

## Peer Review Comments

**Article:** Thomas, T., & Sunny, M. M. (2019). Situational Determinants of Hand-Proximity Effects. *Collabra: Psychology*, 5(1): 27. DOI: <https://doi.org/10.1525/collabra.198>

**Article type:** Original Research Report

**Editor:** Nathan Van der Stoep

**Article submitted:** 05 October 2018

**Editor decision:** Accept submission

**Revision submitted:** 13 March 2019; 02 May 2019

**Article accepted:** 20 May 2019

**Article published:** 18 June 2019

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### Responses for Version 1

Reviewer A:

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate?:

Thomas and Sunny present two experiments in which they attempt to disentangle whether the hand proximity effect is relative vs. absolute (Experiment 1) and whether this effect is prone to alterations given the number/locations of potential targets to locations during a visual search task. The results demonstrate no hand proximity effect in Experiment 1, leading the authors to claim that this effect is relative (e.g., there has to be a stimuli in the far face). Experiment 2 similarly does not demonstrate a hand-proximity effect (according to the authors), whom conclude that the attentional effect present near visual fixation is much stronger than any putative hand effect.

I find the effort by the authors important and their analyses seem sound. I particularly commend the authors for the usage of Bayesian statistics when

they found no significant results in a Frequentist framework. This is important as it further allows specifying whether the effects were simply inconclusive, vs. not different from the null distribution. On the other hand, I have a hard time attempting to extrapolate these effects from the context of a visual search, to a hand proximity effect. Visual search is in itself a whole field of study with its own intricacies, and thus here it is difficult to conclude whether the effects are due simply to the particular visual search manipulations, or related to hand proximity.

I find it somewhat artificial to claim that in Experiment 1 there was no stimuli either in the far or near location, and thus a comparison can be made, whether the hand proximity effect is relative vs. absolute. When nothing is presented on the computer screen, the visual system is still provided with a health of stimulation (just not under experimental control). That is, there is the darkness of  $RGB = [0,0,0]$ , which is distinct from 'nothing'. There is the computer screen itself, which has a certain texture. More vexingly perhaps, if the authors want to contrast what occurs to the hand proximity effect when there are other stimuli presented simultaneously, then perhaps this is the experiment that should be conducted; it is not enough to cite another paper and stipulate that as a hand effect has been present in that paper (with relative comparisons) but there is none here (with 'absolute' comparisons), thus the hand proximity effect depends on relative vs. absolute. Lastly, it is not entirely true that hand proximity has not been studied without presenting stimuli at the rest of location. Using reaction time paradigms Valdez-Connor et al., 2014, *Neuropsychologia*, found RTs to visual stimuli faster when near vs. when far. On the other hand, Noel et al., 2018, *Journal of Cognitive Neuroscience*, did not. The authors may want to expand their introduction to refer to these studies (and/or others indexing visual RTs as a function of distance). While critical of whether relative vs. absolute contrasts were really indexed here, I do find this possibility interesting. Namely, if as the authors suggest, hand proximity effects are solely present during relative contrasts, from a mechanistic point of view this would imply the necessity for competitions, and thus likely for mutual inhibition between neural networks encoding for the near and far space. A similar concept is put forward in Noel et al., 2018, *Journal of Neurophysiology*, and other modeling efforts from Dr. Elisa Magosso and colleagues. I believe this could be an interesting point of discussion in the current manuscript.

Minor points;

- What is the refresh rate of the keyboard (i.e., what is the minimal RT difference that can be detected?)
- What is the size of the computer monitor used? It would be better to stipulate distance between hand and visual display in cm and not in pixels.

- Were the RTs normally distributed (particularly at an individual subject-level)? They tend not to – potentially the analyses could be done using median RT as opposed to mean RT.
- Figure 1 (methods figure) should also show the other conditions – no hand and far hand - to be clearer.
- What are the error bars in the data figures? S.E.M.?
- I find the manuscript overall longer than it has to be. The discussion of the direction of script across different cultures appears to be especially long and can probably be reduced for brevity.
- In the Discussion, the paper is referred to as “Chapter”. This should probably be changed.

I hope the comments are helpful.

Best

Signed: Jean-Paul Noel

#### 2) Figures/tables/data availability:

Please comment on the author’s use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here).: Figures could show individual data in addition to means. Also unclear whether means are the most appropriate measure here. Not specified what the measure of uncertainty is. Data seems to be available.

#### 3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:

Authors report obtaining informed consent.

#### 4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.:

The quality of the writing is somewhat subpar, but comprehensible.

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Reviewer F:

#### 1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific,

methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate?:

Overall, I found the manuscript to be generally well-presented, the experiments seem very well conducted and I have no major concerns with the methods. All of my comments refer to the presentation of the data and the analyses (particularly for experiment 2). More specific comments follow.

(page and line numbers would really help the reviewer. I have added line numbers

General/Major

1) the introduction, at >1300 words, is very long. However, it is also very thorough and clear, so the authors should only reduce this text if required by editorial/journal constraints. Similar length considerations for the 'discussion' sections of each experiment - there is a lot of repetition of the methods and results. I imagine at least 500-1000 words could be cut from the manuscript in its present form, improving readability.

2) there seems to be no good reason to present both Bayesian and non-Bayesian analyses of the data. The authors should choose the best or most informative method and use that. There is also no need to explain Bayesian assumptions or methods at length, just refer to a review/tutorial paper or textbook.

3) The analysis of experiment 1 is clear, but can be improved (see comments below). The analysis of experiment 2 is not clear, and I believe needs a re-think. ANOVA might be appropriate to analyse a 3x8 experimental design, but it then becomes very complex to interpret the effects (see comments below).

In E2, the authors have done a nice parametric manipulation of target position. It is likely to be much more powerful for the authors to fit a model to the data for each participant and condition, and then to perform the group-level statistics on the model parameters (e.g., slope, intercept), across participants. For example, one model could be a linear increase on the left and right sides of space separately, with both fits including the central location (thus allowing the 'rate of change' to be measured for left- and right- targets

separately). Another model could be a quadratic (or higher-order polynomial) fit across all 8 target locations. This would more neatly capture all the data, but a symmetrical (e.g. quadratic) fit would not reveal differences between left and right sides. These models would reduce the 3x8 analysis down, for example, to a 3x2 (x2) analysis, with hand position (left, right, none) x target side (left, right) for each of two or more parameters as variables (slope, intercept). This will be much easier to interpret and report, and the presence of a hand-proximity effect will be revealed by a significant interaction between hand position and target side in the slope parameter.

It is because of their complex analysis that the authors seem to miss the possibility of hand-related effects here: the Hand right condition produces longer RTs for targets 1-3, and Hand left for targets 6-8. The effect may be stronger for targets 1-3, but it's consistent on the opposite side. This may be a hand-near or a hand-far effect, as the authors do not seem to say where target 1 is.

Minor/specific suggestions

abstract

- insert 'of' after 'region' (30)
- insert 'the' before 'same side' (33)
- remove 'Also' from last sentence (43)

introduction

- insert space before 'slows' (60), 'processing' (64), 'Taken' (74), 'Brockmole' (89), 'in' (135), 'of' (162), 'This' (167), 'corner' (334)
- explain acronyms: IOR (61)
- remove Capitalisation of Words - (61, 80, 82, 83, 245, 414, 419); be consistent with capitalisation if it is used (225, 246, 253, 414/419)
- insert 'a' before 'hand' (63, 66, 77, 84, 88), before 'vacuum' (158), before 'fixation' (194), 'lesser' (342)
- change 'that' to 'the' (68, 69)
- change 'target' to 'targets' (104, 115, 116, 129)
- insert 'the' before 'same' (120, 360), 'hand' (169), 'Aim' (289, 485), 'number' (307), 'findings' (329), 'same' (332), 'absence' (336), 'possibility' (355)
- change 'that highlights' to 'which highlight' (141-142)

experiment 1

- 'relatively slower' - I thought there was a 'prioritization' of the near space? slower sounds like the opposite effect. this seems to be contradicted later in this paragraph
- change 'to be' to 'is' (156)
- use standard units: 's', not 'sec' or 'seconds' (201, 234, 235); 'cm' not 'cms' (216, 388)
- 'indexical' - this is not an English word, please re-phrase (238, 392, 406)
- remove 'in the'

- Figure 2: these data might be clearer as a column graph, perhaps also showing all individual datapoints - at present the symbols and error bars are overlapping. The result is clear, but authors cannot extract the mean+SE data from the graph. The figure legend should explain the error bars
- give error (e.g., SE) for all means (253, 431); Table 1
- give all F-statistics, not just p-values (254, 257, 266)
- Table 1: this is not a very efficient way to present 6 numbers. consider adding the mean (and SE) errors in the text instead
- speed-accuracy trade-offs: better ways to assess this are: plot RT against error to see if they trade-off against each other; use 'inverse efficiency'; use a multivariate analysis which includes both RT and error. It is not sufficient to find no significant effects of errors in order to conclude that RT and error did not trade-off against each other. The same for experiment 2
- there seems no good reason to: a) do a Bayesian analysis as well (choose and report the best analysis method, don't report both); b) explain the rationale for the Bayesian analysis - just refer to a paper that explains it. The Bayesian analysis does not specify the prior used. If an uninformative prior is used, then Bayesian should produce near-identical results to the standard analysis, as far as I am aware. It does in this case. the subscripts B and C are not explained. The same in experiment 2?
- change 'corners' to 'corner' (293, 299)
- the Discussion of Experiment 1 repeats a lot of the information in the introduction; this overlap can be reduced

#### experiment 2

- 'previously used to report slower disengagement' - in hand-related studies? please clarify
- was there a reason to recruit 2 more participants this time? (369)
- change 'requiring' to 'required' (385)
- is location 1 on the left, and 8 on the right? (413)
- why has the effect of location been split into 'central' versus 'peripheral' targets? I can see that this is the approximate effect, but this is binarising a continuous variable, and the authors are choosing how to binarise it. Is it not sufficient to say that the effect of location is approximately quadratic, and that the quadratic parameters are:  $ax + bx^2 + c$  (where c will be about 900ms)
- "Significant main effect was obtained for Hand-position,  $F(2, 34) = 5.38$ ,  $p < 0.01$ ,  $\eta^2 = .24$ . An RT cost, in the form of slower response, was obtained for targets appearing at the two locations on the right-side of the display that were nearer to the hand in the Hand-right condition." - the authors are using the interaction to interpret the main effect. That does not make sense. Please report the main effect of hand location by reporting the mean+SE for Hand left, right, and no hand. Then, discuss the interaction. The authors seem to be doing a follow-up 2x2 interaction analysis in order to interpret a main effect from a 2x3 analysis. It looks like the main effect of hand position is that Hand Right had longer RTs than the other conditions

- give exact p-values where  $p \geq .001$  (434, 444, 448)
- "Rate of change in RT for the Hand-left condition was found to be faster for targets appearing on the left-side of the display ('Near' condition), compared to those appearing on the right ('Far' condition)." - the authors have not measured 'rate of change' the interaction seems to show that there is a larger effect of hand position for targets 1-2 than there is for all other targets (i.e., an interaction), but this is not clear from the authors' description of the results. It also seems that when the hand is on the right, participants are worse with targets 1-3, and when on the left, worse with targets 6-8. If targets 1-3 are on the left of the screen (I do not think the authors have specified this), then this seems to show a significant near-hand effect. I may be mistaken here, but the description of the results is hard to follow
- "leftward bias" (452) - the authors did not measure bias, but RT at 8 different positions and 3 hand locations. Please refer to the actual measurements taken

[I have not read through the general discussion at this time, as it would seem critical to confirm the results first]

Signed: Nick Holmes

#### 2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here): The tables are not particularly useful, given they do not save much space. The figures are clear. The data seem to be fully available

#### 3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:

I see no ethical problems here.

#### 4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.:

Mostly yes. Please see numerous minor comments.

**Editor:** Nathan Van der Stoep  
**Affiliation:** Utrecht Universitz  
**Editor decision:** Revisions sequired  
**Decision date:** 7th December 2018

Dear Mr Tony Thomas,

After having received two expert reviews and having read the manuscript myself, I have reached a decision regarding your submission to Collabra: Psychology, "Situational Determinants of Hand-proximity effects". The decision is to request revisions of the manuscript prior to potential acceptance for publication.

As you can read below, both reviewers found merit in the reported experiments. However, reviewer 1 raises several relevant points regarding the interpretation and theoretical implications of the relative vs absolute nature of the hand proximity effect. Reviewer 2 has several comments and suggestions regarding analysis of the data of experiment 2 that could reveal hand proximity effects in the data. Although the reviewers indicated that the manuscript was generally easy to read, both reviewers have provided textual improvements (grammar, missing words, etc.). Last, the manuscript is quite long and I suggest reducing the amount of text where possible to improve readability and flow of the manuscript.

The full review information should be included at the bottom of this email. There may also be a copy of the manuscript file with reviewer comments available once you have accessed the submission account. Please provide a point-to-point response to the comments made by the reviewers with your revision.

To access your submission account, follow the below instructions:

- 1) login to the journal webpage with username and password
- 2) click on the submission title
- 3) click 'Review' menu option
- 4) download Reviewed file and make revisions based on review feedback
- 5) upload the edited file
- 6) Click the 'notify editor' icon and email the confirmation of re-submission and any relevant comments to the journal.

Please ensure that your revised files adhere to our author guidelines, and that the files are fully copyedited/proofed prior to upload. Please also ensure that all copyright permissions have been obtained. This is the last opportunity for major editing; therefore please fully check your file prior to re-submission.

If you have any questions or difficulties during this process, please do contact us.

Please could you have the revisions submitted by January 7, 2019. If you cannot make this deadline, please let us know as early as possible.

Kind regards,

Dr Nathan Van der Stoep  
Utrecht University  
n.vanderstoep@uu.nl

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### **Author's Response to Review Comments for Version 1**

**Author:** Tony Thomas

**Affiliation:** Indian Institute of Technology Gandhinagar

**Revision submitted:** 13 March 2019

Dear Prof. Rolf Zwaan,

We are thankful for the detailed reviews obtained for our manuscript titled, 'Situational determinants of hand-proximity effects'.

We have made all the recommended corrections as requested, and now sending back the corrected version of the manuscript (Please find attached).

Also, the point-by-point replies to the two reviewers have also been uploaded in the 'Summary' section of the web page.

Thank you,  
Tony Thomas

### **Attached document:**

<https://s3-eu-west-1.amazonaws.com/ubiquity-partner-network/ucp/journal/collabra/198-2920-1-AT.docx>

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### **Responses for Version 2**

Reviewer A:

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate?:

Thomas and Sunny's manuscript is much improved; I particularly value the author's work in shortening the manuscript and demonstrating that their results hold both with mean and median RT. I have no major reservations about the work, but do have a few very minor comments.

Both in the Abstract and opening of the introduction the authors point that "many" recent papers have... I would delete the reference to "many". The quantity of papers in a field is not necessarily a reflection of the importance of that field or question; in principle a single paper could have posed a question and answered it.

I believe the word "the" is missing in the opening of 4th paragraph of the introduction. "The" Modulated Visual Pathway (MVP) account.

Lastly in the introduction the authors suggest that Noel et al., 2018 failed to replicate a number of other studies showing enhanced peri-personal space processing near the body. Please note that the rest of studies on peri-personal space include the tactile modality, while the paper they refer to here is audio-visual, and thus the difference in results. Also note that while later references to the neural network model are correct (Noel et al., 2018, Journal of Neurophysiology), the reference in the introduction regarding audio-visual work is not (referenced as Noel et al., 2018, Journal of Neurophysiology, when it's Noel et al., 2018, Journal of Cognitive Neuroscience).

## 2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here).:

The data has been adequately made available

## 3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:

Ethics statement present

#### 4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.:

Text is well written

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Reviewer B:

#### 1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate?:

The authors have addressed my concerns. I have only a few minor points which would help improve the manuscript:

- "0.7 cm high (0.95°) and 0.6 cm wide (0.81 °) at a distance of 55 cm" - these measurements do not seem correct. 1cm is 1degree at 57cm distance
- Table 1 & 2: please include a measure of variability (e.g., SE), for the table and all values in the text

#### 2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here).:

Figures are clear; authors provide link to data (I have not checked the link)

#### 3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:

Yes, informed consent was given; I could not find mention of the ethical approval board or committee or process

4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.:

Yes, the text is improved and the English is now of sufficient quality.

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## **Editor Decision for Version 2**

**Editor:** Nathan Van der Stoep

**Affiliation:** Utrecht University

**Editor decision:** Revisions required

**Decision date:** 30 April 2019

Dear Mr Tony Thomas,

as you can see below, almost all reviewer comments have been satisfactorily addressed. The reviewers indicate a couple of last minor points that I would like you to address.

In addition to addressing the reviewers' comments, I would like you to briefly mention the outcome of the analyses described in the annexure in the manuscript (e.g. mention that the same analysis with median RTs did not affect the outcome, etc) as I think this would be informative to the reader. Also, was ethical approval obtained from, e.g., a local ethical committee?

The full review information should be included at the bottom of this email. There may also be a copy of the manuscript file with reviewer comments available once you have accessed the submission account. A summary of the requested edits from the editorial team can be found below. Please consider these points and revise the file accordingly:

To access your submission account, follow the below instructions:

- 1) login to the journal webpage with username and password
- 2) click on the submission title
- 3) click 'Review' menu option
- 4) download Reviewed file and make revisions based on review feedback
- 5) upload the edited file
- 6) Click the 'notify editor' icon and email the confirmation of re-submission and any relevant comments to the journal.

Please ensure that your revised files adhere to our author guidelines, and that the files are fully copyedited/proofed prior to upload. Please also ensure that

all copyright permissions have been obtained. This is the last opportunity for major editing;, therefore please fully check your file prior to re-submission.

If you have any questions or difficulties during this process, please do contact us.

Please could you have the revisions submitted by May 20, 2019. If you cannot make this deadline, please let us know as early as possible.

Kind regards,

Dr Nathan Van der Stoep  
Utrecht University  
n.vanderstoep@uu.nl

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## **Author's Response to Review Comments for Version 2**

**Author:** Tony Thomas

**Affiliation:** Indian Institute of Technology Gandhinagar

**Revision submitted:** 02 May 2019

Dear Prof. Nathan Van der Stoep,

Thanks to you, and the reviewers for the suggestions and the constructive feedback for our manuscript titled, "Situational determinants of Hand-proximity Effects".

All the recommended changes have now been incorporated into the newest version of our manuscript (a copy attached with this e-mail as well).

The updated manuscript has been submitted and adheres to the submission guidelines as mentioned on the website of Collabra: Psychology. All the figures have been uploaded separately, as supplementary files.

Thank you,  
Tony Thomas

### **Attached document:**

<https://s3-eu-west-1.amazonaws.com/ubiquity-partner-network/ucp/journal/collabra/198-3120-1-AT.docx>

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## **Editor Decision for Version 3**

**Editor:** Nathan Van der Stoep  
**Affiliation:** Utrecht University  
**Editor decision:** Accept submission  
**Decision date:** 20 May 2019

Dear Mr Tony Thomas,

After review, we have reached a decision regarding your submission to Collabra: Psychology, "Situational Determinants of Hand-proximity effects", and are happy to accept your submission for publication, pending the completion of copyediting and formatting processes.

As there are no further reviewer revisions to make, you do not have to complete any tasks at this point. The accepted submission will now undergo final copyediting. You will be contacted once this is complete to answer any queries that may have arisen during copyediting and to allow a final chance to edit the files prior to typesetting. If you wish to view your submission during this time, you can log in via the journal website.

Congratulations and thanks for choosing Collabra: Psychology.

Kind regards,

Dr. Nathan Van der Stoep  
Utrecht University  
n.vanderstoep@uu.nl