	x																					x				
598	10	P10	1	walking and searh manually (no system support)	x																																								x				
599	10	P10	2	use "a new geasture"(no specifiy) to collect all cards from the environment; alll cards overview with autoplay slideshow on the display		x	x																	x					x				x													x		x		
600	10	P11	1	walking and searh manually (no system support)	x																																								x				
601	10	P11	2	voice; stand out target dim the rest					x															x	x																					x				
602	10	P11	3	with wide arms, pull all holograms to users with fixed relative position (room walks to me)		x		x			x													x						x		x		x												x		x		
603	10	P12	1	voice					x															x	x																					x				
604	10	P12	2	(search mode) magnifying glass from vantage point; xray-vision; look around manually		x	x						x											x						x		x	x													x				
605	10	P12	3	write on hand or voice commands; dim everything except target; arrow; pinch and pull to get in front of me		x		x								x								x	x					x			x	x												x				
606	10	P12	4	If we don't care where its coming from: doc can fly to the hand		x	x																							x			x	x												x				
607	10	P13	1	voice; arrow, highlight or move forward					x															x	x																					x				
608	10	P13	2	virtual keyboard and searchbar		x		x								x								x	x																					x				
609	10	P14	1	voice; in front of me or highlighted in the environment					x															x	x																					x				
610	10	P14	2	air-type with virtual keyboard (symbol in bottom left corner)		x	x									x								x	x					x		x														x				
611	10	P15	1	walking and searh manually (no system support)	x																																								x				
612	10	P15	2	globle view; arrange cards around me with fixed distance; look through it	x																									x		x						x								x				

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613	10	P16	1	voice highlights by arrow or line					x															x	x																					x			
614	10	P16	2	air-type by virutal keyboard; highlight and arrow		x	x									x								x	x																					x			
615	10	P16	3	air writing; highlighting and arrow		x	x									x								x	x																					x			
616	10	P17	1	look manually	x																																									x			
617	10	P17	2	voice					x															x	x																					x			
618	10	P17	3	using gesture associated to a doc (e.g., padding a dog, spreading arms to imitate a lion); doc gets highlighted		x		x									x						x	x																					x			
619	10	P18	1	look manually	x																																									x			
620	10	P18	2	"show me the dog"; voice commands; highlight by arrow					x															x	x																					x			
621	10	P19	1	look manually	x																																									x			
622	10	P19	2	voice; moves up in place; sound feedback					x															x	x																					x			
623	10	P20	1	walking and searh manually (no system support)	x																																									x			
624	10	P20	2	voice					x															x	x																					x			
625	11	P21	1	voice and highlight; then item of group pings (spatial audio) to guide attention					x															x	x																					x			
626	11	P21	2	2d list of category on hand menu; highlight with spatial audio		x	x						x											x	x					x		x														x			
627	11	P1	1	swipe away irrelevant items to clean up; in return highlight target		x	x													x					x												x									x			
628	11	P1	2	voice with negative querry					x															x	x																					x			
629	11	P2	1	spread categories and inspeact; look manually		x		x																	x												x									x	x		
630	11	P2	2	auto-sort and search	x																			x	x													x								x	x		
631	11	P3	1	act of the source animal	x												x						x	x																						x			
632	11	P4	1	draw magnifying lens; select a group from the menu; write querry; highlight querry and the rest dissapears		x	x						x		x										x																					x			
633	11	P6	1	contextual menu with local search bar to the group (will appear for every group after a certain gaze dwell); will present Detail on Demand close to it						x			x											x																					x			
634	11	P7	1	voice					x															x	x																					x			
635	11	P7	2	air-type		x	x									x								x	x																					x			
636	11	P7	3	showing cards as a list somwhere in the environment (overview/minimap)	x																							x																		x			
637	11	P8	1	contextual menu									x																																	x			
638	11	P8	2	alphabet sort; grid									x																								x									x	x		
639	11	P9	1	air-type	1											x								x	x																					x			
640	11	P9	2	draw circle gesture; alphabet sort; search		x	x								x									x	x																					x	x		
641	11	P9	3	reverse pyramid geasture; sort; search		x		x							x		x							x	x																					x	x		
642	11	P10	1	compress to stack with clapping; accordeon gesture pull apart, width of accordeon determines number of columns, scrollable grid		x		x						x								x			x										x	x									x			
643	11	P11	1	swipe left and right to clear irrelevant items till find; pull it out to me; then rewerse swipe outside-in to restore original state of the group		x	x			x										x				x				x		x		x		x												x		x	
644	11	P12	1	unpack as columns; enter search mode, e.g., write on hand or voice commands; dim except for target; arrow to indicate position; pull to to me		x		x	x						x									x	x					x			x					x								x			
645	11	P13	1	select group; look up voice or keyboard; highlightet and might pop out of the group		x	x		x							x								x	x													x								x			
646	11	P14	1	select the title and enlarge (group wide manipulation)	x																			x	x																					x			
647	11	P14	2	alphabet sort via keyboard	x																			x	x																					x	x		
648	11	P15	1	arrange as vertical pocker stack to slideshow with alphabet sorted; "scroll" to character		x	x																													x	x									x	x		
649	11	P15	2	unpack group; visually search	x																															x										x			
650	11	P16	1	look manually	x																																									x			

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651	11	P16	2	select group by full hand; voice command; highlights					x															x																						x			
652	11	P16	3	select group by full hand; virutal keyboard; highlight and arrow		x	x									x								x																						x			
653	11	P16	4	select group by full hand; air writing; then highlighting and arrow		x	x									x								x																						x			
654	11	P17	1	select group; rotate hand; see cards shuffling, one by one, in stack		x	x							x										x													x									x			
655	11	P17	2	arrange group as circular strip layout around body; drag to view to rotate		x	x																		x				x		x															x			
656	11	P18	1	"change the layout to what I need"; holding in hand; only text info by overlapping poker stack row; look manually		x	x																		x												x									x			
657	11	P19	1	voice commands					x															x	x																					x			
658	11	P19	2	manually look up	x																																									x			
659	11	P19	3	aggregate as stack; "tinder" swipe through stack; drag and rop next to stack		x	x							x						x					x												x									x			
660	11	P20	1	voice					x															x	x																					x			
661	11	P20	2	circualr layout; multiple strips; then look manually	x																																									x			
662	11	P20	3	look manually	x																																									x			
663	11	P21	1	voice					x															x	x																					x			
664	11	P21	2	alphabet sort as grid; each letter to a row with thumbnails; pinch letter and pull towards self to enlarge content in front of me; pointing target		x	x																	x		x			x		x		x				x	x								x	x		
665	12	P1	1	grab and release		x	x																		x																						x		
666	12	P1	2	voice					x															x	x																						x		
667	12	P1	3	select items; point on category; make a gesture		x	x																		x																						x		
668	12	P2	1	auto-sorting based on group creation, putting 2 docs over each other		x	x						x																																		x		
669	12	P2	2	contextual menu bar on left to sort									x												x																						x		
670	12	P3	1	tap to select; move by hand		x	x																		x														x								x		
671	12	P4	1	magnify glass tool		x	x						x		x																																x		
672	12	P4	2	right hand lassos selecting group, left hand writes sorting criteria into the air, for example a-z, then it gets sorted accordingly		x		x							x	x									x												x										x		
673	12	P4	3	pointing; grab and place one by one		x	x																	x									x														x		
674	12	P5	1	button on operation panel									x												x																						x		
675	12	P5	2	grab and release		x	x																		x																						x		
676	12	P6	1	contextual menu; panomora view									x																																		x		
677	12	P6	2	click on parameter of group in your hand; semi-auto-sorting		x	x						x												x				x			x					x										x	x	
678	12	P7	1	point; row layout; making 1-n columns		x		x																x																							x		
679	12	P7	2	move with flat hand to draw layout as grid; sort one by one		x	x								x										x												x		x								x		
680	12	P8	1	grab and release, one by one		x	x																		x																						x		
681	12	P8	2	tap; ranked in a sorted order automatically as row/ column/ stack/ fan		x	x																		x												x										x		
682	12	P9	1	swipe left and right to set apart; sorted results as vertical columns		x	x							x						x				x	x												x										x		
683	12	P9	2	a pyramid (funnel) gesture to sort based on size		x		x							x		x							x	x																						x		
684	12	P10	1	grab and release		x	x																		x																						x		
685	12	P10	2	voice "sort by size"					x															x	x																						x		
686	12	P10	3	drag hand along edge of a physical object; sorted along that direction		x	x					x													x				x			x					x										x		
687	12	P11	1	pull to me; put to left hand, shrink; grab one by one and throw to the wall; items sorted one by one in a row from left to right		x		x						x				x	x					x					x			x	x	x					x								x	x	
688	12	P11	2	voice auto-sorting					x															x	x																						x		
689	12	P13	1	voice; "sort by size"					x															x	x																						x		
690	12	P13	2	contextual menu next to the group with sorting and layout options		x	x						x																																		x		
691	12	P14	1	select title of doc; increases size; applied to all cards (symbol in top right corner)		x	x																	x	x					x		x															x		

					Interaction																				Anchors								Task												
					Modalilty									Specific										Proximity			Anchors				Proximity			Transitio		Layout Tasks				General Tasks								
ID	actions	participant	idea no.	description	no mode	hand	one-handed	two-handed	voice	gaze	body	physical	WIMP	reality	drawing	writing / air-keyboard	acting	pull and push	throw	swipe	tear apart	rumbling / squezzing	metaphor	far	near	transition	free	environment	object	user	far	near	on	transition	detour	compress	spread	transform	store	Move	Remove	Merge	Split	Preview / Overview	Details / Browse	Search	Order / Sort	porary Storage Space	Annotate
692	12	P14	2	voice auto-sorting					x															x	x																							x		
693	12	P15	1	unpack on table as grid; one by one grab and release by both hands for speed		x		x																	x				x				x				x			x								x		
694	12	P15	2	auto-sorting	x																																											x		
695	12	P16	1	grab and release one by one		x	x																		x														x								x		
696	12	P16	2	voice auto-sorting					x															x	x																							x		
697	12	P17	1	select group; names pop out; circle pops out with relative size; manually sort after that		x	x																	x	x																							x		
698	12	P18	1	contextual menu on the frame around group (stack); semi-autosort by parameter		x	x						x																																			x		
699	12	P18	2	select group; spread into coloumn; grab and release one by one		x	x																		x												x											x		
700	12	P19	1	snap to the hand and then pin (or rubbing it on the target) one by one somwhere; grid or collage		x		x							x										x								x					x		x								x		
701	12	P19	2	grab and release		x	x																		x																							x		
702	12	P20	1	thread metaphor to collect one by one; draw layout		x	x								x								x		x																							x		
703	12	P20	2	voice					x															x	x																							x		
704	12	P21	1	voice auto-sorting					x															x	x																							x		
705	12	P21	2	looked at document for relevance based content sorting; sort by most frequently	x																																										x		
706	12	P21	3	seim-auto-sorting based on existing parameter; row it up	x																																										x		
707	12	P21	4	grid; grab and release		x	x																		x																							x		
708	13	P1	1	large arm movement to collect objects; shrink to small size but keep relations; can be carried in hand (small model)		x		x			x														x					x		x	x	x		x			x									x	
709	13	P1	2	collect by "crumbling" together; put/throwing piles into the corner		x		x						x					x			x			x			x				x		x					x									x	
710	13	P2	1	hand holding		x	x																							x			x															x	
711	13	P2	2	squeeze a group together; dynamically allocate to midair place		x		x						x								x			x									x		x													x	
712	13	P2	3	tables corner		x		x																					x				x															x	
713	13	P3	1	body anchor	x																									x		x																x	
714	13	P3	2	other place of room	x																							x	x			x	x															x	
715	13	P5	1	In front of view (face)	x																									x		x																x	
716	13	P5	2	a pile/stack as temp (moveable around and spread)	x																																											x	
717	13	P4	1	dynamically allocate to midair place	x																						x																					x	
718	13	P7	1	left hand (non-dominated hand)		x	x																							x			x					x										x	
719	13	P7	2	hand wrist, similar to hold book							x			x																x			x															x	
720	13	P7	3	In front you, slightly above	x																									x		x																x	
721	13	P8	1	trash can at the fixed position								x																x			x																	x	
722	13	P8	2	contextual menu with me									x																	x		x																x	
723	13	P9	1	left hand (non-dominated hand)		x		x																						x			x					x										x	
724	13	P9	2	ceiling or higher position with imaginary lines and different background color (like clothing lines)	x																							x				x	x															x	
725	13	P9	3	virtual layers of desk; above the table	x																							x	x				x															x	
726	13	P10	1	cabinet (but not so good, because not transportable)	x							x																	x			x	x															x	
727	13	P11	1	corner of room for unimportant stuff								x																x			x	x																x	
728	13	P12	1	next to head, floating bubble	x																									x		x																x	
729	13	P12	2	assigned to absolute or relative place	x																							x																				x	
730	13	P13	1	pants pocket; grabable out							x	x		x																x			x					x										x	
731	13	P13	2	somewhere around user always the best								x																		x		x						x										x	
732	13	P14	1	virtual bin	x									x																																		x	

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733	13	P14	2	on the ground; poker stack following user	x																							x	x			x	x															x	
734	13	P14	3	pant pocket; used like a chain							x	x		x																x			x															x	
735	13	P15	1	allocate spaces for temporary storage dynamically	x																						x																					x	
736	13	P16	1	stack on left hand (non-dominated hand)		x		x																						x			x															x	
737	13	P16	2	pin to me (front left, belly height)		x	x																							x		x																x	
738	13	P17	1	table	x																							x					x															x	
739	13	P17	2	virtual inventory; pack to stack; aside	x																																										x	
740	13	P17	3	centre of the table, like a box	x																						x	x																				x	
741	13	P18	1	mini desk floating next to me (following, minizeable); move stack lays down and shrinks		x	x																		x					x	x								x									x	
742	13	P19	1	hip poecket; small stack, preview with number or stack; fan out for details		x	x							x											x					x			x					x										x	
743	13	P20	1	cloth; when looking down, a virtual tray in front of user							x	x		x																																		x	
744	13	P21	1	create multiple virtual folders attached to hand; hidden until opened up via a hand/wrist menu		x		x			x														x					x		x	x															x	
745	13	P21	2	physical place as reference with name/ title; grid for small number; stack for big number	x																						x	x	x																			x	
746	14	P1	1	select by spread hand; air-writing as stick notes		x	x									x									x					x		x																		x
747	14	P1	2	voice to text as stick notes					x															x	x					x		x																		x
748	14	P1	3	pull sticky notes from the pile		x	x							x		x									x					x			x																	x
749	14	P2	1	post-it stack on a surface to pull cards from and then write on those		x		x					x	x		x									x			x	x				x																	x
750	14	P2	2	pull stick notes gesture from corner (like ipad gesture); hand hold and attach		x		x					x			x									x					x			x																	x
751	14	P3	1	tag, images, icons	x																																											x
752	14	P4	1	air-writing on the doc		x	x									x									x																								x
753	14	P4	2	pointing and marking, with a physical pen or object with a point		x		x				x												x																									x
754	14	P5	1	keyboard input on a panel		x	x									x								x	x																								x
755	14	P5	2	voice to text					x															x	x																								x
756	14	P6	1	add on annotation field of local group									x																																				x
757	14	P6	2	add text field next to group/ above the group	x																																											x
758	14	P6	3	gaze and type		x		x		x						x								x																									x
759	14	P7	1	physical pen and virtual paper		x	x					x				x									x																								x
760	14	P7	2	attach sticky note		x	x																		x																								x
761	14	P8	1	contextual menu									x			x																																x
762	14	P9	1	draw square; air-writing to name		x	x								x	x								x	x																								x
763	14	P9	2	draw square on table; writing notes on table; assign to group		x	x								x	x									x				x				x																x
764	14	P9	3	making overall annotation like a mindmap to [link] all cards	x																																										x	x
765	14	P10	1	annotation with physical pen; pen cap decides mode; pen with cap can drag and drop notes		x	x					x				x									x																								x
766	14	P10	2	virtual tags, triggered by physical objects		x	x					x													x																								x
767	14	P10	3	keyboard will appear when printer is selected; virtually "print" annotations typed in		x		x				x				x									x																								x
768	14	P11	1	notebook next to me, look at it, voice input, creates placable note					x	x				x									x		x			x	x	x		x	x						x										x
769	14	P11	2	notebook at a designated empty spot, like at the wall look at it, voice input, creates placable note					x	x				x									x	x	x			x					x						x										x
770	14	P12	1	write on hand; note looks like documents with same behaviour including occlusion		x		x						x		x									x					x			x																x
771	14	P13	1	a dispenser of blank cards; write on those cards		x		x						x		x							x							x			x																x

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772	14	P13	2	context menu (at the hand) to activate write mode; air-wirting next to target; either virtual pen or finger		x	x						x			x									x					x			x																	x
773	14	P14	1	air-writing/ draw with pen tool		x	x					x			x	x								x	x																									x
774	14	P14	2	type with virtual keyboard	1											x								x	x																									x
775	14	P14	3	voice to text					x															x	x																									x
776	14	P14	4	use background image like a backdrop behind cards	x																																												x
777	14	P15	1	air-writing on cards		x	x									x									x																									x
778	14	P15	2	tap card; voice dictate text; appears in small box below card or on the back of the card		x	x		x																x													x												x
779	14	P17	1	type virtual keyboard; text next to items,		x		x								x								x	x																							x	
780	14	P17	2	voice commands					x															x	x																									x
781	14	P18	1	textfield selection out of menu; billboarding text above; type virtual keyboard	x																			x	x					x																				x
782	14	P18	2	textfield selection out of menu; billboarding text above; voince to text					x															x	x					x																				x
783	14	P19	1	physical pen air-writing		x	x					x				x									x																									x
784	14	P19	2	arm keyboard, type on arm		x		x						x		x									x					x			x																	x
785	14	P19	3	virtual sticky note on arm; write ;grab; place directly on targets		x		x			x														x					x			x	x																x
786	14	P20	1	labeling name on the big label on top left									x																																					x
787	14	P20	2	colored frames by categorization	x																																												x
788	14	P21	1	hand menu to get maker pen; air-writing		x		x					x											x	x					x			x																	x
789	14	P21	2	label / icons	x																																												x
790	14	P21	3	draw target area; air-writing with finger		x	x								x	x								x	x																									x